The Unconscious as Infinite Sets

an essay in bi-logic

Ignacio Matte Blanco

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The Unconscious as Infinite Sets

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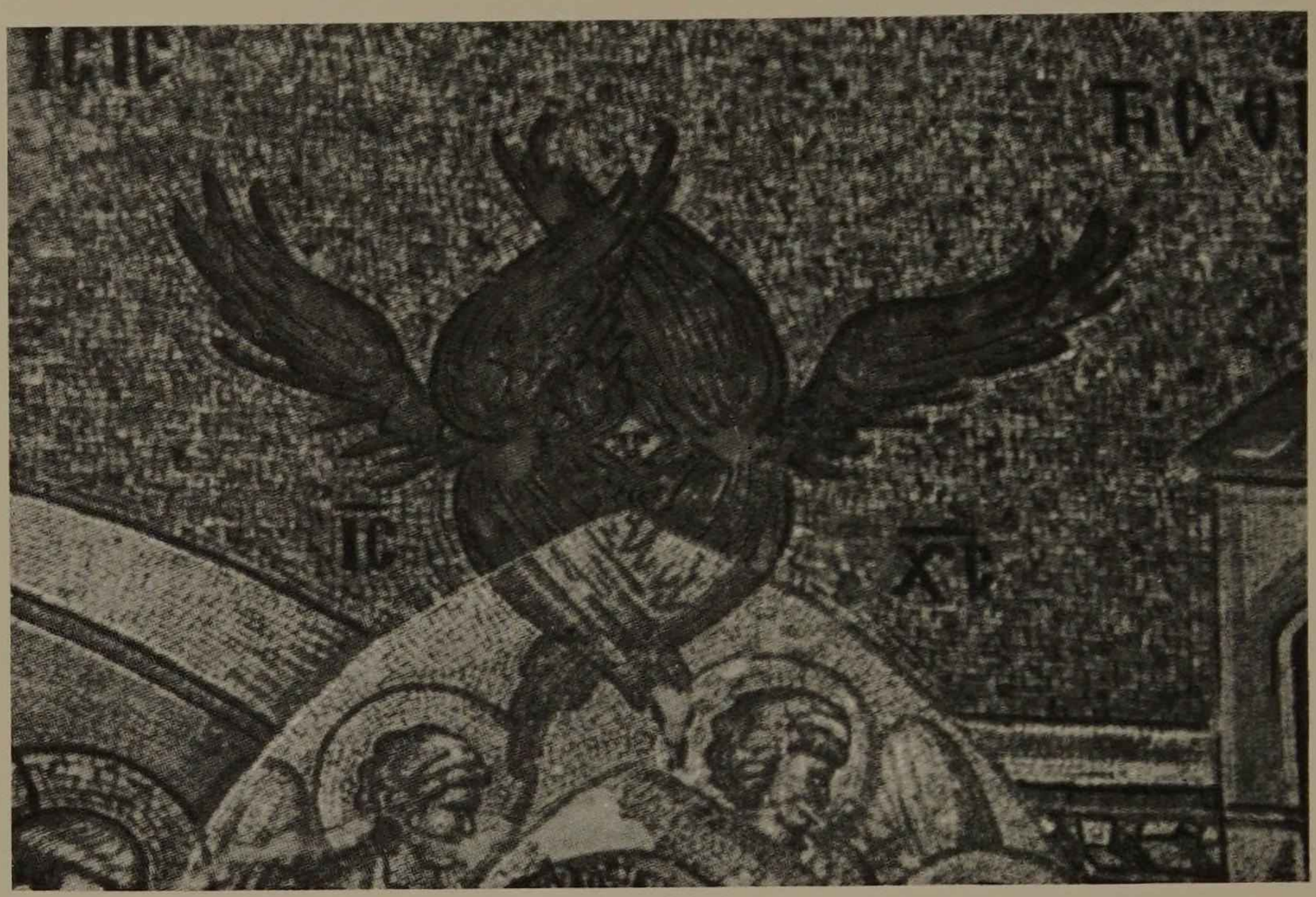

An Archangel
Byzantine Mosaic from Khora Museum, Istambul

The three pairs of wings together with the voluminous body give the impression that the latter actually corresponds to the bodies of three birds; hence its density and abundance. In fact, it looks as though the three birds had been catapulted into one portion of space, which would contain them, leaving out the wings.

Compare this mosaic with the four-dimensional tetrahedron of Fig. 3 (page 408) which, if represented in three-dimensional space, 'yields' several three-dimensional tetrahedrons.

Alternatively, the picture conveys the impression of the interpenetrability of volumes, in conformity with the principle of symmetry. Both interpretations suggest that the artist intuitively conceived the archangel as a being submitted to laws which are beyond those of Aristotelian logic or of three-dimensional space but which could be 'translated' or 'unfolded' into these laws.

On the other hand, the head of the archangel, almost hidden by the wings, suggests a space of dimensions higher than three which is 'wrapped' in three-dimensional spaces: the wings. The well-delimited features of the face and the penetrating eyes, in contrast, suggest a bi- or three-dimensional sharpness which is characteristic of consciousness. (Photograph by Sergio Larrain)

The Unconscious as Infinite Sets

An Essay in Bi-Logic

Ignacio Matte Blanco

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In memory of my father

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Preface

This book is written for psycho-analysts as well as for mathematical philosophers. I realise that the requirements of these two groups of readers are divergent and that to a certain extent – if not inevitably – they appear mutually exclusive. Unfortunately, however, there is nothing I can do to avoid this difficulty, for it seems to me that it is the subject itself that must be considered in terms of both approaches. On the one hand, I am firmly convinced that a reformulation of psycho-analysis in terms of logico-mathematical concepts will profoundly revolutionise philosophical thinking and greatly change some of the basic tenets upon which Western philosophy and science rest, and this book is an attempt, however imperfect, at such a reformulation. In it I propose guidelines which I consider essential for this purpose. As will be seen, some of the notions employed in my presentation – such for instance, as those of relation and correspondence or mapping – are at the very foundations of both logic and scientific knowledge. The use in psycho-analysis of precise mathematical concepts permits, I believe, the development of a new and wider view of the mind, of a greater degree of precision, and leads to a synthesis and a unity of apparently widely disparate subjects.

On the other hand, I am confident that if the psycho-analytical reader is willing to spend the time required to become familiar with the arguments developed – and, I may add, the book is self-contained, in the sense that it presents all the logico-mathematical notions required to understand it – he will find that these arguments, in their turn, will increase the subtlety of his understanding of patients and in various other ways considerably enrich his clinical work. For, however remote from clinical practice these ideas may appear, they have all emerged from contact with the patient.

This book, if considered as the result of many years of psycho-analytical observation, of sustained reflection on its meaning and of an effort to draw the consequences that follow from it and from various other discoveries of psycho-analysis, may be regarded as the culmination of a point of view. But it is also, in my opinion, a starting-point for new developments, of which three now preoccupy me. The first refers to the question of God. If the findings of Freud on this subject are reformulated in terms of the approach presented

here, then the immanent notions about God, interpreted as bi-logical experiences, lead to interesting perspectives. The second concerns the so-called death instinct which, if viewed again as a bi-logical conception, instead of as an instinct, seems to provide fresh insights into the nature of life.

Finally, if the question of knowledge is considered in terms of the two modes of being in man, certain new epistemological principles become immediately apparent. In particular, every time we know a concrete object we also know in some way the complete class or set to which it belongs, and we know it or live it as homogeneous and indivisible: individual and class are the same thing. This, in turn, leads to a way – a very old way – of looking at being. I am referring to the connection – which I have only recently discovered[1] – that the formulation proposed in this book has with the views of the Eleatic philosophers. The resemblances are striking; and at the same time it is obvious that the paths followed are radically different. Parmenides started from purely logico-metaphysical considerations, whereas this book begins from the observation of psychological reality with the help of psycho-analytic tools and conceptions, reformulated in logico-mathematical terms. On the other hand, if 'the doctrines of Parmenides offend against common sense by denying the reality of change and diversity', as Hussey (loc.cit., p. 99) quite rightly points out, this seems to be due to his considering exclusively only one aspect of the question; whereas careful reflection actually shows that the facts discovered by psycho-analysis can be properly understood and formulated in terms of *two* co-existing modes of being in the world: a homogeneous indivisible mode and a heterogeneous dividing one. (For details see Chapter 28, where the bases for an epistemological approach are suggested, but not developed; and in particular the comments on Wittgenstein.)

Viewed in this light, it seems that some of the ideas of Parmenides and Zeno could be incorporated into the very centre of the philosophical and scientific conception of man and of the nature of knowledge, instead of being left on the outside – as they seem to have been for twenty-five centuries – as fascinating but deeply disturbing manifestations of the Greek genius. It is strange that, of all approaches, it should have been psycho-analysis that has contributed to a re-assessment of Parmenides' and Zeno's apparently fantastic and apparently highly metaphysical conceptions. Yet psycho-analytic observation, in the formulation proposed here, can rescue these ideas from the remote region to which they have been relegated, and show that they play an important role in our ordinary conception of the world, provided that they are integrated, as parts, into a wider conception of man.

[1] Thanks to Hussey's lucid book (*The Presocratics*, 1972). See also Calogero (1967) and Cornford (1939).

So far as the presentation of the bi-logical point of view in psycho-analysis is concerned, I feel that the argument is sufficiently developed here. Anyone who is interested only in this subject may read no further than Part VIII. However, gradual reflection about bi-logic has led me in new directions when considering the mind in terms of multidimensional space, as I have suggested and discussed in various connections throughout the book. It seems too early to decide what the ultimate relation between bi-logic and the view of the mind presented here in terms of multidimensional space will be. Are both parallel interpretations of the same reality? Can one entirely account for the other? If so, which is the more general view? Do they have a zone of intersection and zones not in common? Considering the importance of this question and the new perspectives it opens up, I have added Part IX, which I consider in the nature of an introduction to the subject and to its many promising possibilities in the study of mental phenomena. It must be clear, however, that I do not intend here to make a complete presentation of a view of the mind in terms of multidimensional space. But I hope that what is presented is sufficient to show that the points raised on this subject at various stages in the book may lead, if developed, to a further, stimulating increase in our knowledge.

I.M.B.

June 1974

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The late Dr Paul Federn. He opened the discussion of a paper on space and mind which I read before the New York Psycho-analytic Society and made positive and encouraging comments which helped to build my confidence in my work.

The late Dr Ernest Jones. He was very generous about my efforts towards 'reformulating our knowledge' of psycho-analysis, as he put it. Encouragement from him was important in my searches.

Professor Gerold Stahl. He was my first teacher in symbolic logic and encouraged and helped me when I wrote my initial paper on the subject.

The late Bertrand Russell. He played an important role for me, not only on account of his writings but also because, in a short note, he expressed an appreciation for my work. (The paper which he saw is, with some changes and additions, contained in Chapter 3.)

Dr Massimo Pallotta and Professor M. Lippi, who kindly revised the typescript of Chapter 2 and of Parts IV and V (all of which I subsequently enlarged).

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Anthony Maclean. He carefully revised the text so as to ensure

that my writing remained within the limits of respectable English, while at the same time leaving room for my stylistic idiosyncrasies. His help, however, has gone beyond that, for had it not been for his presence, I should probably have procrastinated and this work would have taken much longer to reach completion.

Simon Marks. He has carefully gone over the text not only to ensure a satisfactory editorial presentation, but also to discuss with me any expression or phrase which seemed obscure. Thanks to him I have succeeded in eliminating various imprecisions and small defects.

The text has been improved with the help of the persons mentioned. I must, however, point out that the responsibility for the ideas put forward and for any errors or faults which may have slipped in is entirely mine.

In a book of this kind it has been necessary to quote from time to time from a number of authors. I am grateful to all copyright holders; full references for works quoted are given in the Bibliography. For permission to quote from Freud I am grateful to Sigmund Freud Copyrights Ltd, Hogarth Press and the Institute of Psychoanalysis.

Finally I wish to thank Heather Kirk-Duncan who has efficiently typed most of the book, patiently transforming a hieroglyphic into a correct and presentable manuscript; and Helen Chroscicki who has typed Parts VIII and IX as well as various additions to the text.

I.M.B.

PART ONE

Introduction

. . . the other view, which held that the psychical is unconscious in itself, enabled psychology to take its place as a natural science like any other. The processes with which it is concerned are in themselves just as unknowable as those dealt with by other sciences, by chemistry or physics, for example; but it is possible to establish the laws which they obey and to follow their mutual relations and interdependences unbroken over long stretches – in short, to arrive at what is described as an 'understanding' of the field of natural phenomena in question.

This cannot be effected without framing fresh hypotheses and creating fresh concepts; but these are not to be despised as evidence of embarrassment on our part but deserve on the contrary to be appreciated as an enrichment of science. They can lay claim to the same value as approximations that belong to the corresponding intellectual scaffolding found in other natural sciences, *and we look forward to their being modified, corrected and more precisely determined as further experience is accumulated and sifted.* So too it will be entirely in accordance with our expectations if the basic concepts and principles of the new science (instinct, nervous energy, etc. . . .) remain for a considerable time no less indeterminate than those of the older sciences (force, mass, attraction, etc. . .). (Freud, *An Outline of Psycho-analysis*, 1940, pp. 158-9, my italics)

1. *Scope, Outline and Meaning of this Book*

1. The difficulties of present-day psycho-analytic theory

In the course of its development psycho-analysis has outgrown to a considerable extent its own theory and finds itself in a situation comparable to that of an adolescent who has outgrown his clothes and feels restricted, hampered in his movements and uncomfortable. The finding of significant new facts – and I do not mean by this just simple elaborations of already well-established discoveries – has become increasingly difficult on account of the lack of an appropriate frame of reference against which new facts can be seen. The result is that much of the inexhaustible wealth offered daily by clinical reality is simply not seen because it does not fit in with the theories in use. If this situation continues indefinitely psycho-analysis, as a science and as a technique for helping patients, runs the risk of falling into a circular and sterile pursuit of an ever-escaping psychical reality; it will become like an animal attempting to catch its own tail. As a result of this, the image of the dogmatic, self-satisfied analyst who is closed to and afraid of new developments is becoming increasingly frequent, and one is reminded of the futile subtleties of some medieval theologians or of some Talmudic interpreters. But one is also reminded, and this is distressing, of the evolution of some animal species which in the course of time exaggerated the development of certain characteristics to the detriment of their survival; this, for instance, was the case with some wild boars whose tusks became so twisted that they finally made eating an impossibility.

There is no doubt that psycho-analytic theory needs reformulating and we are witnessing at present various attempts at doing so.

It seems that it is necessary first to try to understand *where* psycho-analytic theory is insufficient. In order to do this satisfactorily one must have some clear ideas on a fundamental question: the relation between theory on the one hand, and facts and fact-finding on the other.

I believe it is accurate to say that at the present moment a large proportion of analysts tend to avoid theorising in order to concentrate, so one frequently hears, on clinical facts. Such an attitude seems ingenuous and those who adopt it seem to be unaware

that in fact they are living on borrowed income: somebody else's income. For they do not seem to realise that the facts they discover are precisely, and no more than, those which the theories to which they subscribe enable and allow them to find. The examples in favour of this assertion could be multiplied at will, and I shall only mention one or two. When the so-called castration complex was found, a great deal of the clinical material was interpreted in terms of it, and nothing was seen in terms of, say, introjection or envy of the breast. It would be unwarranted to assume that the patients seen in that period did not show any signs corresponding to these later concepts: only that such signs were not noticed, for the simple reason that the corresponding concepts were not yet available. In a similar way, the type of interpretation we nowadays give may be an accurate reflection of the clinical material at hand but not necessarily a *complete* reflection of it. We do not know how many things pass unnoticed by us in the data offered by our patients, simply because we do not have the frames of reference which would enable us to see such things.

When (for example) we hear people giving interpretations in terms of relations with the internal object, or of the role of container played by the analyst, or of the envy of the breast, as also represented by the analyst, one frequently gets the impression that such interpretations are correct and conform with the clinical evidence. At the same time, when observing such commendable therapeutic activity sometimes one cannot avoid feeling that the therapist is convinced that his interpretations cover the totality of what is happening to the patient and that he is implicitly conveying his own certainty that there is no more to be known about it. It is in cases of this type that one can see the intimate link existing between the frame of reference employed and fact-finding. Interpretations of the type just mentioned are based, as can easily be seen, on a three-dimensional analogy; if instead of this analogy we were to use, say, a five- or six-dimensional analogy, the whole material presented by the patient would be seen in a quite different light. Various interrelations so far invisible would become evident and one would have a new understanding of the patient. The 'internal object' itself would then become something corresponding more intimately to actual psychical reality, for it would then be possible to realise that something which at a lower dimension is experienced as a separate object, becomes, at a higher dimension, a constituent of the whole. One would, in this case, be more able to approach the proper formulation of a question which has become urgent in recent times: what are the respective roles of the unity of the individual and of internal objects? On the one hand, we cannot avoid feeling that each individual is *one* and is something that confronts other individuals; on the other, we cannot reject the evidence in favour of the internal object. It must be recognised that present-day psycho-analysis has no satisfactory answer to this question.

To return to the internal object and the container, we may now consider an alternative way of understanding the data given by our patients. The notion of multidimensional space (which is the concept referred to in the alternative mentioned above) is not studied exhaustively in this book and only some initial approach to it is made. Instead, the relation between space-time and spacelessness-timelessness, is the object of a more detailed study. Now, if the material offered by patients is systematically studied in this light, many as yet unnoticed facts become apparent and we are then able to understand and help our patients better. We may, for instance, find that the same material shows signs of several levels (in the sense studied in Part IV) in action simultaneously. At a more superficial level we may find the relationship between separate persons, whereas at an intermediate level, instead, the persons are 'lived' as objects which may be inside, or inside which one may be. This is the level of envy, of projective identification and containers. At a still deeper level the distinction between persons or between objects begins to lose sense in the same proportion as spatio-temporal notions begin to fade away. Correspondingly, the concept of aggression, after having passed through levels of infinite magnitude, begins to recede into the background. The fundamental unity of subject and object makes itself increasingly felt, until a moment comes when speaking of projective identification no longer has any sense; we are at the level of the *basic matrix of projection and introjection*. The notion of envy is, at this level, no longer pertinent.

The above is only a summary and a schematic description of an alternative way of looking at given material which had first been interpreted in terms of current analytical views. It would be possible to give many more clinical examples which would show in detail how, starting from the associations of the patient, one may reach different types and different degrees of understanding, and hence of therapeutic help, according to the type of approach. The type of approach, in turn, depends on the frame of reference used in the study of reality; or, as is usually said, it depends on the theory in the light of which reality is seen.

For this reason it becomes imperative to reach a clear stand on the question of the relationship between facts and theory.

Clinical facts, frame of reference and theory. At this point we must ask: what actually is a fact, whether clinical or otherwise? The position which assumes that facts are things in themselves, independent from the way they are observed, is frequently found among clinicians and is the origin of much superficial theorising, of which people are not aware. Let us consider a very simple fact: the time at which an aeroplane arrives at a given airport. It may be, for instance, 6.30, and this appears to be quite precise. But if the country where the plane arrives has adopted summer time it will be 7.30. It will,

then, be equally true to say that the plane arrives at 6.30 or 7.30. Now if the country from which it started is very far off, the time of arrival expressed in terms of hours may vary from 6.30 to 19.30, according to which country's time is chosen to express the arrival in question.

We may also adopt another convention and correlate the time of arrival with the rising of the sun at the place where it arrives. In this case the plane will arrive before sunrise, at sunrise or after sunrise, according to the time of the year. If, instead, we prefer to change the place in relation to whose sunrise we measure the arrival, we may then arrange things in such a way that every day of the year the plane will arrive exactly at sunrise, only the sunrise of each day will be that of a different place from the sunrise of all other days of the year.

If instead of adopting a 24-hour day, we adopted a different convention, we might easily arrange things so that the plane arrives at a given day or the next, according to the convention preferred.

If we now consider the word 'aeroplane' we soon realise that it means a complex system of relations, say between wings, fuselage, methods of propulsion, etc. A bird has wings but it is not a plane. Cars have engines, like planes, but they are not planes. Wing, fuselage, engines, etc. are, themselves, sets of relations.

> And so we finally arrive at the conclusion that *all our knowledge of the world is ultimately a knowledge of relations* to which that which we call world conforms (in a greater or lesser degree, according to how appropriate the relations chosen are). The true reality, the noumeno, of the world is unknown to us. A fact is, therefore . . . a relation between two events; and an event is itself another relation, so that in the end the only things we may discover are relations, relations between relations, relations between relations between relations, and so on. We could define these as events. And I imagine that it is because of this that some contemporary philosophers and mathematicians have come to define the world as composed only of events, which do not happen *to* matter, nor to anything else, but simply happen. . .
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> A fact is something that is always defined against a frame of reference, and this frame itself is a system of relations. The same underlying 'reality' may be described against various frames or systems or relations, some of which may be more appropriate to it and belong to a more general order, which will permit us to make more accurate predictions and a greater number of them. (Matte Blanco, 1954, p. xxxi)

The position just outlined is that generally adopted by philosophers of science, and unfortunately frequently ignored by researchers, who sometimes do not seem to be aware that they are never describing *facts in themselves*, because such things do not exist. Perhaps it is useful to give two significant quotations to clarify the meaning of the concept underlying the word 'theory'. Von Mises (quoted by Szasz, 1959) writes:

> Since the time of Ernst Mach, natural scientists have known that the explanation or the theory of a group of phenomena is only a description of the facts at a higher level.

On the other hand, Braithwaite (1953, pp. 367-8) says:

> Nature does not provide separately both facts and laws; our statements of laws are a way of describing observed facts and of predicting facts at present unobserved. The form of a statement of a scientific hypothesis, and its use to express a general proposition, is a human device; what is due to Nature are the observable facts which refute or fail to refute the scientific hypothesis.
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> . . . The function of mathematics in science has been shown to be, not that of admitting only hypotheses of a pre-ordained form, but that of providing a variety of methods for arranging hypotheses in a system; knowledge of new branches of mathematics opens up new possibilities for the construction of such systems.

As can be seen, this author speaks of hypothesis, system and law. In psycho-analysis it is common to speak of theory. Personally, I prefer to employ the term 'frame of reference', rather than 'theory', because the latter is historically loaded with a collection of meanings which are better avoided. I am referring to the fact that the word theory frequently evokes the concept of guesses, which may be more or less warranted, more or less happy, or be accurate; or elaborations which may be rather distant from our initial observations and which may or may not turn out to be true. In contrast the expression 'frame of reference' has a more restricted meaning: that of a system of relations into which our observation of reality directly fits. In other words, it is more immediate, and aims at being more directly in contact with the reality under study. It is more directly at the service of this reality, ready to be changed as soon as new observations make us aware that the frame is not capable of describing them satisfactorily. But such a distinction between theory and frame of reference is ultimately a matter of convention and we may agree to employ both terms as synonymous. What seems to be important to keep in mind is that sound scientific research aims at creating frames of reference which are, so to speak, directly suggested by our intellectual contact with reality and which are modified as fresh contacts suggest changes in the frame which is being used.

Psycho-analytic theories or basic concepts have become manifestly insufficient. Psycho-analysis has been developed within the frame of three closely interconnected concepts: instinct, energy and space. The first refers to the biological nature of man, whereas the latter two establish some contact between the concepts of mind and matter, since both of them are also fundamental in the study of inanimate nature. As Freud himself has remarked, this 'intellectual

scaffolding' may be 'modified, corrected and more precisely determined as further experience is accumulated and sifted'. It seems that this is precisely the present case of all three. The concept of instinct has been the object of intensive studies among biologists, ethologists and psychologists, and though its essential features do not seem to have changed since the times of William James, an enormous amount of information has been gathered in the course of time which is of great relevance to psycho-analysis as a conception and a technique. Much work needs to be done in order to introduce this relevant information into psycho-analytical thinking and this task has already been started by various researchers, foremost among whom is Bowlby.

The concept of energy is the basis of the dynamic and economic points of view in psycho-analysis as generally accepted. The concept of space is the background to the topographical and structural points of view and to the notion of object. As this assertion may be questioned it deserves some comment. Freud preferred to employ the term 'topographic', but he explicitly treated 'structural' as synonymous to it, as we shall see in Part III. 'Topographic' clearly refers to space, as do expressions such as 'depth psychology', "deep unconscious', 'surface of the mental apparatus', 'barrier', 'keeping *away* from consciousness', 'return of the repressed', 'projection', 'introjection', 'internal object', 'internalisation', 'externalisation', 'external object', 'container', 'blowing up', 'tearing into bits', 'reparation', 'deviation of energy' (sublimation), 'displacement', 'turning against the self', and various others. Some, instead, question the accuracy of the view that the so-called structural conception is a topographical one. The fact is, however, that it employs the same spatial *metaphor* as all the expressions just mentioned. This can easily be seen if one considers that Freud spoke of 'regions or provinces' of the mind, and that this is a topographical comparison. Freud also made a diagram in which at least some of the relations between the three psychical instances are studied in terms of the comparison with space.

All the same, the problem is that all the spatial comparisons so far usually employed in psycho-analysis are appropriate to describe physical phenomena and are insufficient to describe mental phenomena. In fact all such comparisons are based on the three-dimensional analogy and it is extremely improbable that psychical phenomena can be described in terms of only three dimensions. Yet, the psycho-analytic literature is most strangely silent about this fundamental premiss of psycho-analysis. Freud gives no hints or suggestions on this point, though it is obvious that he thought about it until the end of his life. His last but one published phrases on psycho-analysis read as follows (Freud, 1941, p. 300):

> Space may be the projection of the extension of the psychical apparatus. No other derivation is probable. Instead of Kant's *a priori* determinants of

our psychical apparatus. Psyche is extended; knows nothing about it.

I know of no evidence which shows that he ever thought of applying to the mind spatial concepts not borrowed from those employed in the study of 'material space' or three-dimensional space. And the recent abundant literature about object-relations, internal objects, etc. is, to my knowledge, utterly unaware, in its essentials, of the magnitude of the problem and its important consequences in the field of clinical work. There is a great need of clarification in this large subject.

Exactly parallel considerations can be applied to the use of the notion of energy. It has remained extremely vague and nothing essential has been added to Freud's initial intuitions. As in the case of space, the notion of energy seems to be of great importance in understanding the mind. But the use made of it by those researching into the structural conception is so unsatisfactory that it is no wonder that many people keep away from it altogether. Terms such as 'desexualisation', 'desagressivisation', 'mental energies', 'the ego's autonomous sources of energy', 'reservoirs of energy' and the like are extremely vague. If no serious attempt is made to deepen our understanding of the basic concept of psychical energy as, for instance, the question of the possibility or impossibility of measuring it, and its relation (similarities, differences or identity) to other forms of energy, then no real progress can be made.

So, in the end, we find that all three basic concepts of psycho-analysis are in need of revision, because they are unsatisfactory in their present form. The trouble is, however, that much effort is devoted to applying these concepts and to describing clinical reality with their help, and not sufficient time to studying the concepts themselves. It seems as though many implicitly believe that this is the way to be 'clinical'.

In the meantime, it can in all fairness be said that psycho-analysis has neglected to a considerable extent its initial purpose of exploring the psychology of the unconscious, and of that mysterious world where everything is so different from what we see in conscious life; for it is quite evident that both the structural and the internal object approaches describe the mind in such terms that the characteristics of the system unconscious either become unnecessary or are rendered trivial. In the course of its development psycho-analysis has become less psycho-analytic in the sense that, though it continues to deal with so-called unconscious *contents*, it tends to treat them as though they were ruled by the same laws that are seen in consciousness and applied in the study of all the other sciences. Psycho-analysis has lost its most distinctive characteristics. If this were the result of observations which led one to correct the initial formulations, then it would be a sign of progress. But the fact is that this is the result of neglecting the essential theme of psycho-analysis,

probably because of its extreme difficulty. If we were to describe this process in terms of early psycho-analytic terminology I would say that the discovery of the unconscious has been repressed in psycho-analytical thinking and subsequently replaced by neatly constructed rationalisations, which can be described in terms of material space and energy but which hide the underlying reality of the unconscious as 'the true psychical reality'. To put it paradoxically, *psycho-analysis has wandered away from itself.* In the same vein Freud wrote

> of the embarrassment that still comes over us when, accustomed as we are to the atmosphere of the underworld, we move in the more superficial, higher strata of the mental apparatus. (Freud, 1933, p.68)

Now, it seems to me, the situation has been overturned. Not only do those who cultivate the so-called ego psychology seem to feel much more at home in 'the higher strata', but also those who deal with 'deep material', such as the early relationship of the child to his mother, usually treat this material as though it were ruled by the laws of the preconscious, even though at times some passing reference is made to the contrary.

2. The scope and meaning of this book

It is as a result of prolonged reflection about these subjects, spread over many years, that I have gradually come to develop the ideas which I am putting forward here. It may briefly be said that the essential meaning of the present work derives from an effort to think systematically about psychical reality in terms of the relationship unconscious-conscious (to employ Freud's initial formulation), or symmetrical-asymmetrical (if we use this conceptual duality, which, as will be seen, offers some advantages over the former). When I say 'in terms of the relationship conscious-unconscious' I am not referring only, or mainly, to the quality of being conscious or not, but to the two contrasting modes of being visible in this relationship. In other words, the present approach aims at taking the meaning of the characteristics of the system unconscious described by Freud very seriously and following this meaning to its logical conclusion; it also aims at studying the 'omnipresence' of this system in every mental manifestation as well as its infinite interrelations with the so-called conscious mode of being.

In order to help the reader follow the arguments put forward here, which may initially present some difficulty, it seems advisable to give a brief perspective of the path taken. If we read what Freud has written on the subject of the characteristics of the system unconscious we soon realise that he was explicit in affirming, especially towards the end of his life, that the laws of Aristotelian logic were not followed or respected in the system unconscious or in the id:

> The logical laws of thought do not apply in the id, and this is true above all of the law of contradiction. (Freud, 1933, p.73)

To put it in another way, he described or referred to a deficiency, to something missing, and not to a different type of logic. It seems that this idea has been prevalent in the relevant literature, even if not necessarily in an explicit manner. This deficiency may be considered in two ways: either as leading to a complete disorder, or as resulting in a new order. When Freud writes (1933, p. 73) that

> we approach the id with analogies: we call it a chaos, a cauldron full of seething excitations

he seems to imply the first of the two alternatives. But when he writes (1900, p. 507) that

> the dream-work is not simply more careless, more irrational, more forgetful and more incomplete than waking thought; it is completely different from it qualitatively and for that reason not immediately comparable with it

he does not appear to be thinking of the second. The fact remains that, as far as I am aware, he never arrived at a description, in precise logical terms, of this different order. It is at this exact point that the developments suggested fit in. In 1956 (Matte Blanco, 1959) I proposed that the 'special characteristics of the system unconscious' described by Freud are various expressions of a type of logic which I then formulated in terms of two principles; I called these *the principle of generalisation and the principle of symmetry.* With their help it was possible to see the intimate connection between these five characteristics described by Freud as conceptually independent, even though in fact they frequently appear simultaneously. With the help of the two logical principles all five were seen as an intimate unity, the expression of a type of logic which could be defined precisely, even if such a definition showed a peculiar and characteristic breadth of approach to reality. Moreover, the systematic application of the two principles results in a type of thinking that differs strikingly from that usually employed in science, which follows so-called Aristotelian logic.

It then became possible to verify that the logic of the system unconscious or logic of the id – which we may also call *symmetrical logic*, in order to avoid the ambiguities connected with the notion of system unconscious and also with that of id – is quite consistent and always conforms to the two principles in question. In a series of studies I have focused on various manifestations of this logic in a wide variety of phenomena. Among these I may mention: schizophrenic thinking, feeling and *erleben* (1959, 1966, 1967*a*); the unconscious contact with external reality (1960); Jung's syncronicity

as a principle of non-casual relations (1962); the contrast between neuroses and psychoses (1964); various applications to psychiatric problems such as mental confusion (1965); non-verbal communication (1962*a*); the formulation of the basic concepts of psychoanalysis (1968); the question of interpretation (1968*a*); introjection and the problems arising in connection with the notion of mental objects, as well as in the mechanisms of projection and projective identification (1960*a*, 1970); the question of the 'nature' of emotion and its relation to thinking and to consciousness and the unconscious (1967). From these studies as a whole, I believe it can safely be said that several general conclusions emerge, some of which have a bearing on the present study, in the sense that they represent a general background against which this study's subject matter is projected:

(1) Clinical observation is sharpened if we make our descriptions with the help of logico-mathematical tools (which are simple and easy to use). It then becomes possible to discover a variety of clinical facts which would otherwise have escaped us.

(2) The relationship between the timelessness of the unconscious and the 'timeness' of those aspects of our self which are oriented towards the external world can be explored further. As can be seen (Matte Blanco, 1959), timelessness is a necessary consequence of the principle of symmetry, because, if asymmetrical relations are not available, there can be no time in the physico-mathematical sense of the word. It must be added that, for the same reason, neither can there be space; the consideration of this question has led me to propose (Matte Blanco, 1968) adding spacelessness as another of the characteristics of the system unconscious. This proposal only amounts to adding explicitly another aspect of so-called symmetrical logic. Freud had considered this idea from more than one angle, though not as part of a logical system (see, especially, Freud, 1933, p. 74 and 1940, p. 300). If we remember that both in the physical world and in the world of the mind, time and space are inextricably linked, the convenience of such a proposal is evident.

As already implied in this Introduction, the characteristics in question, described by Freud in his paper 'The unconscious' (1915) which ranks, in his own opinion (Jones, 1956, p. 34), among his most important contributions, have hitherto played a comparatively modest role in psycho-analytical development. It is true that such an assertion would not be completely accurate if it referred to clinical work, where displacement, condensation and replacement of external by psychical reality are habitually employed. But if we consider psycho-analytical conceptions and theoretical developments, then it is certainly accurate to say that they have not yet been exploited to their full extent. I will give as an illustration the fact that various recent significant psycho-analytical findings on schizophrenia are described in terms which largely correspond to the *logic* of conscious

thinking. I am, for example, unable to find the role that timelessness plays in Melanie Klein's schizo-paranoid position. Furthermore, the question must be raised of how we can speak of putting inside or introjecting an object, when the unconscious does not know 'inside' or 'outside' and does not know objects. And all of this flows from this particular aspect of Freud's work.

Conversely, if we start from these characteristics, reformulated in logical terms, we can give the problems the full attention they deserve (see, especially, Matte Blanco, 1970). It soon becomes evident that we are always, in a given mental product, confronted by a mixture of the logic of the unconscious with that of the preconscious and consciousness.

The proportion between both components of the mixture differs greatly from one case to another, so that in the end there are innumerable types of cases. In order to simplify matters I have proposed (Matte Blanco, 1968*a*), following some remarks made by Freud in 'The unconscious' (1915), to distinguish roughly three levels, especially with regard to the role played by spaceness-timeness and spacelessness-timelessness; though the same distinction also applies, of course, to all the other characteristics.

(3) The most important general conclusion that emerges from these studies is that psychical life can be viewed as a perpetual dynamic interaction – in terms of tension, co-operation, or even union – between two fundamental types of being which exist within the unity of every man: that of the 'structural' id (or unrepressed unconscious or system unconscious or symmetrical being) which becomes understandable with the help of the principle of symmetry; and that visible in conscious thinking, which can roughly be comprehended in Aristotelian logic. This formulation is an expression of Freud's discoveries in terms of the ideas mentioned; it has the advantage of enabling us, as I believe, to draw hitherto unexploited riches from Freud and from clinical reality; it also stimulates new developments in psycho-analytical theoretical thinking. It will be noted that this way of looking at the question – which is, to a great extent, related to Freud's formulation of the mind in terms of the unconscious and the conscious ego – is the result of studying clinical reality with the help of logical tools. It may be objected that it represents a withdrawal from Freud's later conception of the threefold structure. In my opinion it should rather be viewed as an attempt to preserve something which was valuable in the former conception and which has somewhat receded into the background in the later conception.

All the above constitutes, as I have already remarked, the background against which the present study is projected, but the subject extends in other directions which fit in as integral parts of the whole I have just outlined (see Section 3, below).

The relation of the present approach to the basic concepts of instinct, energy and space. It will have been seen that in the above description of the meaning and scope of this book no systematic mention is made of the three 'basic concepts and principles', to take Freud's expression, upon which psycho-analysis is based. This fact raises the question of the relationship between this approach and such principles. It can be said, in this sense, that the basic questions of energy and space are not studied in themselves here, at least not in an exhaustive way; instead, an attempt is made to develop the basis of our psycho-analytic knowledge, starting from the characteristics of the system unconscious, reformulated in logical terms. This is neither a frontal attack on the questions of energy and space nor a retreat from such questions. It is indeed, a way of coming to them from another angle; precisely that of the unconscious or symmetrical mode of being (and its relation to the asymmetrical mode), which may in the end lead to much more fruitful developments and to a clarification of many of the problems related to these basic questions.

In fact, an attentive reader will become aware that the formulation of the question of the measurability of unconscious processes touches on the question of the measurability of psychical energic processes, though from an angle which is quite different from that of a direct approach to the question of energy. On the other hand, the consideration of the symmetrical-asymmetrical duality leads us to the problem of space-time, a continuous study of which is made throughout the book. This problem, however, can be tackled directly, for instance with regard to the notion of dimension. This is considered in Part IX.

It may legitimately be said that after the study of the various subjects of the book our knowledge of energy and space-spacelessness, as far as it concerns the mind, emerges enlarged and deepened.

A 'lateral' attack on these questions may, at present, turn out to be more fruitful than a frontal assault.

As for the basic notion of instinct, it is taken for granted here and only a few comments are made about its relation to the subjects studied in the book.

The relation to Freud's conception. At first sight the present study may give the impression of something considerably different from Freud's conception. In my opinion it remains well within this conception, only it is formulated in terms which permit of further developments in accordance with the accumulated clinical experience of many psycho-analytical observations made by many analysts over a long period. It can be shown that the developments put forward here usually start from Freud, and that an effort is made to understand his thinking and, following his formulated opinion and

wish (as shown in the quotation at the beginning of this Introduction), to modify them and develop them as the need to do so arises from the very nature of things. The numerous quotations from Freud throughout the book and the efforts made to tackle and draw conclusions from the various thoughts expressed by him, confirm that on no occasion have I taken lightly the thinking of Freud; on the contrary, I have made it the object of thoughtful study. This inevitably leads, as Freud hoped, to developments and modifications of his ideas. The spirit remains the same.

I have thought it necessary to make these qualifications, first, to give a better perspective of this work as I see it and, secondly, to avoid any misunderstanding.

A further reflection may be relevant. I believe it can truly be said that the present work lives to a great extent in the atmosphere of the early Freud, that of the heroic saga of the *Interpretation of Dreams*, as well as in the atmosphere of the *Outline of Psycho-analysis*. Both works, at the beginning and at the end of his creation, represent two fascinating outbursts of his creativity. As Strachey rightly points out (1964, p. 143), there are in this latter book 'hints at entirely new developments'. If one is careful not to take too literally what I am just saying, one might think of these two books as supreme expressions of Freud the creator, in contrast to Freud the organiser of his discovery, seen more prominently in other of his works. I believe this is, for instance, the case of *The Ego and the Id*, despite the protests that this assertion may provoke.

I hope the present approach may not only be of interest to analysts but offer at the same time the possibility of new forms of dialogue between psycho-analysis and philosophy, mathematics, logic, moral philosophy, anthropology and sociology. All these disciplines have contributed to its shaping; perhaps the formulation put forward here, in its turn, will pay back to them, in a psychological form, something of its debt to them.

At the same time psycho-analysis could become the link between the inevitable regimentation of modern civilisation and the unforeseeable freshness of emotion. There is no other discipline which is both scientific and moves in the realm of emotion and, hence, of art and also, in part, of ethics, sociology and politics: in short, of the humanistic side of man, because it deals simultaneously with the duality unconscious-conscious or symmetrical-asymmetrical.

3. Brief summary of contents

I shall now make a summary review of the contents of this book so that the reader can have a panoramic view of the course followed:

Part II. As the title shows, this deals with the notions which are indispensable (to those who are not conversant with them) to

following the arguments of the book. The first chapter deals with the simple mathematical notions required. The second is an enlarged version of one of my first two papers which initiated this line of thought. It is hoped that with a knowledge of this chapter in hand, the reader can follow the rest of the book without having to read the other related papers.

Part III. This constitutes the first published presentation and development of my studies on a subject which has great relevance to the rest of the book. It also represents the link and transition between current psycho-analytic thinking and the present approach. It is hoped that reading this part will make things more understandable; it will explain how the present approach starts from current psycho-analytic thinking and why it came to be required in the course of the evaluation of the problems which confronted this type of thinking.

It starts with Freud's concept of the unrepressed unconscious, the study of its meaning, scope and difficulties. It goes on to consider the initial conception of Freud in terms of consciousness and the unconscious and its reformulation in terms of symmetrical and asymmetrical modes of being. At the end a study is made of the threefold conception in the light of these ideas and some proposals are made for a reformulation of the threefold conception. An attempt is made to introduce some order to our ideas, and the advantages and the disadvantages of the introduction of the threefold conception are discussed, as well as the difficult problems that this introduction has led to. Also, among other things, a study is made of what I have proposed calling the function of 'translating' or 'unfolding', which is, for the unrepressed unconscious, the counterpart of what lifting of repression is for the 'repressed unconscious'.

Part IV. This deals with the unrepressed unconscious seen as infinite sets. This is a modified version of a paper presented in 1970 to the British Psycho-analytic Society and it is the first published study of my personal work on this subject. With the help of our logico-mathematical tools a variety of clinical facts and concepts are outlined. Among these, the following are proposed:

(1) The interpretation of the principle of symmetry in terms of infinite sets, starting from the observed fact that the unconscious establishes the identity between the whole and the part. This fact, in its turn, can be viewed as a consequence of the principle of symmetry, all of which shows the conformity of the logical formulation proposed with actual psychical reality. The strange identity between the whole and the part, so much in contrast with Aristotelian logic, led me to apply Dedekind's definition of the infinite set as the set in which the whole and the proper part have the same cardinal number. If we interpret the identity between the

whole and the part as meaning that they have the same cardinal number, we must conclude that whenever we come across such identity, the unconscious is dealing with or considering an infinite set.

(2) The notion that the deep unrepressed unconscious deals with infinite sets and only with them. This throws a new light on the concepts of displacement, symbol, sublimation and a variety of other basic psycho-analytical conceptions.

(3) The proposal of a distinction between extensive and intensive infinite sets, which permits differentiation between various types of mental manifestations.

(4) The notion of mental functions which have a maximum and a minimum, both of which are of infinite value. In other words, what I have called the law of either positive or negative infinite sets. This touches on the question of the absence of zero in the unconscious and makes it possible to view Freud's intuition regarding the absence of negation in the unconscious under a new light.

(5) The notion that the unconscious deals with infinite sets that have not only the power of the denumerable but also that of the continuum. In simple, though probably inexact terms, it deals with infinites of infinites. This seems to be of importance in the understanding of the mind. The consequences and developments of such notions are unforeseeable now, but certainly capable of opening up vast possibilities.

(6) The notion that the magnitudes of emotion are a function of the level of depth, which, in this respect, is understood not as stages of development but as the proportion between symmetrical and asymmetrical thinking. This is of theoretical as well as of practical value in analytical practice. Put in simple terms, the more there is, in a given manifestation, of the deep unconscious, the greater will be the magnitude (in the mathematical sense of the word) of emotion: in the deep levels there will be an infinite value of the same magnitude. This formulation, as I see it, may be the starting-point of new developments regarding the magnitude of the affects, of the so-called cathexes, viewed from a different angle.

(7) The notion of the coexistence of the various levels in a given person at a given moment. I think this has been known since the beginnings of psycho-analysis, but it is put forward here in a different way; among other things, it means that the same emotion simultaneously has different values of the same magnitude. This is puzzling, though quite in keeping with the arguments developed here. Obviously, its implications have to be further explored.

(8) The notion that towards the deepest levels, where there is 'pure symmetry', hence, no space-time notions (that is, the level of *being*, in contrast to the level of *happening*), there can be no aggression in the sense of destruction. I believe this view throws light on the concept of the death instinct, which was perhaps one of

Freud's deepest intuitions but which he presented in an obscure manner, very much open to criticism, because he did not employ appropriate technical tools. This approach leads to another way of looking at the problem of evil in man.

(9) The notion that analytic therapy can be viewed as divesting a given situation of the characteristics of an infinite set. There is much to develop here.

Part V. This deals with the infinite sets and the question of the measurement of unconscious processes. It starts with a review of the classical notions about measurement; then it discusses in general terms the possibility of measuring psychical phenomena and the various questions and difficulties connected with this. Finally, it goes on to study the possibility of measuring unconscious processes. It arrives at the paradoxical conclusion that unconscious psychological events are not intrinsically immeasurable but, in contrast to physical events, are susceptible of infinite measurement at the point in which the physical event is susceptible of only one measurement. It also discusses the merging of the conceptually measurable into the conceptually non-measurable and refers to the consequences of such a view.

Part VI. This deals with the nature of emotion. It is very difficult to give a satisfactory summary perspective of the various problems discussed in this Part. It starts with a phenomenological-psycho-analytical approach to the concept of emotion. It shows that emotion is a composite psycho-physical phenomenon and that in its psychological aspects it consists of two basic components: sensation-feeling and establishment of relations. It studies each of them in its multiple aspects; among other things, the passage from sensation-feeling to image and perception is studied; as well as introspection and time, attention, 'pure sensation', and the relation of these phenomena to space-time.

Regarding the establishment of relations aspect of emotion, a detailed study of its various facets leads to the conclusion that the most specific characteristic of emotion is the establishment of symmetrical relations. A comparison is made between the view of emotion proposed here and those put forward in the current literature. Among other things the similarities and differences between the present view of emotion and Sartre's view are discussed (see Appendix).

The question of the measurability of emotion is discussed in two chapters. It is shown that emotion bears several different relations to the concepts of magnitude, quantity and measurement, and these various relations are discussed in detail. The relation between sensation-feeling, imagination and perception, and their respective roles, are discussed in detail.

Regarding the 'establishment of relations component' of emotion, this latter is seen as infinite sets, dealing with classes having infinite values of the various aspects of the propositional functions defining classes. This leads to the conception of emotion as having in itself various infinites. On the other hand, emotion, as the unconscious, can be seen both as measurable and as non-measurable, according to the vantage point from which it is observed. In the latter of the two cases, non-measurable emotion can be considered as the 'mother of the measurable'.

A special chapter is devoted to the development of the concept of the translating function. This gives the opportunity of a further study of asymmetry as the 'restraining condition' required in scientific hypotheses.

The relationship between instinct and the symmetrical-asymmetrical polarity is studied and the conclusion is reached that instinct makes what I call a 'lateral insertion' into mental life.

A detailed study of the relationship between symmetrical and asymmetrical aspects in man is made and the consequences that such relations entail for the understanding of mental life are discussed. The concept of 'boundary' is considered here and this leads to a generalisation of the concept of repression.

The significant question of the 'pouring' of feeling into thinking or, alternatively expressed, the 'extraction' of thinking from feeling is studied in the context of the obscure relation between thinking and feeling. This, in its turn, leads us to consider the question of the 'light' of consciousness and the 'darkness' of the unconscious. Here we come across the notion of the 'induction situation'.

The question of 'making the unconscious conscious' and of 'where id was there ego shall be' is discussed under the light of the considerations developed in this Part.

The last chapter of this Part is devoted to discussing the question of the place of emotion in the psycho-analytical conception. The apparently surprising conclusion is reached that if we formulate the psycho-analytical conception of the mind in terms of the interaction between the symmetrical and asymmetrical modes of being (from which follows the notion of the unconscious), then the concept of emotion, together with that of its relationship with thinking, comes to coincide entirely with the psycho-analytical conception of the mind. This formulation, it is felt, helps in the understanding of various problems concerned with the so-called psycho-analytic theory of affects. At the same time it provides a solid ground for the integration of psycho-analysis with psychology.

Part VII. This represents an attempt at formulating a general theory of the bipolarity unconscious-conscious or symmetrical-asymmetrical. In my opinion a most significant aspect of the study made in this Part is constituted by the attempt at going further than the

bipolarity symmetrical-asymmetrical and at considering so-called symmetrical being as a mode of being in which reality 'is lived' as a homogeneous indivisible totality, and in which 'viewing-feeling' and being are one and the same thing. Asymmetrical being, for its part, conceives reality as divisible or formed by parts and, as such, related to spatio-temporality. It seems clear that the psycho-analytical conception of man can follow from the consequences of the interaction between these two modes of being, as formulated in the terms just mentioned.

It is too early to say how successfully such a formulation will resist criticism and further reflection, as well as the confrontation with clinical reality. But at first sight it appears thought-provoking and stimulating in our understanding of clinical reality as revealed by psycho-analysis, and, in fact, the more one reflects about it, the deeper this understanding and the greater its possibilities appear to be.

Part VIII. In this Part an attempt is made to go above the detailed consideration of each subject in order to discover some general lines that seem to emerge from this study as a whole. The purpose of this Part is to complement the detailed view with a more comprehensive view, so that the reader may get a perspective of both the wood and the trees. The problems raised in this Part refer to fundamental questions and some of the assertions made may appear ambitious. The reader will submit them to his critical judgment and if, in the end, he feels that my claims were unjustified, I hope that, at least, they will have furnished him with the occasion for a personal re-examination of these questions and, in this way, also given him the opportunity for contributing to their elucidation.

Chapter 30 must be considered as not belonging to the text of the book proper. It represents *one* personal reaction, out of many, and at a particular time, to the metabolic exchange of the ideas put forward here. After much reflection I have decided to leave it as it is, for, in my opinion, it fulfils a definite, legitimate function in connection with the subjects discussed here.

Part IX. When I revised and corrected the manuscript and made all the additions and clarifications necessary to make my meaning more precise and cohesive, I realised that the subject of multidimensional space was present throughout the book in a far greater degree than I had at first thought. In fact I had deliberately decided not to deal with it in full, hoping to leave it for a future occasion. What has actually happened is that the natural development of the ideas put forward here has brought me, gradually and imperceptibly, to another turn of the spiral which I have followed in my research. This turn corresponds to the studies which I had made long before I came to formulate the principle of symmetry; they deal with the

application of the concept of multidimensional space to the consideration of the unconscious, and of mental processes in general. Though I had never abandoned this trend of thought, and even at the beginning of my work on the principle of symmetry I had already written about the connections between both points of view, it is only recently that I have come to understand that the principle of symmetry, and in particular its corollary which refers to the non-application of the law of contradiction, could be interpreted, as I have proposed in Chapter 3, in terms of multidimensional space. This interpretation appears to me very significant because it opens up the possibility of a unitary view of bi-logic and simply bivalent logic, that is, a unitary view of thinking and feeling; in short, a view of the two fundamental modes of being observed in man: the symmetrical or unconscious, and the asymmetrical, observed in the functioning of consciousness. If my guess is correct, then bi-logic and simply bivalent logic would be two different subsets of a wider conception of the principle of contradiction, as proposed here. Once this view is reached, entirely unexpected and most promising vistas unfold before our eyes. I have begun to discuss these possibilities in Chapter 3 and Chapter 29. The reader will see that the points of view presented in this connection form an essential part of the whole. They are also, I believe, capable of great development.

The inevitable consequence of these considerations is that, if the book is to be self-contained as I have claimed, I have no alternative but to make an exposition, however elementary (and I am not able to do more than that), of the mathematical notions required to follow these ideas, and of the application which I have made of these notions in the study of mental processes. This is done in Part IX.

I feel I must explain how I see the relation between Part IX and the rest of the book. It can be said that all that is previous to this Part, and which deals with the bi-logical conception, stands by itself and, strictly speaking, does not need the ideas developed in Part IX. One can, therefore, work with the concepts of bi-logic without employing the notion of multidimensional space. But if one wishes to explore the further possible contacts of bi-logic with other aspects of human thought, and in particular with the basis of bivalent logic, then this Part seems to open up most illuminating new perspectives.

PART TWO

Indispensable Notions

2. *Some Logico-Mathematical Concepts*[1]

I must confess that I feel some embarrassment in presenting these concepts, because they are mostly taught nowadays in high-school. I took this decision, however, partly in order to avoid any ambiguity in the use of terms, which frequently have different meanings according to the school of thought; and partly because the definitions of the earlier part of this chapter, which are the most widely known, are necessary for those of the latter part, with which, so far as I am aware, people are not yet as familiar.

I would suggest that the reader who is not familiar with the various notions put forward here peruses and tries to understand them, but does not attempt a complete mastery of them. As these notions reappear later in the book, he may then turn back and renew his acquaintance with them and so gain a better grasp of them. It is hoped that in this way he will find it easier to attain a complete understanding.

Finally I must warn the reader that not all the logico-mathematical concepts employed in this book are represented in this chapter, only most of them. Some will appear when required. It has seemed to me that these exceptions were justified and made the text smoother and more natural.[2]

(1) By *set* is understood *any* collection or aggregate. This notion which is a primary one (that is, that cannot be reduced to more simple notions) implies the notion of the constituents of a set, which are usually called:

(2) *Elements, objects* or *individuals.*

(3) By *infinite* set is understood a set which is not finite. This definition has the advantage of precision and also of avoiding many of the problems with which one may have to grapple in some cases of infinite sets.

(4) A *subset* is a set which is *included* in a set. A *proper subset* (corresponding to the concept of *proper part*) is a subset of a set which includes more than one set.

[1] This exposition is based mainly, almost literally at times, on Lombardo-Radice (1967), and also on Ayres (1965), Fang (1963), Lipschutz (1964), Stahl (1956 and 1962), and Whitehead and Russell (1950).

[2] So far as I am aware, this book is self-contained in the sense that no logico-mathematical notions other than those explained in it are required to understand it.

(5) The notion of *inclusion* may be understood as follows: a set A is said to be included in another set B if every element of A is also an element of B.

(6) An *empty* set is that completely lacking in elements.

(7) A set may be determined or denoted or described or defined *extensionally*, i.e. by describing all its elements; or *intensionally*, i.e. by enumerating all the characteristics which make an object an element of that set. For example we may define extensionally a certain set S by saying that it is the set composed of the numbers 1, 2, 3, 4, 5; or we may define it intensionally by saying that it is the set composed of all x such that x is a natural number smaller than 6. The intensional definition is, obviously, made in terms of what in sub-section (13) of this chapter we call a propositional function.

Another example: an extensional definition of a certain set A would be to say that it is the set composed of Mr John Smith of Bodenham, Mrs Mary Smith, Master John Smith and Miss Mary Smith. If we define it intensionally we may say that the set A is the set composed of all x such that x is a component of the Smith family of Bodenham. It is obvious that 'x is a component of the Smith family of Bodenham' satisfies the definition of propositional function.

Sets may have a *structure* or be devoid of one. A set is considered structured when an *operation* (this word is to be understood in the mathematical sense) is defined *in* or *onto* (also a technical term) this set. Otherwise it is considered an *unstructured* set or set devoid of structure. At the present, elementary level of our study I am making use only of the concept of unstructured set. I would like, however, to make a comment in passing. It has become clear to me that some of the analytic work we do daily presupposes the use of the concept of structured sets, in which we actually perform operations which may or may not be those employed in arithmetic (addition and multiplication). Modern mathematics is there at our disposal offering us the concepts with which we could explore our clinical experience. In fact it seems that modern mathematical concepts – which, after all, are mental products – are no more than an expression of concepts which primarily have to do with psychological manifestations, such as we know in daily analytic practice. I would even go further and say that analysts work in much the same way as abstract algebrists; and neither of the two groups seems to be quite aware of it.

(8) *Correspondence* between two sets is called a *law* or *rule* which associates each one of the elements of a given set with one or more of the elements of another set. Each element of the second set is called the *correspondent* or *image* of the element of the first set. The law or rule may be expressed by the notation ϕ.

(9) If for a given element of the first set there corresponds only one element in the second set then the correspondence is called *univocal.*

This is also called a *representation* or *application* (the terms *mapping* and *function* are also employed).

(10) If, instead, several elements correspond, then the correspondence is called *plurivocal.* A particular case of plurivocal correspondence is the *infinitivocal* correspondence.

(11) If in whatever way an element x' of the second set is chosen – we may call I' the second set – we find that there exists at least one element, x, in the first set – we may call the first set I – of which x' is an image in the function ϕ, then we say that this function or law is an *application* or *representation* of I *onto* I'. We may also say that this is a *surjection*, or a *surjective transformation* T (or mapping) of the set I onto the set I .

(12) If ϕ is a representation of I onto I' and if its inverse, which in this case we may call ϕ^{-1}, is a representation of I' onto I then we say that ϕ is a *bi-univocal correspondence* between I and I'. In other words, we speak of bi-univocal correspondence (*a*) when to each x element of I there corresponds one and only one x' element of I'; and (*b*) when each x' element of I' is the correspondent, $x\phi$, of one and only one x element of I. A simple example is that of the fingers of the two hands. For each finger in one hand there corresponds one and only one finger in the other, and each finger of the second hand is the correspondent of one and only one finger in the first. In the end there are no fingers in either hand left out. Or we may take as an example sweets given to children in such a way that each child receives one and only one sweet and each sweet is given to one and only one child, so that in the end there are no children without a sweet and no sweets not in the possession of a child. A bi-univocal correspondence is sometimes called a *one-one correspondence.* In the later parts of the book we shall, for reasons which will be obvious, avail ourselves of this expression.

(13) *Propositional function*: 'Let ϕx be a statement containing a variable x and such that it becomes a proposition when x is given any fixed determined meaning. Then ϕx is called a "propositional function"; it is not a proposition, since owing to the ambiguity of x it really makes no assertion at all. Thus "x is hurt" really makes no assertion at all, till we have settled who x is' (Whitehead and Russell, 1950, p. 14).

If in this case, we substitute John for x, then John is a member of the class which is determined by the propositional function 'x is hurt'. Frequently the propositional function is not expressed so precisely in a phrase containing an x, but in a different grammatical construction. In the case mentioned, for instance, instead of 'x is hurt' we may say the propositional function is 'to be hurt', and all those which satisfy it (in this case all those who are hurt) are the members of the class determined by it.

Propositional functions are also called *open sentences.* Some logicians also employ the term *Property.* Personally I find that the

reference to a function or to a sentence gives a better inkling of the nature of the concept.

It does not seem possible to give an extensional description of an infinite set. We cannot, for instance, enumerate all natural numbers, though we may employ the expedient of writing: '1, 2, 3, 4 . . .'. The dots stand for 'and so on'. This type of procedure would amount to something like a transition between both types of definition, a sort of implicit intensional definition under the appearance of an enumeration. In cases of this type it seems better to attempt a straightforward intensional definition by means of a propositional function.

Another important question to be considered with regard to propositional functions is that the same set or class may be defined in terms of different propositional functions. We may, for instance, define the class of breasts in terms of the following propositional functions:

(*a*) '*x* is a breast'
(*b*) '*x* is a part of the body, which is present twice in each individual, consisting of a soft protuberance situated on the thorax in females'
(*c*) '*x* is the milk-secreting organ of the female in mammalia'[1]

As will be seen (*a*) is a very general, not detailed, propositional function; (*b*) and (*c*) make reference to different characteristics of the same object. Each may be useful or 'illuminating' in different connections. On the other hand, both may be united in one, more detailed propositional function. In general, once this more detailed function is obtained, one can always conceive of a still more complete formulation. The conclusions to be drawn are that the limits of a given propositional function are, in a sense, conventional, and that, starting from a concrete propositional function it is possible to arrive, very naturally, at embracing greater and greater portions of thinkable reality. This peculiarity furnishes one more way of approach to a view of the bases or origins of logic which is significant in connection with psycho-analysis and which will be discussed in Chapter 28.

(14) *Class* is defined as 'the collection of all values which satisfy a propositional function (of a variable)' (Stahl, 1956, p. 111). Classes are also called *unipositional propositional functions.*

(15) *Member* or *element* of a class is each object (or value) which satisfies the propositional function.

Here I must mention two sources of ambiguity in connection with the concept of class. The first refers to its 'right to existence'. The definition of class (such as that just given) has been the object of

[1] (*c*) is taken from the *Shorter O.E.D.*, and (*b*) is a modification of a definition from the same dictionary.

many reflections, and mathematical logicians who have attempted a rigorous conceptualisation even tend to do away with the concept of class itself. To quote Whitehead and Russell (1950, p. xxxix):

> . . . the assumption that functions only occur through their values . . .
>
> . . . Thus classes, as distinct from functions, lose even that shadowy being which they retain in *20.

[*20: the sub-section in which the authors deal with the General Theory of Classes. In it it is said (p. 186):]

> The following theory of classes, although it provides a notation to represent them, avoids the assumption that there are such things as classes. This it does by merely defining propositions in whose expression the symbols representing classes occur . . .
>
> Propositions in which a function ϕ occurs may depend, for their truth value, upon the particular function ϕ, or they may depend only upon the *extension* of ϕ. In the former case, we will call the proposition concerned an *intensional* function of ϕ; in the latter case, an extensional function of ϕ.

So far as I am aware, the position expressed in this quotation seems at present to be the one most in vogue. I am prepared to accept that I have not understood it, but I must confess that I find it ambiguous. The assertion that functions only *occur* through their values seems to point to a question of existence and, I believe, it would be either true or false according to the meaning we give to this latter word. If by existence we mean *semantical* or *'real'* existence then it is true. In such a case it is true, for instance, that (to consider the case mentioned by the authors just quoted) the function '*x* is hurt' only occurs through its values: 'Peter Jones is hurt', 'this cat is hurt', 'my engine is hurt', etc. But if we mean *syntactical existence*, it is not true to say that functions only occur through their values; for a (propositional) function, however much it is a schema or an incomplete statement, has syntactical existence and, as such, 'rights of its own' in the realm of logic. It seems clear that, *from a syntactical point of view*, a propositional function, a concrete value of it, and the collection of all its values are three different things.

On the other hand, even if we accept the opinion that in any and every case functions only occur through their values, we become aware that, so far as logic is concerned, the converse of that assertion is *always* true: *values only occur through the functions that define or delimit them.* To explain this with an example, take the propositional function 'x is a house' and consider one value of it, the house called Number Ten Downing Street. How do we distinguish this value from another value, for instance, the house in which the Emperor Tiberius lived in at Capri? If we call the first value *a* and the second *b* we may say that *a* is a house existing now and that *b* is a house not existing now, that *a* is English and *b* is Roman, that *a* has four stories and *b*

(say) only one, etc. As can easily be seen, the delimitation of the values *a* and *b* of the function we are considering is made in terms of other functions ('*x* exists now', '*x* does not exist now', '*x* is English', '*x* is Roman', etc.). In general: *each and every value of a given propositional function is defined or delimited or differentiated from any and all other values of the same propositional function in terms of other propositional functions, in such a way that each value is defined uniquely in terms of an intersection of a given number of propositional functions.*

Reflection, therefore, shows in an indisputable manner that what in ordinary life is, for everybody, an individual, is, in logical terms, only a zone or point of intersection of propositional functions. Logic can only describe the concrete in terms of the abstract, and this would be, it seems to me, exactly the converse of the assertion quoted above (which does not mean that both are necessarily incompatible).

All this is discussed at length in Chapter 28. It will be seen there that a reflection on this subject leads to the introduction of the findings of psycho-analysis in the very core of logic and of the natural sciences. I refer the reader to that chapter for a further understanding of the assertions just made.

The second source of ambiguity refers to the distinction between class and set. Although mathematicians are frequently also logicians and vice versa, the fact is that the term 'set' is seen more in mathematical textbooks and 'class' more in books on logic. The use of both has developed in the course of various decades, with the result that there is a certain imprecision regarding the difference between their respective meanings, due probably to the problems raised by the discovery of certain antinomies.[1] Without entering into details, it may be said that in an attempt at a rigorous logical formalisation of set theory (see Lombardo-Radice, 1967, pp. 53-9), the term class may be employed as having a more general meaning than that of set. The term set would be restricted to meaning a class which is susceptible of being itself an *element* of a larger class. In contrast, there would be (at least) one class which cannot by definition be a subclass or element of any other class and this, therefore, would not be a set: the so-called universal class or total class, of which all other classes are elements. These elements are 'classes which are sets', just as any class which is an element of another is a set.

As can be seen, the term class remains ambiguous, because it can be employed to mean a set and also to mean a class which is not a set. As, so far, the problem of the distinction just made is not actual in our discourse, throughout the book I shall employ the term class as synonymous to set. At times I may be more inclined to employ

[1] Some brief mention of the antinomies and paradoxes is made in the second sub-heading of Section 1 of Chapter 28.

the term class. Upon reflection, I must confess that the only reason I now detect for employing one or the other term is the influence of a given logical or mathematical source in a given piece of research of mine, and that this influence is, more than anything, a matter of personal history. When I made my initial formulations of the principle of symmetry I was more influenced by books on symbolic logic. My studies of infinite sets as applied to the mind were more influenced by notions of abstract algebra. I do not believe the final result is actually confusing, at least not any more than the same lack of differentiation which is found in mathematical textbooks is confusing.[1] It must be understood, however, that in most and perhaps in all cases throughout the book in which I employ the term class I am referring to classes which are sets in terms of the distinction just made. The only exception *might*, perhaps, be what I call the homogeneous indivisible totality (Part VII). I have not devoted much reflection to the question of the relationship between such a concept and that of the universal class. At first sight they would appear to be different, because the universal class is a logical concept and the homogeneous indivisible totality is outside logic. But a detailed study of the question (which might be very interesting) is not tackled in this book.

(16) *Relation* is the 'collection of all the pairs of values which in a determined order satisfy a propositional function' (Stahl, 1956, p. 130). As an example, if the propositional function is 'to be the father of', all the pairs of values which satisfy it form the relation. '*A* is the father of *B*' would be one member, '*D* is the father of *E*' another, and so on. Relation is treated as a class of pairs. It may be written xRy, a notation which permits the reader to see immediately the order of the pair of values. This notation is read: the relation that x has to y. Another notation is $xy.\phi\ (x,y)$ which also immediately reveals the order of the values. Relations entailing pairs of values are also called *bipositional propositional functions.*

(17) *Converse of a relation*: 'If R is any relation, the converse of R is the relation which holds between y and x whenever R holds between x and y. Thus *greater* is the converse of *less, before* of *after, cause* of *effect, husband* of *wife*' (Whitehead and Russell, 1950, p. 32).

(18) *Symmetrical and non-symmetrical.* When the converse of a relation is identical to it, then the relation is called *symmetrical.* Otherwise it is called *non-symmetrical.* When the relation and its converse are incompatible, the relation is called *asymmetrical.* Examples of *symmetrical* relations: cousin, identical, different, alike. Of *non-symmetrical*: brother (y may be brother or sister), beloved, hated. Of *asymmetrical*: uncle, greater, better, etc.

(19) Between two sets A and B a *binary relation* ρ (rho), is

[1] The term 'equivalence class' is an example.

defined if in whatever way an element a belonging to the set A and an element b belonging to the set B are given, then one and only one of the following assertions is true:

a is in relation ρ with b
a is not in relation ρ with b

When A is equal to B then it is said that a *relation in A* is defined.

The concept of relation is in substance the same as that of correspondence; it is more a question of different denominations, which may be chosen according to the individual case.

(20) An *equivalence* in a set A is a relation ρ which fulfils the following formal properties:

(20*a*) *Reflexibility*: $a\rho a$ for every a element of A.

(20*b*) *Symmetry*: if $a\rho b$ then $b\rho a$, in whatever way a and b are chosen in A in the relation.

(20*c*) *Transitivity*: in whatever way we choose in A the elements a, b, c, such that $a\rho b$, $b\rho c$, then, in consequence, $a\rho c$.

(21) *Equality* or *identity*. '"x identical to y" is defined by the following: "For all the uni-positional functions of the first order, if x satisfies one of them, y also satisfies it." In other words: x and y are identical when all the properties of x are also properties of y' (Stahl, 1962, p. 95).

(21*a*) For the concept of *order* I shall only give an example. We may start with individuals; we then have functions of individuals (functions of *first order*); functions of functions of individuals (functions of the *second order*), etc. (Stahl, 1962, p. 69).

(22) Two sets are said to be *equipotent* if it is possible to establish between them at least a bi-univocal correspondence. It can be seen that this correspondence is an equivalence.[1]

(23) Two sets which are equipotent are said to have the same *cardinal number* or *power*. In other words, if between two sets it is possible to establish a bi-univocal correspondence, they have the same cardinal number or power. In the case of the hands, the cardinal number is 5.

(24) If we call N the set of natural numbers ordered according to magnitude, then the cardinal number of N or *cardinality* of N, is called *the power of the denumerable*. (Remember that there is an infinite number of natural numbers: 1,2,3,4,5 . . .; the power of the denumerable is therefore that of an infinite set.)

(25) *Denumerable*. A set which is equipotent with N is called *denumerable*, that is, a set which has the same cardinal number as N (therefore, it is an infinite set).

[1] In the English textbooks at my disposal, instead of the term 'equipotent', the term 'equivalent' is employed. But it seems more precise to keep the former, because not all equivalents seem to be equipotent. For example the equivalents *in* a set are not equipotent, because this latter concept presupposes at least two sets.

(26) *A denumerable set* A *contains proper denumerable subsets* — that is, sets which have the same power of the set in which they are included. As an example we may quote the set of even numbers (for each number n there is one and only one even number $2n$ and vice versa: a bi-univocal correspondence). The same can be said of the multiples of a given number or of the squares (for each number there is one and only one square and for each square there is one and only one (natural) number which is its root).

As the thorough understanding of this notion is indispensable for the understanding of the arguments of this book, I shall give some further explanations, intended for those who have never come across it. Let us take the set composed of the first ten natural numbers: 1,2,3,4,5,6,7,8,9,10. These are the even numbers corresponding to each one of the elements of the set:

For the number 1	$2n$ is 2
For the number 2	$2n$ is 4
For the number 3	$2n$ is 6
For the number 4	$2n$ is 8
For the number 5	$2n$ is 10
For the number 6	$2n$ is 12
For the number 7	$2n$ is 14
For the number 8	$2n$ is 16
For the number 9	$2n$ is 18
For the number 10	$2n$ is 20

It will immediately be seen that the last five even numbers no longer belong to the set chosen. But if we consider not a subset of the natural numbers (such as the one we have just considered) but the complete set, then we shall find that for each and every number n of this set there is always a number $2n$ of the same set. Put in another way, there is always a bi-univocal correspondence between the set and the proper part of it constituted by the even numbers; because for every element n of N (1,2,3,4 . . .) there is always one and only one element $2n$ of N, and for every element $2n$ of N there is always one and only one element n of N: in other words, a bi-univocal correspondence. Now, the set of even numbers, $2n$ (2,4,6,8, 10,12,14 . . .) is obviously not the whole set N, but only a subset of it; the odd numbers are not elements of the set of the even numbers.

The same reasoning can be applied to the square numbers. This is a paradox; it appears strange to us because in the case of finite sets we identify the concept of being included in a set with the concept of having a smaller cardinal number. The cases in question show that both concepts are not the same.

(27) Dedekind (see Lombardo-Radice, 1967), considering this and other aspects of the question, arrived at the following definition:

A set is infinite when and only when it can be put in bi-univocal correspondence with a proper part of it.

This definition is of the utmost importance for all the considerations made in this study.

(28) *A power set* of a given set is the set formed by all the subsets, proper or improper, of this set. These subsets are here considered as elements of the new set. This set is also called *the set of the parts* or *the sets of all subsets* of the set in question.

(29) Given a denumerable set, M, the power set of it has a power which is superior to that of the denumerable. The power of the power set of a denumerable set M is called the *power of the continuum*. So there are some infinite sets which have a higher power than that of other infinite sets. In ordinary language we may say that such sets have an infinite number of infinites!

3. *A Reference to My Previous Work*

Foreword

In the following pages I shall refer to my previous work only in so far as it is indispensable. To achieve this purpose, I shall reproduce entirely, in Sections 1 and 2, one of the first two papers in which I started this line of thought, but with some modifications and additions, which I believe will be useful for the understanding of what follows. I must warn the reader that the result of these changes will be a mixture of my first thoughts put forward with my latest, which is not a completely satisfactory reflection of my present way of looking at the question. It is hoped that much of what remains unsaid here will become more explicit throughout the following pages of the book. It must also be remembered that the line of thought put forward here is in an intense process of growth (hence no photograph of a given moment, however accurate, will be a true image of the whole thing).

In order, however, to facilitate the understanding of the problem, I have indicated (in brackets) the date of certain phrases and paragraphs, whenever knowledge of the date would assist the reader. I decided that leaving the phrases which pointed to problems later more accurately expressed or solved would acquaint the reader with the difficulties I have encountered in the development of this line of thought; I hope that this will assist him in the development of his own thinking.

In Section 3, written recently, I shall make some comments in terms of my present way of looking at these problems. It is hoped that this will clarify matters.

1. Expression in symbolic logic of the characteristics of the system Ucs. or the logic of the system Ucs.[1]

Introduction and formulation of the problem. The discovery of the characteristics of the system Ucs. is the most creative and funda-

[1] (1971:) This and the following Section are a modified and enlarged version, written in 1971-2, of a paper read in Spanish at the First Latin-American Psycho-analytic Congress in Buenos Aires, August 1956, and published in the *International Journal of Psycho-analysis*, vol. 40, part I (1959).

(1959:) I wish to express my gratitude to Gerold Stahl, whose help has permitted me to purify my first formulations from certain logical imperfections, in order thus to arrive at a more rigorous formulation.

mental of Freud's discoveries, because it is on these characteristics that his greatest contributions to psychology, especially all those pertaining to dreams, are based. We have indirect evidence that he valued them particularly. In his preface to the third English edition of *The Interpretation of Dreams* (1931) he mentions that

> it contains, even according to my present-day judgment, the most valuable of all the discoveries it has been my good fortune to make. Insight such as this falls to one's lot but once in a lifetime. (See Freud, 1900, p. xxxii)

On the other hand we know from Jones (1956, p. 34) that there were in Freud's writings three things of which he thought highly; one was the last chapter of this book, another his essay 'The unconscious'. Now both these rest, so to speak, on the foundations given by the characteristics of the system Ucs., and in both the study of these characteristics occupies a prominent place. Finally, in his *New Introductory Lectures* (1933, p. 74) Freud comments:

> Again and again I have had the impression that we have made too little theoretical use of this fact, established beyond any doubt, of the unalterability by time of the repressed. This seems to offer an approach to the most profound discoveries. Nor, unfortunately, have I myself made any progress here.

This reference to one of the characteristics is worded in a manner that leaves no doubt as to his estimate of its importance. It is obvious that what he says about this particular characteristic could be applied to all of them. Yet recent analytic researches are, on the whole, sadly uninterested in this fundamental topic.

It is worth remarking that the terminology employed on this subject seems to have changed over the years. In *The Interpretation of Dreams* (1900, pp. 588-609, especially p. 597) Freud distinguishes between the primary and the secondary process; and in 'The unconscious' (1915, pp. 186-7) he included the first as one of the 'special characteristics of the system Ucs.', while earlier he seems to have employed the term primary to designate them all.

These characteristics, we know, are:

(1) Absence of mutual contradiction between the presentations of the various impulses:

> When two wishful impulses whose aims must appear to us incompatible become simultaneously active, the two impulses do not diminish each other or cancel each other . . . . (1915, p. 186)

A consequence of this is what he has called the absence of negation.

(2) Displacement.

(3) Condensation.

These two constitute the distinctive traits of the primary process.

(4) Absence of time, in short 'no reference of time at all' (1915, p. 187), which comprises lack of temporal ordination and lack of alteration by the passage of time. It seems to me highly probable that the second is a necessary consequence of the first.

(5) Replacement of external by psychical reality. In psychiatry, especially in relation to schizophrenia, this characteristic is sometimes called literal interpretation of metaphor. In fact it may be said that this characteristic described by Freud amounts to making psychical and external reality identical.

These characteristics might be called the laws by which the system Ucs. is ruled. Their inspection soon reveals that any process of thought which conforms to them differs widely, for this very reason, from the habitual logic of scientific thought, which in a rather vague and on occasions even inexact manner is frequently referred to as Aristotelian logic. But it cannot be said that the processes in the system Ucs. happen without conforming to any logical law, for in that case we should only witness chaos; and if there were chaos there could be nothing predictable, and therefore Freud could not have described the characteristics mentioned at all. There must, then, be implicit in these characteristics one or more logical principles different from those by which scientific thought is ruled. Thus the inevitable conclusion is that if laws of the system Ucs. exist, and if they do not conform to the principles of scientific logic, they must conform to some logical system that in some respect at least is different from scientific logic. The laws of the system Ucs. could then be the consequence of principles of this logical system; in any case they would conform to it.

Formation of two principles. Here I must mention that I personally approached this problem when studying schizophrenic thinking, in which I was able to find a conformity to certain principles. When examining the matter more closely I became aware that such principles referred essentially to the characteristics of the system Ucs. and that schizophrenic thinking was only a particular application of them.

To enter directly into the matter, the study of schizophrenic thinking shows that it conforms to two definite principles. The first is the representative of conscious normality or, in other words, of a type of thinking identical with scientific thinking; it is not something different from either. The simultaneous operation of both the first and the second principle may frequently be seen in the same mental product. On the other hand, consideration of these principles, especially of the second, reveals that they constitute that aspect or part of schizophrenic thinking which corresponds to the thinking of the system Ucs.[1] For this reason we shall describe them in terms of

[1] From this it may be seen that I am asserting that the thinking of the system Ucs. is in part identical with scientific thinking.

this latter.

I. *The system Ucs. treats an individual thing (person, object, concept) as if it were a member or element of a set or class which contains other members; it treats this class as a subclass of a more general class, and this more general class as a subclass or subset of a still more general class, and so on.*

It seems that the notion of class can be understood from this principle, and I shall illustrate it with only one example. John is an element of the class of men, Teresa of the class of women. The class of men (males) is a subclass of the class of rational animals, and the class of women is another subclass of the same class. The class of rational animals is a subclass of the class of animals, and this is itself a subclass of living beings.

We may call this the *principle of generalisation.* It is a very general principle which *frequently* is applied according to another principle which predicates it; precisely because it refers to an *application*[1] of principle I, we shall call it I_1. It may be formulated as follows:

I_1. *In the choice of classes and of higher and higher classes the system Ucs. shows a preference for those propositional functions which in one aspect constitute increasing generality and in others keep particular characteristics of the individual thing from which they started.*

In other words, from all the possibilities of generalisation an individual thing offers, it chooses some and abstains from choosing others. Because of this, there frequently remain in the general class, as finally formulated, characteristics of the individuality of the thing from which the generalisation started.

The second principle is formulated thus:

II. *The system Ucs. treats the converse of any relation as identical with the relation. In other words, it treats asymmetrical relations as if they were symmetrical.*

To quote an example. If John is the brother of Peter, the converse is: Peter is the brother of John. The relation which exists between them is symmetrical, because the converse is identical with the direct relation. But if John is the father of Peter, the converse is: Peter is the son of John. In this case the relation and its converse are not identical. This type of relation which is always different from its converse is called asymmetrical. What the second principle affirms is that the system Ucs. tends to treat any relation as if it were symmetrical. In the example given: if John is the father of Peter, then Peter is the father of John. In Aristotelian logic this is absurd; in the logic of the system Ucs. it is normal as we shall see in a moment.

We may call this the *principle of symmetry*. It represents the most formidable departure from the logic upon which all the scientific and philosophical thinking of mankind has been based. We see it

[1] (1971:) The word 'application' is meant here in its ordinary, not mathematical, meaning.

constantly in operation in schizophrenic and unconscious thinking. From it follow several fundamental consequences which it is important to mention explicitly. These are:

II_1. *When the principle of symmetry is applied there cannot be succession.*

This is an inevitable conclusion because a succession of moments is actually a serial ordination, and if asymmetrical relations are barred, then, according to symbolic logic, there cannot be such ordinations. This is easily understood if we consider that according to the principle of symmetry the following identity holds:

(event) y follows after (event) x = (event) x follows after (event) y

In other words there is no succession. Now, time may be considered from various points of view, but in mathematical physics it is treated as a succession of moments. So, accordingly, when the principle of symmetry is applied there cannot be time in the physico-mathematical sense.

II_2. *When the principle of symmetry is applied the (proper) part is necessarily identical to the whole.*

A page of a given book is a proper part of the book, an arm is a proper part of a given body. If the principle of symmetry is applied then the relation 'the arm is part of the body' is identical to its converse 'the body is part of the arm'. In the same way that time disappears, there is also no place for any difference between the proper part and the whole. In other words, the proper part is treated as though it were an improper part. We see this in constant operation in schizophrenic thinking and when one thinks of it, the implications are astounding. By virtue of it, the total (and therefore the potentialities of the total) is included in any part, which results in any part being identical to the total, and in consequence identical also to any other part. This applies to the parts or constituents of any set or class, aggregate, whole, concept, person, object or situation. There are three particular types of *examples* of II_2 which, owing to their importance, deserve explicit mention. The first is:

II_{2a}. *When the principle of symmetry is applied, all members of a set or of a class are treated as identical to one another and to the whole set or class and are therefore interchangeable with respect both to the propositional function which determines or defines the class and also with respect to all the propositional functions which differentiate them, and owing to which (i.e. to these functions), according to Aristotelian logic, the members of the class are not identical with one another.*

In Aristotelian logic each member of a class fully expresses the propositional function of the class, but it also expresses other propositional functions as well, and it is in these other propositional functions that the members of a class are different from one another. But if the principle of symmetry is applied this is no longer

so. To give an example: Francisco may be an element of the class of Chileans and so may Juan; this means that both satisfy the propositional function which defines or determines the class. But Francisco is also a member of a number of other classes, such as for instance the class of tall people, of blue-eyed people, of those with an I.Q. of 120, etc. Juan, on the other hand, may or may not be an element of these classes and also is an element of various classes to which Francisco does not belong. The difference between them can be described precisely in terms of these propositional functions which they do not have in common. If Juan were an element of *all* the classes to which Francisco belongs then there would be no difference whatsoever between both, that is, Juan would be Francisco. But if the principle of symmetry is applied it is sufficient that both are elements of one class to be identical. In scientific logic this is absurd.

The second type of example can be formulated as follows:

$II_{2\,b}$. *When the principle of symmetry is applied, certain classes whose propositional functions are of the type* p *and not-*p (p. ~ p) *and which, therefore, are empty by definition, may be treated as not empty.*

To explain with an example: if we call *p* being alive, then not-*p* is not being alive. One variety of not being alive is being dead. In symbolic logic a class whose propositional function is being alive *and* being dead (intersection) is by its very definition an empty class, because according to the principle of contradiction there cannot be *p and* not-*p*; in logical symbols: ~ (*p*. ~ *p*). But being alive and being dead are subclasses of a higher class whose propositional function may include all possibilities regarding life; then it follows from the application of $II_{2\,a}$ that being alive is identical to being dead. From this a new class may be formed, that of those who are alive and dead. And in fact we see that schizophrenics and the system unconscious or id or structural unconscious actually treat this empty class as though it were not empty. This actually plays a role in schizophrenic and unconscious thinking, and both for this reason and also because it is strangely different from scientific logic, it deserves to be formulated expressly. *It will be seen that such procedure does not conform to the principle of contradiction.*

The third example of II_2 can be formulated as follows:

$II_{2\,c}$. *When the principle of symmetry is applied there can be no relations of contiguity between the parts of a whole.*

This is most important if applied to material objects. Take for instance the pages (parts) of a book: if the whole book is contained in each page, there can be no relation of contiguity between the pages. The same can be said of any material object, because our conception of material objects contains contiguity as an essential element.

We may express this in another way (which leads to the same

conclusion): in mathematics and physics, the line (space of one dimension) is conceived as formed by a series of points each next to the other and each having only two neighbours; each point occupies a definite position with regard to the others. In other words, as in the case of the physico-mathematical treatment of time, this entails asymmetry. For if *a* is to the right of *b*, then *b* is to the left of *a*. But, according to the principle of symmetry, whenever *a* is to the right of *b*, then *b* is also to the right of *a* and, moreover, whenever a given point is part of a given line then the line is part of the point, that is, any point is identical to any other and to the whole line. In other words, if only symmetrical relations are available, then the physico-mathematical concept of 'line' disappears. The same can be said of spaces of 2,3 or any dimensions. To generalise: if only symmetrical relations are available there cannot be space in the physico-mathematical meaning of the word.

So, by virtue of the principle of symmetry, both space and time vanish!

A careful examination of the manner in which this principle is formulated will reveal that according to it in the logic of the system Ucs. it is permissible, but not obligatory, to treat as symmetrical relations which in scientific logic are not so considered; in other cases (such as the case of time) it can be affirmed that the system Ucs. does not know certain asymmetrical relations which in scientific logic are familiar. I have not found a law which permits us to know or to foresee when relations are treated as symmetrical and when they are not. The most I could say here is that the system Ucs. resembles a child who is learning to speak and who at times conforms to the laws of grammar and at other times ignores them.[1]

2. Application of these principles to the characteristics of the system Ucs.

It may be affirmed that the characteristics of the system Ucs. described by Freud are the expression either of the second principle or of the operation of both together. (1959:) With regard to the lack of contradiction and condensation, it is possible that there may be, furthermore, another principle implicit in them, though this is not at all clear to me.

Let us consider these characteristics one by one, beginning with the most obvious.

Absence of time. I have said that the fact that the processes of the system Ucs. are not altered by the passage of time seems to me a consequence of the fact that they are not ordered in time; if there is

[1] (1971:) Since I wrote this paragraph, this question has been studied in detail, as will be seen throughout the book, in terms of the various levels of the relationships between the symmetrical and asymmetrical modes of being.

no time there cannot be any alteration by the passage of time. Now the absence of the temporal process is an inevitable consequence of the second principle, because the existence of a succession of moments requires a serial ordination; and if asymmetrical relations are barred, according to symbolic logic there can be no such ordination. In other words, succession disappears. And this is precisely the characteristic described by Freud. This characteristic is, then, simply a consequence of II.

Displacement. This characteristic or manner of functioning of the unconscious is fundamental. It may be said briefly that it is at the base of projection, sublimation, transference, the return of the repressed and the division of objects; all these mechanisms are in some way examples of displacement, and to a very great extent differ among themselves only with regard to the circumstances in which displacement takes place. This is an interesting subject to elaborate, but will be left alone for the moment.

In displacement we see the simultaneous action of two different processes, which I shall try to explain with examples. When an individual displaces, he treats the primitive object and the object towards which he displaces as elements of a class which has a certain specific characteristic, which is perhaps not striking to his conscious thinking, but is to his unconscious. For example, if he feels his chief to be a dangerous father it is because he considers that both have the same characteristic, dangerousness. If we express this in terms of symbolic logic we may say that in his unconscious he treats both as elements of a class; it may also happen that he treats one as an element of another class, but in this case both classes are always subclasses of a more general class. For example, a mother who feeds belongs, let us say, to the class of women who feed materially; a professor who teaches belongs to the class of men who feed mentally. When on account of a process of displacement an individual feels the professor as a mother who feeds he is, first of all, treating both classes as subclasses of a more general class, that of those who feed, either materially or mentally. The same thing can be seen to be true in any example of displacement.

This is the first process visible in displacement; it is easy to grasp that it is simply the operation of our principle I. But this principle *alone* would not suffice for the understanding of displacement. There is yet another aspect. When displacing (for instance, from mother to professor) the unconscious does not treat both only as possessors of something in common, but in fact treats them as identical. This is very strange, but with the help of the second principle it becomes comprehensible. In order to understand this we must first consider a consequence of this principle. Let us consider the relation

$$y \text{ is part of } x$$

If the converse of this relation is identical with it, that is, if the relation is symmetrical, we may say

$$x \text{ is a part of } y = y \text{ is a part of } x$$

For instance, 'the arm is part of the body' is identical with 'the body is part of the arm'. In other words, the part is identical with the whole, from which it follows logically that it is also identical with any other part. Consequently a subclass may be identical with any other subclass of the same class (corollaries II_2 and II_{2a}). All these assertions may appear absurd, but according to what we may call *the logic of symmetrical thinking* they are perfectly legitimate.

Careful reflection about these two processes reveals that the application of both together is enough to explain displacement completely. In other words, *displacement is the result of the joint operation of that aspect of Aristotelian logic which we have described as principle I, and of a logical consequence of principle II.*

(1971:) It will be noted that if displacement is viewed in this (logical) light, then its name, which seems appropriate if referring to cathexes or charges of energy (a certain amount of energy *goes over*, i.e. is displaced, from one process to another), is no longer justified. *For, if displacement is considered from a logical point of view, nothing is displaced.* The original and the displaced aspect are both treated as being identical. Put in another way, we can only (logically) speak of displacement if we view the workings of 'symmetrical logic' from an 'asymmetrical' vantage point.

Replacement of external by psychical reality. It seems that in a rigorous formulation this characteristic has no right to independence, but on the contrary must be considered as a variety, or better as a particular example, of displacement. This is easily understandable. Let us consider as examples the identity established by the unconscious between mental cannibalism and real cannibalism, between an aggressive desire and an aggressive accomplishment, between the emotion described as bursting with rage and a real bursting, etc. It is obvious that in every one of these examples the essential process at work can be described as follows: first, the unconscious treats both as elements of the same class or as elements of different classes which themselves are subclasses of a more general class; then it treats the two as if they were identical. These are precisely the two processes at play in displacement, and this proves our assertion.

Lack of mutual contradiction and condensation. Although it seems certain that these two characteristics are different, it is no less certain that there is an especially intimate relation between them, because the second is not conceivable without the first. Things are not as simple here as in the case of the other characteristics. (1959:)

I suspect that, in addition to the principles I have mentioned, we witness here the operation of another logical principle, as we shall see in a moment. But let us consider first the relation between our principles and these mechanisms.

The lack of contradiction between two impulses which appear incompatible to Aristotelian logic and their union in one expression, which is accomplished in condensation, suggests that both are treated either as going in the same direction (while in Aristotelian logic they can be opposed, or in any case different), or as being parts of a more general whole, parts that would not be mutually exclusive. All this suggests: (*a*) the formation of more inclusive classes; (*b*) treating the subclasses of each of these classes as identical to one another; and (*c*) perhaps even treating as identical various different concepts which in scientific logic are mutually exclusive; in other words the operation of principles I and II. In condensation we see that a given object may suggest more than one meaning or represent more than one person. If we keep in mind that according to principle II each part contains the potentialities of the whole and of any other part (remember the example of the arm), then it is perfectly understandable that an element may have more than one meaning or represent more than one person. All this can be better understood with the help of a graphic representation of principle II. As with any graphic representation, this reproduces with the help of spatial symbols the relations which exist in the thing that is represented according to a previously established convention. The representation of principle II with the help of the concept of a space of more than three dimensions enables us to see that if a whole is conceived as possessing more than three dimensions and the parts are considered three-dimensional, then it is possible for several parts to occupy the same space. If we remember here that the unconscious substitutes psychical for external reality, then it becomes comprehensible that two impulses symbolised by two material (i.e. spatial) objects (to take Freud's already quoted words) 'do not diminish each other or cancel each other'. And that is precisely what happens in the absence of mutual contradiction and in condensation; all this would be incomprehensible in a three-dimensional representation.

I may add that for years I have occupied myself with the graphic representation of mental phenomena in terms of multidimensional space, and in another publication (1954, Chapter 8) I have dealt extensively with this subject, but it is only recently that I have succeeded in reaching the more general formulation of the principle of symmetry, and have come to understand that this graphic representation in terms of multidimensional space is only a particular expression of this principle.

(1973:) After still further reflection I have again come to see the principle of symmetry in terms of space (as I saw it in 1959), but this time as a contrast resulting from the co-presence of spaces of

different dimensions (for some further idea see Section 3 of this chapter).

(1971:) In his *New Introductory Lectures* (1933, p. 73) Freud remarks that 'the logical laws of thought do not apply in the id, and this is true above all of the law of contradiction'. We have already seen that the various characteristics described by him conform to a different logic and, therefore, do not conform to the Aristotelian or scientific logical laws of thought, but we must examine the law of contradiction separately. After many years of uncertainty in this respect I have come to the conclusion that this lack of application is the consequence and *only* the consequence of the principle of symmetry as it is developed in corollary $II_{2\,b}$. I had deduced this consequence from the principle of symmetry from the very beginning (though I have never published it before now), but in spite of it I continued to hesitate, as appears from the previously published version of the present paper. The reason for this hesitation seems clear to me now: although the suspension of the principle of contradiction seems not only a legitimate but an inevitable corollary of the principle of symmetry, the fact is that, *once postulated, it opens up a completely new 'logical' world.*[1] This new world has new rules, wide ramifications and vast perspectives. I had suspected the vastness of this world and was (unconsciously) reluctant to admit that all of it could spring from corollary $II_{2\,b}$. We must now proceed to explore it systematically. Here I shall content myself with remarking, in passing, that the consideration of the unification of life and death in a wider perspective (in a wider class or set) may throw important light upon certain obscure aspects of the nature of man.

(1971:) **Absence of negation.** After all the above, it seems that we may now consider the absence of negation, which in the previous version of this paper I thought might be a principle of the logic of the system Ucs., though I did not dare to affirm this. I believe we can now review the question in precise terms.

We must, first, note that Freud was not entirely clear and explicit about this trait or characteristic. It is not clear, for instance, whether he thought it was the same as the absence of mutual contradiction. One might actually think that he considered both to be the same thing for the following reasons: in his paper 'The unconscious' he describes the absence of negation immediately after the absence of mutual contradiction and the text suggests that it is something like an explanation or an enlargement of the concepts contained in this latter; then, when in the same paper he sums up the characteristics (p. 187) he mentions the exemption from mutual contradiction and not the absence of negation.

It seems pertinent to quote here from this paper (p. 186):

[1] See in Section 3 of this chapter the actual meaning of the use which can be made of the concepts of logic employed here.

> These instinctual impulses are co-ordinate with one another, exist side by side without being influenced by one another, and are exempt from mutual contradiction. . .
>
> There are in this system no negation, no doubt, no degrees of certainty . . .

Upon further examination of the matter, however, we must conclude that both are not the same. The quotation just made, shows, I think, that Freud was referring at the same time to several different things. The expressions 'exempt from mutual contradiction' (between impulses) and 'no negation' *seem* to refer to the same thing, but this is not quite clear because in this quotation Freud does not distinguish between, on the one hand, contradiction between impulses, which refers to a *question of action*, and the *logical concept*, on the other. When, instead, he speaks of 'no doubt, no degrees of certainty', he is obviously speaking of *one logical concept*, which does not apply to impulses; in other words, Freud actually describes two different things, even if he is not explicit that he is doing so: a characteristic of the impulses and a logical principle. However much interconnected both may be, it appears difficult to consider them as the same thing. Perhaps the first is a consequence or application of the second. This question deserves further study.

On the other hand, it seems best to consider the absence of negation as meaning only one thing: an *indirect implication* of the absence of the *logical principle of contradiction*, to which he explicitly refers in a phrase of the *New Introductory Lectures* (*S.E.* 22, p. 73):

> The logical laws of thought do not apply in the id, and this is true above all of the law of contradiction.

As can be seen, this is *another* logical concept, different from the one just mentioned. (The reason why I speak of an *indirect implication* may be understood by reading Section 3, sub-section 2 (1) of this chapter.)

If we now return to corollary $II_{2\,b}$, then we can say that, *in accordance with* the principle of symmetry and *as a consequence of* the principle of generalisation, *p* and not-*p* are identical. This means that something can be and not be at the same time. In other words, the absence of the principle of contradiction is a consequence of the joint application of the principles of generalisation and symmetry. When both these principles are applied (in cases such as that just mentioned) there is no room for the principle of contradiction. Non-existence is treated as identical to existence. Nothing is negated because that which is negated is included in a vaster whole, and (owing to the principle of symmetry) is identical to that which is affirmed.

Though this is the consequence of the application of both

principles, perhaps we would be justified in treating it as a new logical principle; the reason is that important consequences follow from it which extend as far as the realm of morals (for instance, the identification of the good and the evil). But we shall not pause to consider all these implications. Suffice it to say that the absence of negation (which, if we leave aside the question of impulses, remains one logical aspect or part of the more complex and not completely clear conception of Freud), even if it can be considered as a logical principle, is in itself a consequence of our two principles. We might, from a strictly logical viewpoint, call it a *principle of the second order, though in itself it is the foundation of a type of logical order which has wide consequences.* (1971: end)

Summary. We may conclude that *the special characteristics of the system Ucs. described by Freud reveal the operation of a logic peculiar to this system, whose fundamental distinguishing mark is to treat as symmetrical relations which in scientific logic are not so considered.*

3. (1972:) Comments and explanations (especially for mathematical logicians and philosophers)

Explanation. I am aware that anyone who has followed carefully the arguments of this chapter and has tried to discover the various implications of the ideas put forward here, may be confused and critical. This section, which is the result of discussions with thoughtful people who have actually tried to follow the path just indicated, is written with the intention of offering suggestions which may help to avoid some pitfalls and at the same time put the point of view presented here in its proper perspective.

I shall discuss these problems under several headings. It is to be kept in mind, however, that one cannot expect to find in this section the solution to all the questions that may arise. Many of these will be discussed throughout the book. It is only by patiently interrelating the various chapters with one another that one succeeds in getting an all-round view of the subject.

The law or principle of contradiction in the light of the principle of symmetry. As we have seen, if the principle of symmetry is applied it is possible that p and not-p apply simultaneously, which contravenes the law of contradiction. The question immediately arises whether it is possible to have any logical order when such a situation exists. In order to get as clear an idea as possible we must approach this problem from several angles, and it is precisely this that we shall attempt now and in the following sub-sections.

(1) The first consideration to keep in mind is one which may not appeal to pure logicians and mathematicians but which is necessary if

one is trying to find some order in psychological manifestations of the type we are studying, *as they are actually seen in reality*. To put it bluntly, observation reveals – very clearly and immediately in some patients, and only after a certain research in more normal people – what would be called *the tremendous struggle between a tendency to deny the law of contradiction and another to affirm it.* Schizophrenics for instance treat 'being alive' as appearing together with 'not being alive'. One could try to escape from the negation of the principle of contradiction by saying that when these patients do such a thing they actually mean that in one aspect they are alive and in another they are not alive (dead); and this would be in agreement with the law of contradiction. I cannot review here all the evidence but will say that clinical observation is against such an interpretation, if it is taken as the whole truth, and is in favour of it if it is considered as only part of the truth. To explain: clinical evidence, especially in schizophrenics, reveals certain manifestations (utterances, etc.) which obviously show a complete disregard of the law of contradiction. This corresponds to what we shall define as a deep level (see in this context Chapter 14, Section 1). At this level, being alive (for instance) is treated as identical to being not-alive (dead); and, for this reason and at this level, *the whole* of a person may be (considered as being) alive *and* the whole of the same person may at the same time be (considered as being) dead, which is in contradiction to the law of contradiction. At a more superficial level, in contrast, a process of *unfolding* of the reality just described takes place, whereby what at a deep level is treated as one and the same thing is, instead, treated at a more superficial level as two entirely different parts of a whole: one alive and the other dead.

What is obvious in schizophrenics may be found after more subtle observation also to be true of normal people. When one begins to realise that there is one aspect of man for which p and not-p are the same thing, at first one feels surprised and uneasy but, upon reflection, one begins to suspect that this very fact may be the clue to the understanding of some obscure aspects of man and of his history. The mother and father images are felt *at the same time*, at a certain level, as supremely good and supremely not-good (which is expressed as supremely bad). And the same is felt of God. Some primitive religious thinking actually considers God to be good and bad and it is in more developed conceptions that the bad part, the devil, is split off from the notion of God. But this does not prevent many people from clinging to the more primitive idea, as shown in the fact that some deny the existence of God based on the fact that there is good and bad in this world and they cannot accept a supreme being which is both good and bad. Deep down, they are preventing themselves from thinking that good and bad can coexist at the same point in the same person. I know, again, that here also one could get away from this situation by trying to save the law of contradiction;

and the arguments would appear satisfactory, only they would not fit in with psychological reality as actually observed. If a logician happened to come to the same reasoning when reading these lines, I would invite him to ask himself and reflect whether he is not doing the same thing as those who deny God because, deep down, as they see things, to accept Him would mean denying the law of contradiction, which is intolerable. Yet, if one observes, people, ordinary people, frequently do without the law of contradiction without being aware of it and they are none the worse for it, simply because it is a part of human nature.

But it is very difficult to construct a logical system which takes this into consideration. The whole history of occidental thinking is a witness to this difficulty: it has fought to live and develop whilst respecting the principle of contradiction. From one point of view, this book is an attempt to develop a consistent system in the midst of these disturbing facts of observation. It is an attempt at putting in logico-mathematical terms the findings of Freud, and in this way discovering a number of implications from Freud's conception which so far have passed unnoticed.

Whether we like it or not, things *are* that way. I ask logico-mathematical philosophers to try to start from these facts. I believe it will then be much easier for them to follow this book.

(2) A second consideration which may in the long run solve the contradiction between Aristotelian and simply bivalent logic on the one hand and the 'logic' of the unconscious on the other, is the fact that *the way* in which the principle of contradiction is not respected in this latter logic is not the classical way. The logical definition of this principle can be written as follows: $\sim (p. \sim p)$. In words: it is not the case that p and not-p. Now such a formulation presupposes not-p, just as it presupposes p as something different from its negation, that is, as something different from not-p. But if we start from the principle of symmetry, as we have already done in the second section of this chapter, we arrive at the fact that the principle of contradiction is not observed by an entirely different approach, i.e. that p is identical to not-p; hence *whenever there is such a negation of the principle of contradiction such a negation is something that takes place only if seen with eyes which respect this principle and these are eyes which know the difference between* p *and not-*p, *and work with this difference. Whereas the 'logic' with which we are dealing does not know the difference between a thing and the negation of a thing. As can be seen, if one formulates the principle of symmetry, one arrives, by a logical way, to give existence – logical or otherwise – to the negation of something: not-*p *becomes invested with all the properties of* p, *that is, of that which it negates, whatever this 'that' may be.*

At this point I invite the reader to reflect on two points: the first is that the principle of symmetry is a logical way of describing and of

arriving at the absence of negation which Freud observed *directly* in his study of patients and of dreams; but this way, even though it seems to say the same as Freud's actual description of the absence of negation, also seems to go further than that description because, we might say, by the very fact that it makes something identical to the negation of that something, it denies negation, that is, it proclaims the absence of negation (which is what Freud did), *but it does so by the curious means of filling the negation of something with all the qualities or properties of that which is negated; by filling nothingness with being.* In other words, in this second 'logic' which we are trying to study the concept of nothingness does not have a place.

The second point can be put in two questions which may or may not refer to the same thing. Does nothingness actually exist in bivalent logic? Is the empty set a form of nothingness? As far as I can see, not-p, which is one of the two not-defined concepts of Whitehead and Russell's propositional system, is so linked up to p that it is inconceivable without it; in other words, in a way of its own, not-p is filled with p, and is inconceivable without p. If it is a nothingness it is a nothingness which is intimately dependent on (logical) existence. On the other hand, an empty set is a set which has no elements. Before affirming whether a set is empty or not we must delimit it as a set and this entails some knowledge of the (mathematical) being of its possible elements. Emptiness, in this case, as in the other two we have just considered, is linked up to some form of existence.

So it seems that negation in the two cases of bivalent logic just mentioned is, after all, not so different from the absence of negation of symmetrical logic or logic of the unconscious. These considerations may not be important at the present moment but they may form the basis for a future consideration, at a deeper level than that attempted in this book, of the relation existing between the 'logic' of the unconscious or symmetrical logic, and scientific logic or simply bivalent logic. My suspicion is that the latter is a lower-dimensional form of the former. The attentive reader will, I think, find here and there in the pages of this book some evidence tending to confirm this suspicion.

(3) If one allows oneself to indulge in the mixture of simply bivalent logic and of the logic of the unconscious or symmetrical logic, one could say that starting from the equality of p and not-p and from the principle of self-implication one could demonstrate the absence of the principle of contradiction. I believe the basic reasoning would be as follows:

$$(p \supset p) \supset [(p = \sim p) \supset (p . \sim p)]$$

On the other hand $(p . \sim p) = \sim\sim(p . \sim p)$ which is the conclusion we wanted to arrive at. In words: (p implies p) implies that, if p is

identical to not-p then every time that p is true not-p is also true; and this is the negation of the principle of contradiction.

A geometrical interpretation of the principles of contradiction and of symmetry. If I am not wrong there is a way, as I see it, to view the identity between p and the negation of p as something which really does not deny the law of contradiction. To view it in such a way we have to introduce the notion of degree of freedom and that of dimensions of space. In a line, space of one dimension, any given point is determined by only one number, which represents the distance of this given point from the point assigned as the 0 of the line or beginning of the line. Take the number 3, for example, as meaning centimetres. We could then say that the point 3 is that situated at 3 centimetres from the origin of the line. At the point 3 there is the point 3 and no other point. The point not-three is inconceivable *in* a line, because any other point which in this line is not the point three actually is the point, 1,2,4,5,6, etc. (but never the point not-three). This is just an example of the assertion that a negative judgment is something different from the negation of a judgment.

We may now consider, say, a space of three dimensions. To determine a point in this space we need three numbers, each of them indicating the distance of this point from the origin of each of the co-ordinates of the three-dimensional space. We then say that in a three-dimensional space the point has three degrees of freedom. Suppose we know two of the three numbers. These two numbers determine one point *in the corresponding plane.* If we have a system of Cartesian co-ordinates, we then know that perpendicular to the plane where this point is situated, and passing through it, there is in the third dimension, a line, that is an infinite number of points. Each of these infinite number of points is a correspondent of the point which has been determined in the plane just mentioned of the three-dimensional space or volume. Let us suppose that the distances from the origins of the point fixed in the plane are 3 and 5 respectively. These distances determine a *unique* point (3,5) in that plane. In that plane there is an infinite number of points which are not the (3,5) point, but there is no point which *is* not-(3,5). But in the perpendicular line just mentioned there is, in the third dimension, an infinite number of points which, *in this dimension*, are correspondents of the point (3,5). We may now interpret the principle of contradiction in terms of this analogy by saying that: (*a*) there cannot be, in a given plane, a point (m,n) *and* a point not-(m,n) if by this latter expression is understood not a negative judgment but the negation of a judgment; (*b*) that if we establish a bi-univocal correspondence between a given point *in that plane* and a given statement, p, we can then affirm that, *under these conditions*, there cannot be the case of p and not-p. This is exactly what the principle

of contradiction affirms.

The interesting thing about this way of viewing things is that the principle of contradiction must be envisaged *in terms of the space which is being considered, or in terms of the bi-univocal correspondences which statements can have with points of that particular space.* As one can conceive an infinite number of spaces, so there can be an infinite number of laws of contradiction, each of which corresponds to a given space and not to other spaces. As obviously the same principles are applied in all cases, one could formulate a generalised law of contradiction, of which the law of contradiction in each space would be a particular example. I believe that viewing things in this way would immensely enlarge our possibilities of understanding psychological phenomena.

We are now in a position to interpret the corollary that follows from the principle of symmetry which affirms the possibility of p *and not-*p *by saying that not-*p *is the correspondent, in a higher-dimensional space, of the point* p. Obviously each point of the perpendicular line, which belongs to the third dimension in the example given and which passes through the point p, has a relation to p which no other point, either in the plane of p or in the volume under consideration, has. These points, which are the correspondents of p, could be called *the not-*p *of a higher-dimensional space.* For it is obvious that though they actually cannot claim to be p, the fact of the intimate and unique infinitivocal correspondence that p has with them makes of each of them, so to speak, the 'representant' of p in the three-dimensional space. Each of them is the image or correspondent of the 'absent p' in the space which has one dimension more than that where p has been determined. For this reason we may agree, by convention, to call these points the not-p corresponding to p in a higher-dimensional space. If we interpret the corollary of the principle of symmetry which affirms p *and* not-p as a matter of increase in one dimension and of the relationship between two spaces of different dimensions, then the law of contradiction would be respected. On the other hand, it is obvious that what we have said about spaces of two and three dimensions could be generalised to spaces of any number of dimensions, up to an infinite number; and that one might also conceive of the relationships existing not only between a space of a given dimension and that of one more dimension than it, but of any number of further dimensions. The possibilities would then become infinite. This would probably enlarge in an unsuspected way our understanding of nature.[1]

[1] One may think, for instance, that the incompatibility between p and not-p in a given space is an absolute incompatibility, to which the principle of *total* or absolute contradiction would correspond, whereas in the relationship with a space of one dimension more, the corresponding not-ps, by the fact of their being not-p, would still be submitted to a certain law of contradiction with regard to p; but this would be a weaker contradiction or contradiction of a lower degree. Perhaps if the space is of two dimensions higher we could still speak of a contradiction with p but weaker than in the case just mentioned: one degree

But all this is a question of hard work ahead of us. I will not develop this line of thinking here because I am not sufficiently knowledgeable to be able to do it and also because the ideas put forward in the book belong to a stage before the one just outlined. I must say, however, that if the few suggestions just made were kept in mind, the understanding of the two modes of being and their interrelations in terms of levels would be greatly facilitated.

Does the proper part become improper part? According to the principle of symmetry if *a* is a (proper) subset of a set *A*, then the set *A* is a subset of *a*. This sounds absurd in bivalent logic, and one could say that in such a case the expression proper subset is used in another sense. It is necessary to understand thoroughly what is intended, otherwise all the arguments of this book become absurd.

The principle of symmetry explains or describes, in the terms of simply bivalent logic, the violations of this logic which are observed in certain psychical manifestations. It could not do otherwise because, so far, no other logical system exists which permits a *systematic* exploration of the *knowable.* (This assertion may be qualified by adding that Aristotelian logic also permits this, but as the differences between Aristotelian and simply bivalent logic are negligible for this purpose we may treat them as one. This would not be the case with multi-valued logic but, as far as I know, no systematic application of this logic to all aspects of human knowledge has yet been attempted.) The point to be considered is, first whether such violations actually do take place and secondly whether their description in terms of the principle of symmetry is an accurate description of them. The whole book is devoted to these questions.

To return to the example: when we say that, according to the principle of symmetry, '*a* is part of *A*' is identical to '*A* is part of *a*', we mean, roughly speaking, that such psychical processes as conform to this principle treat asymmetrical relations *as though* they were symmetrical. Applied to the case we are considering it means that it treats the proper part as though it were an improper part. So far this is a description, in terms of logic, of the violations of this logic. But we may go further than that. If the reader follows carefully the development of the arguments of the book, he will then come to see in Part VII that an application of the principle of symmetry such as

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lower. If this were the case we could speak of an infinite number of principles or laws of contradiction, each one of a different degree or 'strength' from all others. The law of highest degree of contradiction would then correspond to a space of one dimension: in such a case the degree would be infinite and the contradiction total. This corresponds to what we are used to in ordinary life, and because of this fact we tend not to think in terms of weaker or no contradictions.

There are still further ways of envisaging the question, which would complicate matters yet more. It must also be noted that what I have just said is not the same thing as that mentioned a moment ago when I spoke of a generalised law of contradiction.

the one just mentioned means not only that the proper part is identified with the improper part but *something far more radical: that that aspect of man which 'behaves' in such a way actually does not know or ignores the difference between the part and the whole.* But before one can arrive at the formulation of Chapter 28 it is necessary to explore an enormous number of ramifications and aspects, for otherwise the argument will fail to convince.

The application of the principle of symmetry actually observed is not total but limited, in a degree varying according to the case. If, once formulated, one attempts to draw all the *logical* consequences of the principle of symmetry, one soon arrives at total chaos. This assertion will be repeated and examined several times throughout the book, in various connections. We may put it in another way, once and for all: *the principle of symmetry as a unique and all-embracing principle of logic completely dissolves all logic.* We may also say, to describe the final result of its course of action, that the full application of the principle of symmetry finally results in one all-embracing infinite set in which nothing is distinguishable; and even this is an external description which makes use of classical logic, which the principle of symmetry does not allow.

At this point one may become completely discouraged about the possibility of any understanding of psychical reality with this approach and may feel that the best thing to do is to abandon such an attempt as absurd. But that would be a precipitous decision. The fact is that actual observation – in contrast to a pure study of the logical consequences of the principle – points to another way, which must be followed if one is to be faithful to reality. We could briefly describe this way by saying that *in the midst of the structure of simply bivalent or Aristotelian logic the principle of symmetry makes its appearance at certain points and, like a powerful acid, dissolves all logic within its reach, that is, in the territory where it is applied. But the rest of the logical structure remains intact.* Whether we like it or not, whether it appears strange to us or not, the fact is that this is the way in which clinical reality reveals itself to us when we try to study it in terms of logical structures. This is particularly striking in schizophrenic patients, in whom we see a total disregard for the rules of logic – which we can accurately describe in terms of the principle of symmetry – in the midst of an otherwise impeccable logical reasoning.

Take, for example, the class of fathers. This is defined in terms of simply bivalent logic, that is, in classical terms. If the principle is applied to it, then any father becomes identical to the whole class and to any other father, physical or symbolical. In other words, under the dissolving action of the principle of symmetry, the 'inside' of the class becomes one homogeneous whole, in which everything is everything else. But the class itself remains distinguishable from

other classes, for example the class of mothers. However, if the principle is applied more extensively, for example in the class formed by the union of the classes of fathers and mothers (the class of parents), in such a case a father will be identical to a mother and vice versa. This would be a case in which 'boys will be girls'. And the process may extend to comprise parents and children, in which case, for instance, to be a father will be the same as to be a son, *if things are viewed in terms of this principle*. And we do encounter this in actual clinical reality, as in the case of a schizophrenic who said that he had 'exchanged cells' with his father, obviously meaning that just as his father had given him cells, i.e. had begotten him, he had done the same to him.

Clinical observation shows that that aspect of man which can be described in terms of the principle of symmetry – and which roughly, though not in an entirely accurate manner (as we shall see) can be referred to as the unconscious – is always 'exercising a pressure' to express itself and in this way it is always present. But this pressure is always resisted, so to speak, by the other part of man which submits to the rules of bivalent logic. The results of this situation may vary from one manifestation to the other, from an extremely bivalent-logical appearance to extensive signs of dissolution of bivalent-logical structures. '*Symmetrical thinking*' appears every time that bivalent logic is not capable of preventing its pressure from making itself visible and this is due to various causes. When this situation occurs, symmetrical thinking breaks out. Bivalent logic, which has at this moment lost the battle, tries to withstand symmetrical thinking and circumscribe its effects, tries to 're-establish the legal order' and succeeds in doing so only at the cost of leaving in the midst of it some more or less large zones of symmetry.

If one keeps all the above in mind, one need not be surprised that at times the law of contradiction is not respected, whereas at other times it is left untouched. When a given psychical manifestation is not concerned with the question of something and the negation of this something, the law of contradiction will be left to function as in simply bivalent logic; whereas if it is a question directly connected with this problem, then we find that being alive is treated as identical to being dead, and being good as identical to being not good, i.e. bad.

One must recognise that there is an emotional difficulty in accepting that human thinking is like a game which conforms at the same time to two different rules; and the worst of it is that one of the rules only becomes visible in terms of the other, that is, in terms of the violations of the other: if it were not for this the second rule would be 'mute' and 'invisible'. It is 'maddening' but it is so.

Logic? And, if so, what logic? This is a question which seems to arouse strong opinions in some who argue, and quite rightly, that no logic (logical system) can be built with the two principles put

forward here. It will have been seen that at times I have spoken of the logic of the unconscious and at others I have referred to the violations of simply bivalent logic which can be described with the principle of symmetry. It seems that we must try to clear up this question.

I believe the answer is simply a matter of convention. For though it is true that no logical system can be built with *only* the two principles described, it is equally true that a consistent and well-ordered form of thinking system can be developed if these two principles are employed together with classical logical systems (Aristotelian or simply bivalent logic) and are made to lean, so to speak, on these systems. The result is some form of order, *sui generis*, but quite distinctive. Delusional systems which are daily observed in clinical psychiatric practice, the formation of dreams and of neurotic symptoms are examples of this type of order, because it is obvious that in not one of these cases is what we observe chaos but, on the contrary, something subject to definite rules which, however much they may differ from ordinary logical thinking, produce an order of their own. This order can be seen in all three cases in terms of the interaction of the two principles with the rules of classical logic. (At this point it is convenient to remember that the principle of generalisation is an expression of manifestations which are themselves subject to bivalent logic; and it is only the principle of symmetry that departs from this logic.)

If things are seen in this way, as they must be if we wish to express what actually happens, and if one is reluctant to call this a logical order, one might call it *the regimentation of a disorder.* But it seems that once this point is reached, any hesitation about terminology becomes a question of an emotional reluctance. If we are clear about what we mean, that is, about the differences between classical logical systems and this particular system, there is no reason why we could not call this a form of logic. It is here that a significant feature has to be kept in mind. In contrast to Aristotelian and simply bivalent logic – which are (or claim to be) self-contained systems, in the sense that they are built entirely from certain not-defined concepts and axioms, from which everything follows – this system of logic cannot make such a claim for the simple reason that it could not exist without the existence of bivalent or Aristotelian logic, on which it leans. For this reason we may call it a form of *anaclitic logic,* or *anaclitic logical system.* It would be formed by two components: bivalent logic and another component which, though described in logical terms (principle of symmetry) actually dissolves logical structures and in this sense is, by its own nature, alien to what we know as logic; and by its effects (destruction of logic) *could be called an antilogical component of man.* It must be noted, however, that if we use this expression it would be misleading to think that this component has antilogical *intentions*; it only has *effects* of this kind

and, it must be added, only with reference to the logic so far developed by man.

If we consider these features we might call the system a *logical-antilogical system.*

A third way of looking at the question would be to put the accent on the fact that this aspect or component of man becomes visible in actual reality only through the presence of classical logical systems and when 'clad' in them, like the invisible man in Wells's story. Viewed from this angle the system is so dependent, for its *knowable* aspects (with all the limitation that *knowing* has, in the sense that it is only *one* of the aspects of man) on classical knowledge, that the distinctive feature of the system resulting from the convergence of both aspects, is precisely that convergence. We might then call this a *parasitical logical system.* But this term seems misleading because it suggests that the component in question is *trying* to express itself and uses logic for this purpose, whereas, if we were to attribute intentions to both components – which is an unsatisfactory way of viewing things – we should say that it is bivalent logic which is trying to express in terms of itself something alien to its nature. These reflections, nevertheless, serve a purpose: to delve into various aspects of the interrelations between both components (which we shall later consider as the two modes of being in man). To complete this line of reflection, one might add that when that component is called illogical or antilogical, this expression refers only to its relationship with simply bivalent logic or Aristotelian logic, because one cannot exclude *a priori* that other logical systems not yet developed might comfortably 'contain' the facts which we have expressed in terms of the principle of symmetry. We have already in this section referred to this possibility and later on we shall also make further comments.[1] If this were the case, we might say that the logic of the unconscious is the translation in terms of bivalent logic of something which might not be alien to logic but only more comprehensive (with a greater number of dimensions) than bivalent logic and as such more general. In such a case bivalent logic would be a case of *unfolding* or diminution or of expressing only one of the multiple potentialities of the other, more comprehensive mode of being.

If one day we could arrive at a formulation which embraced, in a clear logical system, both the manifestations of simply bivalent logic and those of symmetrical logic, then we would be able to formulate a completely self-contained logic (such as simply bivalent logic now appears to be). We would then return to only one system of logic. In the meantime we must recognise that some, if not all unconscious manifestations cannot be described in terms of classical logic; neither can they be described in terms of the principle of symmetry alone: in

[1] See, for instance, Chapter 25, Section 5.

fact they require, for an accurate description, both. We cannot, therefore, escape the conclusion that *we are confronted with something which can only be contained in a system governed simultaneously by two kinds of rules.* For this reason it seems perfectly adequate to call this system – for the time being and until the possibility of an all-embracing conception as just suggested arrives – a *bi-logical system* or simply *bi-logic.*

We must be very clear as to the meaning of this expression. *A bi-logical system is a system formed by two logical systems.* The first is simply bivalent logic, which we observe in its 'pure' state in many pieces of thinking; in some 'normal' aspects of the manifestations of delusions, neurotic symptoms, dreams, as well as in a great number of other manifestations of normal people and in scientific thinking. The second component system is what I have already called anaclitic logic, in which the principle of symmetry makes its appearance in the midst of certain logical structures. *Anaclitic logic would then be the conjunction of the principle of symmetry with simply bivalent logic*, and it would form a system of its own, which we might also call *a logical-alogical system*, considering that one of its components is outside (bivalent) logic or actually destroys it, but which, if contained in a *logical estroma* made of bivalent logic, results in a compound with quite distinctive features.

Now, it is these two systems, bivalent logic and anaclitic logic, that are actually seen together in a great number of human manifestations, especially in emotion. When we study emotional manifestations, for instance, we shall observe certain aspects which completely conform to simply bivalent logic, while others are an expression of its interaction with the principle of symmetry. Each of these two aspects is like a different link in the chain of an argument, which enters into relations with other links of either of the two types.

Summarising, we could say that it appears legitimate to speak of an anaclitical logical system and that in actual fact we see this system in perpetual interaction with simply bivalent logic, so that the result may be legitimately called a bi-logical system.

The emotional origin of 'aseptic', contradiction-respecting bivalent logic. The few remarks that follow will be easily shared by any analyst whereas they will possibly arouse great objections among logicians. They are, however, directed at logicians.

Logic has been painfully built throughout the history of man as a powerful instrument of understanding which has (indirectly) proved to be extremely useful for life, both in the mastery of nature and in the creation of social structures. This does not detract from the fact that from the emotional point of view it is a reaction against anxiety, the anxiety provoked by insecurity and dependence, initially from the breast and from the overwhelming contradictory forces of instinctive desires. I shall not develop this line of thinking here;

suffice it to say that it is well known in psycho-analysis. There is no doubt that there is, for instance, an intimate relationship between scientific-logical thinking and obsessive thinking. In fact man lives *usually* in states of mind (thoughts, emotions, mental actions) which are subject to bi-logical rules rather than to those of Aristotelian or simply bivalent logic. The mess which such states imply for bivalent-logical thinking is felt at times as intolerable and man defends himself from it. *Completely consistent bivalent logic is the purest and highest form of defence, which actually helps him to conquer nature.* But it represents at the same time an impoverishment. Without being false it is only one part of the truth of man's mind. When one thinks that Freud's discoveries about the unconscious took place after several thousand years of the history of occidental thinking, one need not be surprised that the logical implications of his discoveries remain, after only a few decades, completely alien to rigorous philosophical thinking. This is a completely new territory which needs exploring. If one wishes to enter it, one must steel oneself against the anxieties (which appear in the form of rigorous logic) provoked by the possibility (for example) that the principle of contradiction may, after all, be something which can be seen from various angles and points of view. These anxieties would have to be dealt with by analytical methods and knowledge, but I will say here something which is purely rational: that the introduction into philosophy of the conceptual consequences of the analytical discoveries will not destroy anything of the conquests of man's thought, but may greatly enrich and diversify these conquests. The law of contradiction, to give an example, will, of course, not disappear but will be integrated as a part of a larger whole.

From Logos to something larger: man. Western thinking has been aware for some time that the whole structure of its philosophy tends to overvalue the thinking aspects of man. It has tried to react to it but I think it can be said in all fairness that its attempts to overcome the difficulty have not been very successful. The fact is that man cannot escape from thinking, which is the instrument for, as well as the road towards, knowledge. Knowledge and the intellect, on the other hand, are but a part of the total being of man. Feelings or emotions are in themselves outside the realm of the intellect, and so is experience other than intellectual experience. Man's approach to these aspects is, if he wants to put it in statements, an intellectual approach, because statements are a form of intellectual activity or of results of intellectual activity.

If man tries to escape from this limitation he may *experience* emotion, the community with his fellow-beings, and may *do* things. These experiences and actions *have aspects* which are outside the realm of intellect, but *are not* entirely alien to this realm. When man tries to exalt such aspects and such values he usually falls into

irrelevant vagueness. Either one *lives* these things by oneself or with others – and then it is a purely personal or community experience, such as religious or socio-political experiences, from which all others who do not share it at the moment are excluded – or one tries to express it in statements, and then falls back into the realm of intellect. There is no way out of these alternatives and those who talk against Logos and exalt the value of emotion are, from the intellectual level, expressing vague thoughts which are not usually given much attention. If we want to speak about something, we cannot escape from logic, from Logos.

And this is a condition of man, which occidental philosophy has not enlightened. Perhaps it is not so for oriental philosophy which may have much to say about it, but the trouble is, for occidental man, that oriental philosophy is usually presented in a way which does not mean much to him.

Now, psycho-analysis, the creation of Freud, has approached and discovered fundamental aspects of man which in a certain way are alien to the restricted version of Logos so far known. They are not, however, completely alien to Logos. Psycho-analysts are submerged every day in a peculiar situation: they help their patients with language and yet there is something more than language in the analytic situation which permits them to help their patients. Nobody has, so far, succeeded in expressing clearly what exactly this situation is, which is a combination of Logos and something beyond our idea of Logos, which actually takes place in the analytic situation. Interpretations (Logos) are necessary but not sufficient.

Freud made three types of approaches to the unconscious: the energetic, the logical and the topographical. In all three of them there is an aspect which refers to thinking, but these approaches were not either fully differentiated from one another or formulated in an entirely unambiguous manner. This book is an attempt at a clear formulation of the unconscious (to use a term which, it will be seen, points to only one aspect of the question) in terms of some logico-mathematical notions. My hope is that the precision that may be attained in this way will permit a formulation, in terms of Logos, of those aspects of man which, though not alien to Logos – to logic – go beyond logic as it is now usually thought of. In the same way as a picture can give an impression of something like volume, which goes beyond it, or in the same way as man can go from the *imagination* of three pears, three dogs, etc., to the *conception* of the abstract number three, so, from these additional logical notions, we can approach, from the side of Logos or logical side, something which is more than Logos, more than logic.

PART THREE

From the Unrepressed Unconscious to the Symmetrical Mode of Being

In the following pages these thoughts are linked to various facts of analytic observation and an attempt is made to arrive at new conclusions from this conjunction; [in] the present work . . . [it] is more in the nature of a synthesis than of a speculation and seems to have had an ambitious aim in view. *I am conscious, however, that it does not go beyond the roughest outline and with that limitation I am perfectly content.* (Freud, *The Ego and the Id*, 1912, p. 12, my italics)

4. *A Formulation of the Question*

It is nearly fifty years since *The Ego and the Id* was published, and we are now in a position to understand better, both the perspective of the problems which led Freud to propose such a momentous change in psycho-analytical theory and the results obtained from the change, as well as the new difficulties which have emerged from it.

The threefold conception of the mind[1] permitted introducing a great deal of order into phenomena which had been found with the help of the psycho-analytical concepts existing before it, but which no longer fitted comfortably in the existing theory. Perhaps its greatest usefulness lies in the aspect concerning those facts which dealt with what came to be called, in the threefold conception, the super-ego. The sufferings of the ego, having to serve three masters, also became more visible, more comprehensible and more describable, because the new division had introduced new concepts which permitted a deeper insight into mental phenomena. The old unconscious, however, that is, the unconscious of the earlier Freud, came out rather damaged and compressed as a result of the new division of the mind. On the one hand, if one had to be faithful to the new conception, one could no longer view it as that marvellous and mysterious thing of Freud's early writings:

> *The true psychical reality: in its innermost nature it is as much unknown to us as the reality of the external world, and it is as incompletely presented by the data of consciousness as is the external world by the communications of our sense organs.* (Freud, 1900, p. 613, his italics)

In all truth it must be recognised that the unconscious, the most outstanding of Freud's legitimate children, was disinherited in *The Ego and the Id* and, *as such*, never occupied the same place again. It was replaced by two concepts: the quality of being unconscious and the id. Neither of these two has the power, the dignity, the elegance or the majesty of the old unconscious. Both are poor substitutes for it, as can easily be shown. For the notion of the quality of being

[1] Some call it the structural conception (and they call the former the topographical conception) in spite of the fact that it is also obviously topographical (as, for instance, the drawing depicts it) and that until the end of his life Freud spoke of it as a topographical view, and also treated topographical and structural as synonymous (Freud, 1940, p. 204).

unconscious (note that 'unconscious', in this new terminology, should be no longer a noun, and this fact is already an eloquent sign of its loss of status) only refers to a very restricted aspect of the old Freudian unconscious: its relation to consciousness.

The notion of id, on the other hand, cannot be said to have replaced the unconscious. At first sight it might appear that this is so, because the id has both the quality of being unconscious, and, *in the Freudian conception, seems* to be the exclusive possessor of the characteristics of the system unconscious. I say 'seems' because, as far as I am aware, Freud never (so to speak) distributed the inheritance of the banished unconscious in an explicit fashion. We have to go all the way to the *New Introductory Lectures* to hear him saying that the id is the possessor of these characteristics. But even there, he is not quite definite in affirming that *only* the id is the possessor of these characteristics. He writes (1933, p. 75):

> You can see, *incidentally*, that we are in a position to attribute to the id characteristics other than of its being unconscious, and you can recognise *the possibility* of portions of the ego and super-ego being unconscious without possessing the same primitive and irrational characteristics. (My italics)

As can be seen from this quotation, apart from the fact of touching on the question only incidentally, he speaks of the possibility that portions of the ego and super-ego can be unconscious without having irrational characteristics (which obviously are those of the system unconscious or the primary process), but he does not altogether exclude the possibility that there may also be portions of super-ego and ego which do have irrational characteristics. One cannot avoid seeing in this quotation an avoidance of a full and direct confrontation of the problem. And I know of no other place in his writing where he treats this question in full. Anyway it seems almost certain, from all his work, that for Freud it was only the id that had these 'irrational' characteristics. This idea of his has been questioned by various authors, among whom are Arlow and Brenner, as we shall see later. But even if for Freud things were as just described, this would not make the id the legitimate inheritor of all the possessions of the unconscious. For the unconscious was the true psychical reality and the id is only a province or region of the personality; there is a world of difference between the two.

It might be objected that even in Freud's initial conceptions and in spite of what he wrote, the unconscious was not the true psychical reality because, from the beginning, Freud gave to the ego an important place. And it is here that there is a paradox which, as far as I am aware, Freud never resolved, and which needs resolving if we are to have a more coherent image of the mind: the unconscious is for the early Freud the true psychical reality and *at the same time* it is only a part of the personality.

The introduction of the new conception of *The Ego and the Id* decisively blocked the possibility of ever clearing this contradiction. For the id was conceived as a region of the mind and, if we are to believe the diagram or sketch of *The Ego and the Id* and that of the *New Introductory Lectures*, there are 'places' of the mind where there is only id and others where there is no id at all. Furthermore, this strongly suggests that the characteristics of the system unconscious, the most original of all his discoveries, are confined to only a zone of the mind, in spite of the fact that in the phrase just quoted we seem to detect his hesitation to affirm this clearly. The old unconscious, instead, was present everywhere as the true psychical reality, even if it was not the whole mind.

The objection that the diagram just mentioned is only an illustration is too facile, and too obvious, and it clearly is not a valid objection if we are to stand on what people actually say and write. Freud himself repeatedly warned us not to make too sharp a division and told us that:

> We cannot do justice to the characteristics of the mind by linear outlines like those in a drawing or in primitive painting, but rather by areas of colour melting into one another as they are presented by modern artists. After making the separation we must allow what we have separated to merge together once more. (Freud, 1933, p. 79)

This quotation shows that he was aware of the difficulty, but the solution proposed did not solve the problem. For if we follow his advice, there would be intermediate zones, but the zones of 'pure id' would not cease to exist. The solution required is far more radical than that. The fact is that Freud and most of those who have followed him have continued to think in terms of inadequate spatial comparisons. By this I do not mean to say that spatial comparisons in themselves are inadequate, as some would think, but only that *this* spatial comparison, as made by Freud, which supposes only three dimensions (in fact, in the diagram, only two) is inadequate. Throughout Freud's writings we find the separation between ego and id, *as though*, whatever the merging at the limits, there were zones of pure ego and zones of pure id. And the same can be said of a large part of psycho-analytical thinking. I shall quote only one example, from a most outstanding follower of Freud, his own daughter:

> Unfortunately *the passing of instinctual impulses from one institution to the other* may . . . *On their way* to gratification *the id-impulses must pass through the territory of the ego* and here they are in an alien atmosphere. (Anna Freud, 1937, p. 7, my italics)

We can see here an example of how a writer who is known for her extreme precision and clearness can reflect in her thinking a defect of the theory in the frame of which she studies reality. We shall discuss

this point in greater detail in Chapter 10.

So, the id as a region is *not* the all-pervading unconscious of the early Freud. There was, as already remarked above, a problematical paradox in the conception of the unconscious which had not been resolved but which *could be resolved.* This possibility was precluded forever in the conception of the id if we understand this conception in exactly the same terms as those employed by Freud in his formulation. I say exactly the same terms because it is my definite impression that *Freud was not completely satisfied with the new conception,* and in fact *never abandoned the former conception.* I base my conclusion on three facts:

(1) He felt uneasy and embarrassed and was apologetic about the new conception. I shall give several quotations which show this state of mind, all of them taken from the *New Introductory Lectures*, which was the first book written by him after *The Ego and the Id* in which he dealt systematically with the new concept.

> I must, however, let you know of my suspicion that this account of mine of ego-psychology will affect you differently from the introduction into the psychical underworld which preceded it. I cannot say with certainty why this should be so. I thought first that you would discover that whereas what I reported to you previously were, in the main, facts, however strange and peculiar, now you will be listening principally to opinions – that is, to speculations. But that does not meet the position. After further consideration I must maintain that the amount of intellectual masking-over of the factual material in our ego-psychology is not much greater than it was in the psychology of the neuroses . . . I now believe that it is somehow a question of the nature of the material itself and of our being unaccustomed to dealing with it. In any case, I shall not be surprised if you show yourselves even more reserved and cautious in your judgment than hitherto. (Freud, 1933, p. 60)

> I am now prepared to hear you ask me scornfully whether our ego-psychology comes down to nothing more than taking commonly used abstractions literally and in a crude sense, and transforming them from concepts into things – by which not much would be gained. To this I would reply . . . So I will proceed. (Freud, 1933, p. 60)

> *I hope* you have already formed an impression that the hypothesis of the super-ego really describes a structural relation and is not merely a personification of some such abstraction as that of conscience. (Freud, 1933, p. 64, my italics)

> If we possessed more applications of this kind, the hypothesis of the super-ego would lose its last touch of strangeness for us, and *we should become completely free of the embarrassment that still comes over us* when, accustomed as we are to the atmosphere of the underworld, we move *in the more superficial*, higher strata of the mental apparatus. (Freud, 1933, p. 68, my italics)

Now a few words of comment. These quotations are, by themselves, so eloquent that I believe my initial assertion that Freud

felt uneasy and embarrassed and was apologetic about his new conception, is so amply justified that it needs no further proof. The ego and the super-ego, *as presented in the new conception*, are felt by him as something which can be criticised. If we remember that Freud was a very independent and vigorous thinker, we realise that these criticisms which he attributes to an imaginary audience are actually *his own* criticisms. *Freud seems to have realised, and quite rightly, that the introduction of the threefold conception, however justified, however useful and creative it may have been, in some way took something away from the vigour and the originality of the psycho-analytical conception.* This is not to be understood to mean that the creative genius of Freud had diminished, because the work after *The Ego and the Id* is a witness to his creativity. But the conception of the structure of the mind emerged damaged in some ways from *The Ego and the Id.*

But Freud was not only apologetic:

(2) He gave signs that the facts which led him to his new conception, which he could not avoid, made him feel disappointed and frustrated. As this will be discussed at greater length in the next chapter I shall content myself with giving only three quotations and just a few comments:

> In both cases we have to reckon with the *disagreeable* discovery that on the one hand (super-) ego and conscious and on the other hand repressed and unconscious are far from coinciding. (Freud, 1933, p. 69, my italics)

> We feel a need to make a fundamental revision of our attitude to the problem of conscious-unconscious. At first we are inclined greatly to reduce the value of the criterion of being conscious since it has shown itself so untrustworthy. But we should be doing it an injustice. As may be said of our life, it is not worth much, but it is all we have. (Freud, 1933, p. 70)

It is interesting to note that in the second quotation it is the criterion of being conscious that has shown itself very untrustworthy. In the last paragraph of the first chapter of *The Ego and the Id*, instead, it is the characteristic of being unconscious which has many meanings and cannot be made the basis of far-reaching and inevitable conclusions. Though the sense of both paragraphs is basically the same, the fact that in the former one he puts the accent on the unconscious and in the one quoted above on the conscious, must have some significance. I venture to interpret it in the sense that, after being disappointed with 'the bad behaviour' of the unconscious, he now, years later, puts the accent (or the blame) on the conscious. Of course, this is speculation and anyway it is not central to our argument.

> You must not judge too harshly a first attempt at giving a pictorial representation of something so intangible as psychical processes. (Freud, 1933, p. 79)

(3) The most interesting thing of all about this matter is that Freud, *while explicitly replacing the older for the newer (the threefold) conception, in fact never relinquished the conception of the unconscious.* Strachey remarks (1961, p. 7, footnote) that Freud continued to use the term 'the unconscious' as a synonym for the id. I believe this use of 'the unconscious' means, at least at times, a great deal more than that. In order not to make the argument too detailed I shall not make a complete review of the occasions on which he uses 'the unconscious'. I shall only comment upon one of these occasions. In his last book, *An Outline of Psycho-analysis*, in the chapter on psychical qualities, he writes:

> There is no need to characterise what we call 'conscious': it is the same as the consciousness of philosophers and of everyday opinion. Everything else psychical is in our view 'the unconscious'. We are soon led to make an important division in this unconscious. (Freud, 1940, p. 159)

Now, this book is, as Strachey (1964, p. 143) accurately says, 'a master's last account of the ideas of which he was the creator'. It would be foolish to pretend that such a phrase is the result of carelessness on the part of Freud, especially in view of all that has been said above and of Freud's use, in other parts of his writings, of the expression 'the unconscious'. The phrase in question can fit very well with the Freud of *The Interpretation of Dreams*, because it refers to the basic contrast of that epoch of his writing: consciousness and the unconsciousness. But it does not fit in at all with the Freud who had come to the conclusion, since *The Ego and the Id*, that there was no way out (of the theoretical difficulties resulting from new observations) other than considering the term unconscious as meaning only a quality. 'Unconscious' became a quality, an adjective, and should no longer be regarded as a thing, a noun.

Yet there must have been a good reason for Freud's writing that phrase in the *Outline*, a book characterised by his lucidity and creativity. This is the fundamental question which we shall study in this Part, the question which seems to have been present in a hidden fashion in Freud's writings after *The Ego and the Id.* I suggest that, contrary to what Freud himself showed *outwardly* and contrary to what has been said in the literature, *the conception which considers the mind in terms of consciousness and the unconscious is not incompatible with the threefold conception. It is, in fact, a vastly more general and more significant conception than the threefold conception, and this latter can, in fact, be considered as a particular example of it.* The relation of the earlier to the later conception can be compared to the relation between the relativistic and the Newtonian conception of physics; the latter is a particular example of the former. The curious thing about it is that in the case of psycho-analysis both conceptions were created by the same man and

(contrary to what happened in physics and usually happens in science) the more general was conceived before the less general. It is not surprising, therefore, that Freud should have given various signs of being unsatisfied with the latter conception: it represented, in a way, a narrowing of his views, even if from other angles it represented a progress.

If things are viewed in this way, a question immediately arises: why did Freud (to a certain extent) throw overboard his greatest creation? To continue with the comparison made at the beginning of this chapter, the answer to this question would be that the legitimate child was disinherited, *for reasons of coherence*, but continued to live at the father's house, under the same roof. The reasons of coherence forced him not to use the term unconscious in the sense he had used it before, and he was right in not doing so. The origin of this problem lies in the fact that what Freud originally described with the noun 'the unconscious' *was not just a quality but a mode of being, characterised by various other features essential to it apart from that of having the quality of being unconscious. The quality of being unconscious was a necessary consequence both of its structure and of the structure of that other mode of being described by Freud as 'the conscious' or 'consciousness', but it was not its only distinctive characteristic.*

The so-called characteristics of the system unconscious are much more central to this mode of being than the quality of being unconscious. It is as a consequence of them that this mode of being cannot directly enter consciousness: consciousness does not have the dimensions to contain it; in a similar way, one cannot pour water into a jug in a painting because this jug has only two dimensions and to receive the water it would need three.

To put it in another way: *Freud never found an appropriate name to describe his greatest discovery, that of a mode of being, which nobody before him had ever described as he did.* Because Freud's greatest discovery was not that of the unconscious, not even that of the dynamic unconscious, but that of a mode of being. This fact is clearly seen towards the end of *The Interpretation of Dreams* and in his work *On Dreams. But the names 'the unconscious', 'primary process' and 'id' are all, in some way or another, inappropriate to describe it.* Perhaps 'id' would have served the purpose if Freud had not restricted it to a province of the mind, letting it be confined to perform humbler tasks. At times it would even seem that, considering that the id has, according to Freud, the characteristics of the system unconscious, the id is the rightful heir to the unconscious. But it looks, on the whole, rather like the descendant of a great emperor, who has lost the empire and kept his palace and the park around it!

I propose two new names for the original conception of Freud: *symmetrical* and *asymmetrical modes of being.* Both are based on a

logical analysis of the laws underlying the characteristics described by Freud. Once the meaning of these two names has been well understood, nothing prevents us from employing the old name, 'the unconscious', as a noun, to refer to the symmetrical mode of being, provided we keep in mind that 'the unconscious' and 'symmetrical mode' only partially coincide in their meaning.

But here a new question arises. 'The unconscious' or symmetrical mode of being is unconscious in its own right, it is unrepressed unconscious, and it is so in a different way from that attributed by Freud to the ego. We must, therefore, clarify the whole concept of unrepressed unconscious, which was introduced but never sufficiently clearly developed by Freud. We shall start with this task, which is the first that must be tackled in the attempt to formulate psycho-analytical theory in a coherent way. The task will be tedious because we will be forced to study every one of the phrases of Freud in which we have found some reference to this concept. But it is of great interest, because it is from the study of the unrepressed unconscious, and from the understanding of all that it entails (e.g. why it is unrepressed) that we can arrive at the notion of symmetrical mode of being.

Some authors have remarked that many analysts have never relinquished the use of the expression 'the unconscious'. We still find it in writings of eminent analysts. I do not think this is a mistake but, on the contrary, the expression of a more or less conscious reluctance to drop a most fundamental concept which has not, in fact, been replaced in the threefold conception.

On the other hand, the threefold conception has paved the way to and has marked the beginning of the development of so-called ego psychology. Ego psychology has been a way for psycho-analysis to enter general psychology. With all due respect to its exponents, some of whom I admire, I consider that it has been a forlorn way to enter psychology. For psycho-analysis, with the brand of ego psychology so far developed, has entered the field of psychology like a humble beggar, divested of what were its most precious treasures. To make a list of the functions of the ego, to juggle with notions so little known as that of energy, must necessarily appear a pitiful sight to those psychologists who are adept in the processes of precise formulation of experiments and who are rigorous in the definition of concepts. Such a form of psycho-analysis as represented by a large part of the contributions of psycho-analytical ego psychology, has left the great treasure of psycho-analysis outside the door: the unconscious as a mode of being, submitted to strange laws which can, nevertheless, be formulated with precision.

This book has the ambitious aim of opening the possibility of establishing a new contact with psychology at a much more meaningful level. It aims at restoring to the most central creations of Freud their full dignity, and their full relief. For it must be

recognised that, nowadays, the characteristics of the system unconscious, to use Freud's term, do not receive, either in clinical work or in theory, all the attention they deserve. Psycho-analysts, on the whole, have become less psycho-analytical, in the sense of being less interested in the central questions of the unconscious *mode of being.* Some have gone on to theorise and to do away with some of the logical laws of the unconscious: timelessness has been considered as non-existent and as unnecessary theorising.

Once some ordination has been reached in this Part, we shall proceed to tasks which are specifically psycho-analytical. Among others we shall see how psycho-analysis can make a significant contribution to the question of emotion, which is a central notion of psychology.

In recent times various criticisms have been levelled against the threefold conception and there is a definite tendency in psycho-analysis to do away with it, either in practice or in theory. In practice many people use it at times (especially, perhaps, when it refers to the super-ego), and at other times manage to do without any clear theory at all. In theory the rival of the threefold conception is constituted by the various forms of the so-called object-relations theory. The notions of id, ego and super-ego, it is claimed – more or less explicitly, depending on the author – can be replaced by the notions of object and object relations. In my opinion such claims are based on confusion, and this needs to be clarified. We shall attempt to clarify the position when we come to these questions. In the meantime I would make two remarks: it does not seem wise to me to throw away the present conception simply because it has defects – these can be put right; and, secondly, the object-relations theory is, basically, a disguised form of the threefold conception. I believe, instead, that a reformulation of the question in terms of Freud's earlier ideas, but expressed with greater precision, will show that both the threefold conception and the notion of object are particular examples of a more general conception.

5. *Freud's Development of the Concept of Unrepressed Unconscious (a Historical Survey)*

I must start by warning the reader that this chapter, the purpose of which is to establish with precision the historical basis of the concept of the unrepressed unconscious, is bound to be rather tedious, if it is to be faithful to its purpose. For it will consist of numerous quotations from Freud and detailed comments on these quotations. I see no other way of disentangling some distinct guidelines from this mass of material which represents a trend of thought in the course of its development, that is, which is not static but is in a state of flux; it contains reflections, feelings of puzzlement and tentative solutions.

The notion of the unrepressed unconscious seems to have been present in Freud's mind from the very beginning of his studies, but it only gradually came into clear focus. Once it became completely explicit it was in its turn so slowly developed from 1923 onwards that its complete meaning and potentialities never came fully to light.

Apparently the first reference to it, as indicated by Strachey (1961, pp. 17-18), is to be found in Freud's second paper 'Further remarks on the neuro-psychoses of defence' (1896). On p. 162 Freud writes:

> . . . their symptom arose through the psychical mechanism of (unconscious) *defence.*

This is an obvious reference to an unconscious activity of the ego, which is not repressed but *repressing.* The next reference is to be found in the paper 'The unconscious' (1915, pp. 192-3):

> . . . it is not only the psychically repressed that remain alien to consciousness, but also some of the impulses which dominate our ego – something, therefore, that forms the strongest functional antitheses to the repressed.

Then, as Strachey also points out, in *Beyond the Pleasure Principle* (1920, pp. 19-20) there is another comment. Freud writes:

> It is certain that much of the ego is itself unconscious, and notably what we may describe as its nucleus; only a small part of it is covered by the term 'preconscious'. Having replaced a purely descriptive terminology by

> one which is systematic or dynamic, we can say that the patient's resistance arises from his ego. . .

We finally come to *The Ego and the Id* (1923) where all the above is once more affirmed and is made the base of Freud's new conception of the mind in terms of id, ego and super-ego. It may be pointed out that it is at this historical point that the introduction of a considerable improvement sowed the seeds of fundamental difficulties which are only now coming to light very gradually. We shall postpone until later the full discussion of these difficulties, to concentrate here on the meaning of the concept of unrepressed unconscious. Up to now everything seems clear: the non-repressed part is the repressing aspect of the ego. But in this new work, while reaffirming the above, though not as clearly as before (see Freud, 1923, p. 17), Freud makes various remarks which seem to go beyond his previous conception and also along different lines. In order to facilitate comments on the arguments that will follow, it seems advisable to make several quotations from this work. On p. 18 he writes:

> We recognise that the *Ucs.* does not coincide with the repressed; it is still true that all that is repressed is *Ucs.*, but not all that is *Ucs.* is repressed. A part of the ego, too – and Heaven knows how important a part – may be *Ucs.*, undoubtedly is *Ucs.* And this *Ucs.* belonging to the ego is not latent like the *Pcs.*; for if it were, it could not be activated without becoming *Cs.*, and the process of making it conscious would not encounter such great difficulties. When we find ourselves thus confronted by the necessity of postulating a third *Ucs.*, which is not repressed, we must admit that the characteristic of being unconscious begins to lose significance for us. It becomes a quality which can have many meanings, a quality which we are unable to make, as we should have hoped to do, the basis of far-reaching and inevitable conclusions. Nevertheless we must beware of ignoring this characteristic, for the property of being conscious or not is in the last resort our one beacon-light in the darkness of depth-psychology.

The complexity of Freud's thinking on this question is revealed in this paragraph, from which the following things may be gathered:

(1) That not all that is unconscious is repressed, but there is nothing more about this. Whereas in the previous quotations the exclusive link between unrepressed unconscious and ego was evident, it is no longer so here. The reference to the ego being unconscious is so ambiguous (and is made still more ambiguous with the addition of the adverb too) that, from this paragraph alone, it may legitimately be interpreted to mean: (*a*) that the ego has both repressed and unrepressed parts that are unconscious; (*b*) the unrepressed unconscious belongs entirely to the ego; (*c*) the unrepressed unconscious belongs only partially to the ego. But from this paragraph alone it is impossible to decide which of these alternatives he actually means.

(2) In making conscious the unconscious part of the ego one encounters great difficulties. This remark opens the door to new questions. For one would hardly think, judging from his previous writings, that Freud means that this unconscious part of the ego is a repressed one. We are, then, confronted by a dynamic unconscious which is not repressed. But if this part of the ego to which Freud refers is unrepressed and, as in the case of the repressed, great efforts must be made to make it conscious, the question arises: what is the actual difference between repressed and dynamic unrepressed unconscious? This question is a very significant one because, after all, repression is known – or better, its existence is postulated – from the difficulties encountered in bringing something into full consciousness. We are left in ignorance on this point.

(3) One gets the distinct impression, from reading this paragraph, that Freud expresses a disillusionment with not having been able to reach 'far-reaching and inevitable conclusions'. It seems that it is here that he starts a new line of thought: being conscious and being unconscious are *qualities*. As far as I can see it is most understandable that he should feel disillusionment, because this new line amounts, to a certain extent, to renouncing, or at least pushing into the background, his earliest and most creative intuition of the unconscious as '*the true psychical reality*'. It is difficult to see that treating the unconscious simply as a quality is the same thing as considering it the true psychical reality, so incompletely presented to us by the data of consciousness. One is reminded by this phrase of the characteristics of the system unconscious, whereas the word quality evokes something far more limited.

This development of Freud's thinking (the unconscious as a quality) has culminated in, or at least is intimately connected with, so-called ego psychology. When Freud wrote the above and, in the subsequent pages of the book I have just quoted, he threw new light and made an advance towards finding new solutions to important problems, at the same time he introduced some ambiguity because, ever since, it never became quite clear what should be abandoned of his former conception, what should be preserved and, especially, *how* it could be preserved.

Some further quotations may permit us to advance in the understanding of the concept of unrepressed unconscious. On pp. 23-4 of *The Ego and the Id* Freud writes:

> I propose . . . by calling the entity which starts out from the system *Pcpt.* and begins by being *Pcs.*, the 'ego', and by following Groddeck in calling the other part of the mind, into which this entity extends and which behaves as though it were *Ucs.*, the 'id'.
>
> . . . We shall now look upon an individual as a psychical id, unknown and unconscious, upon whose surface rests the ego, developed from its nucleus the *Pcpt.* system. If we make an effort to represent this pictorially, we may add that the ego does not completely envelop the id, but only

does so to the extent to which the system *Pcpt.* forms its surface, more or less as the germinal disc rests upon the ovum. The ego is not sharply separated from the id; its lower portion merges into it.

But the repressed merges into the id as well, and is merely a part of it. The repressed is only cut off sharply from the ego by the resistances of repression; it can communicate with the ego through the id.

This quotation represents several steps forward from what he has so far written. The following things may be noted:

(1) The existence of the unconscious (in a dynamic sense) part of the ego is affirmed rather vaguely, so much so that, if it were not for the phrase 'begins by being Pcs.', one could even think, from this quotation alone, that this unconscious part does not exist.

(2) The phrase 'as though it were Ucs.' strikes one as though he was very careful in affirming that the id was unconscious. As this is, however, unhesitatingly affirmed immediately afterwards, we may suppose that this care is due to his feeling in some way uneasy at the fact that the phrase in question implicitly denies what he had already said before, i.e. that being unconscious is only a quality. For, if the whole of the id is unconscious and the id is an entity, as he calls it, and not simply a quality, one legitimate possibility out of several would be that *this* unconscious of the id is not just a quality but something more than that. From this quotation one cannot conclude anything for certain, but if one considers that in a later work he spoke of 'processes in the unconscious or in the id' (Freud, 1940, p. 164), one begins to realise that Freud never entirely abandoned his former division of the mind in terms of the unconscious and the conscious (ego), or at least he never abandoned this division in that aspect which refers to the unconscious as something more than just a quality. We shall discuss this matter later at more length.

(3) The id has undoubtedly an unrepressed part. This is clearly understood from the phrase 'its lower portion merges into it' and is most visible in the diagram of p. 24 of *The Ego and the Id.* As can be seen, the concept of the unrepressed unconscious applies now, not only to the ego but to the id as well. The id has, therefore, a repressed and an unrepressed part.

(4) A surprising aspect of the phrase just quoted is the statement that the repressed *merges* into the id as well. It definitely implies that not all the repressed *belongs* to the id, as one would have expected from the general outline of Freud's previous conception and also from his subsequent affirmations, in the same phrase and elsewhere. If the unrepressed unconscious of the ego 'extends' into the id and the repressed 'merges' into the id as well, it is difficult to escape the conclusion that Freud actually thought that the ego had repressed parts, for we have no right to think that this phrase is due to carelessness. In fact, when one considers his own evolution and his later work on splitting of the ego, one may think that a new line of

thought was beginning to develop in him, which was never fully brought to light. In fact this line is already suggested in the remark that the repressed can communicate with the ego through the id, which conveys the distinct impression of making reference to a split-off part – of the ego. One would be inclined to have this impression in spite of the fact that elsewhere (1933, p. 57) he explicitly states that 'the repressed is foreign territory to the ego'.

The question whether the super-ego, in its unconscious aspects, belongs to the repressed or the unrepressed unconscious is not clearly solved in *The Ego and the Id*. On the one hand this agency is considered to be in intimate relation with the id, and to be its representative; on the other it is the heir of the Oedipus complex and it results from an identification (by introjection) with the parents after the complex has been repressed. As introjection can hardly be considered an (unconscious) activity of the repressed unconscious but rather one of the ego, we may assume that at least some aspects of the super-ego belong to the unrepressed unconscious and are similar to the unrepressed unconscious of the ego. But, as far as I know, we find no definite statements from Freud on this point.

If we now consider the *New Introductory Lectures* (1933) we find some further clarifications. On p. 69 Freud writes:

> We may say that repression is the work of this super-ego and that it is carried out either by itself or by the ego in obedience to its orders . . . portions of both of them, the ego and the super-ego themselves, are unconscious. In both cases we have to reckon with the disagreeable discovery that on the one hand (super-) ego and conscious and on the other hand repressed and unconscious are far from coinciding.

From this quotation we may conclude: (*a*) that the super-ego is partly unconscious; (*b*) that it is a repressing agency. From both these statements it would follow that at least parts of the super-ego have the quality of being unrepressed unconscious. (*c*) 'The disagreeable discovery . . .': once more, as in *The Ego and the Id* we find that Freud feels, we might say, cheated of something at any time that he has to describe the unconscious as a quality. One cannot but think that if the unconscious had to be treated *only* as a quality, or as a property, it would be difficult to find room for his most important previous discovery, that of the unconscious as the true psychical reality, etc.

Later in the same lecture, when speaking of what he had earlier referred to as the special characteristics of the system unconscious, he remarks (p. 75):

> You can see, incidentally, that we are in a position to attribute to the id characteristics other than that of its being unconscious, and you can recognise the possibility of portions of the ego and super-ego being unconscious without possessing the same primitive and irrational characteristics.

This statement seems of the utmost importance. It is quite obvious, from all that precedes it, that Freud is not speaking here of the repressed unconscious, but of the unrepressed unconscious. (Incidentally, in the diagram of this book, p. 78, the unrepressed unconscious occupies a far greater space than the repressed.) From now on we must distinguish, therefore, between two types of unrepressed unconscious: that which has 'primitive and irrational characteristics' and that which has not. The second type would be more characteristic of the ego and super-ego while the first would be, in Freud's conception, exclusive of the id, though this is not quite clear in this quotation, and I know of no other work which would permit us to settle the question as to what Freud actually thought on this point. In any case it seems clear that it is to this type of (primitive and irrational) unrepressed unconscious that we must attribute all the characteristics which Freud had previously described as primary process or as characteristics of the system unconscious. From this point on it seems that we may be relatively certain of Freud's meaning on this question, though we must attempt to come to a solution of several problems implicit in this position.

In the *Outline of Psycho-analysis* (1940) we find that some details are completed. When Freud speaks of the strong resistances which must be overcome for an unconscious material to become conscious and when he considers the fact that in psychotic states this happens spontaneously, he infers 'that the maintenance of certain internal resistances is a *sine qua non* of normality' (loc.cit., p. 161). One may ask whether Freud is referring to the repressed, the unrepressed or both types of unconscious; it is obvious from the text that this does not apply to the preconscious.

The idea of the internal resistances may be interpreted as referring *not only* to repression. If this were the case, Freud would be proposing here an entirely new concept and, so it seems, an important one. We shall have an opportunity of returning to this subject later.

Later on he adds:

> The sole prevailing quality in the id is that of being unconscious. Id and unconscious are as intimately linked as ego and preconscious: indeed, in the former case the connection is even more exclusive . . . In the course of this slow development certain contents of the id *were transformed into the preconscious state* and so taken into the ego; others of its contents remained in the id unchanged, as its scarcely accessible nucleus. During this development, however, the young and feeble ego put back into the unconscious state some of the material it had already taken in, dropped it, and behaved in the same way to some fresh impressions which it *might* have taken in, so that these, having been rejected, could leave a trace only in the id. In consideration of its origin we speak of this latter portion of the id as *the repressed.* It is of little importance that we are not always able to draw a sharp line between these two categories of contents in the id. They coincide approximately with the distinction between what was

> innately present originally and what was acquired in the course of the ego's development. (loc.cit., p. 163, first italics are mine)

As can be seen, Freud is here more explicit than anywhere previously about the relationship between the repressed and unrepressed unconscious, and between this latter and the preconscious. We may note the idea that the preconscious is a transformation of the unrepressed unconscious and that the distinction between what is repressed and unrepressed is not always very clear. This seems to be a definite opinion of Freud, because, in one way or another it is implied in various places throughout his writings, especially when he speaks of the repression as the withdrawal or denial of the cathexes of words. This is seen, for instance, in the paper 'The unconscious' (1915, pp. 201-2); here he does not yet speak of the unrepressed unconscious but definitely implies it and conveys the idea of repression as a returning to the primitive (unrepressed) state through the denial (previously he had spoken of withdrawal of cathexes, loc.cit., p. 180) of the word-cathexes. This is basically the same as what he says in the quotation just made: a *returning* to a previous state. Put in another way, it seems that his idea was that the unrepressed and the repressed unconscious differed only with regard to their origin, but not to their structure or to the laws they obey (characteristics of the system unconscious). But it is not even certain that he thought that, for when he says that 'the repressed merges into the remainder of the id' (Freud, 1933, p. 77) he seems to be implying that there is a *phenomenological* difference between them and not simply a historical one.

Conclusion. From all these quotations we become aware that the idea of the unrepressed unconscious had fully *emerged* in Freud's mind during the last years of his life but it did not have time to arrive at a full *development*. I believe that a clarification of it will solve some of the puzzles and remove the evident dissatisfaction which Freud quite justifiably shows at the replacement of the original concept of the unconscious conceived as the true psychical reality by that of the unconscious conceived as a quality.

To conclude this aspect of the review of Freud on this subject, I shall give another quotation:

> . . . the difference in quality between preconscious and unconscious . . . and having agreed that this quality is to be regarded only as an *indication* of the difference and not as its essence, a further question faces us. What, if this is so, is the true nature of the state which is revealed in the id by the quality of being unconscious and in the ego by that of being preconscious and in what does the difference between them consist?
>
> But of that we know nothing. And the profound obscurity of the background of our ignorance is scarcely illuminated by a few glimmers of insight. Here we have approached the still shrouded secret of the nature of the psychical. (Freud, 1940, p. 163)

As is plainly visible, from the notion of quality he goes, once more, to something beyond it. And this is a question which we shall have to treat fully.

6. *The Interrelations between Repressed, Unrepressed, Symmetrical, Asymmetrical, Id, Ego, Super-Ego*

A preliminary warning

The subject of this chapter will be studied in the light of the threefold conception. I am of the opinion that this conception needs to be changed in some aspects, but I will not discuss here how I think it should be changed. This will be the subject of a later chapter. I shall, therefore, discuss various problems in terms of the three classical instances of the mind. It will be seen, in the course of the discussion, how the concepts connected with these instances lead to apparently insoluble problems, which make the need of a modification in our conception more obvious. In this sense, this chapter paves the way for a better understanding of the modifications required.

1. Repressed unconscious contents and asymmetrical relations

We are used to the fundamental notion that '*the essence of repression lies simply in turning something away, and keeping it at a distance, from the conscious*' (Freud, 1915*a*, p. 147, his italics). From this we conclude that what is repressed is something that is kept away from consciousness (or from the conscious). This fact in itself furnishes no information about the laws to which this something submits, that is, to which logical laws this material, which is kept at a distance from consciousness, conforms. In the light of clinical experience we may say, with approximate certainty, that some of the things which are repressed conform to the laws of conscious thinking. I may mention, as an instance, the case of a repressed memory of a certain childhood happening. A patient came to remember during his analysis a completely forgotten episode: at approximately the age of three or four years he had heard, on several occasions, when he slept in his parents' room, the conversations that took place between his parents at the time when he was supposed to be asleep. In the course of that period of the analysis he gradually began to recollect the various details of the conversation, like the precise words used (which referred to details of their sexual relations), the attitude he had taken, and the questions he put to his mother on the morning after one of these occasions, when she denied that any such thing had happened and explained it to him as a dream. This, of course, he did not believe. This is obviously a case of

a repressed memory which is structured entirely in terms of conscious or asymmetrical thinking. In this case we were even able to identify one of the reasons for repressing it in the attitude of the mother, who made the child understand that she did not want him to know about what had happened during the night. This witnessing of the primal scene, and the respective role played in it by the parents, was of the utmost importance in the subsequent development of the patient and in the development of severe inhibitions in the identification with a strong paternal image.

Cases of repressions of this kind, whether they refer to happenings, thoughts, or concrete feelings, are common in analytical experience. One may ask what happened to the repressed memory in question when it was in an unconscious state. Did it preserve the structure of a memory, which is a highly asymmetrical structure, or was it submitted to the laws of the system unconscious and transformed in conformity with these laws? In this latter case, it would have had to have lost a spatio-temporal structure, would have had to be identical to any fantasy of the same class, etc. To undergo all these processes would amount to saying that it would have ceased to be a memory: *if a memory is not structured asymmetrically it is not a memory.* One must, then, affirm that, of the two alternatives mentioned, the only possible one is the first: the memory remained as such, *acted* as such upon various psychical contents, but it was prevented from entering consciousness.

The inevitable conclusion is that *at least some of the repressed contents are structured according to the mode of being visible in conscious thinking.* When one thinks of these cases, the comparison with a barrier which impedes the access to consciousness appears quite accurate. It was the comparison that came to Freud's mind and which he represented graphically in both his diagrams of the threefold conception. One may also recall the physiological process of inhibition, and think of something in a potential state, which is not essentially different in its structure from what it would or will be in its fully developed state. In cases of this type the use of the notion of the *quality* of being unconscious seems perfectly appropriate. This quality is associated here with asymmetrical thinking.[7]

So far so good. This is a dynamic conception, one in which the concept of repression is seen in terms of forces that oppose the entry of something to consciousness. We can apply this notion to all three aspects of the action of repression (to thinking, to the charge of affect and to (external) action). It is here that the Freudian notion of anti-cathexis seems to be useful – one force (which represses) is opposed to another force, that of the presentation, which strives towards consciousness and towards action – although one cannot avoid a feeling of uneasiness at this mixture of consciousness with energy, and this in spite of Freud's point of view which regards thinking as an experiment with small amounts of energy.

2. Unrepressed unconscious contents, asymmetrical relations and the three instances

If we now consider the contents of the unrepressed unconscious we must conclude with equal certainty that some of them which are unconscious in a dynamic sense, also conform to the laws by which the mode of being seen in conscious thinking is ruled, that is, asymmetrical relations. We have already quoted Freud stating this in a perfectly clear though indirect manner. At this point one asks: what, then, is the difference between these unrepressed unconscious contents and the repressed contents which we have just considered? The answer seems to be: from the point of view of structure (laws to which they conform), none. We may say, in contrast, that from the dynamic point of view, they belong to opposed areas: the unrepressed unconscious of the ego is, in the Freudian conception, the *repressing* aspect of the ego. But the trouble is that repressing and repressed are so similar: they conform to the same logical laws, they are dynamically unconscious, which means that in both cases an effort must be made to 'make them conscious'. When one considers these facts, the difference between repressing and repressed, as considered not in their content, but in their dynamic structure, begins to loose sense. With it, the notion of repression becomes full of problems. It is at this point that the idea of splitting appears, perhaps, as a better substitute for repression or, if one prefers, as a better way of looking at repression. But this entails considerable changes in theory, which we shall study later. In other words, this way of looking at the question proposes in its turn the problems of the distinction between ego and id and also the possibility that, after all, there may be repressed aspects of the ego or that our notions must be changed. This whole question must be re-examined.

It must be kept in mind that that aspect of the unrepressed unconscious subject to the laws of conscious thinking was apparently attributed by Freud to the ego and super-ego (Freud, 1933, p. 75, see above). As far as I know, he never made a direct pronouncement about this possibility in the id. There seems to be nothing unacceptable in the view that *some portions of the id might belong to the unrepressed unconscious and at the same time, like some of the repressed portions, be subject to the laws of the mode of being which is visible in conscious thinking.* I need not remind the reader, once more, that all this is expressed in terms of the classical threefold conception. But it could, perhaps, be expressed in more simple terms by means of some modification of this view.

3. Repressed unconscious contents and symmetrical relations

We now turn our attention to the relation between the repressed unconscious and the mode of being seen in the characteristics of the

system unconscious. Personally I am inclined to think that the contents submitted to repression proper are, in all their aspects, asymmetrical. As for primal repression, it remains to be established whether it is not, basically, simply another way of referring to the type of thinking seen in the characteristics of the system unconscious. Freud seems to have thought otherwise: as far as I know, he did not make (on this point) a distinction between the two types of repressions. He writes:

> Wishful impulses which have never passed beyond the id, but impressions, too, which have been sunk into the id by repression, are virtually immortal; after the passage of decades they behave as though they had just occurred. They can only be recognised as belonging to the past, can only lose their importance and be deprived of their cathexis of energy, when they have been made conscious by the work of analysis. (Freud, 1933, p. 74)

He seems to be referring here to the characteristic of timelessness, which he included among the characteristics of the system unconscious. If this were the case, then, according to Freud, when a psychical content is submitted to repression it is divested of its asymmetrical structure and becomes symmetrical, that is, it acquires at least one of the characteristics of the system unconscious. All this is quite incomprehensible to me; perhaps a possible explanation of the phrase quoted above would be that immortality, *in this context*, means, for Freud, not the characteristic of the system unconscious he had described, but simply 'extremely present'. He speaks here of past and present and both are concepts which presuppose time, whereas timelessness means something different, that is, 'not ordered temporally', as Freud himself says in his paper 'The unconscious'. So, there is a suspicion that, though this was not explicitly stated, for Freud the notion of timelessness had more than one meaning. If he meant timelessness in the sense of absence of series, we would have to conclude that the paragraph quoted above means that, according to Freud, the characteristics of the system unconscious can be acquired by something which once conformed to the laws of asymmetrical thinking! In various other passages he suggests the same thing, especially when he refers to repression as a process which denies to the presentation its translation into words: the structure of words and phrases is spatio-temporal. *This view of Freud amounts to saying that, just as the unconscious is made conscious, the conscious is made unconscious in the same sense of the characteristics of the system unconscious-mode of being, and not just as a quality.* I believe there are other alternatives to be considered, but for the moment I wish to study the view just mentioned, i.e. that a repressed content is submitted to the system unconscious-mode of being, irrespective of whether this is the result of it being 'sunk into the id' or that it was there (in this mode) from the beginning and was

subsequently subjected to (primal) repression.

The problem is very difficult and we have not very much from which to decide in one way or another. We must, first of all, keep in mind that Freud never developed fully the concept of the unrepressed unconscious. It is possible that, had he done so, some of his remarks about repression and the connection with memory-traces of words, would have applied to the unrepressed and not to the repressed unconscious. But we cannot be sure. Clinical experience seems to be more in favour of repression being a process which respects asymmetrical relations, that is, the mode of being seen in conscious thinking. Perhaps some of the obscurity of Freud's writings in his paper 'The unconscious' and in *The Ego and the Id* would disappear if we applied systematically the distinction between these two modes of being and restricted the concept of repression to the asymmetrical mode, that which is seen in conscious thinking. For if we consider the system unconscious-mode of being we soon realise that, *for a content belonging to this system to be away from consciousness, there is no need for a dynamic process, because its very structure and the structure of consciousness prevent it from being conscious. There is an intrinsic impossibility of it entering directly into consciousness and this seems to be a point which has never been clear in psycho-analytic thinking.* We shall consider it in a later chapter.[1]

4. Unrepressed unconscious, symmetrical relations, id, ego and super-ego

We finally come to the unrepressed unconscious which conforms to the characteristics of the system unconscious. Freud's view *seems* to have been that this belongs entirely to the id. It is in this sense that he employs the terms id and unconscious as synonymous. After the introduction of the term 'id', when he wanted to refer to the characteristics of the system unconscious, and not to the unconscious seen as a quality, he spoke of the unconscious as synonymous with id; however, he was not sufficiently explicit about it: we may only reach this conclusion from a careful consideration of his writings. In fact we would even have the right to think that Freud identified the id with the system unconscious-mode of being; in other words, that according to him everything in the id conforms to the characteristics of the system unconscious. A moment ago we came to the conclusion that at least some of the repressed (which, according to Freud, belongs to the id) follows the laws of the mode of being seen in consciousness. This was neither explicitly affirmed nor denied by Freud. As already remarked, in some passages he did describe the repressed as though it acquired the characteristics of the system

[1] See also Chapter 8, Section 7.

unconscious; but if we consider, not only those passages but the whole of what he wrote about repression and what is repressed, we cannot escape the conclusion that there are times in which he definitely describes repression as conforming to the laws of conscious thinking. We must conclude that he was ambiguous on this point, as well as on the identical extension of id and system unconscious-mode of being (that is to say that everywhere there is id there are the characteristics of the system unconscious and everywhere there are the characteristics of the system unconscious there is id).

The first impression is that Freud considered the ego as the very antithesis of the system unconscious-mode of being, that is, that the ego never conforms to the characteristics of the system unconscious. In fact, in his early writings he insisted on the contrast between the ego and the unconscious modes of thinking. Yet it is not clear that he always refused to the ego certain characteristics of the system unconscious. The following quotations, taken from *An Outline of Psycho-Analysis* (1940), depict an ego functioning like an id or like a system unconscious-mode of being (even if under the pressure of the id); and an id with ego-characteristics:

> . . . the sleeping ego takes on the task of the dream-work. (p. 169)

Note that the dream-work, which employs the system unconscious-mode of being, is accomplished by the ego; and this is a fundamental notion of psycho-analysis. If this is so, one may legitimately ask how this is possible. For if the ego handles the dream material according to symmetrical logic then it must 'know' this logic. The alternative would be that the ego, completely alien to this logic, handles it in 'id-territory', in the same way as a skilled technician may handle infected material under a protecting bell and with disinfected gloves. But this alternative seems extremely involved and artificial. Once more, we find that present-day conceptions of the structure of the mind constantly lead into insoluble problems or, to put it more accurately, into artificial problems which reveal the insufficiency of our present conceptions:

> That ego is no longer able . . . as a result of continuous irruptions by the id, its organisation is impaired, it is no longer capable of any proper synthesis, it is torn by mutually opposed urges . . . we restore order in the ego by detecting the material and urges which have forced their way in from the unconscious, and expose them to criticism by tracing them back to their origin. (pp. 180-1)

In contrast to the previous quotation, what the ego does normally in dreams, it also does under stress in neurotic conflict. Whatever the cause, the fact is that, even if under stress, the ego behaves in conformity with the characteristics of the system unconscious:

> . . . and change the ego back into a portion of the id. (p. 199)

This is in keeping with what he maintains throughout his writings: that the limits between the various regions of the mind are not sharp and that these merge into one another.

From these quotations we may conclude that Freud actually thought that the ego, under certain circumstances, would conform to the laws or the characteristics of the system unconscious.

On the other hand, when he writes (p. 198) that the id

> has a world of perception of its own. It detects with extraordinary acuteness certain changes in its interior . . .

he is depicting an id with ego properties, and these are very much those of the mode of being seen in conscious thinking. But the number of distinctions made in the main argument, and of shadings of one thing into another, makes one wonder whether the formulation of the whole theory should not be changed. This is the subject which we must consider later.

It seems opportune at this point to mention the work of other authors, which is relevant to the present subject. Arlow and Brenner (1964, pp. 91-102) review the evidence available and come to the conclusion that not only the id but also the ego and super-ego show patterns of rapid discharge of cathexes corresponding to primary-process activity. Although they are not speaking of the characteristics of the system unconscious, for our present purposes it is the same because they mean condensation and displacement, which belong to these characteristics. These authors recall that Kris has drawn attention to the fact that certain important ego functions are carried out by regressive mental functioning of the ego. The activities connected with these functions have high cathectic mobility, yet, judging from their context, could hardly be considered pathological. They also refer, on the other hand, to the work of Eidelberg, who has studied certain parapraxes which constitute unintended confessions of guilt and which serve the interests of the super-ego. These are dependent on displacement and condensation, that is, on the primary mode of mental functioning.

From all that precedes we can safely conclude that both in the ego and super-ego, as well as in the id we can see the operation of the characteristics of the system unconscious. It is not clear whether in the case of the ego and super-ego this mode of functioning corresponds to the repressed or to the unrepressed unconscious. But this is of no importance because, for the purpose of our study, the real issue at stake is the system unconscious-mode of being and its relation with the conscious mode of being, and not the unrepressed unconscious. We have started with the consideration of the unrepressed unconscious because this subject enabled us to find a host

of interrelations – and of difficulties – which are relevant to our problem and which will make clear that the formulation in the terms we are proposing is both necessary and convincing. So, we shall have no difficulty in leaving aside the concept of the unrepressed unconscious, not without gratitude, because it has led us to the system unconscious-mode of being.

7. *The Two Modes of Being in Man*

1. Some brief preliminary reflections about happening and being

As all that follows is related, in one way or another, to these concepts, I feel it necessary to make some brief comments about them.

The concept of *happening*, as I intend it here, implies change, i.e. the appearance, evolution and eventual disappearance of something. When referring to material phenomena this always means movement. And movement simply means here what it means at face value: *displacement in space which takes time.*[1] It will be clear to anyone who reflects further about this question that the affirmation just made leads to serious problems, for instance: what is displacement, what is displaced? This leads to the question of what matter is, which in its turn poses the problems of the equivalence between mass and energy, and of the electron seen as something which vibrates, a wave, but simply a wave of probability. What is space? What is time? If we try to get deeper into these problems at this stage of our attempts at understanding we shall be simply bogged down in a marsh without much hope of getting out; at least this is what I feel. If, instead, in this first approach we investigate at a more superficial level the concepts needed for our enterprise, we shall be able to reach some understanding and at the same time we will have paved the way for further developments of this understanding, as frequently happens in scientific research.

The problem is still more complicated in the case of psycho-analysis because when, for instance, in our concepts of projection and introjection and in the study of various other psychical phenomena we imply happening, whether we like it or not we are

[1] I realise that, from a physico-mathematical point of view, the above assertion may be superficial, because space and time can no longer be considered apart. But perhaps it is not inexact, only susceptible of being understood in more than one way. My hope is that, in spite of it, what follows may represent a starting-point which a mathematician who was also a psycho-analyst could greatly develop and improve. My excuse for discussing this, and even for writing this book, is that I am convinced that some of the ideas put forward in it may lead to a better understanding of mental phenomena. It is also my hope that people thoroughly conversant with mathematics and physics may take up these ideas, correct them where they need correction and develop them.

actually implying something which is an image of a *material* happening; at the same time we know that introjection, projection and psychical phenomena in general are not material happenings. In other words, all our knowledge about mental happenings is intimately connected with our knowledge of the physical world, and we cannot escape this: it is essential to our nature. I think the wisest thing to do about it is to keep constantly in mind one of the characteristics of the system unconscious described by Freud: the substitution of psychic for external reality, which amounts to considering both as identical or equivalent. If we start from this characteristic – which for developed thinking appears strange – we shall gradually be able to undo many knots.

If the concept of happening is difficult enough, the concept of being appears much more difficult. I shall avoid entering the abstruse questions that have occupied philosophers throughout the history of human thought and shall content myself with the barest of references. In a first approach to the problem we may form an idea of 'pure' being, not so much from the consideration of its positive aspects, but from some absences which we may detect in it. So we may say that being is that something which remains in the absence of happening, that is, in the absence of movement; i.e. in the absence of space-time relations. We may look upon it as the *noumena* behind the *phenomena.* It is – in the context we are considering – the reality of the deepest, timeless, spaceless unconscious, that reality which, as Freud said in the famous phrase already quoted earlier '*in its innermost nature . . . is as much unknown to us as the reality of the external world, and . . . is as incompletely presented by the data of consciousness as is the external world by the communication of our sense organs*'. But even if we approach the problem from the point of view of the absences, and even if we avoid questions which at the present moment we are, perhaps, not able to formulate, we still inevitably face serious doubts and questions. To mention one: when we consider that we may meet being, so to speak, naked and outside the 'clothing' of space-time, must we also suppose that behind that something which we call happening there is no underlying being? To put it another way, must we suppose that behind our conscious thinking, which obviously *happens*, there is no underlying being? These questions are of great importance for the subject of this chapter and we shall return to them later.

I would like to remark incidentally, that psycho-analysis constitutes a method which gives the chance of approaching, from its own angle of observation, some of the problems about the nature of the human mind which have occupied philosophers throughout history. Just as it has furnished opportunities of broaching the question of the psycho-physical unity, so it will furnish us, if we dare to consider the subject in its fullness, with valuable insights about the spatio-temporal and spaceless-timeless aspects of man. Freud made only the initial formulation of the problem.

We can now return to the concrete questions of this chapter.

2. Back from the psychical qualities to the psychical modes of being

We have repeatedly seen that Freud was never completely satisfied with the introduction of the notion of the unconscious as simply a quality and that he never stopped speaking of 'the unconscious'. In terms of the new conception introduced in *The Ego and the Id*, he was justified in using the expression 'the unconscious' only in the sense that, according to him, the id is entirely unconscious; but in spite of it there is a contradiction or at the very least an ambiguity in the identity of 'the id - the unconscious'. For in terms of the formulation made in the book just mentioned the term unconscious should be employed exclusively to designate a quality, which the id is not. In consequence one should not speak of 'the id or the unconscious' or use the word unconscious as a noun. In fact Freud clearly uses the noun unconscious, not only in the passage already mentioned but elsewhere (see e.g. Freud, 1933, p. 125; 1936, p. 241; 1940, pp. 169, 181; 1937, p. 251).

It might too easily be objected that this is a harmless and insignificant oversight. In fact, it rather seems to be a sign of a more fundamental attitude, which is visible in various facts other than those just mentioned. (This impression is strengthened when one considers that in many passages after *The Ego and the Id* Freud employs the term 'unconscious' as a quality or a state.) The consideration of these facts leads to the conclusion that *Freud never relinquished his former concept of the unconscious*; and it is understandable that this should be so, for otherwise he would have rejected the most important of all his creations. It was the multiplication of the meanings of the term unconscious that created problems, which he tried to solve in the threefold conception. As a consequence of this change, 'the unconscious' was officially left out but in fact continued to be present, both in Freud's thinking and in that of many of his followers. An attempt should be made to solve this contradiction. The first step in this attempt is to get a clear perspective of the implications of the former ideas of Freud. We shall start with a historical review.

In *The Interpretation of Dreams* Freud writes:

> Thus we are driven to conclude that two fundamentally different kinds of psychical process are concerned in the formation of dreams. One of these produces perfectly rational dream-thoughts, of no less validity than normal thinking; while the other treats these thoughts in a manner which is in the highest degree bewildering and irrational. (p. 597)

Note *that the difference is established here, not in terms of consciousness and the unconscious, but in terms of rational and*

irrational. On pp. 610-11 he speaks of

> the existence of two kinds of *processes of excitation* or *modes of its discharge* . . . What we are doing here is once again to replace a topographical way of representing things by a dynamic one. What we regard as mobile is not the psychical structure itself but its innervation.

Again here, the opposition is not between consciousness and unconscious, but this time, between free or mobile, and bound cathexes. On p. 620 of the same book there is a footnote with a quotation of the 1909 edition of this work: 'psychical reality too has more than one form of existence'. This phrase was later modified into '*psychical* reality is a particular form of existence not to be confused with *material* reality' (p. 620).

A short while later, in his essay 'On dreams' (1901) Freud writes (p. 676):

> Our hypothesis is that in our mental apparatus there are two thought-constructing agencies, of which the second enjoys the privilege of having free access to consciousness for its products, whereas the activity of the first is in itself unconscious and can only reach consciousness by way of the second.

If we compare these quotations we realise that Freud's thinking was trying to express his intuition in various ways. *In fact we see the following five different concepts applied to exactly the same psychical realities*:

– rational in contrast to irrational psychical processes
– bound in contrast to mobile excitation
– consciousness in contrast to the unconscious
– a form of existence of psychical reality in contrast to another or other forms of existence
– one thought-constructing agency which *enjoys the privilege* of having free access to consciousness in contrast to another which is in itself unconscious

It can easily be seen that, out of these five alternative ways of referring to these realities, only the third is expressed *directly or centrally* in terms of the pair conscious-unconscious. In the fourth pair, it is obvious from the context that Freud is referring to a point of view which is near to the first, though it is worth noting that he speaks here of existence. As to the fifth, it is interesting to realise that though Freud refers to the access to consciousness as a difference between both, he does not put it as the distinguishing mark but as 'a privilege', that is, a quality or a characteristic, *among others.* The central theme here is the difference in the construction of thoughts and not the access to consciousness.

We may conclude from these quotations that from the very

beginning of psycho-analysis Freud was aware that the question of consciousness-unconscious was not the sole difference between these two types or forms (as he calls them) that coexist in man. This is, on the other hand, so obvious in his writings that it seems almost ingenuous to mention it, were it not for the fact that *one* characteristic of one of these forms was employed as its name, and this led to much confusion. In what follows I shall not attempt, therefore, to make a complete review of all the passages where Freud expresses the idea of the contrast between both. I shall restrict myself to two considerations. The first is that in his paper 'The unconscious' Freud obviously had this idea in mind, as can be seen in various parts of it. The most relevant passages seem to be his description of the special characteristics of the system unconscious, in which he clearly established the laws followed by the unconscious 'form of existence'; and the passage in which he speaks of certain derivatives of instinctual impulses, 'which unite in themselves characters of an opposite kind' (Freud, 1915, p. 190), and which he compares to individuals of mixed race (ibid., p. 191). It is obvious that such notions cannot be contained in the notion of unconscious conceived as *only* a quality, yet their nature is linked to their being unconscious. We must, therefore, have another notion further than that of unconscious quality if we are to express reality in a truthful way.

The second consideration refers to the fact that after *The Ego and the Id* Freud continued to employ the above concepts, in spite of the fact that they could not fit in well with his new conception of the unconscious as a quality. We have already mentioned some instances of his use of the expression 'the unconscious' which point this way. But there are other passages where this is more forcibly expressed. In *An Outline of Psycho-analysis* (1940, p. 167) Freud writes:

> The preconscious thoughts which have obtained reinforcement from an unconscious instinctual impulse are brought down to the unconscious state. It is only in this way that we learn the laws which govern the passage of events in the unconscious and the respects in which they differ from the rules that are familiar to us in waking thought . . . To take an analogy from history: invading conquerors govern a conquered country, not according to the judicial system which they find in force there, but according to their own. It is, however, an unmistakable fact that the outcome of the dreamwork is a compromise.

In this passage we find an interesting example of the use of both concepts of the unconscious: in the first phrase as a state or a quality, in the second as an organisation ruled by its own special laws. It is obvious that something can be unconscious, that is, have the quality of being unconscious or be in the unconscious state, without, *for this role reason, having to be subject to different laws from those of conscious thinking.*

It is evident, therefore, that the restriction of the meaning of the word unconscious made by Freud in his new conception left no easy place in this new theory for the characteristics of the system unconscious, whose being is so intimately linked to *their being unconscious.* We must conclude that viewing the unconscious as a quality represented a progress but made more visible the need for another concept to be added to it. The id as a region or province left no place for this concept.

The same trend of thought is clear in the following quotation from the same book (pp. 168-9):

> The governing rules of logic carry no weight in the unconscious; it might be called the Realm of the Illogical.

Note that when he speaks of this aspect Freud immediately reverts to the use of the unconscious as a noun. One may ask: why not call it the id? If we were to consider only what he wrote, this refusal of the word id would at first sight strike one as illogical. Yet it appears perfectly understandable if we remember that this term was born as a result of a decision to avoid the use of the term unconscious in any other sense than as a quality. As Freud wrote (1933, p. 72):

> We have no right to name the mental region that is foreign to the ego 'the system *Ucs.*' since the characteristic of being unconscious is not restricted to it. Very well; we will no longer use the term 'unconscious' in the systematic sense and we will give what we have hitherto so described a better name and one no longer open to misunderstanding . . . the 'id'.

To use it giving it its old meaning is actually illogical according to this passage. Yet it is quite understandable that when Freud discusses those aspects which go far beyond the concept of quality or state he returns to his first use of the term unconscious.

It is clear, therefore, that we are confronted by certain facts which cannot be fitted comfortably into the present theoretical scaffolding of psycho-analysis, and which, in actual fact, never have fitted comfortably; not even in Freud's first conception. It is true that, from a certain angle, this is not very important because, after all, what matters in the long run is the general orientation brought about by Freud. But from another angle this is not negligible, because it definitely hinders the development of clear thinking. The reason for this state of affairs seems to be that the initial name chosen by Freud, the unconscious, gave a very poor account of the magnitude of his discovery. *Freud's fundamental discovery is not that of the unconscious, not even in the dynamic sense (however important this may be) but that of a world – which he unfortunately called the unconscious*[1] *– ruled by entirely different laws from those governing*

[1] No doubt one, but only one, of the characteristics of this world is that of being unconscious. To call the whole thing by the name of one of its aspects is an example of the

conscious thinking. He was not the first to speak of the unconscious, and much about it was known before him, but he was the first to make the fundamental discovery of this strange 'Realm of the Illogical', submitted, in spite of it being illogical, to precise laws which he found, in an extraordinary stroke of genius.

Freud was not like Columbus, who died unaware that he had discovered a new world. He was undoubtedly aware of his discovery, as can be seen from all his writings. He was undoubtedly aware of the distinction between the unconscious as a quality and that of the unconscious as a kind of reality. He tried to solve several difficult problems by introducing the new division of the mind. But, somehow, this new conception, in spite of its being in some ways a step forward, left this fundamental problem unsolved or bypassed. The unconscious as 'the true psychical reality' comes over and over again (though not in those words) after *The Ego and the Id.* It seems that the solution lies in returning to his initial expressions of *The Interpretation of Dreams* and trying to give them a precise unitary meaning. As already mentioned, the pairs of terms employed by him to contrast two types of psychical reality were: rational-irrational, bound-mobile, conscious-unconscious, forms of existence and thought-constructing agencies. If we reflect about these alternatives we realise that what is at stake is more than two forms of thinking. The characteristics of the system unconscious delineate much more than just that: they delineate, in fact, a form of existence, to use his words. Regarding the concept of mobility, we may leave it until later. We have already discussed at length the question of conscious-unconscious. So we are finally left with the notion of existence. From the time Freud wrote this there has been much philosophical thinking on this question of existence. There is also the consideration that existence implies unfolding, and this implies time which is alien to one of these forms we are discussing. For these reasons it seems better to speak of *two kinds or modes of being rather than of existence.*

There would, then, be the mode of being revealed in the so-called characteristics of the system unconscious and the mode of being revealed in conscious thinking. This is only to affirm the same as Freud expressed in his initial writings. We must now try to see how this initial intuition of his may help to solve the difficulties we have been considering. We shall try to do this in the following chapters. It will gradually be seen that restoring these initial conceptions of Freud to the place where they rightfully belong, opens up the way for a much more coherent view of the mind, which is also truer to

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identity between the part and the whole, which follows precisely from the laws described by Freud. This can easily be seen if we express these laws in terms of symbolic logic, with the help of the principle of symmetry. It is an interesting historical fact that in the scientific description of his discovery an aspect of the discovery itself should have slipped in!

actual reality. But we must proceed step by step if we are to come nearer to achieving this.

3. A question of terminology

Now that the need to reintroduce the initial conception of Freud into the psycho-analytical theory has become clear, an appropriate name must be found for the two modes of being. We shall examine here the various alternatives.

If we start with the names employed by Freud, the pair 'rational-irrational' has too vague a meaning, and can be understood variously. 'Conscious-unconscious', just like that, without any qualification, has been, as already discussed, the cause of so much trouble that we must leave it aside. Bound and mobile excitation refers to the question of mental energy, which up to now has remained very vague. It is conceivable that when an important progress is achieved along these lines, some distinction will be made between these two modes of being from the point of view of energy. So a terminology based on this concept is not to be excluded *a priori.* However, I do not see how it could be used at present. The idea that displacement actually entails displacements of energy seems controversial to me. I have already pointed out (in Chapter 3) that the name displacement, seen from a logical point of view, does not correspond to any actual displacement.

'A form of existence' and 'another form of existence' obviously cannot be used to differentiate between both modes of being. Neither can the expression 'thought-constructing' agency, though the latter indicates an important feature of these modes of being: they construct thought.

So we must search for other names. We could call them 'the mode of being visible in conscious thinking' and 'the mode of being which shows the characteristics of the system unconscious'. We would not be wrong if we did so, and in fact, following this idea, I have already called them by these names in the previous pages. But we must recognise that they are too long.

We could also think of the expression 'the mode of being of the unrepressed unconscious'. But this expression would be imprecise, because it seems that in all probability there are manifestations of both modes of being in unrepressed unconscious contents. If we consider that one mode of being has the quality of being unconscious as a *constitutive aspect* of its nature or of its structure, we could call it the *unconscious by its own nature or structural unconscious.* I find nothing basically false in these expressions and in fact I have used the second for over fifteen years (see Matte Blanco, 1955). But they have several disadvantages: first that of referring to one of the characteristics and not to the 'complete' nature of this mode of being; then, as we shall see under the next heading of this chapter,

the quality of being unconscious is not, strictly speaking, an expression of the nature of this mode of being.

Finally, if we keep in mind that what characterises one of these modes of being is precisely the characteristics of the system unconscious and if, furthermore, we consider that the most central trait of these characteristics is the peculiar (extensive) use of symmetrical relations, then it seems perfectly legitimate to call this mode *the symmetrical mode of being or symmetrical mode.* This expression is both accurate and short and it describes in one word its actual nature. The interesting thing about it is that the quality of being unconscious is a *necessary consequence* and *only in this indirect sense* a constitutive feature of symmetrical being. For with symmetrical relations alone, there cannot be consciousness in human beings. We shall return to this question in the next heading.

The mode of being revealed in consciousness, on the other hand, requires, as an essential feature, the use of asymmetrical relations. Consciousness cannot exist without asymmetrical relations, because the essence of consciousness is to distinguish and to differentiate and that cannot be done with symmetrical relations alone. So the term *asymmetrical mode of being, in short, asymmetrical being,* seems also quite appropriate.

So we have in the end two words which, as in a nutshell, differentiate both modes: symmetrical and asymmetrical. Once this notion is firmly established we can see that these modes may have 'conscious' and 'unconscious' as qualities. The cases applying here can be various, and this is not the moment to go over them.

If we agree on the meaning of the terms and of the concepts, we need not be fanatical about using completely precise terms. An incorrect use may be accepted provided we are very clear about what we mean. For this reason, I personally would not object if somebody called the symmetrical being 'the unconscious by its own nature', 'the structural unconscious', or simply 'the unconscious'. Correspondingly, the asymmetrical being could be called 'the being seen in consciousness' or simply 'consciousness'. We would thus return to Freud's old terms, 'consciousness' and 'the unconscious', provided we are in each case clear that when we employ these terms we are referring to two modes of being, characterised by the respective use of asymmetrical and symmetrical relations, and we are not intending to designate conscious or unconscious qualities. In fact, throughout the book I shall use the expression 'the unconscious' extensively, understood in the sense of symmetrical being.

4. Consciousness and 'the unconscious'

Here I should like to make a further comment. The symmetrical mode of being is characterised by its peculiar use of symmetrical relations. As a result of this use, or as an expression of it,

symmetrical being shows the so-called characteristics of the system unconscious. These characteristics can be *described*, as they have been, as *characteristics*, or can be considered as *features* or as *qualities* of symmetrical being. *The important thing to keep in mind, however, is that they are the expression or the application of the principle of symmetry.* But the fact that symmetrical being is unconscious is not, if viewed from one angle, the expression of its nature or the application of the principle of symmetry. This is an interesting point that must be cleared up, and it is all the more interesting when we consider that Freud called this mode of being 'the unconscious'. *The quality of being unconscious is not inherent in or essentially inevitable to symmetrical being. It is, instead, a consequence of the nature of consciousness, which cannot contain within itself*[1] *the symmetrical being.* By its own nature, consciousness or the asymmetrical mode of being, when it functions in its fullness, cannot focus on more than one thing at a time. It must separate one thing from the next. Whereas by its own nature the symmetrical mode of being is all-embracing; it identifies the individual with the class, so that all individuals become identical to one another and to the class. Consciousness, in contrast, when confronted by a whole class can only consider it in two ways: either it focuses on the limits (or definition) of the class, that is, on those precise features which characterise it and distinguish it from all other classes, or it concentrates on the individuals which form the class. In both cases it must conform to its nature, which prevents it from seeing more than one thing at a time. So, when it delimits the class, it proceeds analytically, defining one by one the variables y, q, z, etc. of the propositional function;[2] when 'seeing' the individuals it does the same. No wonder then that a whole class, symmetrically grasped, cannot enter consciousness: the nature of consciousness prevents it.

The situation can be compared to that of the jug in a painting which cannot contain water, because of the difference in dimension between the painted jug and the substance called water. However, in the case of symmetrical being, as we shall see later on, the dimensions are infinite; it cannot, therefore, ever enter human consciousness.

All this needs further explaining and perhaps it will become clearer throughout the book. With symmetrical relations alone it is not possible to establish a difference between individual things; hence, the individual is, in this case, identical to the class. Thinking requires asymmetrical relations. So does consciousness. The potentialities of the class or, in other words, the number of values that the propositional function may assume, are infinite. They cannot, therefore, be simultaneously comprehended in man's consciousness.

[1] I say 'within itself' for a definite reason, which will be discussed in the next chapter.
[2] See Chapter 13, Section 4.

Thinking is a *process*, something in which one thing follows another. Human consciousness takes one thing after the other. Nothing prevents us, however, from conceiving a form of consciousness which can apprehend an infinite number of things simultaneously. If this were so, symmetrical being would be able to enter consciousness *in toto* and be apprehended by consciousness. To continue with the comparison of the jug in a painting: for this to be possible, consciousness would have to have infinite dimensions. *In this case symmetrical being would be able to enter that infinite-dimensional consciousness.* But this is not within the actual reality of man and it is, therefore, outside the scope of science. Perhaps this would correspond to the consciousness of God. Thinking and being would then come to coincide.

8. *The Interrelations between the Two Modes of Being. The Translating or Unfolding Function*

Foreword

The reaffirmation of the two modes of being in man will necessarily mean a revision of some aspects of psycho-analytical theory. I believe this can be done quite painlessly and without throwing overboard any valuable insight about the mind reached with the help of the threefold conception.

Before attempting this task, however, it is necessary to try to clarify our ideas about both modes of being and their interrelations. This will be the subject of the present chapter; we shall study it under various headings.

1. Logic, thinking and being

The problem suggested by this heading is an extremely difficult one. We have already touched on it in the previous chapter. Some further remarks, however, seem necessary, and I shall try to say more, though it is clear that a great deal still remains to be understood. We may try to delimitate some aspects of the problem which merges into all the basic questions of being, finite and infinite.

(1) We may start from what is easiest. Some seem to think that the characteristics of the system unconscious or primary-process mode of thinking are something irrational, devoid of all logic. This is an unsatisfactory assertion. Apart from the fact that the term irrational may mean many things and it is, therefore, better not to use it, it can be shown that with the principle of symmetry one can understand, from a logical point of view, ways of thinking and behaviour which otherwise would have appeared completely chaotic. We must conclude, therefore, that the characteristics of the system unconscious reveal a kind of logic, for which I have proposed the expression symmetrical logic. Though it is true that with the principle of symmetry *alone* no logical system can be built, as we have already seen and shall also see later, it is equally true that *without* the principle of symmetry many things that can be understood with its help would appear chaotic. It is legitimate, therefore, to conclude that there is a logic in the characteristics of the system unconscious. This is different from 'adult' or asymmetrical logic.

(2) A second question which comes to mind is that of the relation between logic and spontaneous expressions of being. Somebody objected to one of my first papers on this subject, which dealt with an interpretation of schizophrenic symptomatology along these lines of thought, by saying (in substance) that the schizophrenic could not know such a complicated way of thinking. Apart from the fact that symmetrical logic or, more accurately expressed, the symmetrical aspects of anaclitic logic, is not more complicated but is immensely simpler than everyday adult logic, this question deserves a comment because it touches on a specific feature of psychology. When we digest a food, our body secretes the appropriate enzymes in the appropriate quantities. When we run, our body makes complicated hydraulic adjustments, so that bodily functions can take place satisfactorily in these new conditions. Nobody stops to think that we cannot digest because our body is not a distinguished biochemist, as it would have to be if it were to create the 'digesting conditions' in a laboratory. Nor would anyone object to the adaptations taking place when we are exerted by saying that our body is not a clever hydraulic engineer. But if a schizophrenic says some strange things and it is found that they conform to a certain logic, some might think this is strange. The answer to this is that the logic employed by the schizophrenic or the unconscious forms part of our psycho-biological equipment just as much as the 'practical knowledge' of enzymes or of hydraulics shown in the above mentioned examples. To explain it, the unconscious does not follow and does not worry, to use an anthropomorphic expression, about this logic any more than the digestive tract worries about the chemistry of the enzymes; only lives it, just as an animal is impelled to eat, without knowing the mechanisms underlying its appetite. When it comes down to images, instead, the unconscious treats the material provided by images according to its inherent nature, and it is there that, *as outside observers*, we discover the principle of symmetry. To give still another example, nothing permits us to say that a red colour is *actually* red; the most we can say is that we *see* it as red. Redness is the resultant from the relation existing between the nature of our organ of vision (and brain, etc.) and that thing (wave, etc.) which we see as red colour. Similarly, the principle of symmetry is the resultant of the relation established between that thing which we call symmetrical being and our capacity for knowledge, which is the expression of our asymmetrical way of being.

(3) A third problem which appears more significant, and touches on the relation between logic and being, is the following: when we describe the symmetrical and asymmetrical modes of being in such simple terms, are we sure that we are comprehending the whole of the reality corresponding to these modes of being? To put it in another way, can a mode of being ever be imprisoned in a logical description? This is a central question and not an easy one to answer

in full. It is obvious that the reality of being is more than that of comprehending and this latter cannot, therefore, accurately contain all of the former (in the form of a description). It is here, again, a question of dimensions. But when we make a logical description, we do, at least in this case, something less and something more than just describing. Something less because it would be more accurate to say that we only *point to a reality*. In a similar way, when a child sees a man passing and says to his mother, 'Look at that man with the big red nose', he is not describing but only pointing, verbally, at the man. If the man really has a big red nose, his mother will be able to *identify* him among many passers by. And so with our descriptions: our formulation in terms of symmetrical relations points sufficiently well to the reality under study so that we can, with its help, identify it every time we meet it. In this sense our 'pointing to' is quite accurate. One could perhaps say that is more than that and could compare it to a photograph, which is not the same as the thing photographed, but cannot be said to be an inexact representation of it. It is an accurate representation as far as it goes. But it does not go all the way. It is inaccurate only so far as it is incomplete. It gives, for instance, no information about the tactile aspects of the thing or about its smell. If one could reproduce *everything* about a given thing, person or event, this reproduction would *be* the thing, person or event in question.

Symmetrical being is the normal state of man. It is the colossal base from which consciousness or asymmetrical being emerges. Consciousness is a special attribute of man, which looks upon the (infinite) base and makes attempts at describing it. But the *experience* of being cannot be described. We shall see later that a sensation is, *in itself, a primary experience*, which is irreducible to description, though we are constantly trying to describe it. The same is true of symmetrical being. In this sense it would seem that, of the two modes of being in man, it is symmetrical being which eludes description, because it is outside the phenomena; it does not happen, but just *is*. Consciousness, in contrast, as far as its manifestations go, happens. All our descriptions of symmetrical being are inaccurate because symmetrical being is indescribable in an accurate way and is ineffable. But this does not prevent us from feeling that a 'photograph' of it would reveal its nature to us, for the simple reason that *we* are this nature, and can always go back to our experience to supplement our understanding.

(4) A brief reflection which is of significance for psycho-analysts. As already quoted, Freud referred to what we are here calling two modes of being with the expression 'thought-constructing agencies'. On the other hand, he also described them in terms of energy or, as he says, 'replace a . . . way of *representing* things by a dynamic one' (Freud, 1900, p. 610, my italics). These were his two approaches up to the end of his life. One can say that the concept of

thought-constructing agencies is a logical way of representing reality; but the same can be said of Freud's dynamic conception: both are ways of *representing*, and this is something which should not be forgotten. In the present book I shall only deal directly with the logical way because it seems to me that a frontal approach to the energy question has ended in a blind alley.

But let us return to the thought-constructing agencies. 'Agencies' is to be interpreted as modes of being. Both modes of being *construct thoughts*. We can say that one constructs 'symmetrical thoughts' and the other 'asymmetrical' ones. It must be remarked, however, that this last assertion is only a first approach to reality and, as we shall see later in the book, ultimately it is a false assertion. It is useful, however, for it leads us to the question of how far both agencies can be independent of one another. We shall consider this matter later in this chapter.

2. The reality behind the appearances

All that we have considered in the previous heading has a bearing on the present one. But a few further reflections seem possible.

We do not come across symmetrical or asymmetrical *being* directly: we only come across 'symmetrical thinking' and 'asymmetrical thinking', or indirect manifestations of both. In other words, we *know* the reality of these modes of being through their '*knowable faces*', which are, in fact, direct or indirect expressions of thinking, that is, of propositional activity. But what of the reality of the modes themselves?

We seem to come here to a rather paradoxical situation. Symmetrical being appears, in a way, as more mysterious and alien to our thinking. At the same time we seem to be in direct contact with it. Though we cannot describe it, we feel it and we are it. Consciousness, on the other hand, can be described in a much more accurate manner, as far as its workings go. We can describe the stages of our thinking and isolate the aspects of our self-awareness of our conscious activity. But what is there behind it? If we take all asymmetrical analysis away from our 'contact' with consciousness, is there anything left? The fact is that *we* seem to find nothing. Perhaps this bears some relation to the experience which led William James (James, 1947) to affirm that consciousness does not exist and only the objects of consciousness (thoughts) exist. But can phenomena exist without some reality, some noumena behind it? The very idea appears absurd.[1]

It is at this point that there is, as far as I am able to see, a fundamental difference between symmetrical and asymmetrical

[1] Note that I am not suggesting that James implied this. In fact he actually affirmed that thoughts are fully real. What I am trying to get at is the reality behind the appearances; what is there behind thoughts, which are an asymmetrical activity?

being. The appearances and the manifestations of symmetrical being are further away from our understanding than those of consciousness. Whereas the noumena, the reality behind the appearances, seems to be much more ours in the case of symmetrical being than in that of asymmetrical being. The question arises: why should this be so?

It is difficult to answer this question. We must exclude the possibility that there is nothing behind asymmetrical appearances. One asks then: can this 'something behind' be, in its turn, asymmetrical by nature? We simply do not know. Another possibility would be that the fundamental and deeper nature of our being is all symmetrical and that consciousness comes out or emerges like a minor potentiality and like a limited group of functions from the infinite sets of our symmetrical being.[1] If this were the case there would be, *basically*, only one mode of being, mentally; in that case the second mode of being which we have described, that of consciousness, would only engage the superficial 'layers' of the mental. Perhaps this is what Freud meant when he said that the unconscious is the true psychical reality. All that follows in that paragraph, already quoted before, fits in exactly with the considerations made here. Perhaps Freud's and the present approach are two ways of looking at reality which come to exactly the same thing. Or, perhaps, it is only one way, the second way being simply a logical expression of Freud's initial intuition.

Much of what will be considered in the subsequent parts of this book militates in favour of the view that symmetrical being is the only basic reality of man; this is felt as especially true when the 'unfolding' or translating function is seen in its proper perspective. But this question must remain unanswered.

If we now look again at symmetrical being we are confronted by radical difficulties when we try to *think it*. With no asymmetrical relations at our disposal in our thinking there is no space, no time, no movement. We can only deduce them, or infer them; we cannot imagine them, because our imagination works with spatio-temporal phenomena. A spaceless-timeless reality seems to us like something which does not exist; in a way it evokes death. Being without happening seems to us not-being, rather than being. Perhaps all this is due to the limitation of our consciousness which, by its being able to appear only in terms of happening, makes us view the mute silence of spaceless-timeless being as though it were nothingness, or not-being.

3. The mutual dependence of the two modes of being

We come here to a point which seems essential for the understanding of the human mind. The principle of symmetry normally rules within

[1] Note that when I speak of infinite set I am trying to describe symmetrical being from an asymmetrical vantage point, as will be seen repeatedly later in the book.

the class. But classes are distinguishable from one another. The class of fathers, for instance, is not the same as the class of mothers. Throughout the book we shall be considering the various interrelations between symmetrical and asymmetrical relations, so I shall content myself with mentioning the observations most indispensable to discussing the subject of this heading. The fact that classes are differentiated from one another means that there are asymmetrical relations which differentiate them. Viewed in this light, a class, if and where the principle of symmetry rules, can be considered as a 'portion of symmetrical being' surrounded by a layer or skin of asymmetry. As the mind and the unconscious deal with various classes, we can say that there are as many 'bags' of symmetry surrounded by films of asymmetry as there are classes in our unconscious. The skin or layer of asymmetry may become thicker in a given mental product, that is to say there may be a greater or lesser amount of asymmetrical functioning according to the case.

I will remind the reader that all this is not pure speculation but is a way of representing clinical reality as we encounter it both in the dreams and in the free associations of our patients.

If things are seen in this light, we discover some interesting facts. Without asymmetrical 'wrapping' we would know nothing of symmetrical manifestation. *Symmetrical being alone is not observable in man.* Note that to say symmetrical being is already an asymmetrical way of delineating it, because delineating is already an asymmetrical (psychical) activity.

Perhaps it is equally true to say that without symmetry there could not be asymmetrical functioning in man. Asymmetrical relations are something that emerge from and come out of the sea of symmetry; they are like the limited 'incarnations' of a vast reality, just as an individual is, if viewed from a certain angle, a small 'incarnation' of a propositional function.

The proportion between symmetrical and asymmetrical relations in a given mental product may vary *ad infinitum*. We shall discuss this question in detail when we consider the question of levels. It seems that the same event (stimulus) provokes in us an infinite number of reactions, each of which constitutes a unique proportion between symmetrical and symmetrical relations, and as such is different from all others. This has an important bearing on the variations of the magnitude of emotion, according to the level. We shall study this question in Part IV.

4. A few disconnected yet connected questions

Eros, Thanatos, symmetry and asymmetry. Freud said that Eros unites while Thanatos separates. When one considers this assertion, one cannot avoid linking it with the fact that the same applies to the symmetrical and asymmetrical modes. The question arises, therefore, whether the two pairs are basically the same.

The question does not seem an easy one to answer. There is much in favour of the identification, but there are also some difficulties. When we come to study the nature of emotion we shall see that there are good reasons to think that in hate, as well as in love, one can see the operation of the principle of symmetry. On the one hand, in our study of the unconscious as infinite sets, we shall come across the fact that aggression of great intensity, such as that described by Melanie Klein, can be well understood in terms of infinite sets. On the other hand, hate, *as we know it*, presupposes movement, that is, asymmetry, whereas we can imagine love as being ecstatic, as just being, without happening. The deep peace of profound symmetry seems more in conformity with the nature of love than with that of hate.

Another consideration which seems of interest is that *the exercise of asymmetrical activity itself may be viewed as a form of aggression.*[1] We find in clinical work that obsessive neurotics make distinctions and subdistinctions in order to escape from their own aggression. But these distinctions may, themselves, be aggressive because they amount to tearing into pieces the object submitted to the process of thinking. In this way thinking separates. At a symbolical level (in a wide class) this may mean the separation from the mother. And this may be an angry separation. It is as though the child said to its mother: 'I don't want to be you any more, I want to be myself.' *Such an affirmation amounts to the birth of space (separation, instead of the previous indivisible unity) and hence of time.* If these reflections are on the right track, the birth of the individual would mark the birth of space-time; and individuality, space and time would be expressions of aggression. This is not as fantastic as it may seem. We constantly witness the fact that every growth which leads to separation, whether individual or communal, is felt as something aggressive by both parties at play. This applies equally well to the adolescent who asserts himself and to the Spanish colonies in South America, which Spain tried to reconquer by the sword. (Perhaps the great sin of Adam and Eve, and of Lucifer, was to have affirmed their independence from God.)[2]

But I would not like to arrive at a definite conclusion. In other parts of the book I shall return to the question of the life and the death instinct. Before finishing these remarks, I would like to remind the reader that Chapter 4 of the *Ego and the Id* is devoted to those

[1] Hartmann (1947, p. 62) may have arrived at this view when he writes: 'This hypothesis would have to be widened to include not only libidinal but also nonlibidinal tendencies, stemming from the aggressive drives as the ultimate basis of the integrating and differentiating aspects of organisation.' This quotation *could* be understood as meaning that love integrates and aggression disintegrates, but it is not clear from it whether he attributes both functions to both impulses, in which case his trend of thought would be quite different from that proposed here.

[2] The interpretation of the concept of relation as a tendency to reunite is discussed in Chapter 28, Section 5.

two classes of instincts. Perhaps this question has a bearing on the structure of the mind, which is greater than has, so far, been understood.

Generalising symmetry and particularising asymmetry. This is another question of great interest. By making the individual identical to the class, the principle of symmetry, *as seen from an asymmetrical point of view*, leads to the infinite set, which we shall consider throughout the book. What I wish to stress here is the fact that, as the classes dealt with by the unconscious contain an infinite number of elements, and any of these elements is, if seen symmetrically, identical to any other element of the class and to the class itself, the result is that many things become possible in symmetrical thinking which would not be possible in asymmetrical thinking. This has been a criticism levelled against the principle of symmetry and I shall return to it in Part IV. I shall mention in passing, however, that this is the same criticism that has been levelled against psycho-analysis: everything, in an analytical interpretation, may become the father or the mother, the breast or the penis. Whether we like it or not, the trouble, if one wishes to consider it a trouble, lies neither in psycho-analysis nor in its logical formulation with the help of the principle of symmetry. *It is the nature of man that appears constituted by a generalising part, which leads to symbols, and a restricting part, which leads to precise (asymmetrical) thinking.* It is in the interaction between both that we can understand human phenomena.

Asymmetrical and symmetrical: personal and impersonal. We tend to refer to a person's ego as *his* ego, whereas we tend to speak, in a more general way, of *the* id. As for the super-ego, which in part is similar to the ego and in part to the id, we adopt an intermediate position. We may speak of *his* super-ego or *the* super-ego. The expression 'your super-ego' is a transitional one because the first word is personal, whereas the second is impersonal. 'Your ego' is personal, because it refers directly to a part of *you*, whereas 'your super-ego' in its second half is impersonal because it is making reference to something more general: the entity 'super-ego'. One of my first candidates, who is now a well-known analyst, used to say jokingly 'your super-you'. In all truth, if we wanted to refer to the super-ego in a personal way, we would have to use this or some similar expression, such as 'your super-your ego'.

All these are other expressions of the generalising, and hence impersonalising quality of symmetrical being and of the personalising, hence particularising aspects of asymmetrical being.

5. The translating or unfolding function

> How are we to arrive at a knowledge of the unconscious? It is of course only as something conscious that we know it, after it has undergone transformation or *translation* into something conscious. Psycho-analytic work shows us every day that *translation* of this kind is possible. (Freud, 1915, p. 166, my italics)

We are used in psycho-analytic theory to the concepts of repression and lifting of repression. Something which was *prevented* from entering consciousness may enter it after some difficulties – the resistances – have been overcome. What of something which is unconscious but is not repressed? It has been known now for many years that there are many unconscious contents which are not repressed. In fact, I should go so far as to say that a considerable part of our clinical work nowadays deals with such contents. This is quite understandable, because much of the interest has been shifted to the earliest phases of development, where we find a great many of the sources of pathological developments. But early introjections, projections, splittings and denials are *unconscious from the start*, and this is not due to some force (repression) which keeps them away from consciousness. It is due, rather, to the fact that, *as a consequence of their structure*, they are unable to enter consciousness.[1]

As we have already discussed in Chapter 6, there are also aspects of the unrepressed unconscious which are asymmetrically structured. It seems that in such cases, the process required for their arrival into consciousness is similar to that of lifting of repression, only that, by Freud's own definition, such a type of contents (for instance, some parts of the ego) is not repressed; hence we cannot speak here of lifting of repression. Yet the work of 'making it conscious' is similar to that of lifting of repression, if we take Freud's own descriptions of this work, as we have done in Chapter 5 (see Freud, 1923, p. 18: 'The process of making it conscious would not encounter such great difficulties'). It seems that for this type of work we would have to go from the concept of repression to a more general concept, of which repression is only one example. I shall briefly discuss this matter in Chapter 10, but for the time being we shall turn our attention to those contents or unconscious aspects which are subject to the principle of symmetry. These aspects cannot be the object of consciousness as a consequence both of their nature and of the nature of consciousness.

I propose to call the process whereby such aspects come to be known in consciousness by the names of function of translation, in

[1] The above comment is not entirely accurate if it refers to the mechanisms just mentioned (introjection, etc.) because such mechanisms are in themselves highly asymmetrical in structure. Some psychical phenomena *wrongly described in terms of these mechanisms*, instead, conform *by their nature* to the principle of symmetry. This subject of the erroneous description of symmetrical reality as though it were asymmetrical should be studied in detail. Much understanding would be gained from such a study.

short translating function, and/or function of unfolding, in short unfolding function. The reasons why I have chosen these names will become clear, I hope, in the course of this discussion.

A preliminary discussion about the meaning of 'making conscious' and 'becoming conscious'. I have the impression that psycho-analysis has remained extremely vague on this important subject. What does 'making conscious' mean? Can a content be made conscious or do we become conscious of a content? It seems that it is the second alternative that corresponds to the actual facts. There is a double aspect in the nature of conscious knowledge which has been very clearly formulated by Spearman (1927, p. 342):

> A person cannot only feel, but also know that he feels; not only strive, but know that he strives; not only know, but know that he knows. This supervening of knowledge upon experience, however, would appear to be only a possible, not a necessary event. On many occasions, probably the great majority, it never happens at all. One special case of this – but by no means the sole one – is that of subconsciousness. The first cognitive principle runs, then, as follows: *any lived experience tends to evoke immediately a knowing of its direct attributes and its experiencer.*

We may forgive Spearman for the use of the term subconsciousness and keep the important distinction which he makes of the two aspects of thinking or propositional activity or establishment of relations (to put his formulation in the terms we shall employ in this book): one, the establishment of relations which concerns an object (which can, among others, also be ourselves or some aspect of our inner life) and the other, a second establishment of relations which refers to the first and by means of which a content enters consciousness as consciousness of a content. If we stick to this formulation then we become aware that the expression 'making conscious' is ambiguous and may induce error, whereas 'becoming conscious' (of) is an accurate expression of the second of the processes described by Spearman. I believe the fact of not making the clear distinction between both processes has been one, but only one, of the difficulties encountered in our efforts to get a clear view of this process which is so important in psycho-analysis.

6. A study of becoming conscious or entering consciousness

We may start with an unconscious process which employs asymmetrical relations.[1] Let us suppose that we overcome the resistances

[1] We have already seen that 'symmetrical thinking' presupposes the delimitation of classes, hence asymmetrical relations. But within the class only symmetrical relations are employed. I am referring here, instead, to processes of thinking which make abundant use, in all their stages, of asymmetrical relations. (Note that the concept of stage already presupposes asymmetrical relations.)

(either coming from a repressing agency or referring to an unrepressed asymmetrical content) which keep it unconscious. The process may then be 'handled consciously'. What does this mean? Simply that the second process to which Spearman refers can take place and that we are able to become aware of the content in question. In all this series of events there was nothing *in the structure* of the content which prevented its 'entry to consciousness'; there were only *forces*, whatever these might have been, which *opposed* this entry. Once these forces were overcome, consciousness could 'look into' the content in question. In this sense consciousness can be compared to a light which illuminates something which was already 'there'. Consciousness would then (if we put it in terms of Spearman's conception) become aware of the content and become aware that it has become aware; one can add that in this case there has been a change from the quality of being unconscious to the quality of being conscious, but that the structure of the content was, from the start, the same as that of a conscious content.

If we now consider a symmetrical content, we are confronted by a vastly different situation. By its own structure such a content is entirely alien to the structure of consciousness. The fact that there are no asymmetrical relations (*within* it) makes this content incompatible with space and time, whereas consciousness evolves in time and the separation between the various elements of its contents may be the subject of a graphical representation in space; that is, on account of the fact that its work requires asymmetrical relations, it is structured in a similar way to space and time. *In this sense* we can consider consciousness or asymmetrical being as spatio-temporal. This is one important difference between symmetrical being and consciousness. Another difference refers to the questions of the identification of the individual with the class and the part with the whole, which we will discuss in detail in Part IV. Let us take the example of the body of a woman. For symmetrical being the whole body may be the breast and the breast may be the whole body. The same can be said of any other part. If seen in asymmetrical terms this is a colossal confusion, for any part stands for any other or for the whole body. And the body is not only that of a concrete woman but of all women. *In itself* this propositional activity or establishment of (symmetrical) relations cannot enter consciousness because consciousness cannot contain as discrete elements the infinite possibilities of elements that may exist within the class and *cannot contain them if they are not discrete elements, distinguishable from one another and which stand in relation to each other in some form of order.* For the nature of *our* consciousness, symmetrical being is chaotic, whereas consciousness is ordered in the same way as spatial and time relations are ordered. This is another way of saying that consciousness is structured in a spatio-temporal way, or simply, consciousness *is* spatio-temporal. This expression does not necessarily

mean that *in the activity itself and in the products of consciousness space or time are actually present*, but only that similar relations to those of space-time are to be found in them. (The fact that for consciousness to function in space-time, basically a body is required, just as it is required in the case of asymmetrical being, is another question.)

What happens, then, if consciousness cannot contain symmetrical being? The answer to this question seems to be that consciousness reads into[1] the amorphous mass of symmetrical being (that is, amorphous in terms of conscious thinking), picks 'bits' here and there and, as Freud says, gives them order in time (in fact also in space). What does that mean? It means that it behaves as though it were transforming symmetrical being into something which symmetrical being is not: it conveys *the appearance* of asymmetry. But it must be understood that this is not really a transformation; it is, rather, a poor attempt at mimicking it, by describing, for instance, as a disorder (to return to our example: the confusion of breast, etc. with the body) something which in itself is neither an order nor a disorder. (In other words, to put it anthropomorphically, if symmetrical being would look at itself it could not ever say, 'What a chaos I am!', or 'How tidy and ordered I am!', because the notion of order and the corresponding notion of chaos require asymmetrical relations.) It is a task similar or identical to that of describing something immaterial by means of material images.

All the above represents an attempt at describing the function of translating or translating function. As can be seen, it is a function which cannot, by the nature of things, ever be successful, because (to make a comparison) the invisible man of Wells's story is invisible by definition. When we 'see him' we only see the clothes that cover him, but not him. So, *the translating function is by definition, a failure*; it might even be called a self-deceit, because it tries to replace symmetrical being by asymmetrical being, whereas the truth is that the former remains the same: it is only, up to a point, *reflected* in a certain way in (asymmetrical) propositions. Yet this process succeeds in revealing something of symmetrical being.[2]

Here we come to another aspect. If we were to bring into consciousness all that there is in the 'bag' of an unconscious symmetrical being, we would have to bring into consciousness an infinite number of things. I cannot comment any more here because we have not yet come to the interpretation of the principle of symmetry in terms of infinite sets. I would suggest that in order to understand my meaning more fully it would be advisable to read this chapter again, after having read the rest of the book. For the time

1 Intelligence: from the Latin *intellegere*, which can be translated as 'to read within'. See the *Shorter O.E.D.*

2 We must, however, keep in mind the possibility that if things are viewed in terms of multidimensional space, symmetrical being can actually unfold into an infinite number of asymmetrical relations. But at this stage such a possibility still remains to be studied.

being I would only say here that if asymmetrical thinking '*reads* within' (*intellegere*) symmetrical being, it finds an infinite number of discrete potentialities in each class. The class would, in a concrete image, *unfold* before the analysis of asymmetrical thinking. Hence the name *unfolding* function.

But it must be clearly understood that symmetrical being is not conscious *and that, on account of the nature of man's consciousness cannot ever become conscious. If* consciousness was infinite, symmetrical being could be made conscious, in the sense of consciousness becoming *directly* conscious of its nature; in a similar way *our* consciousness becomes consciousness of the nature of an asymmetrical content. As things stand, the most that human consciousness (which is by nature analytical) can achieve is to let the infinite dimensions of symmetrical being enter it *successively*, and in this way conform to the fact that, by its own nature, consciousness can handle only a few dimensions at a time (possibly three, or at the most four). The situation is comparable to that of a mass of people who have to enter through a narrow door: only one at a time can. As, on the other hand, consciousness is finite, only a few dimensions of symmetrical being will succeed in entering it; the others will remain outside, like water which cannot enter a jug in a painting. In short, making conscious the unconscious is a sort of deceit. It amounts to picking a few bits of an ineffable reality and trying to imitate it. Between symmetrical and asymmetrical being there is an insurmountable barrier, the barrier resulting from the confrontation of their respective natures. What is 'interpreted' by consciousness of the nature of symmetrical being is like the waves which wash the shores; when consciousness tries to 'read' symmetrical being, the great mass of this symmetrical being remains outside consciousness, as the great mass of the ocean remains outside the shore.

A clinical example. I shall now give one clinical example to illustrate my meaning. A patient was prey to intense feelings of admiration and desire for a woman, who for him represented the class of women. The feeling itself was something obscurely felt, something that piled up in him and which he did not understand very well at all. Analysis, which is an asymmetrical activity, discovered a variety of components of this feeling:

Attraction towards the woman and admiration of the condition of *womanhood*
Desire to penetrate the woman
Envy of the vulva and vagina
Desire to be able to enjoy the sexual pleasures that the vulva and vagina may give to the woman
Feeling that this would mean castration because, asymmetrically speaking, where there is the hole of the vagina there cannot at the same time be the prominence of the penis: one has either one or the other.

Rejection of castration
Clear knowledge of the actual limitations of any individual woman
Aggression towards the woman
Great pride in his penis

All of this was felt simultaneously.

The analysis of this complex feeling reveals something which has already been commented upon, i.e. the permanent mixture of symmetrical and asymmetrical relations. We may start with the latter. The problem of *either* vagina *or* penis is a typical expression of asymmetrical thinking.[1] Castration would be out of the question if this problem was seen in a 'symmetrical light'; it would be a question of vagina *and* penis.[2] And the consciousness of the limitations of a given woman is typically asymmetrical, while admiration (adoration) of womanhood is typically symmetrical. If the former were seen symmetrically, this would entail the complete stupidity, ugliness, hardness, etc., not of one woman but of womanhood.

And so we could continue with the analysis. This type of phenomena, this mixture of symmetrical and asymmetrical, is precisely what we encounter every day in clinical practice. If we look at the *symmetrical components* of this mixture, we find that behind each of them are a number of things that could be described, one after the other. This would be the case, for instance, with womanhood. If instead of considering the level presented, we went to a deeper level, where everything becomes more symmetrical, then the limitations or defects of a given woman would be seen as something extremely repulsive: they would provoke great revulsion from womanhood. And the penis would become the infinite power of manhood. And 'he' (the penis) would become manhood. These various feelings will fuse together at still deeper levels, and will then become completely ineffable, something which, once more, will impress us as chaos. And it would be a 'hot chaos', the chaos of a seething cauldron, to use Freud's words, because, as we shall see in Part IV, in such a case the magnitudes would become infinite.

Even if we do not descend to the depths of symmetry, this mixture of asymmetry and symmetry has some peculiar characteristics. In the symmetrical aspect of his being the individual may actually feel that he has a vulva and vagina *and* a penis, and this, not by means of a spatial trick, whereby the penis, for instance, would be inside his own vagina or on one side of it. The solution is different, it is hybrid and much more radical than that: it is *by treating asymmetrical space in a symmetrical way* that he achieves this feat. Normally this happens at the depth of the unconscious and, from my clinical experience, I should say that if the symmetry-asymmetry

[1] It corresponds, in simply bivalent logic, to $p/q:p$ incompatible with q.
[2] In symmetrical logic, i.e. expressed anaclitically, $\sim (p/q)$, which means here: $p.q$ (p and q).

hybrid is felt too near consciousness, it is extremely disturbing: it seems to shake the foundations of our normal being and makes the individual most anxious. This happened, for instance, to an adolescent boy who in an impulsive fit after a quarrel with his father carried out a curious action, quite unaware of its meaning: he went to a dentist and had a perfectly healthy tooth taken out. He then began to worry and despair. An analytical study revealed that having the tooth pulled out meant *at the same time* (symmetrically) becoming more manly and being castrated. He *alternated* (i.e. in terms of asymmetry) between one idea and the other; the trouble was, however, that both ideas made equal claims upon him. Eventually he became psychotic.

Such 'nefarious unions', to take the words of a famous Latin American poet, do not happen normally. What a normal man does, amounts to a translating or unfolding function, consisting of the introduction of further asymmetrical relations in the symmetrical-asymmetrical 'compound'. In the case mentioned above, a normal man would project (projection is a highly asymmetrical phenomenon) his feminine part onto a woman with whom he had a relation and satisfy it through her, usually with no conscious knowledge of it. When, instead, the symmetrical-asymmetrical 'compound' in some way pushes its way into consciousness, quite apart from the anxiety mentioned above, this may result in a 'bursting of consciousness', whereby contradictory contents enter it together. When such a thing happens beyond a certain extent, it leads to psychosis: it is psychosis. I say beyond a certain extent, because all individuals frequently have some small breakthrough, not fully grasped by consciousness. This is seen for instance, in small superstitions and in little gestures which have a magic meaning of protecting oneself.

But consciousness can only contain highly 'asymmetrised' symmetrical pieces, like those of the two clinical examples mentioned above. When symmetry becomes greater, it becomes, for consciousness, the mute realm of the unknown.

7. The outward appearances of symmetrical being and the contrast between the translating function and lifting of repression

As symmetry is always wrapped in asymmetry, *some* of the symmetrical being is directly apparent to consciousness. Much of our analytical therapeutic work consists, in fact, of making the patient see that, beyond the meanings he sees in a given manifestation of his (for instance, a symptom), there are other, analogous meanings which he has not grasped. Analytical work is actually a work of unfolding meanings and connections which belong to the same class as those which are clearly visible; this applies, in this context, to material which is not repressed. (In the case of repression, the

contents may have the very opposite appearance to that which is repressed: reaction formation.) A skilful analyst may unfold these meanings without resistance on the part of the patient. This would correspond to a translating function. When the patient denies and rejects, when we have to *overcome a resistance*, we are confronted by a case of repression. In the case of unfolding, instead, the difficulty lies, not in certain forces which oppose the revealing of meanings, but in the difficulty of *comprehending* reality. In this work of unfolding we usually find the patient co-operative and even eager, whereas in lifting of repression he disagrees with us and opposes us. The symmetrical being could be compared to a rubber balloon on whose surface there are many drawings. If the balloon is empty little is seen of these drawings. If it is inflated the drawings become visible and many details previously unnoticeable become obvious. Only, for this comparison to be valid, the balloon would be inflated not in three but in infinite dimensions and the drawings would be not many but infinite and not only on the surface but all the way through.

A reflection about memory traces. Freud repeatedly insisted that for something to become conscious, it has to establish contact with the memory-traces of words. I confess that for many years I was not able to understand what he meant. A memory-trace makes reference to time and as such it suggests some cerebral trace. But how can something psychical establish contact with something physical and in this way become conscious?

It had seemed to me that this expression was actually a condensation of two things: the cerebral 'store' (we may also employ other, more appropriate expressions) of words and the meaning of words. From the point of view of meaning, as Jackson (1893, p. 205) so accurately said, 'a word is a psychical thing'. As such, one cannot conceive it as being in any way stored, because it is something abstract. But Freud speaks not of words but of memory-traces. If one starts from his earliest writings, one realises that Freud was always quite consistent in separating, in this aspect too, the psychical from the physical. Perhaps the word 'traces' has lent itself to misinterpretation but unmistakeably he uses it to mean something psychical. The following are some quotations, which show this clear position of his. In his monograph on aphasia (Freud, 1891) he makes some pertinent reflections which were specially translated by Strachey and added as an appendix to the paper 'The unconscious'. I quote from it:

> But shall we not be making the same mistake in principle, whether what we are trying to localise is a complicated concept, a whole mental activity or a psychical element? Is it justifiable to take a nerve fibre, which for the whole length of its course has been a purely physiological structure and has been subject to purely physiological modifications, and to plunge its end into the sphere of the mind and to fit this end out with a presentation of a mnemic image?

> . . . It is probable that the chain of physiological events in the nervous system does not stand in a causal connection with the psychical events. The physiological events do not cease as soon as the psychical ones begin; on the contrary, the physiological chain continues. What happens is simply that, after a certain point of time, each (or some) of its links has a psychical phenomenon corresponding to it. Accordingly, the psychical is a process parallel to the physiological – a 'dependent concomitant'*. (pp. 206-7)

> I shall keep the psychological and anatomical sides of the question as separate as possible. (p. 209)

> An *understanding* of what is read is arrived at only through the medium of the sound-images produced by the words that have been spoken, or through the medium of the motor word-images that arose in speaking. (p. 212)

* In English in the original. The phrase is from Hughlings Jackson.

A word of comment. Faithful to the conception of Jackson (who influenced him much) Freud makes, as can be seen, a neat distinction between the psychical and the physical. I have quoted him extensively because it seems that the above quotations provided the basis for the understanding of his concept of memory-traces. In his paper 'The unconscious' there is a decisive phrase:

> . . . a latent memory is on the contrary, an unquestionable residuum of a *psychical* process. (p. 167, his italics)

A memory-trace is, therefore, something psychical. If this is understood, the rest becomes much more intelligible. Later on, in the same paper, he writes:

> . . . what it [repression] denies to the presentation is translation into words. . . . (p. 202)

In a later paper (1917, p. 230) he writes:

> When once a thought has followed the path back to regression as far back as to the *unconscious memory-traces* of objects. . . . (My italics)

The reader will realise that the view presented here is in keeping with, or at least is not in contrast to Freud's conception of memory-traces, though it actually follows a different path. In terms of what we have been discussing, we may say that words, abstract things, fulfil the function of differentiating between concepts and also between other things. They are bound to be, therefore, highly asymmetrical in their structure. Symmetrical being is translated into asymmetrical terms by means of words. *Words (i.e. their meanings) are the asymmetrical tools of the translating-unfolding function.* As the elements to be translated are infinite, the translating-unfolding

function fulfils a limited task. To affirm this corresponds to what Freud says, i.e. that only a small portion of the psychical is conscious and the greatest proportion is unconscious.

9. *The Place of the Primary and Secondary Processes in the Present Conception*

The line of development which we have presented here starts from what Freud in his paper 'The unconscious' (1915), called the 'special characteristics of the system unconscious'. So far we have not considered the so-called primary and secondary process which played an important role in Freud's early thinking, and which were never left aside by him. It is necessary, therefore, to see how this other Freudian line of approach fits in with the characteristics of the system unconscious and also whether, after we have considered the primary and secondary processes, there is something we should add, subtract or in any way modify in the ideas we are developing.

I shall not deal with the historical details, with which everyone is well acquainted, but will restrict myself to the remarks necessary for our purpose. In the paper just alluded to, Freud included the primary process among the characteristics of the system unconscious. Over twenty years later, in the *Outline of Psycho-analysis* (1940, p. 164) he wrote:

> We have found that processes in the unconscious or in the id obey different laws from those in the preconscious ego. We name these laws in their totality the *primary process*, in contrast to the *secondary process* which governs the course of events in the preconscious, in the ego.

From this quotation we can see that an enlarged version of the concept of primary process becomes identical to the so-called characteristics of the system unconscious. The restricted version, as employed in the paper 'The unconscious', amounts to considering the primary process as part of these characteristics. In the early writings, in contrast, the role of the primary process perhaps appeared more important. This does not seem to be due, however, to anything more than the fact that, though the ideas about the characteristics of the system unconscious seem to have been present from the beginning, they were not at first explicit in such a precise way as when Freud formulated them later. And it must be added, to complete the picture, that in the *New Introductory Lectures* we find here and there further precision which, without adding anything essential to the main trend of thought, succeeds in conveying a more accurage impression of his conception. To put it in another way, it is my definite impression that from *The Interpretation of Dreams* to

the *New Introductory Lectures* Freud's position on this subject remained, in its essentials, the same, but became increasingly clear and precise.

As for the concept of secondary process, it follows closely that of preconscious and conscious thinking and corresponds exactly to it.

From all this we may conclude that the concept of primary and secondary process does not add anything new to the basic Freudian ideas: it is, roughly speaking, just another way of expressing them. We may choose to use this concept but in such a case we would have to be clear that we are not adding anything new. We may, instead, and quite legitimately, leave it aside without losing anything valuable. This is what I prefer to do. Some may object to this position strongly and point out that the concept of primary and secondary process contains a most valuable reference to the notion of charges of energy and may even be defined in terms of the notion of energy: highly mobile in the case of the primary process and bound in the case of the secondary process. Such is, for instance, the position of Arlow and Brenner (1964, p. 85):

> The fundamental characteristic of the primary process is the tendency for instinctual cathexes to press for full and rapid discharge.

And on p. 86:

> The fundamental characteristic of the secondary process is stability of cathexes. Secondary-process cathexes are 'bound' by . . .

Later on (p. 102):

> The concepts of primary and secondary process should be defined in terms of varying degrees of mobility of cathexes. There is a continuum of phenomena demonstrating more or less mobility of cathexes.

Others do not take this view, among whom I may mention Schur who writes (1967, p. 86):

> It is my contention that the term 'primary process' was conceived by Freud as a broader concept . . . and that the economic formulation was only an explanatory hypothesis intended to account for some of the mechanisms of that process, such as condensation and displacement.

I should like to remark here that Freud's approach to these problems has been along two lines which he did not, in my opinion, sufficiently distinguish from one another, and this may easily lead to confusion: first, that of the so-called charges of energy or cathexes; secondly, from a logical point of view. So far as I know, Freud never explicitly applied his third approach – the topographical one – to the mind, to the questions of the characteristics of the system unconscious and of the primary and secondary process. As has

already been seen in Chapter 3, Section 3, the logical expression of these characteristics (the principle of symmetry) can be viewed in terms of spaces of dimensions higher than three. In other words, according to the point of view presented here, there is a close relationship between the logical and the topographical approaches. In the psycho-analytical literature the energetic approach has received by far the greatest attention. Those of my own studies which are relevant to the present subject have been devoted entirely to the observation of psychical reality with the help of logico-mathematical tools. Possibly these approaches are not incompatible with one another, but one cannot but recognise that the approach in terms of energy has remained extremely vague and, in spite of frequent claims to the contrary, has not made any progress; it has become bogged down in a constant repetition of the same concepts, without succeeding in developing them. New points of view are needed in this field in order to progress, but nothing seems to be in sight. I may say in passing that the ideas which I shall put forward with regard to measurability of psychical processes might be applied to the question of energy and make possible a new way of approaching the problem.

Now, the name primary process is, historically, very much linked to the concept of so-called high mobility of cathexes and that of secondary processes to that of so-called bound cathexes. This is one of the reasons why I prefer not to use it; this reason becomes all the more powerful when one considers that the mechanism of displacement can be conceived without any displacement (see Chapter 3) and the same could be said of condensation. This is one of the various examples of the confusion resulting from the lack of a sharp separation between the approach in terms of energy and that in terms of logic.

But there is another good reason for not using the expression primary and secondary process. It is a question of terminology. As shown in the quotation of the *Outline* given above, at the end of his life Freud expanded the meaning which he had formerly given to the expression 'primary process', to include all the characteristics of what he had previously called the system unconscious. This does not seem satisfactory, for several reasons. The concept of process, something that evolves, implies that of time and it does not seem fit to apply it to the characteristic of timelessness. Neither can exemption from mutual contradiction be viewed as a process; replacement of external by psychical reality, in its turn, is not something that happens, or that evolves. It only means that whenever these two realities are considered, one is felt to be identical to the other, and there is no process involved in this. Whereas the concept of mobility of cathexes, the changes of energy which Freud postulated, fall well within the notion of process and in fact require it. It must also be repeated that even condensation and so-called displacement are alien to the notion of process, if viewed logically.

So we must conclude that the term 'process' may be useful if the unconscious is considered in terms of energy and may actually be unnecessary and misleading if viewed in logical terms. Both are legitimate methods of approach but it is important not to mix them.

As for the adjective 'primary' which refers to a chronologically earlier process, it is also of doubtful accuracy. Most probably, when mental manifestations begin to make their appearance in the infant, so-called primary and secondary process appear together. In fact, if we formulate in logical terms (and this, it will be seen, is fully justified) the primary process as the unavailability of asymmetrical relations, it soon becomes evident that there cannot be mental activity with that alone. It is like having a Zeppelin with only gas. The so-called primary and secondary process, the two modes of being in man, can only be conceived as given together. If, on the other hand, we go down the animal scale, we probably find more evidence of a conscious mode of being than of an unconscious one, *as seen in man.*

There seems to be some justification, however, for thinking that the primary-process mode of being is more primitive than that of the secondary-process mode of being. But as one would have to distinguish between various meanings of the word primary, it is preferable to drop it altogether. Perhaps when the approach in terms of energy progresses beyond its present impasse, the expressions 'the primary and secondary process' may become useful again. For the time being, it seems that they only confuse the issue.

10. The Crisis of the Threefold Conception in the Light of the Conception of Symmetrical and Asymmetrical Being. The Place of the Notion of Object

Formulation of the problem

It is my contention that the facts of psycho-analytic observation find a more appropriate expression with the help of Freud's initial conception, reformulated, as we have done, in terms of symmetrical and asymmetrical being. Such an assertion does not mean that the threefold conception should be entirely abandoned. My feeling is, rather, that in certain circumstances, it is, so far, the best suited general formulation of the data yielded by clinical experience. It is necessary, therefore, to establish the exact possibilities, the limitations and possible modifications and improvements of the threefold division and its relation to the conception in terms of symmetrical and asymmetrical. This is the main purpose of this chapter.

On the other hand, the concept of object has tended to replace the tripartite division. In consequence, we must try to determine what its place in relation to both the conceptions mentioned is.

In order to carry out this double task we shall successively examine various interrelated subjects, the clarification of which will, I believe, bring with it the answer to our problems. As much work has already been done in the previous six chapters, there remain only certain aspects to be put into focus before we can arrive at a synthesis.

As a preliminary, I should like to point out that this chapter will not consider explicitly the literature which is gradually accumulating about the limitations of the threefold conception and about the notion of object. I hope I shall succeed, however, in keeping the essential elements of the problem before our eyes. We can, in this way discuss the pertinent problems in a more spontaneous manner, and this will, I hope, make the task of the reader easier. As for myself, I shall be spared much work. I feel it my duty, however, to express my apologies to those authors who have written on these subjects for not giving any explicit references.

1. The unsatisfactory aspects of the threefold conception

The separation between ego, id and super-ego in more than one way does not always coincide with clinical observations. Incidentally the

threefold conception is conceived and presented, on the whole, in terms of an asymmetrical mode of being (things separated from one another) and this should already make us suspicious of its validity for the whole mind. Another thing that strikes one is that, although this fact is not intended in the theoretical formulation of the conception, there is a natural tendency to identify the person, some call it the self, with the ego. The id and super-ego appear, in a certain way, to be external to *us*, or, anyway, psycho-analytical thinking tends to look at them as external to the central core of the person or self. This attitude is contrary to the explicit formulation of the theory and contrary to the warnings of Freud (as quoted previously) about allowing to merge what we had separated. All the same, it seems fair to consider the tendency to exclude the id and super-ego from the most central aspect of ourselves, as an inevitable consequence of the formulation of the theory. We may start from the more obvious: Freud's two diagrams of the mind, in *The Ego and the Id* and in the *New Introductory Lectures.* In both of them, however imprecise the limits between the three regions or provinces may be, there are zones in which there is only ego, others in which there is only super-ego and others in which there is only id. *Psycho-analytical thinking parallels this situation exactly*, because it continually speaks of the three parts of the mind in a way which reflects this conception.

Now, such a description is not true to reality in the great majority of cases. No wonder, then, that confronted by such a situation, we should tend to take refuge in the ego as identical to the self or to the person and consider the other two as strangers.

Clinical reality, in fact, frequently conveys an entirely different impression from that suggested by the threefold conception. When I am hungry, when I am in love or I am angry with somebody, it is *I* who am hungry, in love or angry and not my id. *My id and my ego coincide on a great number of occasions.* Neither the diagram nor the theory can account for that. Because, according both to the diagram and the theory the id presents the ego, put before its eyes, a wish, 'an id impulse', and then it is up to the ego to decide what to do with it.

Exactly similar considerations can be applied to the super-ego. When I feel a desire to do something and at the same time I feel I should not do it because it would be wrong to do it, I do not feel that my id tells my ego to do this something and that my super-ego tells my ego not to do it. I feel, instead, that *I* feel the desire to do it and *I* feel I should not do it. To theorise in most cases of this type in terms of three 'agencies' is, I believe, being too involved, and it is not an accurate reflection of psychical reality.

A shifting of accent. There are cases, however, when an impulse becomes so strong that, for this very reason, or for other reasons, I may consider it as something dangerous and reject it. In more

modern analytic terminology I would say that I split this desire. *Viewed in this light, the id – and similar considerations hold for the super-ego – might be considered a split-off part of the self or person. The threefold conception would then be the extreme expression of a splitting when things have become intolerable.* It is interesting to consider that this view is actually the theory underlying much clinical work of today, especially, though not exclusively, among Kleinians, only it is not explicitly formulated as such. Id, ego and super-ego would be, when seen in this light, the expression of an extreme situation. There would be, in such cases, a justification for speaking of a threefold division.

But this is not the whole story, for we must ask what is split. Is it a desire, an 'id-impulse' in a 'pure' state? It seems impossible to accept this view. It seems truer to facts to say that what is split off is 'a desiring ego' who cares nothing about what may happen to others if his desires are satisfied, in the case of a so-called id-impulse; and 'an angry ego' who cares nothing about the sufferings of the 'central ego' (or even wishes to provoke such sufferings), in the case of a cruel super-ego. In the first case we have 'a desiring' (=strong id) ego (=ego) who cares nothing about what may happen to others, etc. . . . (=super-ego which defies the 'central super-ego' (of the person) and the external world: 'defiant super-ego'). In other words, the split-off part exercises the functions of the id, of the ego and of the super-ego, only in a way which does not satisfy either the 'central ego' or the 'central super-ego'. Exactly the same can be said of the 'angry ego' or what I just called the cruel super-ego: it exercises an id function ('angry'), it is an ego which is angry and it exercises a violent super-ego function, which is in disagreement with the normal super-ego function of the person and with the 'central ego'.

In other words, what we always find in those cases described in terms of the three *instances* is a split-off part of the self exercising id-, ego- and super-ego-functions which are (either one, two or all three of them) in contrast to the corresponding functions exercised by the 'central' or main aspect of the self. It must be noted, however, that the normal super-ego-function coincides with the ego-function, at least in the more superficial levels. As has been clearly shown in the studies of Melanie Klein, the violence of the super-ego comes from its id-component, so that in the end the super-ego-function is really an ego-function disturbed by a strong desire. For this reason we may say that while id- and ego-functions are central functions of the self, the super-ego-function is a special case of combination of both, only one of which deserves to be singled out owing to its importance (namely the special role it fulfils in mental life).

In the end *the only thing we find is a self or person who exercises id-, ego- and super-ego-functions.* In short, instead of provinces which separate three entities, which become like three persons, we would have to conceive the mind or the person as *a self or a person with*

different (id-, ego- and super-ego-) functions which can never exist independently from the self. What can at times happen, instead, is that the self or person splits itself. This notion of splitting, in its turn, creates important problems which we shall consider under a separate heading. It is interesting to remark that towards the end of his life Freud was giving an increasing importance to splitting and that Melanie Klein has made it a central aspect of her view of the mind. But this splitting is not obvious in all cases, though it will be discovered in every human being if things are looked at in a certain way, as we shall discuss later.

Summarising these reflections, I would say that *the conception of a self with the three (id-, ego- and super-ego-) functions seems a representation of the mind which is much truer to observation than the threefold division into 'provinces', 'instances' or 'regions'.*

2. The 'three-functional self' in the light of symmetrical and asymmetrical being. A unified view of both conceptions of Freud

We have seen that according to Freud both ego and super-ego were partly conscious and partly unconscious and that even Freud himself considered the existence of what we may *now* call symmetrical aspects of the ego. Other authors found primary-process functioning in both ego and super-ego. In other words, from the point of view of the alternative conscious-unconscious as qualities, both have both; from the point of view of symmetrical-asymmetrical, both have manifestations ranging from predominant asymmetry to predominant symmetry. We may now consider the old id under this light, in order to reformulate the question in the terms we have seen.

The id, according to Freud, is exclusively unconscious. But if we look at things in terms of a self with id-wishes, we come across the immediate fact that we are conscious of many desires (hunger, sexual desires, etc.). To say that these are unconscious id-impulses or id-desires which the ego knows consciously seems very involved and unsatisfactory. It seems simpler to say that *some id functions may be conscious.* If things are viewed in this way, both id, ego and super-ego functions can be observed at all levels from the clearest conscious quality to the deepest unconscious quality.

If, on the other hand, we look at things in terms of the Freudian id, we find that the id is ill-defined, because, as we saw, it is also the heir to 'the unconscious' that is, to symmetrical being (understood in the sense of the characteristics of the system unconscious). If, instead, we look upon id-function as that which expresses desire, we shall also find that desires may appear all the way from the most asymmetrical desires to the most symmetrical ones.

We have found, therefore, that *all three functions can be exercised within the bi-polarity conscious-unconscious seen as*

qualities and along the interaction between symmetrical and asymmetrical which starts from the greatest asymmetry and goes on to the greatest symmetry.[1] In other words we have identified in the interaction of the two modes of being three functions which are exercised at all levels of the interaction. We have, in short, come to transform into one conception the essentials of Freud's two conceptions. What is considered the threefold conception would be an extreme case, in which the splitting or separation between various pairs of symmetrical-asymmetrical manifestations is more visible. It would only be an extreme case, as I have said, for the simple reason that the very structure of the interrelations between the two modes of being is such that the interaction symmetrical-asymmetrical takes place at infinite levels and in regard to various classes (fathers, mothers, good people, bad people, etc.). These are the 'bags of symmetry' of which I spoke earlier.

There is much more to be known about the various divisions or 'nuclei' of symmetry-asymmetry. The question of an infinite number of levels will be considered in Part IV.

I should like to point out that the view presented here avoids the tendency to adopt a material image of the mind, as the expression 'mental apparatus' suggests.

It may be added, before concluding these considerations, that the three functions of the self or person may be exercised in a greater or lesser degree, according to the case. Those cases in which the division id-ego or ego-super-ego appear more visible may be looked upon as emergency situations in which, owing to various factors (strength of desires, anxiety, external reality situations) one of these functions is increased and exaggerated as a response to certain external or internal circumstances.

3. The place of the notion of object

I shall tackle this question only in some aspects which seem to me essential to completing the description I have undertaken. I must point out, however, that in my opinion the notion of object raises most important questions about the mind, which should be studied with great care.

The name 'object'. A few words about the name 'object'. As Balint (1959, p. 11) remarks, speaking of object-relationships:

> In this phrase 'object' does not refer to objects in the everyday sense but to people, and in the same way object relationship means relationship with people not with objects. This curious usage, which invariably puzzles the uninitiated, is well established among analysts.

[1] For a discussion of the question of the continuity of the dimensions conscious-unconscious and symmetrical-asymmetrical, see Chapter 13, Section 1.

As is well known, the name was first employed by Freud with regard to instinct. The term is so much in vogue nowadays that, in my view, it has become worn out, just as 'castration complex' became exhausted in an earlier period of psycho-analysis. Some people have shown, quite rightly, dissatisfaction with the fact that object-relations theory, which tries to save psycho-analysis from a bio-logising which is alien to psychology, should have chosen such an impersonal way to refer to the relations between persons. The problem is, in fact, more profound than it might look at first sight, because it is not only the name that is inappropriate but the handling of the object and the 'relations' aspect of the theory. To consider this latter first, most of the theory could be regarded as an *uni-directional object-relations theory* because it deals with what the individual feels or does about the object and not sufficiently with the *interaction* between individual and object. The essential and basic unity of both seems not to be sufficiently considered. But that applies, perhaps, to the whole psycho-analytic theory.

The 'handling of the object' in terms of present-day theory is worthy of much attention. We hear of the object being inside, outside, in bits, bizarre bits, of the relation with the internal breast, of containers, etc. In all these expressions the object, frequently a part-object, is treated as a material object. I shall return in Part IV to the question of part-objects but for the moment I should like to discuss this materialisation of the object, this making it spatial (three-dimensional). This seems to be the consequence, or the expression, of a purely asymmetrical view of it. Symmetrical being appears as though it were completely left out of the notion of object. Not completely, in fact, because the object, the breast, the penis, etc. is treated as a class, the class of breasts or penises, etc. *But as a class it is submitted (in present-day theory) to vicissitudes which only individuals – or rather only material individuals – can undergo.* In other words, a mixture of symmetry and asymmetry, but with no clear distinction between both and their respective roles. The result is most unsatisfactory.

What is an object? If we try to see the way objects are treated in psycho-analytical thinking we may come to understand what exactly is meant when the term object is employed. A loving object or a hating object is a projection (with subsequent introjection, re-projection, etc.) of the wishes and feelings of the individual. A persecutory object, which can be feared by the patient and give rise to the super-ego, is the same. In other words, an object is simply an aspect of the individual. It may represent an external person only if the individual has 'internalised' and made this person part of himself. But in every case the situation is basically the same: the self with its wishes, its aggressions. In other words, *an object is an aspect of the self exercising id-, ego- and super-ego- functions, in various respective*

degrees according to the case. I believe that reflection upon the use of the term object will reveal that the above definition always conforms to the truth.

The notion of object stems basically from asymmetrical thinking, though at times, in a disguised manner, hints at symmetrical aspects. An important danger of this notion is precisely its extreme asymmetry. Because of this asymmetry it leaves out important aspects of psychical reality, which for this reason pass unnoticed by psycho-analysts who look at this reality with 'object-tinted glasses'.

Once we have reached this conclusion, the concept of object does not seem such an original and radically new alternative to the threefold conception: it is permeated with the notions of the threefold conception. It has tried to avoid the aspect of being impersonal which gradually came over the id, ego and super-ego. By a curious paradox, the id, ego and super-ego came to be treated as many different persons and at the same time this coincided with (or resulted in?) a way of treating man which became more and more impersonal. This was definitely connected with the notion of energy. Man became a vast store of pipelines, reservoirs and discharges of energy. Some people have reacted to this situation and have preferred the object-relations theory. Object-relations theory, in its turn, depersonalised man by transforming him, through its objects (breast, penis, etc.), into a vast collection of footballs which are thrown from one place to another; but this time by angry players who reduce them to bits!

I am proposing in this book another way of looking at things, a logico-mathematical way, made of modest and simple notions, which does not intend to replace either the 'energy-model' or the 'object-model' but proposes, instead, a more rigorous meditation about our use of concepts. Perhaps both models can remain as parts of our thinking (or even should do so), provided we are constantly ready to develop, not only the application of the theory but also the bases of the theory itself.

The object can, therefore, be comfortably placed in the view I am proposing here, which could be described, in a certain way, as a view which takes us back to the early Freud without abandoning the later Freud.

There remains, however, an important question. If an object is nothing else than an aspect of the self, why should this aspect be represented or treated precisely as an *object*, that is, as something which makes symbolical reference to material reality? The answer to this question seems to lie at the root of the nature of mental phenomena. Freud describes replacement of external by psychical reality as one of the characteristics of the system unconscious, and we have already seen that this characteristic amounts to making both realities identical to one another. What clinical reality shows in this respect is that both are expressed in terms of material (i.e.

three-dimensional) space, which obviously enjoys a privileged position in the psycho-physical nature of man. The unconscious seems to have no difficulty in expressing what appears as its multidimensional nature, in terms of 'unfolding' it in three-dimensional space. It seems as though this was the most natural and spontaneous way open to symmetrical being in its reflection in the material world; but it must not be forgotten that this entails the multiplication of the same three-dimensional objects, which, through the repetition of themselves, convey the representation of a higher-dimensional space.[1] It was precisely this puzzling phenomenon of multiplication, which we observe in various manifestations, that led us to the interpretation of the unconscious in these terms.

If, on the other hand, one considers the way in which the concept of object is handled in clinical psycho-analytical work, one cannot but see that either the aspect just mentioned or other aspects furnished by observation are not taken into proper consideration but are, instead, grossly simplified. The result is that the notion of object now in vogue is a rather coarse mirror of psychical reality, as observed in psycho-analytical practice, which frequently reflects only part of what is going on in the patient, and even that part is frequently reflected in a distorted manner. This is an example of the fact that we can only discover what our theoretical framework enables and permits us to discover.

Before concluding these reflections about the object I would like to point out some facts about the Kleinian conception. Melanie Klein always remained faithful to the threefold division, as can be seen from her writings. She was obviously not a theoretical thinker but a most profound observer of human nature, who applied her feminine intuition to discovering important facts about human development. With these qualities she did some interesting things when confronted by the limitations of the Freudian threefold conception. She did not deny it: she simply bypassed it. In her concept of envy, for instance, it is not clear which of the instances envies. According to the classical theory should it be the ego or the id? Envy is obviously an ego activity but it is so permeated with desire that it seems impossible to exclude the id. To say that the ego accepts the id impulses and gives them the right of way, seems rigid theorising. Melanie Klein avoided the question and simply spoke of envy; she was in fact referring to the self or to a person with id- and ego- functions, or, more simply, to a person with passions.

The concept of envy could be viewed precisely as an example of a person who exercises various functions, or, in still simpler terms, a person full of desires which he is trying to control and against which he is defending himself. The way we formulate it depends on the purpose for which we formulate it. The language of everyday life is

[1] See Part IX.

certainly the one to be used in clinical work; the more abstract language *may* be useful in the advancement of our knowledge and, consequently, of our possibilities of helping our patients. We must not forget, however, that at times it may become so unreal that it may simply hinder progress. And it must be recognised that there have been such times, when both the threefold conception and the object-relations theory have actually hindered progress, owing to their distance – at those times – from the reality of the patient.

This is a delicate balance which we should be constantly submitting to inspection and evaluation.

4. Man, where is thy unity?

Careful reflection about all the above facts produces in us a specific worry. The concept of the two modes of being with so many manifestations, which are related to the proportion between symmetrical and asymmetrical being and to the various 'bags of symmetry' produces an impression of multiplicity inside man, so that a question which arises immediately is: how is the basic unity of man preserved in this state of affairs? The notion of object and its multiplication leads to exactly the same problem. The notion of splitting of the self is a third example of the same. How can we understand the problem?

I do not rank myself among those who have a poor idea of the internal unity of man and of the persistence of this unity throughout life. A great thinker, Ernst Mach, writes (Mach, 1906, pp. 3-4):

> The apparent permanency of the ego consists chiefly in the single fact of its continuity, in the slowness of its changes . . . There can hardly be greater differences in the egos of different people, than occur in the course of years in one person . . .
>
> The ego is as little absolutely permanent as are bodies. That which we so much dread in death, the annihilation of our permanency, actually occurs in life in abundant measure.

Though the changes to which he refers actually do occur, the feeling of permanency is, as Mach himself acknowledges, something which we all have and which we value most. It would be interesting to add some psycho-analytical considerations about this permanency, which could not be known to Mach, but I must stop short of this task here, to concentrate on the aspect which we are trying to understand now. The feeling of unity and of the permanency of this unity is an essential trait of man. Psycho-analysis, in the meantime, has accumulated and continues to accumulate evidence in the sense of a great multiplicity of internal psychical processes which appear almost independent from one another. It would take too long to enumerate this evidence, and we can spare ourselves this task, as the facts are known to the reader.

The multiplicity in man cannot be denied, but neither can the unity of man be denied. The problem as to how to conciliate the internal unity with the internal multiplicity is a problem which, as far as I know, has not been studied. I will suggest one or two ideas. It seems to me that this problem finds its parallel in the total unity of symmetry and the infinite variety of asymmetry. *The class which for symmetrical being is an indivisible whole, for asymmetrical being is an infinite set formed of discrete elements, or several infinite sets*, as we shall consider in Parts IV and VI. Perhaps this can be an approach to the problem.

Another approach, which is, perhaps, basically the same as that just mentioned, may be constituted by the notion of multidimensional space. When a space of n dimensions is expressed in terms of spaces of $n-1$ dimensions, the spaces of $n-2$ dimensions or of still less dimensions are repeated in a graphical representation made in terms of $n-1$ or $n-2$ dimensions. In this way, in a four or five-dimensional space, two volumes may occupy the 'same space'. If this is carried on until we arrive at an infinite number of dimensions, perhaps we could then understand the basic unity in the midst of a great multiplicity. To deny either one or the other amounts, in my opinion, to a falsification of reality.

5. From repression to a more general concept or a generalisation of the concept of repression

> The amount of effort we have to use, by which we estimate the resistance against the material becoming conscious, varies in magnitude in individual cases. For instance, what comes about in an analytical treatment as a result of our efforts can also occur spontaneously: material which is ordinarily unconscious can transform itself into preconscious material and then become conscious – a thing that happens to a large extent in psychotic states. *From this we infer that the maintenance of certain internal resistances is a sine qua non of normality.* (Freud, 1940, pp. 160-1, my italics)

I take the words in italics to refer to something which is not repression, but a more general concept. 'Keeping away from consciousness' is what repression means. It entails the concept of force against something. The structure of symmetrical being is another cause that prevents the entry into consciousness, as we have already studied. But I have something else in mind at this moment. Classes are distinguished from one another by means of asymmetrical relations. As we shall see later on in the book, it is possible to form more and more general classes, in each of which the principle of symmetry applies. The end of the road would be one big class, where anything would be identical to anything else and to everything. No mental life, as we know it, is possible in these circumstances. It is necessary, therefore, to consider it a *sine qua non* of normality, to use Freud's words, that classes should be distinguished from one

another. This is done by asymmetrical relations. Asymmetrical relations, in this context, serve the function of barriers which permit the differentiation between various concepts within the mind. It is the action of the limiting asymmetry preventing the invasion of all generalising symmetry, which would destroy all structures.

If things are viewed in this way, we could consider these notions as a generalisation of the concept of repression. Repression would be *one* example of the concept of barriers. There would be other barriers which would not be of the type of repression, but still barriers. Perhaps much could be gained from a systematic study of this question.

6. The lateral insertion of instincts on mind

In the diagrams of the mind presented by Freud, the instincts would come into contact with the mind at the deeper portions of the id, at the bottom of the egg-shaped figure, which is left open. If, as we shall define it later in the book, the deeper portions of the id are the parts with the greatest proportions of symmetry, this could not be the case. For the biological concept of instinct is a highly asymmetrical one. An instinct searches for definite aims and definite objects, whereas in the most symmetrical aspects of the id, the generalising tendency and the tendency to substitute one thing for another is at its highest degree; for example symbolical and real satisfaction are the same thing, which is definitely not the case with instinct. Instinct permits a certain amount of substitution (for instance an individual object for another) but only to a limited degree.

The conclusion is that the zone of contact between instincts and the self is not at the most symmetrical, deeper zone of the self but at a more superficial one. In the case of the diagram this would be at the side of the egg-shaped figure. In order to remember this type of relation I propose to call it 'the lateral insertion of instinct on mind'.

11. A Short Summary

Throughout this Part we have tried to study psycho-analytic theory in the light of Freud's conception of consciousness and the unconscious, reformulated in terms of logic. We have made an effort to purify this conception from the imperfections which eventually led Freud to abandon it and to replace it by the threefold conception. We have found that calling 'the unconscious' by that name was misleading and caused various difficulties. Freud's greatest discovery was not that of the unconscious but of a mode of being and its characteristics. We have also seen how the parallel use and intermixing of the notions of energy and of logic somewhat blurred the issues.

We have studied the history of the concept of the unrepressed unconscious, as developed by Freud, and we have found some difficulties and obscurities; we have also seen the undeveloped aspects. Then we went on to study the interrelations between the concepts of repressed and unrepressed, symmetrical and asymmetrical, id, ego and super-ego; in this study we discovered problems and gaps.

In Chapter 7 we tried to formulate in as accurate a manner as possible the concept of the two modes of being and its justification. Then we proceeded to study the complex and difficult question of their interrelations. We laid particular stress on a function which we described as the translating or unfolding function and which in its relation to the unrepressed unconscious is comparable to the lifting of repression in its relation to the repressed unconscious.

The study of the translating function enabled us to understand, or better, to get a glimpse at the difficult questions of the relation between symmetrical and asymmetrical being, and through this, at some deep aspects of the nature of man. We concluded that chapter with some reflections about the question of the memory traces and a way of looking at them from our angle of approach.

In Chapter 10 we tried to get a synthetic view of how the conception of the two modes of being can be considered a more general frame into which the threefold conception can be inserted. We saw that the observation of reality was in favour of a conception of id-, ego- and super-ego- *functions*, rather than of just id, ego and super-ego. The study of the notion of object revealed that it is not so

dissimilar from these notions and that it actually can be seen as belonging to the framework presented.

We concluded the chapter with the discussion of some general questions. One of these is that of the unity of man in the midst of the multiplicity of levels and of objects revealed by analytical research. It was suggested that the solution might be found in the contrast between symmetrical unity and asymmetrical multiplicity. This contrast, I may now add, reveals the contrast between the face of man (symmetrical being) turned to its own being, indivisible and unitary, and the face of man turned to the divisible, spatio-temporal external world. At this point, however, something must be added which appears paradoxical: when turned towards his own being, man fuses with the others (breast, mother, etc.); when turned towards the others, he is (asymmetrically) separated from them.

A second approach to a solution might be that of the notion of multidimensional space.

Another question considered was that of the possibility of generalising the concept of repression to comprise a variety of other phenomena, related to the question of separation between classes considered as 'barriers of asymmetry'. We drew the inspiration for this from Freud's last book and we applied this concept to our view of the mind in the terms outlined above.

Finally, we discussed a rather curious question regarding the contact between instinct as a biological entity and mind. We concluded that the contact was established, not at the deepest, most symmetrical zones, but at more superficial ones. For instinct is essentially asymmetric.

PART FOUR

Symmetrical Being
(Unrepressed Unconscious)
as Infinite Sets

12. The Problem

1. The identity between part and whole within the class or set

As already remarked, the principle of symmetry rules, so to speak, deeper unconscious manifestations or processes.[1] According to this principle, if *a* is part of *B*, then *B* is part of *a*; and if *c* or *d* is part of *B*, then *B* is also part of *c* or *d*. From this it follows that the part is identical to the whole or to any other (proper) part of a given set, because according to the principles of logic, if *a* is part of *B* and *B* is part of *a*, then *a* and *B* are identical. And in the present case this applies, of course, to proper parts, that is, to wholes that are composed of more than one part. In cases where the whole is composed of only one part, it is obvious that, even according to Aristotelian logic, the part is identical to the whole. Viewed in this way, the principle of symmetry treats the proper part as though it were improper. But there is more to it than that.[2]

This corollary of the principle of symmetry is most puzzling, yet it can be found in daily analytical practice. We may start with the case of schizophrenics in whom at times we find, especially in chronic asylum patients, an open expression of it. I will illustrate this by the case of a woman who developed a delusional construction after blood had been taken from her arm for some medical examination. At times she complained that blood had been taken away from her arm and at other times she said that her arm had been taken away from her. It was obvious that, in this context, for her, blood from the arm and the arm itself were identical. The identity between the part and the whole is fairly well known in the psychology of schizophrenics, though it is not always described as such. But in daily experience with neurotics it does not appear in an obvious manner. Yet there is a fundamental aspect of our work, where, upon reflection, it seems that in some ways we take for granted this corollary of the principle of symmetry. I refer to the special meaning

[1] Here I should like to remark that the use of the expression unconscious *processes* implies a reference to something that goes on, that evolves, and that this is inconceivable without space and time; therefore we can only speak of processes when referring to those layers of the (symmetrical) unconscious where such relations are available. As already mentioned, there are various mixtures of symmetrical and simply bivalent logic and for this reason it seems convenient to employ the term *manifestations* which in this respect is non-committal.

[2] See Section 3 of Chapter 3.

given to symbols in psycho-analysis. When we explain to a patient that he is seeing us as the father or the mother we are implicitly establishing that with regard to certain aspects or functions which we may fulfil for him, we, analysts, are identical to the actual father or mother. In terms of symbolic logic we may express this by saying that, ordinarily, the elements of a given class are *equivalent* between themselves with regard to the propositional function which defines the class: the three properties of reflexivity, symmetry and transitivity are fulfilled. But they are not *identical.* The unconscious, instead, treats them as identical. Identity is a form of equivalence but the equivalence between the members of the class is not, in simply bivalent logic, an identity. The identity established between the elements of a class by the (symmetrical) unconscious – which we employ in our work – is still connected with the propositional function, not only in the aspect regarding the first variable, x, but also with the second type of variables, y, q, z, etc., in terms of which the class is defined in some cases. According to such definition, the various values of x, or elements of that class, do not necessarily have the same values of y, q, z, etc., even though all satisfy the propositional function. In other words, they are equivalent with regard to this latter in general, but not with regard to the values of y, q, z, etc., that may be assumed within the propositional function. The (symmetrical) unconscious treats them as identical even with regard to such values and, in this sense, it establishes an identity *within the class.* For example, if I fulfil a small motherly function, for the unconscious I fulfil this function in its maximum degree. In other words I contain within this maximum degree all the smaller values of y, q, z, etc.[1]

As a consequence, if for a patient I am the father, this means that the propositional function defining the class of fathers, even if it is defined in terms of the variables y, q, z, etc., applies to me with the same magnitude as that with which it applies to the real father: maximum magnitude. And the same holds with any other class any time a patient treats me as belonging to it.

Freud had an intuition of this, though it was somewhat obscure, as is suggested by the fact that he did not formulate it with precision. Still it is amazing that at a time when such a type of thinking was not in vogue he should have had an intuition of this sort. In 1911 he wrote:

> . . . for they show us that in the patient's mind 'Flechsig' and 'God' belonged to the same class. In one of his fantasies he overheard a conversation between Flechsig and his wife, in which the former asserted that he was 'God Flechsig', so that his wife thought he had gone mad.

[1] For a better understanding of all this, see Chapter 2 for the notion of propositional function, and Chapter 13 for the meaning of x and y, q, z.

On the following page Freud adds:

> . . . our view of this decomposition of the persecutor into Flechsig and God as a paranoid reaction to a previously established identification of the two figures or their belonging to the same class. (Freud, 1911, pp. 49-50)

Now, a few words of comment. God and Flechsig belonged (for Schreber) to the same class, which may be called the class of fathers, and which is obviously, though implicitly, defined by the propositional function which describes or makes references to powerful male figures who are in a superior position to others, subordinate figures who themselves may be collected in the class of children. According to symbolic logic all the elements of a class are equivalent with respect to the propositional function. But Schreber treats two elements of this class of fathers (God and Flechsig) as identical in so far as they belong to the class. Freud clearly realised, as can be seen from the quotation, that the two figures were treated as belonging to the same class but was hesitant in distinguishing between identity and the equivalence which the elements of the class have according to the laws of logic. This hesitance is shown in the phrase 'identification of the two figures or their belonging to the same class'. Schreber's madness consisted in affirming the identity, not the equivalence existing on account of the fact of their belonging to the same class.

The unconscious substitution of the identity between the elements of a class for the equivalence between them, *within the class*, results in a blurring of the limits between individuals. For if any member is identical to and can stand for any other or all members of the class we can then arrive at the peculiar situation that when we have one element before us we have the whole class before us. It is from considerations of this type, all of them springing from clinical observation, that I came to the following formulation (Matte Blanco, 1960) and then explained and expanded it in various other works (see, especially, Matte Blanco, 1962): *the unconscious does not know individuals but only classes or propositional functions which define the class.*

This conclusion is surprising. But a moment's reflection will show that we constantly assume it, implicitly, in our analytical work any time we give a transference interpretation or any interpretation in which we imply the identity between a given figure of the patient's present life and any primitive figure or object – whether partial or total – of the beginning of his life. We are so used to this type of work that, in a way, we are no longer surprised and we do not even consider the colossal differences which exist between psychical life and the events of physical nature, where such identities are utterly inconceivable.

There is a quotation of Freud which gives a glimpse of the formulation just presented. He made, in passing, one of the most

profound remarks in the classical literature on schizophrenia when in the last but one of the phrases of 'The unconscious' (1915, p. 204) he wrote:

> We may, on the other hand, attempt a characterisation of the schizophrenic's mode of thought by saying that he treats concrete things as though they were abstract.

These words suggest the concept of identification of the individual with the class, more precisely, with the propositional function which defines the class. It must be acknowledged, however, that a formulation in logical terms and done in a more general manner – as it applies not only to the schizophrenic but to a variety of other manifestations of the unconscious – enables us to reach greater clarity, to explore in a deeper manner all the implications and, especially if united to other notions, to discover psychical realities, clinical or otherwise, previously hidden. I make this comment because I have frequently come across an attitude which could be expressed as follows: 'Why make all these complications when we are all along saying the same thing in different words?' The answer is that it is not the same thing even though the hitherto habitual formulations are included in the new, more rigorous one. If we were to accept the position just alluded to, then no scientific development, small or big, would be possible. The Indians of Peru knew quite well the effects of coca leaves but this does not mean that modern pharmacological research on this subject has been useless. The housewife has an inkling of the unconscious when she suspects enmity in the maid who inadvertently breaks her china, but this is not the same as Freud's discovery; nor can it lead to such far-reaching insights and powers as the latter. Quite possibly some primitive cultures have notions that are comparable to Einstein's conception of relativity, but their notions have not been able to effect the transformations that Einstein's conception is leading to, even in the field of our everyday life, through a series of practical developments which are ultimately connected with it. And the examples can be multiplied, both in subjects of major importance and in minor ones. Correspondingly, if we made up our minds to formulate psycho-analysis in a rigorous manner, in accordance with new knowledge from other fields, this would have far-reaching consequences both in the understanding of the mind, in therapeutic possibilities and in the dialogue with other disciplines.

2. The case of part objects

I shall now pass on to discuss another example of the identification of the part with the whole. I refer to the notion of 'part objects', a type of concept which is very much in vogue nowadays. Interpre-

tations in terms of the breast or of the penis, conceived as independent objects, are now quite frequent. In fact some analysts seem to have a special predilection for them and frequently replace the mother by the breast or the father by the penis. In the first days of psycho-analysis interpretations in terms of the penis were, as far as I am aware, quite frequent, but in them the penis was always a part, an instrument or the expression of some function of *its possessor*. This does not correspond to what is, today, called a part object. To give two examples: when mention is made of the fantasy of finding the father's penis inside the mother, then the penis is implicitly assumed to have an existence and an activity independent from that of the father, though it may be a reflection of it. And all references to envy of the breast and of its creativity clearly imply an entity which is independent from the mother: otherwise we would speak of envy of the mother with regard to the functions of her breast, and the expressions usually employed are definitely more than just a short way of saying this. Behind such interpretations there is the assumption that *the unconscious treats them as independent beings, as persons, that is, total objects.* The notion of part object is a notion of conscious thinking which only serves to underline this fact. If the breast were not considered as a person it would be nonsense to attribute creativity to it unless this notion were redefined in an entirely new sense.

We may put this in another way. *The only unity for the (symmetrical) unconscious is the class or set, in which all individuals belonging to it are included. The unconscious cannot, therefore, deal with parts, except by treating them as classes or sets.* In order to understand the meaning of this it is necessary to consider the following points:

(1) A part may be considered as an element or subset of a set, or (which comes to the same thing), as a value of the propositional function of a given class or as a subclass of the class.

(2) The (symmetrical) unconscious, which only knows classes or sets and treats their elements or parts as the whole class or set, *knows only human classes or sets. In other words, any set, even such an impersonal one as that of the natural numbers, is treated by the deep unconscious as though it had human qualities.* This is a fundamental epistemological principle which follows from psycho-analytical observation, and which I only mention here without considering either the evidence in its favour or its implications, because they deserve a complete separate study. Only as illustrations of what I mean shall I point out that we see this principle in action in *animism*, the attribution of human qualities to nature, and in the fantasies of some poetic tales in which the objects in a shop or in a house become alive, think and feel. Correspondingly, the breast and the penis, part objects, are treated by the unconscious as whole sets which are persons, as we shall now study in more detail.

(3) For certain purposes we may consider a human person as a set composed of several parts. It must be understood, however, that if we wish to tend towards even a distant reflection of the actual reality of the individual, we cannot describe it as an unstructured set but must, on the contrary, consider it as a highly structured one, endowed not only with one but with a great many *operations*. I shall not explain the exact mathematical meaning of this assertion but will limit myself to affirming only that I believe that the mathematical structures so far known, such as groups, rings, fields, lattices, integral domains and others are probably insufficient to give even an approximate picture of a human individual. But this need not discourage us in the present stage of our research. What interests us at this moment is that even a fairly simple mathematical structure, such as a group, always has an unstructured set as its basic substratum: a group is an unstructured set endowed with an operation, which conforms to certain axioms and in this way acquires a structure. At times we may choose to study the relation between the elements or subsets and the group itself; such is the case, for instance, when we consider a *subset* of a *group*. To give another example, a house is not just bricks, as is shown in the fact that all the bricks of a given house may be put in a pile, which is certainly not a house. But for certain purposes we may consider only the bricks and their properties. Similarly, a woman is not just a pile of parts, such as breasts, arms, etc., but for certain purposes we may consider only her parts and nothing else, even if we know that the concept woman is much more complex than the concept or set that may be described by ennumerating the parts of her body.

When a woman is considered in this simple manner, i.e. in terms of parts, we find that, *as seen by an outside observer who thinks in terms of bivalent logic*, the unconscious or symmetrical mode 'makes the mistake' of identifying the part 'breast', with the whole, 'woman'; and in this way the breast is seen as what to an outside observer is a feminine person or woman and not simply a part of a set composed of other parts.[1] Alternatively, things may be seen by an *observer* who places himself, so to speak, in the inside of the baby's mind; in such a case he would become aware that the breast, or better, its functions (feeding, warming, caressing, etc.) are the only things that the baby feels/knows. For this reason the total person is for a baby just what we might call an immense 'breastness'.

[1] Note, for the sake of accuracy, that the set formed by all the (corporal) parts of a woman is not necessarily that woman, in the same way that a set formed by all the elements of the 'substratum-set' of a group is not that group. If we wish to describe a woman we have to add other characteristics to the set just mentioned; similarly, if we wish to describe a group we must add that the set just mentioned is endowed with *this* operation and that the group axioms apply to it. From this we may conclude that the unconscious or symmetrical mode 'jumps' not only from one component of a set to the whole set, but also from the set to a more complex structure, of which the set in question is only the substratum. In this case it applies twice in succession the corollary of the identity between the part and the whole (all this as seen from the outside).

(4) In Chapter 14 we shall consider in some detail the notion of levels of interaction between symmetrical and asymmetrical, which we are implicitly employing in all these considerations and which we must now employ once more.

We may say that an individual mother (or father, as the case may be) is an element of a larger set or collection, which would be the set of all mothers. The propositional function which defines the class of mothers would not be a simple one but would contain several distinguishable sub-propositions. If we restrict the class to the subclass of mammal mothers, then the propositional function defining it would have to make reference to at least two properties: that of pregnancy, which implies the womb, and that of breast feeding, which implies the breast.

Now, every time that according to the principle of symmetry the breast is identified by the patient with the mother – and considering that the individual set called *my* or *his* mother is an element of the class of mothers – implicitly the breast is identified with the class of all mammal mothers. But this class of 'physical' mothers is itself a subclass of a more general class of mothers in which any action of (loving) giving is considered as breast feeding. And so we come to the common – I would almost say banal or trivial, in spite of its colossal implications – clinical fact that any time a given patient feels that his analyst represents or is the breast, he is not – for the patient's unconscious – just a given, concrete breast, but *the* Breast, and as such the possessor of the supreme goodness of the breast. This is very visible when the patient feels that the analyst withdraws the breast: he feels he is being deprived of a supreme treasure.

I believe that it is of interest to remember in this context that this property of identity between the part and the whole belongs to a type of thinking which has been familiar for a long time to occidental culture. I am referring to two well-known types of assertions: on the one hand that of Aristotelian-Thomist philosophers, who maintain that the whole soul is in the whole of the body and also in any part of it, however small; on the other, to exactly the same assertion, but made this time with regard to the presence of Christ in the host. This latter is taught among Roman Catholics to small children in catechism and is implicitly put to use when there are not enough hosts for all the communicants: the priest then splits the remaining hosts, so that each person may receive one bit and in this way communicate with equal fullness with those who have received the whole host. In both cases we have to introduce, however, another notion; we may say that the soul (in the first case) or Christ (in the second) is 'incarnated' in the body: when giving the bread, Christ did not say 'this is myself' but 'this is my body'. So, here it is a case of a material object (the body, the host) which a spiritual being (the soul or Christ) enters, and then the whole of this spiritual being is in the whole of the material one and in any part of

it, however small. And in the case of the host we would have to add that the whole of the body of Christ – and of Christ himself – is in any part of the host. Perhaps there are differences between this concept and that of identity between the whole and the part, but, in any case, the similarities, as far as concerns the conceptual implications or consequences, are very striking.

3. The law of either positive or negative infinite sets

At this point we may stop for a moment to reflect upon the current clinical observations regarding a particular meaning which the objects have for the unconscious. In the early days of psycho-analysis it was common to speak of *imagos* or of images, which always referred to whole persons. Recent developments have added part objects. Whichever of the two we choose, the fact remains that we always assume them to have the maximum of the potentialities connected with the concept. If it is a question of a good father or mother, it is always a question of an extremely powerful or good one. And the bad or evil ones are extremely dangerous. The unconscious cannot conceive a given quality in a small degree: the good breast, for instance, is not mildly good; maximum goodness is attributed to it. This is just the expression of the replacement of the individual by the class, of the identity between part and whole. So, at deeper levels of the unconscious, an individual either has the good breast or the good mother, and then it is supremely good; or it does not have it, or her, at all. In this latter case complete absence means that the mother (or breast, etc.) is bad because it withdraws its goodness from the subject. Then it becomes supremely bad, with all the potentialities of badness. Zero does not seem to exist for the unconscious, and this corresponds to Freud's absence of negation. Here we are obviously confronted by a function which reaches a maximum point of positive infinite value and a minimum point of negative infinite value; this is reminiscent of certain mathematical functions which at certain points jump from the positive to the negative infinite. The set of the values of this function may, therefore, be considered as an infinite set.[1]

We may call this *the law of either positive or negative infinite sets.*

4. Summary

The use of symbols as we see it in every moment of our work, including the transference situation which represents such an important part of our therapeutic arsenal, is a constant witness to that characteristic of the (symmetrical) unconscious according to which the part is treated as having the potentialities or 'powers' of

[1] I had initially thought of a law of all or nothing and was not clear on some points. Various discussions with M. Pallotta and Professor Lippi permitted me to arrive, with their help, at the present formulation.

the whole. Whenever the unconscious is before an 'object', whether it is total (father, mother) or partial (breast, penis), it treats this object, not as an individual but as the whole class because it does not deal with concrete objects or parts; it, therefore, attributes to the object the maximum potentialities that are implicit in the propositional function of the class. In other words, the unconscious follows the law of either positive or negative infinite sets: either it does have an object, in which case it has it in its full (infinite) positive potentialities as a class; or it does not have it, in which case its absence is taken to mean that this object has maximum (infinite) negative powers.

13. *A Discussion of Analytical Findings in Terms of the Notion of Infinite Set*

Foreword

Now that I have already presented the problem and the notions that may be useful to understand it, I shall discuss in this light some of the findings already mentioned, so that we may proceed in the next chapter with some further clinical considerations.

1. **Interpretation of the principle of symmetry in terms of infinite sets**

That the (symmetrical) unconscious establishes the identity between the part and the whole is simply confirmed by clinical evidence, though I shall not review it here, because this is not within the scope of the present study. In the light of the notion of infinite set it is possible to give an *interpretation* of this corollary of the principle of symmetry, which seems to offer wide perspectives. The identity in question may be viewed with reference to the cardinal number or power, and we could then say that there is a bi-univocal correspondence between the part and the whole, or between the subset and the set. This means that each element in the part or subset has one correspondent in the whole or set and vice versa. Now, this has to be understood in psychological terms. In the set of numbers, such as those we have mentioned, there is the number and nothing else, so the correspondence established is, so to speak, clean and neat. But if we consider the mind we would not go very far if we stopped at the numbers. If, instead, we assume that the numbers can be put in bi-univocal correspondence with certain psychological characteristics, then, owing to the property of transitivity, certain properties which hold good for the set of numbers will also hold good for the corresponding psychological characteristics, passing through the law or function which associates them. So we may, according to the case, choose one set or another, whichever is most convenient or adequate for our reasoning. *In this way the cardinal number becomes the image, in mathematical terms, of certain psychological properties.*

We may interpret the principle of symmetry – its corollary in respect to the part and the whole – in this light, as the expression of the fact that the part has the same power or cardinal number as that

of the whole. If we now apply the definition of Dedekind,[1] this would mean that whenever we are confronted with an expression of this principle in which we find the equipotentiality between the part and the whole, we are in fact confronted by an infinite set. This conclusion seems inevitable and in order to proceed with our research we shall adopt it, even if we experience the same sense of strangeness that Cantor had when he considered the conclusions of his research into infinite sets: '*Je le vois, mais je ne le crois pas*!' We must realise at the same time that though this formulation opens a new understanding, it probably also raises problems which must be tackled, though I shall concentrate here on the first rather than on the latter. I shall however mention some of the questions that come to mind which, in my opinion, do not invalidate the work hitherto done but seem rather to offer new possibilities of deepening our knowledge.

We must consider at this point that an infinite set may have many proper parts which may have a bi-univocal correspondence with it. For instance, in the set of natural numbers the subset of even numbers, of squares, of cubes, etc. have such a bi-univocal correspondence. This means that, in the consideration of psychological characteristics, there could be many psychological characteristics or aspects of a given psychological process, each of which could be put in bi-univocal correspondence with a different proper part of a given infinite set (like that of the natural numbers or that of the real numbers, etc.) and, hence, with the whole set. This consideration shows that the possibilities of viewing mental processes in terms of infinite sets are very great indeed.

Naturally, an infinite set may also have proper parts which cannot be put in bi-univocal correspondence with the set. In the case of the natural numbers, any subset composed of a finite number of elements has a cardinal number smaller than that of the set. This must not be forgotten.

Discussion of some difficulties. (1970:) The first question is whether the principle of symmetry as I formulated it in 1956 is only an approximation to the truth and consequently might have to undergo some modifications in order to be a clearer expression of the facts. As I see it now, it seems to be able to comprehend and express accurately many facts of clinical reality. There is one case, however, in which it seems to express more than it should, although I am not sure that this criticism is valid. What I have in mind is that, according to it, if a is included in B, then B is included in a, which is not the case in the relation between the whole and the proper part in infinite sets. Now, this particular problem may be viewed in different ways. One would be that the reality which we are trying to describe is not

[1] See Chapter 2 (sub-section 27).

susceptible of being *entirely* describable in terms of discrete entities such as – in the last instance – natural numbers. Here I am thinking particularly of Lotze and Bergson who, each in his own way, seems to have said something similar in referring to the spirit or mind. To attempt to describe a reality outside the realm of the distinguishable in elements, in terms of a reality which is inside this realm (as is the case with sets), leads us necessarily to force the first in order to make it fit into the latter. The whole problem may be here.

Another possibility is that the principle of symmetry is only an approximation to the reality under study, and that it could be replaced by other concepts which would fit more accurately with all the facts known. Perhaps these could be better expressed in terms of the concept of infinite set. To achieve this, it would be necessary to go over all the previous work, point by point, and compare both alternatives in each case. I have not done this and therefore, cannot answer this question.

A third alternative could be that the principle of symmetry is a particular application of a still more general principle, but this does not seem to be the case.

More research is needed to find the solution to this problem. It seems most improbable that this solution will completely discard the principle of symmetry for the simple reason that the evidence so far accumulated, of clinical facts which are accurately expressed by it, is so great that it is difficult to think that the principle may be entirely wrong. Perhaps there is some imprecision in its formulation which can be resolved by a more accurate definition of some terms. The paradoxes which at the beginning of this century seemed to deny the value of arithmetic and logic were resolved in this manner.

(1973:) I must confess that it is only after prolonged reflection upon this matter that I have come to the following, extremely simple solution of these difficulties. We know that the notion of being included in a set and that of cardinal number are not the same in mathematics. If, instead, we apply the principle of symmetry, if a is included in B, then B is included in a. We have interpreted this as meaning that they have the same cardinal number or power and that, therefore, we are in this case confronted by an infinite set. But one may immediately think that this interpretation amounts to saying that because an improper part has the same cardinal number as the set (as it always has), then the set is infinite, which is not necessarily the case in mathematics. The whole thing is resolved if we remember, as I have already repeated several times in the preceeding pages of the book, that *the principle of symmetry is an external logical way of describing something which in itself is completely alien to logic.* Now, from the outside we see that the 'behaviour' in question treats parts which, for an external observer, obviously *are* proper parts as though they were improper; hence the identity between the part and the whole. But it is precisely because we know that *the parts*

which (from the outside) we see treated as improper are actually proper parts, that we have concluded that the concept of proper part being treated as improper means, in this case, not that the proper part actually becomes, for an external observer, improper – because we observe that this is not the case; we know, for instance, that a concrete father is not the class of fathers – but that the only way so far found of being consistent in the *external* description of this reality is to introduce at this point the notion of the same cardinal number of the part and the whole; that is, to introduce the notion of infinite set.

Once this notion has been introduced, we come to see that its justification is confirmed from other angles of approach by many clinical observations. This is clearly shown in the example of the breast as the supreme goodness, which is daily observed.

The following considerations seem pertinent at this point: the concept of improper part presupposes both those of whole and part, only, *in this case*, the part has the same properties, no more, no less, than the whole has: it is identical to it. If, as outside observers who cannot do without the distinction between the whole and the part, we see what appears to us as a proper part being treated as an improper part, we may interpret this as meaning that the (proper) part is treated as though it had the same cardinal number as the whole to which, according to us, it belongs; in other words, the whole and the part are treated as infinite sets. We then find that this interpretation, in the cases we are studying, enables us to see an order in that which, otherwise, would appear as a complete chaos. Our interpretation becomes in this way a working hypothesis which enables us to make important progress both in our understanding of present data and in our research. It must be kept in mind, however, first that this interpretation may not account for all the facts known. So far it cannot be said that such is the case. Secondly, even if it does account for all the facts known and in this way may be satisfactory, it may at the same time quite possibly be no more than a 'reflection' or a translation, in asymmetrical terms, of something which is outside all notion of relation, symmetrical or asymmetrical.

I am aware that, from the operational point of view, this second point is open to much objection and that an enthusiastic 'operationalist' may feel his hackles raised at what may appear to him either a contradiction or a nonsense. I do not think that this book should deal with a profound analysis of the possibilities and limitations of operationalism. I am trying to define a reality which, in itself, seems to be outside the realm of the (humanly) knowable, of Logos, and which yet, in spite of it all, is *there*. If the reader is somebody who aims at the utmost precision, he may succeed in being sympathetic towards my efforts to bring into the realm of the knowable something which obviously *is*, but (so it seems) *is* outside this realm. More of this in Chapter 28.

(The preceding four paragraphs were written long after the four paragraphs immediately preceding them, and they render these four paragraphs, to a certain extent, obsolete. I have chosen, however, to leave them, in order to show that the path followed in the understanding of the subjects of the book has not been an easy one. Considering that I have seen that at times people have had difficulty in following it, I have thought that to give an example of my own difficulties might be useful, in the sense that it might prevent either discouragement, or rejection of notions not completely grasped, perhaps because they were not explained in a completely clear manner, perhaps because of the complexity of the subject.)

It may be objected that with the principle of symmetry *alone*, it is not possible to build a complete logic. This is quite true, but it does not detract from its accuracy or from the function it fulfils in psychical manifestations if coupled with simply bivalent logic. We have already discussed this.[1] We may, however, stop for a moment to consider it again. One might equally say that with gas alone, however much lighter than air, one cannot fly. But if this gas is put into containers, as in a balloon, it can carry heavy weights. In our case the containers are the classes or sets. To distinguish between one set and another we need asymmetrical relations. But within the set or the class the principle of symmetry rules in the symmetrical unconscious. The unconscious seems to be, on the whole, quite capable of differentiating between sets, and this means that it employs asymmetrical relations; whereas *within the set or class* it seems to abide by the principle of symmetry. A further precision must be added if we wish to reflect the facts accurately. As unconscious manifestations become 'deeper', the classes or sets formed are larger, hence the principle of symmetry applies to ever larger collections of objects which in simply bivalent logic are grouped as subsets. The end of the road is *one* large set or collection. In this set according to the principle of symmetry, anything is identical to anything else, and cannot be differentiated from it. In such a case, thinking – or mental life, probably – is impossible. Total symmetry is identical to complete unconsciousness, and perhaps (in this context) even to absence of mind.[2]

Symmetrical unconscious seen as function capable of assuming different values. If we proceed 'vertically' from consciousness to the deepest unconscious we may then say that at first we find only objects, persons, things, each quite separate from the others. With these we may form classes or sets. These sets may be considered as

[1] See Chapter 3, Section 3.

[2] Note that in this case I employ the term unconsciousness and not unconscious. This is due to a (provisional) distinction made here between them. The consideration of this question leads to formulating a series of problems regarding the relation between consciousness and the unconscious. This is a basic subject which I shall not broach here.

subsets of larger sets, and these larger sets, in their turn, may be considered as subsets of still larger sets and so on. This is what I described in my first paper on this subject and which I called the *principle of generalisation* (Matte Blanco, 1959 and 1959*a*). *Within the set, the principle of symmetry rules.* As we go deeper we finally arrive at the region just mentioned, of only one class or set, which from this point of view can be considered as the 'region' of total absence of asymmetrical relations. This is incompatible with thinking, feeling and experiencing (*erleben*).

The inevitable conclusion is that the (symmetrical) unconscious is not homogeneous but may be described rather as a complex function with several variables which assume different values according to the degree of depth. Viewed from this angle there would be continuity in the series of values of this function, which is not in contradiction to the (apparent) discontinuity suggested in the law of either positive or negative infinite sets. This law would apply, not to the function we are referring to now, but to happenings within certain values of it, that is, a zone of values.

Conscious-unconscious, symmetrical-asymmetrical: gradual transitions or all-or-nothing? It must be recognised that what is affirmed in the three previous paragraphs raises questions which are fundamental both for the understanding and the validity of the present approach. It seems necessary, therefore, to consider them more fully. The first problem concerns the assertion that the principle of symmetry rules, for the symmetrical unconscious, within the class or set, but not with regard to the distinction between classes or sets. This may be taken to mean that it works in an all-or-nothing manner, that is, in jumps: this would be against the hypothesis of a continuum of thought from the asymmetrical to the symmetrical type of establishment of relations or from conscious to unconscious.

Upon reflection, it seems that the following considerations are pertinent. The distinction between conscious and unconscious does not coincide with the distinction between symmetrical and asymmetrical, as can be gathered especially from the discussions of Part III. Furthermore, it is not clear whether there is a continuity from conscious to unconscious. It seems more likely that it is rather a question of an 'either or' (if under the concept conscious we include the preconscious). But the question can, perhaps, be examined better in terms of symmetrical and asymmetrical relations. It would seem that in our formulation the possibility of gradual transitions, of a continuum from asymmetrical to symmetrical holds good, if viewed as a continuum in which the *proportion* between both types of relations varies gradually, from one case to another. For we have assumed that with symmetry alone it is not possible to distinguish anything from anything else. *The continuum would be formed by the ordered ensemble of all possible cases of proportions.*

The question that remains open is whether, in each case, within the class or set, the principle of symmetry reigns supreme, or there are, even in this respect, possibilities of greater or lesser symmetry. The answer seems to be that something either conforms to the principle of symmetry or it does not: the notion of symmetrical relation itself would seem to preclude other alternatives.

In short, *the answer seems to lie in the conception of a continuum formed by cases of varying proportions of symmetry-asymmetry and an either or (all or nothing) application of the principle of symmetry in each case (always within the class or set): all in the symmetrical part of the proportion and nothing in the asymmetrical part, but no transitions from one to the other.*

2. The unique position of psycho-analysis among scientific systems. Methodological consequences

The second question might be put as follows: is the conception put forward too inclusive and does it in fact lead to the possibility of predicting anything and everything? This amounts, essentially, to the exact opposite, for if everything can be predicted from this conception, then, actually nothing concrete can be predicted. A healthy scientific theory, it is maintained, should be able to predict, not only that certain things will happen in certain conditions but also that other things will *not* happen under the same conditions.

It will be noted by the reader that this objection appears to be the same as that which has been made by Popper (1956) against psycho-analysis. He maintains that if one considers the analytical conception one discovers that many things can be found that are in agreement with it but nothing that refutes it. He, therefore, concludes that psycho-analysis is not scientific, however closely it may correspond to actual reality. This touches on the central problem of the nature of scientific research. Before considering it we must make sure that the objection of Popper against psycho-analysis is in fact the same as that mentioned against the conception put forward here. First of all, both objections refer to the same apparent weakness: possible predictions are too inclusive. But what matters most is that this weakness actually applies to the same subject because, basically, the subject is only one: the symbol, and the characteristics of the system unconscious, of which the former is a consequence and the most visible manifestation. I shall now try to explain.

Why can the most diverse observed realities be found to (or made to, some would say) confirm psycho-analysis and none to contradict it? The answer seems to lie precisely in the nature of symbols. So many things can symbolise a given basic object or situation that psycho-analysts frequently find no difficulty in interpreting *the meaning* of a given factual situation in terms of symbols. *With the*

help of these, the most varied and apparently different objects or situations can represent a given initial object or situation. In this manner reality is multiplied ad infinitum. And this fact signalises a fundamental difference between physical and psychical reality. Unless we take it into consideration we shall not be in a position to understand the different requirements of scientific research in psycho-analysis and in the physical sciences.

Now, symbolism is made possible by displacement and the (unconscious) characteristic of substitution of mental reality for physical reality, or, better still, the (unconscious) identity between both. Condensation, timelessness and exemption from mutual contradiction are also essential for the possibility of extensive and complex symbolic representations. In other words, if the existence of symbols is at the root of that property of mental processes (as described by psycho-analysis) which has provoked the objections mentioned, the characteristics of the system unconscious are at the root of symbols. Once the question has been seen in this light, it is easy to realise that the objection, mentioned above, against the principle of symmetry and its interpretation in terms of infinite sets is exactly the same as that made by Popper to psycho-analysis; for the principle of symmetry and its interpretation are simply efforts to put in precise logico-mathematical terms the characteristics of the system unconscious.

We must now go on to examine whether the objection is valid or not. To do this we may compare a physical with a psychological situation. Suppose a certain hammer hits a certain piece of metal with a certain force. This will produce a given vibration in the piece of metal, for instance in the form of sound. If we reproduce the same conditions in, say, a hundred pieces of metal, every time the sound will be the same. There is a bi-univocal correspondence between a given stimulus and a given response: the same blow will produce the same vibration in equivalent pieces of metal and a different blow will produce a different vibration. Compare this with a psychological case. The same individual may have the same type of reaction to the most varied stimuli, because, however different the stimuli themselves are, they may have for the individual the same symbolic meaning. In a series of cases of this type the psycho-analyst may find, upon investigation with the help of the technique of free association, that the response in each case corresponds exactly to the stimulus, however different from one another the various stimuli may appear.

I believe that starting from this fundamental difference we may arrive at a better formulation of the problem and find it easier to solve the objections which we are discussing. *The philosophy of science which is valid for physical phenomena cannot be applied to psycho-analytical research. New formulations are required for the latter.* Psycho-analysis is still at too early a stage of its development and psycho-analysts have not devoted sufficient attention to these

problems. On the other hand, scientific philosophers frequently do not have sufficient first-hand knowledge of psycho-analytical data (with all that this requires, for example a personal analysis, etc.) to be able to make a sufficiently valid judgment. Let us hope that co-operation between both may solve these difficulties.

We may now consider the same question from the inverse point of view, that is, the lack of *restricting power* both of the psycho-analytic conception and of the points of view presented here.

It is true that in the way things are put forward at the present stage of development, what strikes one most is the excessively inclusive predictive power. We need not wonder. If the unconscious is seen as infinite sets, one must expect to find this generalising, inclusive quality in it. But this in itself does not imply a defect in our conception. The all-embracing quality belongs by right to the unconscious as infinite sets. *It is in the process of translation from symmetrical to asymmetrical, that we must find the restraining or 'constraining' conditions.* Some of this will be found in the present book,[1] although, perhaps, more of the first (the unconscious as infinite sets). This is to be expected. At the present stage of our development it is already a cause of satisfaction to have succeeded in singling out the unconscious as infinite sets, which, as far as I am aware, makes it different from all other 'things' observed in the physical sciences. The study of the 'constraining conditions' will come in due course; we must have patience. Anyway I shall give two examples which may show the way to the correct approach.

The first concerns an experience with several candidates in training analysis with me. I have been able to observe that any time that a given important external event takes place the reactions of each candidate differ from those of the others: the symbolic meaning, however universal, is also intensely personal. The second example concerns the various dreams that a person may have in one night. The analysis of these with the technique of free association frequently leads to finding exactly the same meaning for various dreams which both appear different and seem also to refer to different subjects. At first sight one would not have the slightest suspicion that the same things are being expressed in them. The consideration of this fact has led me to suspect that a more precise study will reveal in such cases the existence of what mathematicians call *abstract groups*. Such groups entail *operations*, and these in their turn, may be considered precisely as 'constraining conditions'. But all this remains to be studied in detail.

It is along these lines, I believe, that we will find one of the ways to completing our conception. But everything cannot be done at once. In the meantime it is important to keep in mind that, even

[1] See, especially, the latter chapters of Part VI, and also Part VII, where this question is tackled in its basic meaning and general perspective.

though none of this is accurately reflected in our conceptual thinking, in actual practice psycho-analysts are constantly engaged in ascertaining the personal and individual meaning, for each patient and at each moment of the analysis, of the universal symbols. In other words, analysts the world over, without worrying about theory, are permanently correlating and reconciling the all-inclusive infinite sets of the symbol with the most individual meanings in terms of the patient's present conditions and past life.

Before leaving this matter I would like to add that the principle of generalisation which, I must confess, I have neglected in my recent studies, may in the end furnish the solution to the problems we have just discussed.[1] The logic of the symmetrical unconscious is not formulated only in terms of the principle of symmetry but also in terms of the principle of generalisation. It must be noted that this latter is not something which – *in itself* – differs from simply bivalent logic. It is, in fact, not only formulated in terms of it (as the principle of symmetry also is) but it also conforms to it (which the principle of symmetry does not).[2] The difference between conscious and unconscious thinking with respect to the principle of generalisation lies, not in the introduction of a new logic, but in the tendency to make a far greater use of a well-known logical procedure.[3] Perhaps the same holds for the principle of symmetry, though here the question is more complex; its basic implications are discussed in Part VII. Anyway, in both cases we find ourselves confronted by a new element which is outside the realm of ideal beings:[4] the *tendency*, as applied to the laws that rule the realm of the ideal. In short, the introduction of life.

Further exploration of this matter would, I believe, prove extremely fruitful for the understanding of mental processes.

3. Some propositional functions are defined in terms of variables, the collection of whose values may be considered as infinite sets

First, we must consider that *all* propositional functions in so far as they are unfinished sentences (as they are also called) contain a variable, the x, which assumes various values. For instance in the propositional function 'x is a Frenchman 1.75 m. tall', x may be assumed by any Frenchman of this height, for instance Jean Pierrot, Eugène Balzac and so on. It is evident that in the case mentioned, the number of values is limited. The same could be said of the

[1] This question is considered, from a general point of view, in Part VII.

[2] This phrase may appear more comprehensible after reading Part VII.

[3] This assertion is valid only if seen from a certain point of view. I must again refer the reader to Part VII, where this question is discussed.

[4] This term is understood here in its philosophical meaning. A triangle, for instance, is an ideal being, while a house is a real being.

propositional function 'x is a natural number smaller than 100'. In this case we know for certain that the number of such values is 99.

If we say 'x is a segment of a straight line 30 cm. long' the number of values that may be assumed by this propositional function is infinite, because there are infinite segments of a straight line 30 cm. long. Here we find a propositional function defined in terms of a statement containing a variable, x, whose values form an infinite set. Propositional functions are always statements. The *condition* specified in such statements may itself either be a constant – as is the case both in the first example given (a Frenchman 1.75 m. tall) and in the third (a segment of a straight line 30 cm. long) – or a variable, as is the case in the second example, in which the condition is not a fixed number but any natural number smaller than 100. In some cases the statement may contain more than one variable. In order to distinguish these variables from the variable x, which refers to the individuals or elements which satisfy the propositional function, we must designate them with different letters, for example y, q, z, etc.

It must be noted that when the condition specified in the statement is a constant, the x may assume either a finite number of values (as is the case in the first example) or an infinite number of them (as is the case in the third example). When the condition specified in the statement is a variable, it may assume either a finite number of values (as is the case in the second example) or an infinite number of them. Sometimes, but not always, the number of values of the y and of the x may coincide; this is the case in the second example, in which each value of x is identical to the corresponding value of y. For example if the value of y (a natural number smaller than 100) is six, there can be only one x satisfying this value, that is, precisely the number six. If, instead, the propositional function is, 'x is a segment of a straight line which measures a number of whole centimetres, and no fractions of them, smaller than 100', then, if the value of y is, for instance, six centimetres, then, for this value of y there is an infinite number of x, for there is an infinite number of segments of a straight line which measure six centimetres. Something identical holds for each of the other 99 values of y.

We may now consider a case in which the values of y are infinite. For example: 'x is a segment of a straight line whose length is either half or twice the length of each of the segments of a straight line which are nearest to it in length.' To examine this case we may form the following series, for instance, of centimetres:

. . . 1/16, 1/8, 1/4, 1/2, 1, 2, 4, 8, 16 . . .

This series fulfils the conditions specified in the definition of x because whichever element of this series we take, we find that it will have half the value of the element next to it at the right in the series and twice the value of the element next to it at the left in the series. This is an

infinite series, as can be seen. This is a case in which the condition specified is itself a variable capable of assuming an infinite number of values.

In other words, the values of this condition (which we may call y) form an infinite series. Each one of them may, in its turn, be assumed by an infinite number of segments of a straight line. For instance, there is an infinite number of segments of 4 cm., of 8 cm., and so on. In other words, there are cases in which *each* of the infinite number of values, y, of the condition specified may be assumed by an infinite number of x. If we take the whole class or set defined in such types of propositional functions we then have an infinite number of infinite numbers of values; the class contains, therefore, an infinite number of infinite subclasses. If, furthermore, we consider that as the values grow, they tend towards the infinite we must also add that the magnitude of each of the values y becomes eventually infinite as the series unfolds. *The cardinal number or power of this whole class is not that of the denumerable but at least that of the continuum.* In ordinary language, this series has an infinite number of infinite numbers of values.

If the condition is defined in terms of more than one variable of the type described (y, q, z, etc.), then the number of infinite subclasses contained in the class increases still more.

4. The classes or sets considered by the system unconscious are of the type which is defined by infinite values of the x and of the conditions, y, q, z, etc., defining the class or set

It is quite obvious that the (symmetrical) unconscious does not deal with classes defined in terms such that the values of the x of the propositional function, and those which specify the conditions y,, q, z, etc., are finite. This means that it does not deal with finite sets. The (symmetrical) unconscious has nothing to do with propositional functions such as 'x is a Frenchman 1.75 m. tall', or 'x is a natural number smaller than 100'; or to consider yet another case: the set of chairs actually present in a given room. The thought that the deep unconscious might descend to such finite precisions is so alien to the nature of this latter that it strikes one as comical or odd. This fact forces itself upon us with all the evidence brought by daily clinical experience and is already strikingly visible in the manifestations we have so far discussed. But we may consider the matter still further.

We may mention some examples of classes or sets which belong to the type usually seen in (symmetrical) unconscious thinking:

- the class of good people
- the class of bad people
- the class of penetrating objects
- the class of explosions

– the class of hungry persons
– the class of happy persons, etc.

A consideration of these soon shows that in all such cases the values of x can be, conceptually, an infinite number. Moreover, the condition y specified is itself a variable. One can, for instance, be good, very good, extremely good, etc. Something similar may be said of being bad, of penetrating objects, of explosions and of happiness. The fact that in some of the cases mentioned, the magnitude in question *may* be 'intrinsically not measurable' (that is, it may be 'not a quantity') is immaterial in the present case. I would at least go so far as to say that in *all* these cases measurability is unattainable from a *practical* point of view. To see this, we may consider a case in which this does not seem to be true, such as penetration or explosion. If we limit ourselves to the physical examples of these latter we might devise precise methods of measuring, but if we consider that, psychologically, there are many symbolic penetrations or explosions, we find ourselves in an identical situation to that obtained in the case of goodness or happiness: the values of y may be infinite.

We shall discuss this problem in more detail in Part V. For the moment it is sufficient to say that these conditions – which are, as it seems, magnitudes, and not quantities – can be conceived as being susceptible of assuming an infinite number of values which we may order in series of ascending magnitude.

Each of the values of these conditions (y, q, z, etc.) may, in its turn, be assumed by an infinite number of individuals or elements (x). So, in the end, we find that the unconscious deals with the type of classes which contain at least one, preferably several infinites: it deals with infinite classes or sets.

It seems that *it deals only with them.* We must examine this matter further. We may start by realising that it is immaterial that in practice the number of x or the number of values of the variables y, q, z, etc., may be finite. What matters is that in the outside observation of the symmetrical unconscious, the infinite possibilities referred to are taken as a matter of course, because we are considering here the unconscious, and not external reality.

Take the class of fathers, good breasts, bad mothers, etc. It is obvious that conceptually an infinite number of elements may belong to it. If we now consider the situation or set composed by father, mother and child, we find that the condition specified is not a variable but a constant: three persons in a given (complex) relation. Regarding the elements which belong to this class, if we call x the child, v the father and w the mother, we find that all three can be assumed by an infinite number of values. But here the condition is a constant, the collection of 3; we have no infinites in its definition but only in the values of x, v and w.[1] Among these three, x has a

[1] And in other aspects which we shall not consider here, in order not to complicate matters.

certain peculiarity of its own because it is always, in the last resort, the individual himself. But this individual may be represented by an infinite number of people if we consider the case in an abstract manner. But, for a given child, x is only himself, whereas father and mother may have an infinite number of values: real or symbolic parents. True enough, something similar can be said regarding the father and the mother. In other words, the class defining the collection of father, mother and child has, *for a given person*, one constant, i.e. himself (who can be father, mother or child, as the case may be) and two variables. This is a matter which deserves further study.

If, in the case we are just studying, we now consider those conditions which are a variable, we find that though rationally we may conceive of various magnitudes of this variable, for the (symmetrical) unconscious (as seen from the outside), on account of the fact that it knows only classes, the maximum, infinite magnitude is the only one that counts. So, even if in practice there are degrees, for instance, of goodness and badness, the unconscious deals in its deeper layers (because, as we come nearer to the preconscious, things are modulated) with only infinite goodness or infinite badness; and so on. The (symmetrical) unconscious treats everybody as though they were like the 'little girl who had a little curl . . . and when she was good she was very very good and when she was bad she was horrid'. In other words, and seen from another angle, this is the law of either positive or negative infinite sets.

5. Extensive and intensive infinite sets

The following consideration is probably not significant from the mathematical point of view, but has some value from the psychological point of view. *If we imagine* an infinite set like the natural numbers we tend to see it as a succession which extends on and on and on till infinity. The same holds, I believe, for all infinite sets which have a bi-univocal correspondence with the natural numbers. This would be the case of space and time (we conceive this latter in terms of units) which to our imagination extend endlessly. The image may vary from one person to another: an avenue, a road, a series of larger and larger circles, the stars ever and ever more distant; but the element in common to all of them is that imagination requires an unlimited extension.

In contrast, a set composed of a finite number of elements – say, for instance, the set formed by the numbers 1, 2 and 3 – may include subsets which, if viewed in one way, are finite and if viewed in another are infinite sets. Take, for instance, the number 1. Usually it is considered as a finite set or a finite element of a set. But we may also consider it as a set formed by the sum of 2 halves or of four quarters or of eight eighths or of sixteen sixteenths and so on till

infinite. Correspondingly, a measure of one centimetre, which is a finite measure that can be put in bi-univocal correspondence with the series just mentioned, can be looked upon as an infinite set. We might call this type of sets the *infinite sets within a finite set or element.* This corresponds to the mathematical concept of infinitesimal.

In psychical manifestations, as far as I can see, we have to deal frequently but not exclusively, with this type of infinite set. We might call them *intensive infinite sets*, in contrast to the sets of the type of the natural numbers, which may be called *extensive infinite sets.*

The former, as seen in psychical manifestations, are always linked with concrete objects, or manifestations, such as the mother, the breast, the father or the various individual symbolical meanings of these objects. Instead, in the case of schizophrenic cosmic fantasies, in deep fears and in some extremely destructive or loving states of the child or of the deep unconscious, we also seem to come across extensive infinite sets. When these are very obvious or visible we are probably frequently seeing a state of emergency or an unusual state (such as seen in mystics). Perhaps normality can even be defined, if viewed from this angle, as the absence of visible extensive infinite sets. This is all a vast territory to be explored.

14. *Infinite Sets and Levels of (Unconscious) Depth*

Foreword

Having reached this point, we may now proceed to explore further clinical reality in the light of this new insight. To go over the whole gamut of facts where we can find – with the help of the notion-tools which we have studied – evidence of the mathematical infinite, would be a long task, and one that has yet to be undertaken. In the following pages I shall confine myself to some of the more obvious considerations, hoping that these may stimulate thought.

1. The infinite is unevenly visible in mental manifestations. Interaction between various levels

We may start by some remarks of a very general type which will be useful to put the problem in focus.

We have, in previous chapters, referred to the symmetrical mode of being and to the mode of being visible in the work of conscious thinking, which, for the sake of easy reference we called the asymmetrical mode of being. We have also seen that no 'symmetrical thinking' can exist without some use of asymmetrical relations. We can now define the notion of 'level' as referring to the proportion between symmetrical and asymmetrical relations. So, according to our convention, the greater the proportion of symmetrical relations in a given piece of psychical reality within a given individual, the deeper will be the level of this reality. This notion of level makes an obvious reference to space and is taken from Freud's early concept of psycho-analysis as 'depth psychology'. There is a clear justification for this choice but we shall not discuss it here. What interests us at the moment is that *the mind is structured in such a way that in every one of its direct manifestations we can, if we look for it, detect the activity of its various levels, from the asymmetry seen in conscious thinking to the great proportion of symmetry of the deepest levels.* It must be added that in each case some levels are more obvious than others. The type of level which is more noticeable varies from one case to another.

At this point it becomes necessary to make a distinction which may spare us much confusion. What an individual says, writes,

expresses by gestures, or in any other way, can be studied from two different points of view:

(1) As a *product*, that is, considered independently from its producer, in its structure, its meaning, its relation to other aspects of the reality of the world which are external to the individual who created the product in question; and also from the point of view of its objective truth, falsehood or imprecision.

(2) As a *manifestation* or *indication* of what goes on in the individual at the moment of its production or in the period around that moment. It is obvious that in order to study it from this point of view we have to consider at least some aspects which are different from those considered in the first case.

The differences between both cases result from the fact that in each case the same piece of reality is seen or considered in a different configuration or *gestalt*, which makes more visible some aspects, and not others, of the reality in question. Nothing prevents us, however, from seeing the same reality from both angles of observation.

We can illustrate this distinction with some examples. In the first case somebody says: 'It is twelve o'clock, Greenwich time.' Considered as a product we can affirm that this assertion has a highly asymmetrical structure, that it presupposes the concept of time, hence of serial ordination, and the differentiation between the elements of the series. We may also submit it to objective verification and conclude that, in the circumstances in which it was made, it was a true assertion: it was twelve o'clock.

If we consider it from the second point of view, our findings may vary greatly from one case to another. The assertion, which in itself is structured in a highly asymmetrical way, may be the indication, in the individual who made it, of a highly asymmetrical state of mind; while in another case it may be the indication of a deeper level of the relation symmetrical-asymmetrical. In the first case, for instance, the individual had made this assertion in order to tell his neighbour that it was lunch time and that he must get up and go. In the second case the individual may be expecting the end of the world at five minutes past twelve and he is anxiously counting the minutes, so that this perfectly simple, highly asymmetrically structured and true assertion may be, if considered in the context in which it was made, the indication of a highly symmetrical level. As can be seen from this example, the levels of the interaction between symmetrical and asymmetrical do not necessarily run parallel if the same product is seen in terms of the first or the second point of view.

We may now consider another example. Somebody says:

Prison windows have bars.
The windows of my room have bars and my pyjamas have stripes like the bars of the windows.
Hence, I am in prison.

If we study this reasoning from the first point of view we may immediately see that there is a good deal of use of asymmetrical relations in it, since the concepts of window, bars, room, prison, pyjamas and stripes require various asymmetrical relations to exist. On the other hand the reasoning obviously conforms to a bi-logical procedure, which is correct in terms of bi-logic and completely absurd from the point of view of bivalent logic. We may also add that considering the intervention of bi-logic, the fact that the structure of the reasoning is of the syllogistic type shows a certain respect for bivalent logic, and is indicative of a mixture of symmetrical and asymmetrical with a good deal of participation of both. If, for instance, the person had said, 'I am going to tear off my pyjamas in order to get out of my prison', he would have revealed in such an expression a much greater participation of symmetry, because such an expression implies the identity between bars and stripes, which the reasoning mentioned before does not, and also a dissolution of space relations, which in turn is not visible in the above reasoning.

We may, furthermore, verify whether his conclusion, considered independently from the reasoning which led to it, corresponds or not to the truth. In fact he may actually be in prison or he may not be, because the fact that the reasoning is absurd in terms of bivalent logic does not exclude the possibility that the assertion to which it has led may be true.

If we consider the reasoning in question as a manifestation or indication of what is going on in the individual, we may, for instance, try to ascertain whether the reasoning was invented by a researcher who was trying to see all the implications of a certain trend of thought. In such a case it would, for instance, indicate to us the line of research he was following. If, instead, it was produced by a patient who showed great anxiety about being in hospital, the position would be different. Though the actual meaning of the manifestation, and the level of depth in action at the moment in the person who produced it, could be different from one case to another, it is quite obvious that this type of reasoning is, anyway, the manifestation of a level of the symmetrical-asymmetrical interaction which is deeper than that usually observed in normal people.

Though frequently we may consider simultaneously a given product from both the points of view presented here, it is important to keep in mind this distinction, because, as we have seen, both do not necessarily run parallel to each other. In this respect we must be aware that products must, sometimes, necessarily be more asymmetrically structured than the manifestations to which they point, for products belong to the external world, and this external world, as we know it so far, is ruled by the asymmetrical mode of being. One can conceive of a completely asymmetrical product – for instance, a mathematical reasoning – whereas one cannot conceive a completely asymmetrical human mental manifestation. To mention an example:

in the series of reasonings that Einstein presented in support of his theory of relativity, the work of consciousness, hence of asymmetry, is exclusively visible; but this does not exclude the possibility that, within him, this activity has been set in motion by unconscious urges, expressed in terms of the laws regulating the functioning of the unconscious. As we have no document regarding these latter urges, we cannot say what they were, though we may suppose (as one of various possible alternatives) that in the formulation of the principle that there are no privileged systems, his emotions regarding his relationship to the parental images were not alien; this does not detract at all from its objective foundation and accuracy so far as it refers to the physical world. In other words, the *product* is purely asymmetrical, but we can guess, through it, the action – in the producer – of the symmetrical mode.

Conversely, in the delusional ideas of a schizophrenic, considered as a separate product, we can more easily detect the bi-logical reasoning, though we can rarely or never say that there is not also some participation in them of the asymmetrical reasoning of simply bivalent logic, which is seen in a purer state in the superficial levels. A careful analysis will enable us to establish, approximately, the type of levels in activity *within* the individual. All mental manifestations lie between the extremes of high symmetry and high asymmetry. In each one of them we may find a similar interaction. But this remains so far a relatively unexplored territory. Perhaps we do not even yet have an outline of these interrelations. For instance, when we explain to a patient the unconscious meaning of a thought, a wish, an action, we frequently find that he retorts that he has good 'objective' reasons for thinking, feeling or doing as he does. We may then agree and point out that we are referring to the unconscious motivation. But a detailed elaboration of how this latter may lead to the conscious one, and how the final product satisfies both equally, is usually unknown; we may content ourselves by saying that there is no mutual exclusion.

It appears evident that the more, in a given person, we approach the deeper levels,[1] the more easily we find evidence of the existence of infinite sets. In other words, the more a given psychic activity or manifestation is the expression of these deeper layers, the more visible the infinite sets will be; correspondingly, the more it is the expression of the preconscious mode of thinking, the less visible these sets will be. But in every case we may, if we explore adequately, find both types of thinking. Perhaps an example may show this with greater clarity than a general discussion.

[1] Note the caution in the expression 'the more we approach the deeper levels . . .'. This is due to the fact that, so far as I am able to understand the question, for an infinite set to exist – at least as it is conceived in mathematics – it must contain discrete elements, that is, elements that are clearly distinguishable from one another. Now, if we apply this to the various levels, it is obvious that in conscious thinking we have distinguishable elements at

2. Infinite set and concrete element as seen in a case

A woman patient was for many years in love with a man who in various ways resembled her father; among others he had the same profession and had reached in it a degree of success – neither small, nor great – which reminded her of her father's achievements. This man was separated from his wife and the patient hoped he would marry her. After some rather feeble approaches he had practically disappeared from sight, but she continued to hope that one day he would come to her. During the analysis a great deal of work had been done regarding her feelings towards him. It had been seen that he represented an idealisation which, in the long run, had prevented her from solving the conflicts which underlay her difficulty in establishing a satisfactory relation with a man.

One day she reported the following dream: she had an appoint-

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our disposal, but usually in a limited number, unless we are dealing with the mathematics of the infinite. As symmetrical relations become increasingly comprehensive, the number of substitutes of a given concrete object also increases; a moment comes when it becomes an infinite of infinites of infinites, etc. But if symmetrical relations thus become *all comprehensive*, then any class can stand for any other class, and confusion appears. The end of the road, therefore, the limit towards which this process tends, is that where anything can be substituted for anything else. This corresponds to the depth of unconsciousness and the absence of thinking, and perhaps the absence even of psychical life. On the other hand total symmetry means the absence of any series. When we have interpreted in terms of infinite sets the equipotentiality between the part and the whole, we have read asymmetrically (in terms of series), *and from the outside*, something that *from the inside* is neither symmetrical nor asymmetrical. But if even this possibility of 'reading' asymmetrically disappears, then a complete lack of differentiation ensues, at least apparently, and this means the disappearance of infinite sets.

It is for this reason that I have used the expression 'as we approach the deeper levels': to leave open *the possibility that at the very deepest levels of all, there is no infinite set.*

The question is quite obscure. Perhaps on the level of being alone, where no happening takes place – as happening implies movement, hence series, hence asymmetrical relations – there are other modes of being psychical, about which we know nothing. The concept of God, I believe, implies no happening. But thus far all this is outside the realm of scientific study, as far as I know.

Another possibility to consider is that our formulations are utterly inadequate to describe the reality we are trying to study. Perhaps this is actually so, but I must confess that I do not worry over this, because, as we go deeper in our understanding, there is *always* an essential impossibility of grasping the whole of reality with our intellect, which is a part of it. For many years I have been greatly impressed by a quotation from Lotze which came to my knowledge (my translating efforts have been mainly devoted to rendering as accurately as possible the subtle shades of meaning of this extremely difficult text. This has resulted in a certain clumsiness of expression which, to my regret, I have not been able to avoid): 'The nature (or being or essence: *das Wesen*) of things does not consist of ideas; and *thought* (or thinking: *das Denken*) is not capable of grasping it. But the *complete* spirit (*Geist*) lives perhaps in other forms of its activity and of its deep emotivity (*Ergriffenseins*) the essential sense of all being and acting. Thought is then employed by the spirit as a means to put that which is lived in such relation as is required or demanded by its nature, and to live more intensely, in the measure in which it becomes master of this relation. Very old errors are opposed to this intuition. Instead of recognising the role of lively fantasy in thinking, precedence was given for a long time to the bridle which gives permanence, security and truth to its course. And until it is recognised that the bridle cannot create the movement which it directs, a similar error will persist. The shadow of Antiquity, its unsatisfactory (*unheilvolle*) over-valuing of Logos, is still widely extended over us and prevents us from noticing, in the real and in the ideal, that through which both are more than the whole of reason' (Lotze, 1909, vol. 3, pp. 243-4).

ment with a woman friend who lived near my house. This woman left her at the door of a restaurant and asked her to wait. The patient went inside, to the room furthest from the street. There was a man she knew, a television announcer, having his dinner. He stood up and declared his love for her, telling her that if he were not already married he would marry her. The patient heard this declaration with courtesy but also with indifference and soon afterwards left the restaurant. Among the associations she mentioned the fact that another television announcer looked very similar to the man she had been in love with. It was clear that the man that appeared in the dream stood for this second one who, in turn, represented the man she loved. Thus the scene in the restaurant amounted to her receiving with indifference his declaration of love.

She then remembered that both the friend who lived near my house and herself had the same dentist (a woman) whom she had seen the afternoon previous to the dream. They had met in the street and my patient took the opportunity to consult her regarding a wisdom tooth which disturbed her. The dentist had told her that, anyway, she would have to have it removed because it was decayed. It became obvious that the friend who lived near me stood both for the dentist and for me, represented as a dentist. The decayed tooth which had to be removed stood for the man she had loved, her feelings for whom had to a certain extent changed as a result of the analysis. In short, the obvious meaning of the dream was that she had become indifferent to the man in question, had received his declaration correspondingly, and that she wanted to get rid of him – inside her, that is, as an introjected object – just as she wanted to get rid of her decaying wisdom tooth.

More could be said about other meanings of this dream, but for our purposes we need not go any further. In the light of the problem we are considering, we may say that this man had been, for her, a father image, probably also a mother image, although we shall pursue here only the first of these lines of understanding. Idealisation had made him appear in her eyes as a summum of perfections – intelligence, artistic sensibility, culture, distinction, capacity for love, *savoir-faire*, etc. – which he obviously did not possess in the degree she thought. In normal logic we would say that he was only one element of the class of fathers. She had attributed to him all the good features which she attributed to the class and which do not necessarily have to be possessed by every one of its elements. In other words, she had identified him with the class, and this latter was conceived in her unconscious as having in a maximum degree the characteristics that define it. This emotional view of him was somewhat dissimulated in her conscious thinking; nonetheless traces of it were clearly detectable in her associations, throughout the analysis.

But in the dream we witness the opposite process: this fantastic

attribution of qualities falls to the ground and as a consequence he is seen under a new perspective. She is no longer interested in him and receives with indifference his declarations of love. Furthermore, she expels him as an introjected object, in the same manner as she gets rid of a decayed tooth. What had actually happened was that the identification of the individual with the class of fathers had disappeared; as a consequence he had lost the attributes of this class. Hence he no longer represented for her the infinite magnitudes which are implied in the propositional function corresponding to this class. He had become only one individual, and not a very highly valued one at that. The contrast between the two positions is striking.

3. Class and individual in analytic therapy

The case of this woman constitutes an example of the action of psycho-analytic therapy, as seen from this angle. It consists of divesting a given situation, individual or thing, from the infinite attributes implicit in the class. As a consequence the patient feels it or him in a real context, that is, as an individual or concrete situation or thing. To give two examples: for an agoraphobic the street ceases to be the place of various dangers of infinite magnitude; for an impotent the woman no longer represents the supreme being who is submitting the little child to a severe examination of his sexual capacity; and/or the meeting point with a ruthless father full of hate, who will annihilate him.

It may be asked whether it is correct to say that analytic therapy succeeds in silencing the voice of the processes of the deeper levels, which prospect these infinite dangers. Against this view would be the fact that with his conscious thinking (more superficial layers) the neurotic patient always knows that his fears are groundless. The answer to this question seems to be that the effect of the therapy consists of annulling the invasion of such processes into the surface. In their own, deep, level they always remain active. The identification of the individual with the class is something which is not in keeping with the laws of the logic of consciousness; analytic therapy succeeds, if seen from this angle, in so far as it severs the *direct* influence or invasion of 'symmetrical logic' in preconscious or conscious grasp of reality. This logic can in normal circumstances arrive on the surface only through a process of dissimulation, whereby the total of the potentialities implicit in the propositional function of the respective class apply to the individual – if and when they apply – in a manner which is not obvious.

The question of the therapeutic action of psycho-analysis as seen from this angle could be the object of a detailed study.

4. Presentational level and level of greatest activity

The consideration of the various aspects either explicit or implicit

of a mental manifestation will *always* permit the discovery of the deeper levels, where the infinite set is seen, so to speak, in its natural state. We have already seen that there is an indefinite number of levels, according to the proportion between symmetrical and asymmetrical. At the same time it is obvious that the *presentational level* of many mental manifestations is something to be especially considered. This is not always a deep level. Presentational level is connected with, but must be distinguished from, what might be called the *level of greatest activity* of a given psychical process. This question requires further study. For practical purposes we may say, for the time being, that in some of the mental manifestations with which we deal in analysis, the problem of the class, and that of the infinite, is neither proposed in the first plane or presentational level nor obviously so in the level of greatest activity. It must be kept in mind, however, that if we begin to investigate the action of the (symmetrical) unconscious in its details, we cannot avoid always coming across this problem in its entirety.

5. The simultaneous experiencing of the individual and the class

As an illustration of another aspect of the complex interaction between the various levels I shall now refer to another example. A young man, who underwent analysis for various difficulties in his contact with people, was working for his Sc.D., in geology and geography. He fervently desired to know the region where he was born very well and wanted to write a detailed monograph about it. There was clearly, in this interest, an aspect which was quite consonant with his life in the community. During a session he enlarged on the various aspects of his interests and made free association about this innermost desire. He had studied his region with the help of maps, economic surveys, geological researches and various other information which he had requested from highly specialised sources, such as scientific journals, geographical institutes and others. He estimated that in this way he had come to know 3,000 square kilometres of this area quite well and some 15,000 kilometres less so. This had made him one of the most, if not the most informed person on the subject. At this point it is to be noted that he was the eldest child of a large family and this desire for pre-eminence in the knowledge of his home country was a reflection – or a parallel – of his desire for pre-eminence with regard to his mother.

This case is useful for the consideration of the simultaneous levels. When the patient dreams of achieving the most complete knowledge of his province and being distinguished for it (during this session he imagined himself arriving in his native town and finding that a reception was being given in his honour, that he was being the object of attention and reverence), he is obviously seeking a relationship not

only with his concrete mother, who would be there, but also and at the same time, with a symbolical mother, the province. But this latter also stood for the country; he wanted the admiration and esteem of all his fellow-countrymen as well. Here we see the relation between the mother, himself and his brothers, simultaneously expressed in three different ways in the same item of psychic reality. Furthermore, he wished to achieve world fame as a geographer: the desire also extended to the point of comprising mother earth and the brotherhood of men.

The relationship with the mother may, of course, also be achieved through various symbols. Whenever an individual refers to a particular primary object or a given symbol that represents it, he is actually including, at other levels, the whole class of objects defined by the propositional function to which he is implicitly referring. The nearer to the 'surface' the more it is a matter of a concrete object; correspondingly, the deeper the unconscious level, the more the class is seen as a whole.

This peculiarity of the unconscious throws light on the nature of human relations. To consider one aspect: the class of mothers may be represented graphically as a series of concentrical circumferences,[1] each of which represents an individual. In the example just mentioned, the actual mother of the patient may be represented by a small circumference, the province by a larger circumference, the country by a larger one and the world by a still larger one. Now, a radius can be traced from the centre (which may represent the subject) passing through all the circumferences. If we suppose that the point at which this radius intersects the circumference which corresponds to the mother represents her esteem and love, then we can agree that the point of intersection of the radius with the circumference representing the province will have a corresponding meaning: esteem and love from the province. (For our discussion we may agree that in the case we are studying, the class of mothers includes the children; hence esteem and love from the mother comprises that of the children.) The same could be said of the country and the world. To extend the reasoning: each radius starting from the centre of this set of circumferences touches each circumference at a given point which corresponds, in every one of them, to exactly the same meaning, though in various symbolical forms, according to the circumference. In mathematical terms: there is, for each point in the circumference which represents the concrete mother, a point in every other circumference, which has a correspondence with it. In other words, each point of this circumference

[1] I wish to point out that the introduction of this graphical representation does not intend, at the moment, to propose new problems. It is a representation which makes indirect reference to the concept of extensive infinite sets, as mentioned before. I must add, however, that in the present case we are not confronted with a state of emergency as mentioned then. The comparison or metaphor does not refer to something actually felt by the patient but only intends to help the understanding.

has an infinite number of correspondences, one for each circumference. In still other words, and considering that the number of concentrical circles is infinite, each point has an infinitivocal correspondence in the remaining set of these circumferences.

The same could be said of any point in any other circumference. Considering that each circumference has an infinite number of points and that each point has an infinite number of correspondents – or (which amounts to the same) one infinitivocal correspondence – we then find that each circumference has an infinite number of infinitivocal correspondences – or an infinite number of an infinite number of correspondences – with the other ones. For the unconscious there are, in a certain sense, no privileged circumferences; this calls to mind the theory of relativity, according to which there are no privileged systems with respect to the co-ordinates of space and time.

We could also say that this set of infinitivocal correspondences is characteristic of each class. Perhaps it even defines the class.

We must stop for a moment to consider the fact that each circumference has an infinite number of points. Each one of these would correspond, as already remarked, to a special aspect of the relationship of the individual with the mother. It may be objected that the number of *possible* relations with an actual mother is a finite one; at any rate, this is certainly the case of *actual* relations. Then the correspondence should not be taken as one between points but between finite segments of the circumference (each of which may be viewed as a subset). This would, necessarily, result in a finite number of correspondences. Then we would have to correct our previous assertion and say that the number of infinitivocal correspondences would be a limited one for each circumference. The rest of the reasoning would remain the same.

Summary. The result of all the above is something which, in a way, has been known from the beginning of psycho-analysis, and has been implicitly used all along, but has never been clearly formulated: *behind every individual or relationship – as perceived or given in a certain manner at a given moment – the self 'sees' an infinite series of individuals; all these satisfy the same propositional function (which may be a complex one, i.e. consisting of several sub-statements) under the light of which the individual or the relationship in question is perceived or seen or lived at this moment. If the attention of the observer remains focused on the first level, that of consciousness, then he will only be aware of the concrete individual; and if he lets himself be permeated by the underlying levels, this infinity will unfold itself before him, though in an unconscious manner. Embracing this infinite series there is one unity: the class or the set. This, in its turn, is lived as one unity.*

To give only one example of the above assertion, I shall choose a subject which nowadays is the object of much discussion and

meditation. It is customary to hear or read that an important step is achieved in the development when the breast is firmly established as an introjected object. Analysts of the so-called Kleinian orientation or those who follow this line of thinking, even if not entirely, continually speak of the good internal breast, which forms, so to speak, the basis of development; the term 'introjective dependence on the breast' implies these concepts. Various facts of psychical life are interpreted in terms of the relation between the external and internal breast. Now, only a moment's reflection is sufficient to show that such language cannot refer to a concrete material object, the physical breast of the mother of the particular individual who is under consideration. Behind this individual breast there are many other physical breasts of the successive women with whom he established a relationship; but above all there are innumerable symbolical representations. It is clear that every time that the breast is mentioned in this context the term must be understood, not as an individual but as the class of all breasts, which comprises both the physical and the symbolical breasts. At the end of the road is the propositional function which defines the class. The individual is simply an element of the class, which *stands* for it. The only real concern of this formulation is the class, and this is also the only real concern of the more symmetrical levels of our being; in this latter case, however, the individual does not *stand* for the class but, in contrast, class and individual (any individual belonging to that class) are one and the same thing.

It must be realised that this is not simply a more accurate way of saying what has always been implicitly thought. Apart from the fact that with its help we can understand and discover things which were previously hidden, it also widens our perspective, permits a deeper view and at the same time produces new problems, whose solution will be a task which opens the road to a still wider knowledge.

I shall now stop for a moment to consider some of these.

6. Some problems and perspectives

In our example, the concentric circumferences representing the mother, the province, the country and the world were in correspondence with a certain aspect of the class of mothers which refers to the bodily characteristics: from her (visible) body the representation passed on to the material presence of the province, the country, etc. In this sense such representation is quite satisfactory. But we know that various functions of the mother, and the mother in her totality, may also be represented by symbols which do not have the materiality or corporality that mother earth has. This is the case of an institution, such as the church; or of something which is not even an institution, for instance the knowledge contained in all books, conceived as something which gives (breast) and as something

to be explored (body). In short, the concept (mother) has various dimensions, some of which can be symbolised by material objects, in which case the larger the circumference the larger the object which it will represent. But the dimensions which are not adequately symbolised by corporal objects, are also susceptible of being represented and ordered in circumferences of increasing radius. Now, the question arises: in an accurate *representation* of all these relations, where shall we place the *physical* world – or the existing *physical* universe, or an imagined infinite physical universe – with respect to, say, the sum of all the knowable? Both are very wide circumferences, but which is wider, in this series of concentrical circumferences? The answer seems to be definitely that *they cannot be ordered in a graphical representation in the same series of concentrical circumferences, because they do not belong to the same dimension.*

In other words, an accurate representation of the class of mothers could not be made with only one series of concentrical circumferences. We would probably have to use, at the same time, starting from the same point, several of them, all of which would occupy the same space. But this cannot be done in bi-dimensional space (to which the concept circumference belongs). We would then have to introduce the concept of higher-dimensional space, which would permit, *if represented in terms of lower dimensions*, the multiplication of a certain dimension. But this is a theme which we will not develop here (see Courant and Robbins, 1941, Matte Blanco, 1970 and, especially, Part IX).

Another problem – perhaps a multitude of them – arises when we consider the question of the simultaneity of the various levels. Macular consciousness cannot focus on more than one level, although it is possible that the periphery of the field of consciousness can simultaneously grasp several. This raises the complex question of the relation between the (symmetrical) unconscious and consciousness.

The deepening of the concept of layers or levels will also permit us to see the action of the unconscious in a new perspective. I may refer, in passing, to the question of repression in layers. Its study (Matte Blanco, 1955) leads to the curious conclusion that, at times, the deepest level is also the most superficial. Paradoxes of this type may be frequently found in clinical reality, if an adequate conceptual equipment to discover them is employed.

7. The magnitude of emotion and the question of levels

Perhaps the easiest way to broach this problem is to start with a clinical example. A candidate in an advanced stage of his training had a dream whose analysis revealed that a certain old doctor, who appeared in it, represented me. Various associations also showed that, in this dream, although in a very disguised manner, he called me

old, out of fashion with regard to psycho-analysis, a thief, and as coarse as a peasant. Though the evidence furnished by the associations was convincing, the candidate was considerably surprised at my interpretation and commented that it did not correspond to what he consciously thought and felt about me. The analysis revealed, furthermore, that he had disavowed and projected on to me his desire to rob me of my wife and my potency, symbolically expressed in intellectual activity. We were also able to understand that the dream was expressing the reaction he had towards certain events in the previous session.

The contrast between the attitude which he consciously felt and expressed towards me and the emotions discovered in the dream, was striking. He felt he held me in high esteem and was satisfied with his analysis. At the same time he had shown some perplexity in connection with certain differences in theoretical orientation and technique which he had detected between various training analysts. His conscious reaction had not been intense but had stimulated him to study the question. At the moment when the dream took place he had arrived at a provisional opinion, which had much in common with the views which he thought I held, as could be deducted both from my seminars and from my behaviour and interpretations during his analysis. Previous work had shown, however, that unconsciously he wanted to absorb the orientations of everyone, to ensure that he would not miss anything which might be of use to him, both in his personal analysis and in his professional work. His eagerness had led him to take a greater number of control analyses than that required by the regulations. This general attitude had various meanings, among which the oral aspects connected both with the mother and the father were prominent.

In short, he had a conscious attitude of esteem and a good relationship with his analyst, mixed with certain intellectual doubts in connection with what he received in his analysis. These doubts, however, were not intense; they only stimulated him, in a quite realistic manner to increase his knowledge. At a certain unconscious level, in contrast, he had an intense anger against the analyst (i.e. against myself as an analyst), expressed in the feeling that he had nothing good to give (he was old, out of fashion and coarse like a peasant) as well as in the suspicion that he was withholding from him and robbing him of good things, which he kept for himself. This condensation of two opposites showed that at this point we were dealing with a deep level. Further expressions of deep unconscious characteristics were visible in the fact that withholding and robbing were treated as the same thing; and also in the identity established between such tendencies, attributed to the analyst, and his own robbing tendencies. All this showed that we were fully in the 'zone' of the deep symmetrical unconscious.

It is to be noted that the feelings mentioned did appear on the

surface, but in a quite disguised and mild manner. The consideration of the differences is of great interest. At the unconscious level we may say that they were: (*a*) very *intense*, as was shown by the fact that the analyst was criticised in radical terms; (*b*) quite *extensive*, as could be surmised from the fact that they did not refer to precise points but were, instead, of a generalised nature: the analyst was, not simply ignorant of such and such things, but just ignorant; the same held for his being coarse or a robber. In other words, there were two variables of the affect which were great: intensity and capacity. I have proposed this latter term, borrowing it from a comparison with the physical world, in which we speak of the capacity of a container, for instance in litres if it is a question of a vase or in quantity of electricity if it is a condenser (Matte Blanco, 1960*a*).

At the conscious level, in contrast, the intensity was very mild and was expressed in a desire for knowledge. Also the criticism, if any, was not disqualifying in a general manner but only referred to a very circumscribed and rather limited aspect of the analyst's technique and/or theoretical orientation.

One cannot escape the conclusion that there is an intimate connection between the magnitude of the diverse variables of the affects and the degree in which the characteristics of the system unconscious – put in logical terms, the symmetrical relations – are employed in a given manifestation: *the greater the degree of symmetry, the greater the magnitude of the affects.* It must be noted that the concept of level as defined in this chapter does not refer to the phase of development (early or late) but to the proportion of symmetry: a deep level is not necessarily an early level of development. When Melanie Klein (1932, p. 139) writes that 'the anxiety belonging to the deep levels is far greater both in amount and intensity', she seems to be referring to an early level of development. All the same, this phrase shows that she had an intuition of the existence of a deep zone of great intensity. This would correspond to a part of the continuum which I have described and which starts from finite to arrive at infinite magnitudes.

We shall leave the matter here but not before making a comment. Melanie Klein writes:

> The idea of an infant of from six to twelve months trying to destroy its mother by every method at the disposal of its sadistic tendencies – with its teeth, nails and excreta and with the whole of its body, transformed in imagination into all kinds of dangerous weapons – presents a horrifying, not to say unbelievable, picture to our minds. And it is difficult, as I know from my own experience, to bring oneself to recognise that such an abhorrent idea answers to the truth. But the abundance, force and multiplicity of the imaginary cruelties which accompany these cravings are displayed before our eyes in early analyses so clearly and forcibly that they leave no room for doubt. (Klein, 1932, pp. 187-8)

Now, if we view this quotation as an expression of what happens in

the deeper layers or levels, as it obviously is, then the violence becomes perfectly understandable. In terms of external reality, teeth, nails and excreta are not really extremely dangerous weapons and the destruction that can ensue from their use, however skilful, is on the whole a rather mild one. But if each one is conceived as an element of its corresponding class, in which there are other elements which fulfil the propositional function; and if, furthermore, each element is conceived, in conformity to the principle of symmetry, as identical to the whole class, then things change radically. Take the class of teeth, for instance. To it belong not only the infant's small and delicate teeth but also those of all the beasts of prey and, furthermore, all conceivable forms both of fantastic and symbolical teeth, even imaginary ones of infinite potency. We can understand that the 'biting and tearing power' of the class – and, owing to the application of the principle of symmetry, also that of any element of this class such as the teeth of the baby in question – become infinite.

If we now apply the same principle to the activities of the nails and excreta it is not surprising that the total amount of aggression is felt as overwhelming. This destructive tendency corresponds to the deeper levels and is in great contrast to what the child actually is at the presentational levels.

8. The coexistence of various magnitudes of the same variable of a given emotion

From all that has been said in this chapter we arrive at a conclusion which appears strange and surprising. The coexistence of various levels and the relation between the level and the magnitude of (each of) the variables of emotion leads to the conclusion that at each level there is a given magnitude *of each of the variables of an emotion* (intensity, tension, frequency, capacity). At the superficial levels each of these values or magnitudes is small; it increases as symmetrical relations increase, and then becomes infinite. As the level gets still deeper, space-time begins to disappear, and also discrete elements: the infinites fuse into a tranquility, where there is no emotion but only being. All this appears a necessary and clear consequence of the present conception. But it is shrouded in mystery.

As the levels may be assumed to be infinite, so there would be *at the same time* infinite magnitudes or values of the same variable of a given emotion. As in the case described, what is only a slight criticism on the surface becomes a furious rage deeper down, until it becomes infinite. But we must not forget, at this point, the notion of 'level of greatest activity'. Perhaps the level of greatest activity is rather a *zone* of levels. In such a case several variables and several magnitudes of each of these variables would contribute to it and, so, give it both its force and its complexity (lack of unity).

All this could and should be further explored and clarified.

9. Love, hate and the death instinct

The fact that up to now we know a great deal more about the ways in which the mind can attack and destroy than about the ways in which it can love, is indicative of the present stage of the development of psycho-analysis. To be sure, the subtleties, the intensities and the varieties of loving are as varied and as infinite as those of hating. The principle of symmetry applies equally to all mental manifestations. Freud wrote that psycho-analysis had discovered not only that humans were worse than what they thought they were, but that they were also better. Yet aggression is more obvious in its manifestations. More research and attention to clinical facts are required to bring to the fore the disguises which conceal love.

If the 'descent' into the deeper strata of the unconscious continues, a moment comes when the zone of spacelessness-timelessness is reached. No aggressions are possible there. Perhaps this is one of the meanings of the death instinct, as expressed in the initial formulation of *Beyond the Pleasure Principle*: the longing for a state beyond aggression. Unconscious fantasies of the type described in the above quotation of Melanie Klein, correspond, instead, to the intermediate levels, in which the symmetry which permeates the class unfolds itself in a world which knows the asymmetry of space-time in its fullness.

15. *Omnipotence, Omniscience and Idealisation*

Before entering into the details of this chapter I must point out that I have no intention of making a complete review of the problem of omnipotence and its clinical connotations. I shall restrict myself to those aspects which have a bearing on the subject of this study.

The term omnipotence of thought, taken from the 'Rat man', (Freud, 1909, p. 233; 1912-13, p. 85; 1919, p. 240), was employed by Freud to refer to a cluster of interrelated phenomena rather than to one alone. Among these we must consider

> . . . megalomania: an overestimation of the power of their wishes and mental acts, 'omnipotence of thoughts', a belief in the thaumaturgic force of words, and a technique for dealing with the external world – 'magic' – which appears to be a logical application of these grandiose premises. (Freud, 1914, p. 75)

Freud connects this attitude to narcissism, a problem which need not concern us in the present context. Though he studied it first in connection with obsessional neurosis, he is quite clear in affirming that it corresponds to the animistic mode of thinking in general and it may appear in adult people after they have, in their adult thinking, abandoned such beliefs; for instance when they have an experience of the 'uncanny' (Freud, 1912-13, p. 86; 1919, pp. 240-1 and pp. 247-8). Incidentally, much of what Freud wrote on the uncanny may be understood in terms of the identity between the individual and the class.

Another interesting extension of the concept was made by him when he spoke of the omnipotence of groups:

> A group impresses the individual as being an *unlimited* power and an insurmountable peril. (Freud, 1921, pp. 84-5, my italics)

Finally, to conclude this brief review of Freud on the subject, we may quote the quite explicit formulation which he makes in *Civilization and its Discontents*, of something about which he had previously been only relatively explicit:

> . . . the satisfaction of the instinct is accompanied by an extraordinarily high degree of narcissistic enjoyment, owing to its presenting the ego with

> a fulfilment of the latter's old wishes for omnipotence. (Freud, 1930, p. 121)

That is, omnipotence is not only an affair of the id but also one of the ego.

It is clear that omnipotence corresponds to a very primitive stage, which we may connect in the adult with the deepest levels of the unconscious. The magic power of words is obviously an expression of the replacement of external by psychical reality or of the identity between both; the same can be said of other magical practices and of the belief in the omnipotence of thought. It also becomes obvious that the ego, in various ways, tends to accept this omnipotence, but in a disguised manner. This happens, for instance, in the experience of the uncanny and, furthermore, is especially obvious when it is possible to detect the *simultaneous* presence and action of various levels; what in the deepest (symmetrical) unconscious is omnipotence, makes itself manifest in a very disguised form at the more superficial levels, usually considered as belonging to the ego: a feeling of the uncanny or some feeling of satisfaction.

A significative contribution to the concept of omnipotence is made by Winnicott. He distinguishes between *magical control* which would be a reactive or defensive ego-process and the *experience of omnipotence*, which the infant has when the mother satisfies its needs:

> The good-enough mother meets the omnipotence of the infant and to some extent makes sense of it. She does this repeatedly. A True Self begins to have life, through the strength given to the infant's weak ego by the mother's implementation of the infant's omnipotent expressions.
>
> . . . and in consequence the infant begins to believe in external reality which appears and behaves as by magic (because of the mother's relatively successful adaptation to the infant's gestures and needs), and which acts in a way that does not clash with the infant's omnipotence. On this basis the infant can gradually abrogate omnipotence. The True Self has a spontaneity, and this has been joined up with the world's events. The infant can now begin to enjoy the *illusion* of omnipotent creating and controlling, and then can gradually come to recognise the illusory element, in the fact of playing and imagining. Here is the basis for the symbol which at first is *both* the infant's spontaneity or hallucination, *and also* the external object created and ultimately cathected. (Winnicott, 1960, pp. 145-6)

If I have understood him rightly, we see here a description of a developmental process. From the deep unconscious levels (which seem to constitute the predominant or exclusive patrimony of the small infant) there gradually evolves in the ego, which at first has only these levels at its disposal, the recognition of the external object and world. The object becomes, in this way, the meeting point of two different ways of life: the omnipotent, limitless life of the

unconscious and the limited and limiting one of the external world. Perhaps it is at this meeting point that we observe the emergence of Winnicott's paradox:

> A good object is no good to the infant unless created by the infant. Shall I say, created out of need? Yet the object must be found in order to be created. This has to be accepted as a paradox, and not solved by a restatement that, by its cleverness, seems to eliminate the paradox. (Winnicott, 1963, p. 181)

One can see here the curious harmony of the distant natures coexisting within us.

Masud Khan has presented convincing clinical evidence of a phenomenon which he calls *symbiotic omnipotence* and which also has a bearing on the question which we are now considering. The patients he studied were 'superficially well-organised persons' who had achieved success in life, were capable of having good relations with other people, yet internally felt some lack in their life, and had a general *mood* of apathy and inertia, in spite of their activity: 'They identified themselves essentially as this inert *unperson.*' During the treatment, after an initial success, they intensely resisted the author's efforts towards 'negotiating this inertia' and reacted most intensely to them.

> It is this mood of inertia, helpless dependence and coercing me to fit in with their affectivity that I am designating as 'symbiotic omnipotence' . . . They compelled a role upon me . . . This mixture of compelling and clinging constitutes the dynamism of 'symbiotic omnipotence'. (Khan, 1969)

The implications contained in this clear description of such a curious picture can be drawn after we have considered the concept of omnipotence in terms of infinite sets; so I shall return to Khan's paper a moment later; but before proceeding I would like to point out that, if I have understood him, his studies have succeeded in discovering a paradoxical picture: *the coexistence in the same item of psychical reality, of omnipotence with its very opposite: the most absolute helplessness, a sort of condensation of the antipodes.*

To conclude with this brief bibliographical review I shall now refer to the work of Melzer. He has made an interesting contribution to the subject when, to the concept of omnipotence, he has added that of omniscience, which, as far as I know, was never explicit in Freud. We may say that this constitutes a new element of the cluster of phenomena known generally as omnipotence. Melzer's contribution has a special interest because it facilitates the choice of a clear road to a further understanding of this cluster. He writes:

> This omniscience has the meaning, 'What I know is all there is to be known': this can be distinguished from the omniscience of primal objects,

> especially the mother's breast, which has the meaning of 'containing all possible knowledge'. (Melzer, 1967, p. 101)

In the first part of the quotation we are confronted by the class of actual knowledge, all *there is* to be known; whereas in the second part we see a wider class, all that *may be* known, all possible knowledge. While the first is felt 'in certain parts of the infantile organisation', the second is attributed to the mother's breast. It is quite evident that the first class is a subclass of the second, and here we see an example of what I have called the principle of generalisation. The interesting thing, for our purposes, is that the definition of the class in question as the class which fulfils the condition of containing all possible knowledge implies at least two infinites: an infinite number of individuals, each one of which will contain, in a greater or lesser degree, some knowledge either in act or in potency; and at least one infinite degree of knowledge, because without this the propositional function would of itself exclude at least one element of the class. In other words, if this knowledge were not an infinite series but only a finite one, we could still conceive of elements of the class which had an infinite possible knowledge; and these would necessarily be elements of the class because this is conceived as the class of all possible knowledge. But if the propositional function did not leave room for these elements, then they could not belong to the class. In short, this would be a contradiction in the definition of the class itself, which can only be avoided if the propositional function permits of infinite degrees of knowledge. Hence the class in question necessarily belongs to the infinite sets.

And here we come across a weak point in the present way of using terminology, especially by the so-called Kleinian school of psychoanalysis. Melzer speaks of the breast as containing all possible knowledge. This is only conceivable if we attribute to the mother's breast all the potentialities or the same cardinal number or power as that attributed to the class of all possible knowledge. It is evident, on the other hand, that the class of all possible knowledge comprises subclasses or elements different from the breast. Now, only in infinite sets can we find the same power in the set and in a proper part of it. We can then substitute one for the other, as far as the cardinal number or power is concerned. In this respect one is identical to the other. And this is the only sense in which all possible knowledge can be attributed to the breast. But if we simply speak of breast we introduce some ambiguity because the term may be employed to indicate: (*a*) a concrete object, the mammary gland of the actual mother of the person in question; (*b*) an infinite class or set containing all actual and possible physical breasts and all symbolic ones; (*c*) a proper part of it which has the same power, i.e. an infinite cardinal number, for instance, the class of all symbolic

breasts, which would comprise books and other notions. It is understood that in the unconscious of the patient such distinctions are not made (that is, the actual mother's breast is not considered as an individual but is simply identified with the whole class), in part because the symmetrical unconscious follows the logic of the principle of symmetry and in part for the biological reason of *imprinting*, which gives a privileged position from the biological point of view, to the object or element of a class which is known or experienced first: it makes it stand for, or represents, the whole class. This was already known to authors long before the coining of the term imprinting and is clearly exposed in William James (see James, 1890, vol. 2, pp. 394-8). (For some application in psycho-analysis see Matte Blanco, 1955, Chapter 5.) For these reasons, in the (symmetrical) unconscious any concrete breast is the whole infinite set.

But to continue making use of the language of the unconscious when we deal not only with the logic of the unconscious but also with scientific formulation, as we do in psycho-analysis, is, to say the least, misleading. If instead, we make up our minds to clarify our concepts and be explicit as to the type of thinking we are employing (in other words, when we are 'quoting' the unconscious and when we are speaking as scientists), not only will we avoid misunderstanding but we will also pave the way for future developments and for a more scientific foundation for our science. In the present case we can immediately see that whenever the unconscious, which knows no individuals but only classes, is before the breast, to which it attributes certain characteristics, it attributes them in a maximum degree, because the unconscious sees the breast as the class of all objects to which these characteristics are attributed.

Having considered the question of omniscience it is now easy to apply the same type of consideration to the omnipotence of thoughts and desires. We must keep in mind that in the symmetrical unconscious the thought is equal to the deed. For instance, 'I can do (this) in thought' and 'I can do (this) in deed' are both elements of the class defined by the propositional function '*x* can do this'[1]; according to the principle of symmetry both are identical. This is not surprising, because the class implied is infinite. The same applies to desires. It must be kept in mind that for this to happen, the condition *sine qua non* is that thought and deed should be interchangeable, and this can only happen if the principle of symmetry is applied, which amounts to saying that the set in question is infinite.

So we may conclude that *the notion of omnipotence, as used in psycho-analysis, implies the infinite set*, which, on the other hand, is exactly what the term expresses, except that an explicit formulation in terms of infinite sets offers far greater possibilities of precise study and development.

[1] 'This' may be substituted by any possible deed.

In the light of the above we may consider Freud's assertions that the group impresses the individual as an unlimited power and an insurmountable peril. There seems to be in it a reference to the group conceived as the (logical) class, composed of an indeterminable number of elements, which may be felt as infinite. In fact, clinical experience of people who have some anxiety towards the group does seem to support the view that they feel it as an insurmountable peril, in great contrast with what they consciously think. One can see in such a symptom the superimposition of two levels. A further comment seems pertinent here. Freud remarks that people have abandoned the animistic mode of *thinking* (linked to omnipotence) in their *judgment* but that this *belief* appears (for instance) in the experience of the uncanny. Perhaps a more explicit way of expressing the same thing would be to say that at a certain level of the unconscious, the animistic-omnipotent mode of thinking continues to exist in every human being and the difference between people may be, from this point of view, *a difference in the accessibility of that level.*[1] But the level itself is just as ineradicable as the (symmetrical) unconscious. The task of analytic therapy, if seen from this angle, is not to try to make omnipotence disappear but to confine it to its proper level, where it will remain in full force, and from where it will act upon the other layers, but through certain structures, which will elaborate and dissimulate it (here we may remember Winnicott's remarks, quoted above). To attempt to exclude omnipotence altogether is an impossible task and an absurd one.

We are now in a position to return to Khan's concept of symbiotic omnipotence. Having established that omnipotence entails the concept of infinite set, it can easily be seen that the cases of omnipotence which we have, so far, considered, may be viewed as positive infinite sets. In symbiotic omnipotence, in contrast, we find omnipotence associated with the feeling of helplessness. This latter term implies total absence of potence or strength. We could thus say that in Khan's concept there is at the same time 'omni-potence' and 'zero-potence'. But this latter results in an omnipotent control of the analyst through helplessness. Helplessness becomes, in this way, an omnipotent helplessness. It would seem that we see here the case of a negative infinite set. I would not dare to suggest any more at this moment because, it seems to me, the case deserves further study. If my remarks are on the right path, this would be an example of the understanding that can be reached when a thorough and careful clinical observation is viewed in an adequate framework of reference. The progress of psycho-analysis is linked to the proper combination of both.

Idealisation is intimately connected with omnipotence. Whether it

[1] See Chapter 14, Section 4.

starts as a defensive reaction against the fear of powerful enemies or it is the expression of positive feelings towards a given object, idealisation implies the attribution to the object of infinite positive qualities. *It is the omnipotence of the object.* All the above considerations apply, therefore, to this case.

16. *Emotion and the Infinite Sets*

This chapter closes the study of the unconscious viewed in the light of the notion of infinite set. It may seem out of place here because its subject is not the unconscious. Yet, the curious thing is that the same concepts which have been employed throughout this Part seem to apply equally correctly to emotion. This poses the question of the relation between emotion and the (symmetrical) unconscious. Psycho-analytical thinking has always been very vague on this question. The following are intended as opening remarks which will provide the link and suggest the intimate resemblance between the subject of this Part and that of Part VI, where this question will be studied in detail.

We may start with the consideration of an intense emotion, such as being in love. Everyday experience shows that a person in love idealises the beloved; although reason may tell him a different story, the fact is that, in so far as he is in love, the loved one appears to him as the summum of perfection and of what is desirable. This may be in sharp contrast with actual reality; the expression 'love is blind' is a reference to it. On the other hand, love is felt as surpassing time, something which will last for eternity, even if one may be well aware of the transiency of the feeling. It also transcends space and distance. If we coin a phrase which blatantly denies or contradicts all the above properties we may become more aware of how much these are an integral part of the emotion of love. Such a phrase might run as follows: 'My love for you lasts only a limited period of time and exists only as long as I am near you. I love you for certain limited qualities which attract me to you.' Surely no one would think that this is what is actually felt by somebody who is in love. Nor would anyone expect a sympathetic response from the loved one if he stated his feelings in such a way!

This has always been known. Plato suggested it when he wrote (*Symposium* 211 C-D):

> Because the right road of love, be it that it is guided by itself, be it that it is guided by somebody else, is to begin by the inferior beauties and to raise itself to the supreme beauty, passing, so to speak, through all the degrees of the scale from one beautiful body to two, from two to all the others, from the beautiful occupations to the beautiful sciences until from science to science one arrives at the science par excellence, which is no other than

> the science of the beautiful itself, and one concludes by knowing it as it is in itself. (Plato, 1946, vol. 2, p. 627)

All the above considerations suffice to show (in a nutshell) that the emotion of love entails the endowment of the individual with all the beauties or perfections of a given class and that this class is implicitly defined in terms of propositional functions which allow infinite degrees of the characteristics to which they refer. In short, we see the same circumstances as already found in the other aspects of the question, considered in the previous chapters.

It is interesting to observe that in the last part of the quotation, Plato arrives at the love of the science of the beautiful. This would be the love, not of one individual, but of an abstract thing: the beautiful. These remarks *are* reminiscent of the replacement of the individual by the propositional function which defines the class to which he is seen to belong.

What is said of love can also be said, *mutatis mutandis*, of other intense emotions, for instance hate. As for emotional states of milder natures, such as contentment, displeasure, amusement, etc., there are other aspects at play in them, which will be considered in Part VI.

In some psycho-pathological manifestations there are frequently intense emotions, which may or may not appear obvious on the surface. In such cases the emotion could be compared to a rolled-up coil which gradually unwinds by the action of working through. Intensity (of love, hate, etc.) and, perhaps, also other variables of emotion (such as tension or capacity) are intimately linked to the class to which they apply, both in the magnitudes that the propositional function may assume and in the number of individuals that the class may contain. To explain this: the intensity of the love of a given mother, as seen by the child, is linked to or dependent upon the propositional function of the class of (loving) mothers, to which she is seen to belong. This is because, if the propositional function which defines the class entails infinite love, the intensity of love may be felt in the unconscious to be infinite. Viewed from this angle, the action of psycho-analytic therapy consists of divesting persons, things and circumstances from their symbolic meaning (which leads to the confusion of the individual with the whole class) and transforming them, for conscious thinking, into what they really should be, that is, circumscribed entities in which the halo of the class does not interfere with their concrete meaning, by making them appear more than what they actually are. It is, in short, an action of divesting or taking away from the concrete object the infinite set to which it plays host: a process of discharge.

PART FIVE

The Infinite Sets and the Question of Measurement of Unconscious Processes

17. *The Notions of Measurement Employed in this Study*

Foreword

The notion of the measurability of psychical phenomena has been understood and formulated in various ways, and the same can be said of the methods for measuring them. In order to avoid ambiguity it seems that the best course to follow is to start with a summary of the concepts I propose to employ in this study. Although this may seem disrespectful to the reader I believe in the end it will prove the shortest and surest way towards mutual understanding.

1. Magnitude and quantity

These are two basic notions of the subject we are considering. Russell (1937, p. 159) defines magnitude as 'anything that is greater or less than something else'. According to this definition no magnitude can be equal to another. Those things which can be equal to others are called quantities; the possibility of being equal is, therefore, a feature which differentiates quantities from magnitudes. The latter 'are more abstract than quantities: when two quantities are equal they have the *same* magnitude' (Russell, loc. cit., p. 159, his italics). The concepts of 'equal, greater and less will apply to quantities only in virtue of their relation to magnitudes' (Russell, loc. cit., p. 169).

Furthermore:

> Every magnitude has a certain peculiar relation to some concept, expressed by saying that it is a magnitude *of* that concept. Two magnitudes which have this relation to the same concept are said to be of the same kind; to be of the same kind is the necessary and sufficient condition for the relations of greater and less. When a magnitude can be particularised by temporal, spatial or spatio-temporal position, or when, being a relation, it can be particularised by taking into consideration a pair of terms between which it holds, then the magnitude so particularised is called a *quantity*. Two magnitudes of the same kind can never be particularised by exactly the same specifications. Two quantities which result from particularising the same magnitude are said to be *equal*. (Russell, loc. cit., p. 167, his italics)

These notions are in reality much more difficult or obscure than they may appear at first sight from the quotations just given. For the

problem which we shall consider we may keep in mind something which bears a significant relation to it: that all magnitudes are indivisible and that there are magnitudes which by their nature cannot be measured (Russell, loc. cit., Chapters 20 and 21).[1]

2. Measurement, conceptual and practical

The concept of measurement in the physical world is far from being clear at first sight. Though counting is almost coextensive with the existence of man, in primitive people it has been rather rudimentary. Perhaps the earliest method of counting is that of establishing what is called a *bi-univocal correspondence through the cardinal number.* If I wish to know how many objects or animals there are in a given place, I may try to establish a bi-univocal or one-one correspondence between the fingers of my hands and the objects or animals in question. In other words, I make each finger correspond to one and only one of the objects and each object to one and only one of my fingers. Let us suppose, in a very elementary case, that after I have completed this operation I find that all the fingers of my two hands have been occupied and the same can be said of all the objects, so that there is neither any finger nor any object left out. Then I can affirm that there are as many objects as there are fingers in my two hands. In slightly more technical terms, I can affirm that the set composed of the objects under study and the set composed of the fingers of my hands have the same cardinal number or power. Strictly speaking, this operation does not tell us in an abstract or absolute manner the *number* of objects: only that there are 'as many as the fingers of my two hands'. Note that we could extend the process and compare any set or collection with any other collection.

An important step forward is made when the bi-univocal or one-one correspondence is established between the collection we are studying and a particular collection, *the series of numbers*, which is not formed by material objects or elements but by abstract ones. In this way we come to a simple notion about measurement or quantification. To express it in Russell's words:

> Measurement of magnitudes is, in its most general sense, any method by which a unique and reciprocal correspondence is established between all or some of the magnitudes of a kind and all or some of the numbers, integral rational, or real, as the case may be . . . In this general sense, measurement demands some one - one relation between the numbers and magnitudes in question — a relation which may be direct or indirect, important or trivial, according to circumstances. (Russell, loc. cit., p. 176)

[1] After considering the remarks made, especially in the latter chapters of Part VI and also in Part VII, it would appear legitimate to ask whether in principle every *mental* magnitude is measurable. What, in man, would appear as non-measurable would be those aspects of our nature which can be viewed from two vantage-points: if seen as homogeneous and indivisible, that is, if seen in themselves, they would be non-measurable, whereas if seen asymmetrically, as infinite sets, they are conceptually measurable.

This definition seems quite clear, though it may be remarked that some authors employ the term numeral instead of number. To discuss this at length we would have to enter into some subtle distinctions which we may leave aside for the present. The important thing to remember is that the essence of measurement consists of the establishment of a bi-univocal or one-one relation or correspondence between the thing which is to be measured and the numbers. This implies, as Russell points out, the concept of series, as the number forms a series, and each type or kind of magnitude also forms a series. Note that it is the *type* of magnitude and not each concrete magnitude that forms a series. I believe this is pertinent to our problem: when the concept of series is not available, then no measurement is possible. This would be an *intrinsic* impossibility.

Another meaningful concept is that measurement applies to divisibilities and distances in a more intimate manner than in other cases (see Russell, loc. cit., Chapter 21, Section 171). In *principle* we can say that anything which can be put in bi-univocal correspondence with the set of numbers or a subset of it is measurable. As the set of numbers is formed of an infinite number of elements we also regard as measurable phenomena which can be put into correspondence with this infinite set. This is done in mathematics, which deals with ideal objects (concepts); when we consider the physical world we find that *in practice* measuring refers to finite phenomena. All measures employed deal with finite quantities. This is certainly true of measuring biological phenomena and the more obvious physical phenomena. I do not know whether in atomic physics the problem of infinite quantities or of an infinite number of finite quantities has been introduced.

3. Measuring of space

In order to avoid any ambiguity of meaning I shall mention some examples. To start with the measuring of spatial magnitudes, the most generally employed unit of measure is the metre. By convention it has been agreed that a certain object kept in an observatory near Paris has the measure of one metre; in other words, a correspondence has been established between a certain spatial magnitude of this object and the number one. When we find that the measure of another object is such that it contains exactly – not more, not less – two times the initial measure of one metre, then we say that this object measures two metres. A second correspondence has thus been established, this time with the number two and a given spatial magnitude. By repeating this process with other magnitudes we may finally construct a series of correspondences between them and the series of numbers; in other words we have constructed a method of measuring spatial magnitudes. We may now employ other units of measuring which bear some relation of multiple or divisor to the metre.

Once these notions are at our disposal we can easily discover that a given material object can be measured in space from various points of observation and that we can attribute to it more than one measure in space. The introduction of the system of Cartèsian co-ordinates makes it possible to establish that the total number of possible types of spatial measures (in metres or any other unit which bears a relation of multiple or divisor to it) is exactly three. This assertion must be explained. Take any material object which can be seen and touched. It can be studied and measured from various points of view, for instance with regard to its smell, the sounds it emits, its hardness or softness, etc. But from the point of view of its *extension in space* three types of measures, neither more, nor less, cover the totality of its possibilities of being measured. We call these *the three dimensions in space of material objects*, and we give each a different name in order to distinguish them from one another: length or height, width, and depth. Taken together they measure the extension in space of any object, whatever its shape may be. In other words, the set of these three dimensions covers all possible measurability of that aspect of spatial magnitude called extension, an aspect which falls within the visible and touchable aspect of objects in space. The purpose of the restriction introduced in the previous phrase ('the visible and touchable aspects') is to avoid any dogmatic exclusion of the possibility that objects may have an extension of more than three dimensions if considered from another viewpoint. But in such a case the new dimensions would be outside the range of the visible and tactile.

4. Other physical phenomena

The arguments put forward about spatial extension have also been made with regard to two other variables of the material world: weight and time. If all three are taken together, we have the metre-kilogram-second system (as it has been called) which is the basic system of measurement of the physical world.

Having remembered these essential notions we may now turn our attention to the process of measurement of physical *happenings*. A simple example would be that of the displacements or movements of a body in space and time, which can easily be measured through the application of the notions mentioned above. A little reflection soon shows that physics is concerned exclusively with movements of some sort. This fact is obvious in the case of mechanics but it applies equally to all other chapters of physics. It may be noted, in particular, that measurements regarding heat, sound, magnetism and electricity have all started from references to the three basic varieties of measure. Temperature, sound waves, magnetic or electric charges, etc., ultimately refer in every case to variations which fall within the possibility of measuring in terms of metres, kilograms and seconds.

And atomic theory, which deals with the *structure of matter*, ultimately arrives at the knowledge of this structure through the study of the movement of small particles, molecules, atoms, protons, electrons and so on.

It is relevant to remember here that a colossal impact of the theory of relativity was the introduction of the equivalence between mass and energy, which subtracted mass from its apparent staticity, bringing it into the realm of movement.

Even though at times – as in the case of electricity – measurement deals with other units or notions, these can always be brought back to, or defined in terms of, the three basic ones. Ultimately the scientific conception of the physical world is entirely and exclusively constructed in terms of space-time and gravitation, however unapparent this fact may be in certain cases. The sciences of the physical world are entirely devoted to developing intellectual constructions which reflect this world in terms of movements. We may safely conclude that *present-day science seems to assume that there is no mystery in the physical world which cannot be unravelled in terms of mass, space and time. And a constant feature of it is that each and every single manifestation of it can be measured, that is, put in bi-univocal correspondence with the numbers.*

5. The scales of measurement

According to Stevens (1951, pp. 1-49) four types of scales of measurement can be distinguished: (*a*) *Nominal scale*, in which one simply numbers the things or classes to be measured by assigning a number to each separate element or class. (*b*) In the *ordinal scale* one establishes some form of order or rank in the things under consideration, for instance the order of hardness of minerals. (*c*) In the *interval scale* what is determined is the equality of intervals or differences. An example is the measurement of temperature by degrees, another is the establishment of calendar dates. (*d*) Finally the most developed scale is that which establishes ratios, the so-called *ratio-scale*. The measurement of length, weight, density, loudness or pitch, are all ratio scales.

18. *Measurement in the Psychical World*

1. The physical and the psychical in man

When we consider human mental manifestations we soon realise that here things are, because of their nature, of an *order* of complexity which is definitely higher. We still have to deal with spatio-temporal phenomena, because all psychical manifestations which we know in nature happen in space-time. But any ordinary man feels instinctively – and in this the various primitive people of the most varied cultures coincide with those which belong to our own, scientifically developed Western civilisation – that the 'visible' physical manifestation of the psychical do not cover the whole realm of the psychical, at least not obviously so.

Every mental phenomenon is a psycho-physical one. In its physical aspects it is, in principle, just as measurable as any physical phenomenon. But serious problems arise when we consider the mental aspects, which are, in this context, the most meaningful (to give an example: tachicardia, vasoconstriction, etc., are a less meaningful part of fear, in this context, than the psychological aspect itself). Though there may be differences in the technical difficulties encountered, the fact remains that the dimensions of space-time represent, so to speak, the net where everything that happens in the physical world can be caught. They are in immediate contact with our intellect, which also 'moves' in them. In the world of the psyche, on the other hand, things are not so obvious.

2. Public and private

In recent times this has been expressed by saying that the physical world is *public*. The psychical world, in contrast, is *private*, though each one of us has the power to communicate it to others: *to make it public*. This is a very important difference: public versus private but publishable.

Note that this view does not refer, *at a pragmatic level*, to the technical difficulties encountered in the observation and measurement of phenomena but to a more intimate difference. *The most distant star, the deepest cavern on earth and the most elusive particle of an atom are more public, nearer to our observation than a thought or a feeling which we do not communicate.*

It may be objected that if we knew all about the physiology of the nervous system we would be able to know what an individual is thinking, even if he does not communicate it to us. The difficulty would lie, not in the lack of communication but only, exactly as in any manifestation of the physical world, in the methods for making certain data accessible. This opinion corresponds to the position adopted by behaviourism and has induced many researchers to devise various methods for measuring psychical phenomena: psychophysics. At the opposite extreme stands the position which is, perhaps, best set forth by the French philosopher Henri Bergson, who maintains that the relation between the cerebral and the psychical is by no means constant and unique. But the question is a very complex one and must be examined from various angles.

3. The notion of indicant

The first thing to be considered is that our scientific contact with mental phenomena is, as already remarked, not direct. Mental phenomena are private but may be made public, either by language or by some of their manifestations or effects. It is at this point that the notion of indicant is pertinent. As Stevens (1951, pp. 47-8) writes:

> Although psychologists devote much of their enthusiasm to the measurement of the psychological dimensions of people, they squander more of it in an effort to assess the various aspects of behaviour by means of what we may call *indicants*. These are *effects* or *correlates* related to psychological dimensions by *unknown* laws . . . We know about psychological phenomena only through effects, and the measurement of the effects themselves is a first trudge on the road to understanding.
>
> The end of the trail is measurement, which we reach when we solve the relation between our fortuitous indicants and the proper dimensions of the thing in question.
>
> In the meantime we take hold of our problems by whatever handles nature provides . . . In short, we are far more frequently engaged . . . in the measurement of indicants than we are in devising scales for the direct assessment of physiological and psychological phenomena, or of 'intervening variables', as they are sometimes called.
>
> . . . more often we would like to measure his ability, intelligence, drive, emotion, hunger, etc., on a scale of the attribute in question rather than by effects that bear a dubious relation to it.

It may be that the omissions I have made in this quotation would make some people think that I have distorted the meaning intended by the author. At any rate, it is upon this quotation that I would like to comment, even though I do not know whether the author would be in agreement with me. It seems that his formulation opens the way towards an understanding between those inclined to experimental and so-called behaviouristic formulations and those who protest against the impoverishment in the study of mind resulting

from such formulation. If we consider that psychical processes such as emotion are undoubtedly susceptible of being greater or smaller, we may conclude that they are magnitudes. Whether they may be measured is another question, which has to be examined on its own merits. We know that some magnitudes can be measured and others cannot. In consequence, either to affirm or deny, without further study of the problem, that emotions can be measured is simply a prejudice. Some feel emotionally inclined to affirm it, while others, also for emotional reasons, are inclined to deny it. And it must be recognised that it is difficult to remain detached about this issue (or so experience shows) though it is not so easy to see why this should be. When Stevens directly affirms, without saying why, that 'the end of the trail is measurement, which we reach when we solve the relation between our fortuitous indicants and the proper dimensions of the thing in question', and when later on he adds that 'we aspire to measures, but we are often forced to settle for less' (loc. cit., p. 48), though he is being far more sober than many experimental psychologists, he is, nevertheless, expressing his own private emotion (i.e. aspiring) and not making an objective judgment of the situation.

These remarks are not intended as a criticism of Stevens but as an illustration of the difficulty of examining the question with complete objectivity. In fact, Stevens's position is not only clear and stimulating but also far more rational than that which is common among experimental psychologists when they theorise about this question, and indeed among psychological researchers in general.

The position of those who declare that the quantitative efforts are wrong in themselves if applied to the mind, because this belongs to the realm of quality and not to that of quantity, also seems completely arbitrary. We must, therefore, examine carefully this difficult problem. We are immediately confronted by a question of a general nature which we must attempt to solve before proceeding.

4. What is the correspondence between the psychical and the physical, within the psycho-physical unity: one-one, one-many, many-one or simply identity?

We have seen that a magnitude is measurable when it has the possibility of a one-one or bi-univocal correspondence with the set of numbers. We know that this is actually the case of the phenomena (such as bodily happenings) which are susceptible of division and distance. Whatever happens to our body is, therefore, measurable, at least in principle, though at times it may actually be difficult to measure. The question now arises of whether mental events *must* be included in this category. Such events, so far as they are ours, happen *in* our body, but it is not self-evident that they happen exclusively *to* our body. If we assume the identity of body and mind, we need have no doubts. But such identity is not a fact of observation but only a

hypothesis. What observation seems to show, is that mental events always take place – in human beings in their usual or normal state – in intimate connection with bodily events. This is expressed by saying that there is a body-mind unity. The identity cannot be affirmed, only the unity. This itself can be *interpreted to mean* various, mutually exclusive alternatives, none of which, it seems, has been proved or disproved by observation, though I would not go as far as to say that they cannot be either proved or disproved by this means or by experiment. The most frequently mentioned of these alternatives are: (*a*) that bodily and mental processes are essentially the same thing with different appearances (identity hypothesis); (*b*) that they are different, though they are 'given' together. Neither of these alternatives is, so far, the result of direct observation, because observation only shows, first that bodily and mental phenomena can be distinguished *conceptually*, secondly that it is impossible in practice to do away with this distinction if we wish to describe mental phenomena, and lastly that though we make a distinction between both, and cannot escape from doing so, we always find them together *in existential reality*. We can postulate, therefore, that whenever there is a mental phenomenon there is *within the psycho-physical unity, a corresponding* physical one, in intimate connection with it but not necessarily the same as it. These are the only things we can affirm, so far, and in spite of the fact that in the current psychological, psychiatric and psycho-analytical literature we usually find the assertion of the fallacy of the body-mind problem whenever this problem is mentioned. I do not know which is more striking in these assertions, whether their dogmatic combative character or their vagueness and emptiness of thought. This attitude is in great contrast with that adopted by Freud, Jackson and Sherrington, who broach this problem with great carefulness and come to the conclusion that it is not right to treat the physical and the mental as though they were the same thing.

If we accept that, at least as a first appearance, we must distinguish between physical and mental *aspects* of the psycho-physical existential unity, then the question arises: what type of correspondence is there between them? The alternatives seem to be three.

In a one-one correspondence there would be, for each separate mental event, one and only one corresponding physical event and vice versa. If this is the case, considering that physical events are by their nature measurable, that is, they have a one-one correspondence with numbers, then mental events would also be measurable, in the sense that for each one of them we could single out a corresponding, measurable physical event. At this point one might raise the question of the measurability of mental events *in themselves*, and maintain that this would still remain open. But it would seem that this question is the result of a misunderstanding because, after all,

measurement consists of the establishment of a correspondence with the series of numbers (as in the present case) and that alone. The fact that this correspondence is direct or mediated through an intermediary (transitivity) does not make any difference.

If there were a one-many or plurivocal correspondence, for each mental event there would be several corresponding physical events. If these correspondences were constant and if, furthermore, we could isolate each corresponding physical event from the others, then we should find ourselves in a position fairly similar to the previous one; only that in this case we should have, not one but several measures: for each of the corresponding physical events there would be a one-one correspondence with numbers. These might be interdependent on one another, so that if we knew one we might deduce the others by some process of calculation; or they might be independent in the sense that each would reveal a different aspect of the mental phenomenon under study. In this latter case it would be conceivable that these aspects do not vary at the same rate. This would be an expression of the multiple possibilities or potentialities of a given mental event: it would play upon, so to speak, the various keys in the multiple instruments offered by the body for its expression.

Finally, there is the possibility of the many-one correspondence. In such a case we might consider two alternatives: either two or more different mental events come to be expressed by the same physical event or the complexity of a given mental event is so great that the physical event which corresponds to it would only be a pale and incomplete reflection of this complexity. In other words, the multiple aspects of the same mental event would all be expressed in the same physical event. The result would be like the mechanism of condensation. As a consequence each aspect of the mental event would be very imperfectly represented in the physical manifestation. From the point of view of measurability, this would be a precarious situation.

Reflection shows that these two alternatives are, basically, the same. In other words, to say that two or more events are represented in the same physical event is essentially the same as to say that various aspects of the same mental event are represented by the same physical event; ultimately this is a question of convention as to what we call an event or an aspect of an event.

If we examine the matter more closely, we see that the deciphering of the many-one correspondence could be compared to what would happen if the same phrase is to have two or more entirely different meanings. Even if we knew the various meanings of each phrase, to understand the message we would need some additional information about which of them is being used. Otherwise we might compose a message formed by bits of the various alternatives, and not by the sequence corresponding to only one of

them. Such decoding would be meaningless as an ensemble, though it would not be in each detail. (This would apply either to single phrases or sequences of them.) Measurement in such a case would result in confusion, owing to the impossibility of disentangling the various messages from one another.

The French philosopher Henri Bergson considered this problem and added a still further complication: the possibility that the relation between physical and mental might not always be the same, but might vary. He wrote (1933, pp. vii-viii):

> In a general manner, the psychological state seems to us, in the majority of cases, to overflow enormously the cerebral state. I mean that the cerebral state only outlines a small part of it [the psychological state], that which is capable of being translated by movements of locomotion. Take a complex thought which unfolds in a series of abstract reasonings. This thought is accompanied by representations of images, at least in a nascent state. And these images themselves are not represented in consciousness if the movements by means of which they *would unfold* (*se joueraient*) in space are not outlined, in the form of a sketch or a tendency; I mean to say, they [the images] would impress upon the body such or such attitudes, would explicate all the spatial movement which they implicitly contain. Well, that is, in my opinion, what the cerebral state shows, at every instant, of this complex thought which is unfolding. Whoever could penetrate into the inside of a brain, and perceive what is being done there, would probably be informed about these sketched or prepared movements; nothing proves that he would be informed about anything else. Were he endowed with a superhuman intelligence, had he the clue of psycho-physiology, he would be enlightened about what is going on in the corresponding consciousness only exactly as much as we would be about a play by the comings and goings of the actors on the stage.
>
> This amounts to saying that the relation between the mental and the cerebral is not a constant relation, any more than it is a simple relation. According to the nature of the play, the movements of the actors can tell either more or less about it: they explain almost everything if it is a pantomime; if it is a subtle comedy, almost nothing. Thus, our cerebral state contains more or less of our mental state, according to whether we tend to exteriorise our psychological life into action or to interiorise it in pure knowledge.

Without coming to a final decision whether, as Bergson affirms, the only aspect of psychical states which appears in the brain is that connected with movement (and it must be clearly understood, that this does not mean denying this interesting assertion), we may consider the general outline of his argument, i.e. that the relation between the psychical state and the physical is neither constant nor simple. If this relation was not constant, the problem of measurability of psychical states would have to be viewed from another angle. It is, perhaps, necessary to explain that, as I see it, Bergson's view is not that the same (type of) mental state may have, at a given moment, a certain relation to the physical state and at another moment a different relation. As his example shows, the meaning is rather that the (type of) relation is not the same for all kinds of

mental states but may, on the contrary, vary from one kind to another. It could then very well be that at least some mental states are intrinsically outside the realm of measurement. To explain this assertion, the possibility that the correspondence between the physical and the mental is bi-univocal represents the easiest way of coming to a measurement, because in this case the measurement of physical events would be the measurement of the corresponding mental events. If there is not such a correspondence, if physical events do not accurately reflect mental events, this does not necessarily mean that these events are not measurable, but only that the easy method of measuring them through their correspondence with the physical is barred. In such a case the possibility that we may measure the mental, that is, establish a correspondence with the series of numbers, by other methods than the physical ones, still remains open. Let us not forget that numbers are not physical but mental things. There are many possibilities, therefore, of arriving at this correspondence by methods other than those which pass, so to speak, through the physical.

5. Summary and restatement

The study of the question of the possibility of measuring psychical phenomena, as discussed in this chapter, has been painfully difficult. So many aspects had to be considered that reasoning became intricate and interrupted by additional problems, which could not be brushed aside if we wished to be faithful to reality in its true complexity. It is a good idea now to try to look back, in order to get a general perspective, and to sum up with an accurate résumé. We started by considering the distinction between public and private and the notion of indicant. Then we went on to discuss the various possibilities of correspondence between the physical and the mental aspects *of or within the psycho-physical unity*. Considering the nature of the concepts of magnitude, quantity and measurement, and after the study of various possibilities, the conclusion that emerges is that nothing leads to the assertion that psychical processes are not measurable. But are they in fact measurable? Whereas in the physical world things seem so much more simple in structure, here we are confronted by an intrinsic complexity that *seems* to preclude all possibility of measurement. For this reason one frequently finds that workers in the clinical field of psycho-analysis are usually against the idea that mental processes may be measured. They have an intuition of the extreme complexity of such processes and of the fallacy of trying to apply to them the same approach as that used in the study of physical phenomena. This view was expressed by Melanie Klein:

> It has to be kept in mind that the evidence which the analyst can present

differs essentially from that which is required in physical sciences, because the whole nature of psycho-analysis is different. In my view, endeavours to provide comparable exact data result in a pseudo-scientific approach, because the workings of the unconscious mind, and the response of the psycho-analyst to them, cannot be submitted to measurement nor classified into rigid categories. For instance, a machine could only reproduce the actual words spoken, without their accompaniment of facial expression and movements. These intangible factors play an important part in analysis, as does the intuition of the analyst. (Klein, 1961, p. 12)

In contrast we find that experimental psychologists tend to view with a certain contempt – more or less implicitly considering it as non-scientific or prescientific – anything which cannot be formulated in terms which eventually lead to measurement. It may be added that experimental psychologists are frequently more critical of the attitude expressed in the above quotation than professional mathematicians themselves. The developments of the last decades, in particular, which are reorganising mathematical thinking, permit a *rapprochement* to disciplines such as psycho-analysis, which in the past appeared very far removed from them.

Are these two views of the mind destined to remain forever apart? If one of them is right the other must be wrong but the pitiful thing is that the decision depends upon the preferences of the individual because, so far, no solution has come from science. My personal conviction is that if we try to get at the root of the problem we may be able to overcome this contradiction. I cannot refrain from adding that if anyone wishes to explore this territory he needs a great deal of patience and will have to steel himself against the discomforts of loneliness. He will, in all probability, be looked upon with critical eyes by both the parties in dispute. If he is a psycho-analyst, his colleagues will think that his efforts are due to his not having enough faith in analysis, and not being able, owing to unresolved conflicts, to grasp the total depth of the unconscious. On the other hand, experimental psychologists will probably feel that he is ingenuous in trying to save the vagueness of the fantasies of analysts by means of pseudo-scientific approaches. In the end both may treat him as pseudo-scientific, as one who is attempting to solve a problem that does not exist.

We must confess that the road which we have followed in this chapter, has, so far, lead us nowhere. Put in another way, if we consider the relation between bodily events and mental events, we may prefer any of the various alternatives we have considered but have no way of deciding in favour of or against any of them. Until we know a great deal more about the physiology of the nervous system and its relation to mental states we cannot arrive at any conclusion.

But there are perhaps other methods of approach to the problem which may lead towards the solution of the riddle. This is the subject of the following chapter.

19. *Towards the Measurement of the Unconscious Mental Processes*

Foreword

The study of the psycho-physical unity in the hope of finding a solution to the problem of the measurability of psychical phenomena (as done in the previous chapter) has led us nowhere. We shall now turn our attention to the manifestations of psychical phenomena by means other than those we have so far considered. This has also been done by experimental psychologists, for instance in the study of intelligence. We shall concentrate here on another line of approach and on another subject, which seems more pertinent to the study of unconscious processes.

1. Various psychical phenomena have unequal possibilities of measurement

We may start with the clinical example of a patient with agoraphobia treated by psychotherapy. The improvement *of his symptom* can be measured easily and quite accurately *by his behaviour.* Ultimately this can be expressed in terms of distances from his house, of the number of times per week or day that he covers these distances and of the time, in minutes or hours, during which he succeeds in staying away from his house at various distances. Combining all these measurements into a composite whole we could express in a figure or index the degree of his improvement. We could then compare the respective successes of various methods of therapy; our information would be increased by introducing another measure, namely the time required to reach a given index. So we could, with statistical evaluation in terms of numbers of cases and degrees of success, make quite accurate measurements of results. We assume all along that there is, somehow, a certain correspondence between the performance and the emotions causing it. But we do not know whether it is bi-univocal.

Something similar could be done in cases of impotence and other conditions which would also lend themselves to this type of measurement. But in the case of most clinical conditions we have so many things to consider in order to gauge an improvement that we have to abandon hopes of a precise measurement.

The same reasoning applies, of course, to many other manifesta-

tions in the realm of the psychical, so we need not restrict ourselves to clinical examples alone; for if we succeed in accurately formulating and solving this problem in general, we will have at the same time found the solution to the question of evaluating the results of our treatments or the gravity of various cases. In this research we may, therefore, choose the best opportunities for understanding, whether clinical or not.

Someone loves someone else. Is there a way of saying how much more he loves her than anyone else? At first sight, at least, to say that he loves *A* two and a half times more than he loves *B* makes no sense. In other words, at first sight we find no way of establishing a bi-univocal correspondence between love and the series of numbers. The first question that comes to mind is whether this impasse is due to the nature of reality itself or to the fact that we have not yet found appropriate methods of measuring such cases. Here we should remember that certain phenomena which to us are obviously measurable have not always been so considered. I remember reading some time ago that the Egyptians could appreciate heat only in terms of words like cold, cool, tepid, etc., such as we employ in ordinary language, but had no method of measuring temperature. Nowadays we can affirm that the sensation which we call cool corresponds to a given range of temperature, and that something of the same kind can be said of other adjectives, such as cold, warm, hot, etc. So, we can see that the fact that we do not know how to establish a correspondence between a given phenomenon and the series of numbers, does not necessarily mean that this correspondence is not possible. To continue with the example, for a person who does not know any measurement of temperature, an assertion such as 'the coolness of this evening is five and a half times warmer than the coldness of this morning' would not make sense: yet it is an acceptable way of expressing the comparison between the respective temperatures, say between 22 degrees, which is cool and 4 degrees, which is cold. In consequence, we have no right to dismiss the question so easily by saying that certain psychical manifestations are not measurable simply because we do not know how to measure them.

How can we go about tackling this problem? The answer is by no means easy. As various cases of psychical phenomena are not identical to one another, it would, at first sight, appear necessary to examine them separately. However, I would say that I believe that the facts seem to suggest that the wide varieties of cases can be included in a common conception which comprises them all, and which may become visible after a study of the matter.

About making public the privacy of the mind. I shall start by referring to certain ideas expressed by Russell in his *Analysis of Mind.*

The private aspect of our psychic life concerns those inner happenings which we perceive directly within ourselves, through introspection, which reveals to us something which others are not able to know directly. Russell's conclusions are: (*a*) some of the things which we observe within ourselves cannot, even theoretically, be observed by anybody else; (*b*) observation shows that there are certain things, revealed by introspection, which, in the present condition of science, are outside the casual laws of physics; (*c*) observation *shows* nothing (in the world, hence in introspection) which is not composed of images and sensations. These propositions seem to be a good expression of the truth. As I hope to show, I believe that a rigorous application of some logico-mathematical concepts, which Russell himself contributed to developing, may enlarge the content and widen the scope of his assertions.

If we consider psychic life, the basic material with which we deal is, as just mentioned, composed of images and sensations. Both are private. Both can be communicated, but in different ways. If I have a sensation I can speak about it and try to describe it, but there is no way in which I can transmit it directly to anybody else. My description makes use of references to other sensations which I suppose are known to those who listen to me. For instance I may speak of a dull or penetrating pain, and hope that, in order to understand what I mean, the person who listens makes use of his own senses' experience of dull or penetrating sensations.[1] But my description also makes use of images, the most frequently employed of which are visual and auditory. Verbal descriptions of visual and auditory images permit a great deal more precision (hence a greater possibility of accurately grasping what we intend to communicate) than can be achieved in the case of the other senses. Sensations of smell, for instance, are much more obscure, more intimately personal and less easily communicable, even though we all have, as we may suppose, similar experiences in such cases.

A visual image can be drawn even if it is extremely complicated; something analogous can be said of auditory images. Once we have committed to a public document, such as a drawing or a sequence of sounds, an intimate experience, we are in a position to study it in quite an objective way, to analyse it in its minor details and even to measure it. *If the experience in question has a bi-univocal correspondence with the visual image and the visual image has a bi-univocal correspondence with the drawing, we are then capable of measuring, in this double, indirect manner, the psychical experience itself.* In other words, if these two conditions are fulfilled, we are then able to establish a third bi-univocal correspondence, that with the series of numbers, and it is this correspondence which we call measuring. This third bi-univocal correspondence is clear enough, but in contrast, we

[1] It will be seen that even the reference to other sensations already makes use of images.

must try to make sure that we understand each other when we refer to the other two. For this reason I shall try to develop this point further.

I referred a moment ago to Russell's assertion, which I would like to quote literally here, that '. . . observation shows us nothing that is not composed of sensations and images' (Russell, 1949, p. 117). It is to be noted that this does not affirm that there are no other things, but only that observation *shows* no other things. As I see it, thinking and feeling are expressed through images and sensations. We know nothing of thinking, at least in humans, without symbols, and symbols cannot exist without sensations and images. From these two basic materials we weave the fabric of thinking. We must, therefore, consider them when we approach the question of measurement of psychical phenomena.

2. The study of the intimacy of the mind with the help of the method of free association

The first thing needed is a method which furnishes us data regarding the images and sensations which take place within us. Fortunately we have some: the nearest approach to the intimacy of mental processes is that made by free association. The application of this method soon reveals that the variety contained in any single piece of mental reality is practically inexhaustible, and goes far beyond what is immediately accessible to the consciousness of the subject. For example, the associations related to a single element of a dream may reveal that it is the expression of various emotions towards several persons. Frequently the emotions are, in the logic of everyday life, incompatible with one another. The patient may wish, for instance, to destroy a mother image through tearing activities and simultaneously by poisonous attacks which paralyse her; or he may, in fantasy, make her explode or burn her, dissolve her and annihilate her so that nothing remains of the victim. But he may wish *at the same time* to preserve the most tender love-relationship with the image, to be united with her in such an intimate manner that they become one sole person, with a complete and total sharing of their being. The contrast between these feelings is often revealed in tendencies to do reparation. This and the preservation of the loved object spring as a reaction to the innermost strata of the mind, where contradictory forces of love and hate operate with more than atomic energy.

This picture of mental process may appear strange and grossly exaggerated to anyone who is not familiar with the findings of psycho-analysis. For the development of our subject I am taking it for granted, and starting from it.

Towards measuring unconscious mental processes. If we consider the example just given and compare the situation implicit in it with

that existing in the physical world, we are struck by the contrast between them. If, for instance, we decide to study the movement of a physical object and measure its velocity, we only have to follow one course, however intricate this may be and however variable its speed. If, in a graphical representation of mental phenomena and in order to simplify matters, we take only one type of the attacks described above, we may also succeed in plotting its unfolding in terms of physical images, even if these are complex. We may plot, for instance, the fantasy of a tearing attack and divide it into all its components and *arrive at a description of its course which may, in its entirety, be translated in terms of physical events.* In other words, we may establish a correspondence between each aspect of the tearing fantasy of the patient and the corresponding aspect of a material picture of it. Note that the correspondence we are postulating in this case means that each part of that aspect of the tearing fantasy will have a counterpart in the picture or image that represents it; and at the same time that each part of the image or picture will represent one and only one part of the aspect of the fantasy, and that there will be no parts of the aspect that will not be represented in the corresponding picture and no parts of the picture which do not correspond to the aspect; in other words, there is a bi-univocal correspondence between that particular aspect of the tearing fantasy and the picture.

We may then proceed to establish a bi-univocal correspondence between the picture itself and the series of numbers. This is no problem, because a picture, which can be drawn or represented cinematographically, belongs to the material world and is subject to its laws; it is, therefore, measurable.

Having completed this stage we then have, on account of the property of transitivity, the same correspondence between that particular aspect of the fantasy which we have pictured, and the series of numbers. *By this indirect method we would have succeeded in measuring one part of the mental reality under study.* Note in passing that most probably the picture required for such a procedure would have to be, not static, but cinematic, like a moving picture.

So far, so good. It seems that up to here we would be taking sides with experimental psychologists or behaviourists and disagreeing with the position usually adopted by analysts, as shown in the phrases of Melanie Klein quoted above. But things are not so simple. In principle there seems to be no way of escaping the fact that everything which is mental is, in humans, indissolubly linked to the physical. Consequently, it expresses itself through images or relations implicit in images, or in sensations, which ultimately are also translated into images. As images are structured like the material world (for instance visual images), we cannot escape from the consequence that everything which expresses itself through some physical manifestation may as a result be put in correspondence with

the series of numbers, that is to say, may be measured.[1]

It must be noted, however, that throughout this discussion I have affirmed that the correspondence established between the picture or image of *one aspect* of the fantasy under study, and the series of numbers is bi-univocal, but I have deliberately restrained from affirming that the correspondence between the fantasy and the series of numbers is bi-univocal. Here we come, I believe, to the very core of the problem, and we must examine it carefully if we are to reach clear conclusions. The correspondence mentioned is bi-univocal and therefore it represents a measure, but only one, of the psychical phenomenon under study. To return to the example: we were trying to study the destructive fantasy so far as it was expressed in terms of 'tearing'; this, as we remember, was, in its turn, only one part of the aggressive fantasy under study, which was also expressed in explosions, etc. The picture we drew of *this* tearing was an accurate representation – we supposed – of *this* tearing. We may now ask: is it *the only* accurate representation of *the complete tearing fantasy*? The answer to this question seems to be definitely negative. *The modes of tearing contained in virtual form in a fantasy of tearing are innumerable.*

To explain this, let us consider an animal who is hunting and has got hold of a prey and proceeds to tear it in order to eat it. We may film the sequence of its actions. The film will be in correspondence with the sequence in question which, through this procedure, may be measured in relation to space and time.

The sequence of actions described constitute one phenomenon, and only one bi-univocal correspondence can be established, through the film, between it and the series of numbers. This is what always, invariably and inevitably, happens in the physical world.[2] Now, we can well imagine that the animal could have torn and eaten its prey in a sequence different from that which it actually followed. It might, for instance, have started plunging its claws in a different part of the body, and might have been more ferocious towards the bowels than to the head. It might have shown more intensity and violence in eating this rather than that part, and so on. A film taken of this alternative scene, while having much in common with the former one, would have been quite different, like two faces which have the

[1] This does not exclude the possibility that some aspects of the mental may not be expressed in this way, as we discussed in the previous chapter.

[2] To be more accurate one would have to consider that it is not the bi-univocal correspondence between the tearing action and a subset of the set of numbers which is unique, but it is the class of bi-univocal correspondences established in this case which is unique. In fact, in the example mentioned, one could establish an infinite number of bi-univocal correspondences with the series of numbers, according to the numbers chosen. But all of these correspondences would belong to the same *equivalence class* and any of the elements of this class can be chosen as representative of the class. To follow this systematically would be more accurate but would unnecessarily complicate matters to the detriment of clarity. The comparison with the photograph, mentioned below, conveys essentially the same idea in a more comprehensible way.

same basic elements in common, yet are quite distinct from one another.

We may imagine a third, a fourth and a fifth possible way to carry out this action and so on till infinity. There are infinite variations of the same theme. To each one of them corresponds a picture, which is unique and therefore distinguishable from all the others.[1] To each one of these can, therefore, be attached a unique bi-univocal correspondence with the series of numbers.

If the animal follows one course, that is, if it chooses one of the possible paths to carry out its actions, it automatically excludes all others. The same can be said of anything happening in the physical world. *Each actual physical event is only one of the infinite possibilities which could have unfolded in the limited portion of space-time in which the event takes place.*

We can now return to the example of the patient who has some violent tearing fantasy. To put it in everyday language, we may say that his destructive imagination is not satiated with just one sequence of tearing. The violence is such that it contains potentialities of expressing itself (in fantasy, not in action) in many, many ways: *the tearing fantasy contains infinite, different potential realisations of the action of tearing.* This may be seen even in conscious fantasies, for instance when someone who is very angry with someone else allows himself to indulge in fantasies of aggression; these may reach great intensity, refinement and diversity. Furthermore, in such cases fantasy does not stop at the variations of one method but indulges in several others.

When the moment comes to express these fantasies by deeds, we find that even the cruellest of deeds (and the history of mankind is filled with them) is but a pale reflection of the cruelties of conscious fantasies. *The wealth of cruelty of fantasy cannot be poured fully into the mould of actions, however cruel these actions may be. And the study of clinical phenomena with the psycho-analytical method leads us, whether we like it or not, to recognise that between unconscious and conscious fantasy there exists perhaps an even greater disproportion in intensity and multiplicity than that existing between conscious fantasy and deed.*

What can be said of cruel fantasies can equally be said of loving fantasies. We love in a much deeper and more varied way than we are ever consciously aware of.

Instead of one bi-univocal, infinite bi-univocal correspondences. To return once more to our example: we may repeat that, in contrast to what happens in the physical world (in which each *event* is exhausted by only one equivalence class of bi-univocal correspondences with a picture of it, and consequently with the series of numbers) each

[1] To be more accurate: a set of *identical* pictures, which is unique.

fantasy contains in itself – we may say in a pre-formed or virtual state – infinite variations of the same theme (in the case in question: tearing). Each of these variations can be described, by interpretation or by images, in a manner which is unique and therefore clearly distinguishable from all the other variations. This means, in other words, that each of these descriptions or images corresponds in all details to, and is an accurate and complete reflection of, the particular variation it portrays; in mathematical terms, the description or image under study has a *bi-univocal correspondence* with the variation it portrays. But side by side with this variation there are infinite alternative ones, which may be described or pictured in an equally accurate manner. In mathematical terms, *the fantasy in question can be put in bi-univocal correspondence, not just with one picture of it (or an equivalence class of pictures of it) but with an infinite number of pictures of it (or equivalence classes of each picture of this infinite number of pictures); and each picture (or equivalence class of it) is different from all other pictures (or their corresponding equivalence classes). In other words, the fantasy in question has infinite bi-univocal correspondences with pictures of it.*

We may complete these reflections with a comparison which may be helpful for those who are not used to this way of thinking. If we wish to study a physical phenomenon we may take a photograph of it and then measure it. We may be sure that if we take a thousand photographs from exactly the same point and under the same conditions we shall have a thousand *identical* photographs (these thousand constitute what we called an equivalence class).[1] But if we could photograph psychical manifestations, we would find that we are in a position to take, not just one but an infinite number of *different* ones. In the end we would have an infinite number of groups, each containing a thousand photographs. These photographs would be identical to each other, if belonging to the same group, but different and distinguishable from the thousand (or whatever other number, as the case may be) photographs of any other group.[2]

[1] It may be objected that, owing to the nature of things, two photographs will never be the same because the conditions will never be the same: there is an intrinsic uncertainty in our study of nature. Granted this, it can easily be seen that this property of nature is not the same thing as that which we are now studying. If we wish to take it into consideration, we would have to say that in the case of the fantasy we have mentioned each of the infinite images which represent it may be 'photographed' within the range of variations due to the inaccuracy of all observations of nature. But at the present stage of our study this would complicate things unnecessarily, so we may leave it aside for the time being.

[2] At this point I feel I must single out one aspect which may be considered to be included, in a general way, in the previous footnote. I am referring to the following reflection: in all truth it must be recognised that the description just made leaves aside the question of the vantage point from which the photographs are taken. Can it be said, as is implied in the text, that *at the same moment of the development of a sequence* one can take several photographs from the same point? The answer to this question depends, I believe, on the number of dimensions of the space in question. In terms of three-dimensional space, as a photograph must be considered, at one point there is and can only be one point, but if the

It can easily be seen that the course we have taken presupposes infinite sets. We have taken these for granted here, based on the considerations already made regarding the identity between the whole and the part. In conformity with Dedekind's definition we have interpreted such identity as indicating the existence of an infinite set.

It is here, it seems to me, that the fundamental difference lies (for a researcher who is trying to study the possibility of measuring psychical processes), between a physical event and an (unconscious) fantasy. The physical event unfolds itself 'in one go' whereas the unconscious fantasy has infinite potentialities of unfolding in the physical world, each one of them measurable, because each of these photographs (to continue with the comparison) has the possibility of being put in a bi-univocal correspondence with the series of numbers. *In other words the unconscious fantasy is not intrinsically immeasurable but, in contrast to the physical event, is susceptible of infinite measurements at the point in which the physical event is susceptible of only one measurement.*

At this point we must remember that we have been concerned with the graphical representation of unconscious fantasies of tearing. In the initial example we also referred to simultaneous fantasies of poisoning, burning, dissolving, annihilating, loving union, sharing of being, *all of them as expressions of a single piece of unconscious psychic reality*. For each one of these we would have to follow a course similar to that outlined for tearing. It is easy to realise how complex the thing becomes and how inexhaustible and infinite the measurement of psychical processes is.

3. The merging of the conceptually measurable into the conceptually not measurable

In the Part which deals with the unrepressed unconscious and the infinite sets I have suggested that, as symmetrical relations increase with increasing 'depth' in the unconscious, a point may be reached at which the unavailability of asymmetrical relations makes the distinction between discrete elements impossible; hence, the concept of infinite set (formed by an infinite number of elements) may no longer be employed. At this point there would be no possibility of

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space is of more than three dimensions, then, to each point of this space there may correspond (in a representation in terms of a space of lower dimensions) more than one point. If the number of dimensions increases, the same holds for the line, the plane and the volume. In such a case one could have, so to speak, more than one camera in exactly the same portion of space (see Part IX). But this requires the consideration of spaces of more than three dimensions and their representation in terms of spaces of lower dimensions. It will be understood, therefore, that the comparison made here with the photographs only holds in certain conditions and is not applicable in three-dimensional space. At the same time these reflections show the complexity of the problem and the possibility of a great development of its study.

establishing a bi-univocal correspondence with the series of numbers. In other words, there would be no possibility, even conceptually, of measuring. So, we must conclude that the possibility of measuring we have considered here applies only to a 'zone' of the unconscious, or, to be more precise, of the relation or interaction between the symmetrical and the asymmetrical modes. It must be kept in mind, however, that clinical experience shows that even a piece of very 'deep' psychical reality, in which we see fully expressed the characteristics which Freud ascribed to the system unconscious, can always be *translated* into simply bivalent logic by a process of *unfolding into component parts.* By this method we may bring the non-discrete into the area of discrete elements and thus open the possibility for its consideration in terms of infinite sets. This subject can be studied and developed but for the time being we shall leave it there.

4. Concluding remarks

The conceptual consequences that follow from the view of mental processes discussed here appear to be meaningful and I believe that they will unfold only gradually. Even at first sight it may be seen that the infinite possibilities of measuring inherent in mental processes, lead to a rather paradoxical consequence: that it is in fact, at present, impossible to measure processes so dense with inner possibilities. But if we remember that the mathematical concept of integration can be viewed as the sum of an infinite number of infinitesimals, we need not feel that the road is barred forever. But some caution is required here. The position of attributing an inherent non-measurability to psychical processes has been shown, in the light of the above, to be unsatisfactory. It must be added that the alternative position so far adopted by experimental psychologists appears equally unsatisfactory: it strikes one as ingenuous and seems to ignore the depth of the problem. Both may be surpassed through the introduction of the concept of infinite sets. In the light of this concept, measuring is not impossible conceptually, but, so far, only in practice. Further study may or may not show a way out of this impossibility. Perhaps we could conceive of an ever increasing number of measurements which have the infinite as (mathematical) limit. As we approach this limit, we also approach, but no more than that, the measurement of mind. In some of its aspects, many of which are exactly those studied by psycho-analysis, the mind can be treated as a collection of infinite sets.

PART SIX

On the Nature of Emotion

20. A Phenomenological Psycho-Analytical-Logical Approach

1. Justification

Though throughout the centuries emotion has been studied intensely from various points of view, its nature, as some authors point out, still remains comparatively obscure. We know the fundamental role it plays in human life, which is to a great extent determined by its operation. We constantly come across it in its most varied manifestations, yet we still cannot say unambiguously exactly what emotion is.

Psycho-analysts, who are confronted daily by emotions of the most varied types and intensities, find in the psycho-analytical conception only incomplete views which are obviously insufficient for their work. This is generally recognised (see, for instance, Rapaport, 1953, pp. 504-5). Furthermore, most if not all psycho-analytical studies of emotion have been made from the point of view of energy: i.e. charges, tension, discharges, transfers, etc. At the same time we know how undeveloped the basic concepts of energy have remained in psycho-analysis, in spite of the enormous effort made by so many people to clarify them. In recent times this unsatisfactory situation has led distinguished psycho-analytical researchers to do away entirely with the concept of energy as a foundation of psycho-analysis. The interesting thing about it is that various people have arrived at the same conclusion after starting from different points of view.

It is worth remarking that if such a proposal (i.e. to do without the notion of energy) were generally adopted, most of our psycho-analytical conception of emotion would fall to the ground.

In the following pages I shall put forward my observations and reflections on the subject of emotion made from a point of view different from that of energy, although neither necessarily in contradiction to it, nor presented as an alternative to it. Here I may remind the reader of what I have already pointed out before,[1] namely that Freud studied the unconscious, the primary and secondary process, and also many of his fundamental contributions from at least two entirely different points of view: those of energy and logic. The first has received by far the greatest attention in

[1] See Part III.

psycho-analysis, even from Freud himself, though he laid the foundations for the second. I believe it is precisely these foundations which constitute Freud's most original creation. I shall base my study on them.

The approach put forward here begins by a re-examination of the question from a phenomenological point of view. The reason for this is the simple fact that the mass of literature on emotion, and its vagueness and contradictions on some of the basic questions of this subject, are so great that a bibliographical review can only result in confusion. Apart from this, it is quite beyond my capabilities. Owing to my own limitations, when confronted with the conflict between the need for erudition and that for freshness of outlook, I have had no alternative but to sacrifice the first to the second. I therefore beg to be excused if I present things that are already well known, giving, perhaps, the impression that I thought they were recent discoveries. For it seemed to me that the best way to study these problems is to look at them afresh and almost ingenuously (though not without methodological rigour and subtlety), leaving the historical perspective only as a background which is not directly visible. In this manner we shall proceed smoothly from the well known to the new developments. My hope is that, as these reflections spring from a close contact with the reality under study, they may present this reality in a manner which may help to understand it further.

We will first try to make some general delineations of the question and in the subsequent chapters we will broach several questions in particular. It will be seen that, if one starts from the phenomenological point of view, the subject unfolds with the help of logical notions which are at the heart of basic psycho-analytical conceptions. The ensemble is, therefore, phenomenological-psycho-analytical-logical.

Finally, I would like to say that I make no claim of completeness. The ideas outlined here have on the whole a greater bearing on the basic phenomena of primitive emotions and less on the more sophisticated aspects of emotional manifestations. Rapaport would possibly have said that mine is a kind (perhaps even a new one) of an id theory of emotion, which has little to do with the problem of 'tamed' affects, of 'ascending hierarchy' of affect (Rapaport, 1953). Such a verdict would probably be a fair reflection of the bulk of the subjects discussed in this Part, but would not be accurate if it did not consider the fact that the point of view presented here also contains something more. The formulation of the interaction between the symmetrical and asymmetrical modes of being and the notion of levels (as presented in the previous Parts) conceived as a mixture, in different proportions, between these two modes, open up the possibility of a detailed study of 'tamed' affects and 'ascending hierarchies'. But most of this remains to be done. I have already

tackled some basic aspects related to this question in previous chapters, and will continue to do so in the rest of the book, especially in Chapters 25 and 28.

2. Emotion, feeling, affect and sentiment

In the textbooks of psychology one encounters the conceptual distinctions between these various words. The shades of meaning attached to each one of them probably vary from one author to another. The term 'emotion', for instance, is employed by some to refer to, or to stress, the psycho-physical nature of the phenomenon, while feeling would designate the psychological aspects of emotion. If these meanings are accepted, emotion would designate a more general subject, of which feeling would only be a part. 'Sentiment' is a word which has been used to refer to the more 'spiritual' aspects of the emotional manifestations while 'affect' would designate the more primitive, more biological ones.

All these distinctions correspond, no doubt, to a certain objective reality. But two things must be kept in mind here: the first is that the literature is far from being uniform in always attributing the same meaning to the same word. On the contrary, there are frequent differences between authors, or at least between schools of thought. As usually happens in such cases, it is hopeless to try to come to an agreement to give a stable meaning to each term. The second consideration is more pertinent to our present interest and refers to the fact that, however valid these distinctions may be, the various phenomena they designate have features in common and it is precisely these (general) features which we shall consider.

3. Emotion appears as a psycho-physical event

We know since the time of the Greeks the distinction between three basic expressions or varieties of psychical phenomena: *thinking, feeling, and willing or striving.* Such a distinction may give the impression that each of these is of a simple, elementary nature. A combination or mixture of thinking, feeling and striving would, in contrast, produce more complex phenomena. This may be so, but it does not necessarily mean that each of the three basic expressions cannot be further analysed into still more simple component parts or aspects. It is evident that emotion is not simple but, on the contrary, complex. From the point of view of its psycho-physical structure it seems more complex than thinking. This assertion must be explained. Thinking, like anything psychical which appears in man, has a physical substratum. Though in itself thinking is not material, it cannot take place without a series of physical happenings in the brain. In order not to be misunderstood I will add that the previous phrase is not intended as a denial of the body-mind unity but only as

a reference to the obvious fact that in this unity we may distinguish the physical and the mental aspects. However much thinking takes place only in connection with physical happenings, it nevertheless is, and remains, a mental manifestation. Emotion, on the other hand, both resembles and differs from thinking on this point. In so far as it cannot take place without bodily happenings, emotion shares with thinking (and with all mental manifestations) the characteristic of being a psycho-physical event. But where emotion differs from it is in the fact that it not only leans, so to speak, on bodily events (if we wished to be more unitarian, we would say: it is not only an *integral part* of a psycho-physical event), but *in its very nature must be viewed as a psycho-physical phenomenon.* An example may illustrate what I mean. If I am afraid, my heart may beat faster than usual and I may become pale. Faster pulse and paleness are not the physical substratum of the emotion of fear in the same way as some brain metabolism may be the substratum of thinking. They are more than that: *they are integral aspects of that phenomenon called fear.* Similarly, tense muscles may be considered integral aspects of the emotion which is called expectation, and a certain sensation in the heart an integral part of the emotional state which we call 'being in love'.

It is true that there is not an absolute specificity to the physical aspects of a given emotion; this is due to two reasons. The first is that there are certain variations in these aspects from one individual to another. For instance, though the general direction of the physical aspects of fear may be quite similar in all subjects, it is still a fact that in some people a fast pulse may be more prominent than paleness; in others palpitations will be the most dominant feature; and so on. The second reason is that there is no absolute specificity of the aspects in question for each emotion. The activity of the neuro-vegetative system is an integral part of all emotions and it seems that there are not so many keys in its scale as to permit sharp differentiation between the various emotions from the neuro-vegetative point of view. It may be, however, that as we become able to map out all physical happenings in emotion in greater detail, it will be seen that each emotional state conforms to a quite specific *pattern* of physical events, even if the elements of this pattern, that is, the keys of the scale, are the same for all the emotions. But only the future will tell whether this is so or not.

Once that the obvious difference between emotion and thinking as to the physical events corresponding to each of them has been established we may now ask whether this difference is so important after all. Is it not due, perhaps, to the fact that the physical events which correspond to emotion are more easily and spontaneously visible than those which correspond to thinking? As is well known, the activity of the neuro-vegetative system is very obvious in emotion whereas the brain processes which take place during thinking are of a

nature which is not, on the whole, as easy to observe as the neuro-vegetative processes are. It is conceivable that if they were as easily observable as the physical events corresponding to emotion, we would be aware that thinking is a psycho-physical phenomenon and would regard the physical aspects connected with it as an integral part of it, exactly as we do in emotion. But usually it is only through a careful introspection that this duality can be seen by some people. It must be remarked, however, that all these considerations are of a purely theoretical nature, because the fact still remains that introspection reveals that emotional processes are psycho-physical processes: we feel them to be such *directly* and refer to the physical aspects of them as an integral part of emotion, whereas this is not the case with thinking.

We may conclude that, seen from the point of view of introspection, emotion is experienced, not as a mental but as a psycho-physical event.

4. In its purely psychological aspects emotion is not a simple manifestation but reveals at least two fundamental constituents

When one considers the literature on emotion, especially that which has developed from the insights of Freud, one is struck by some obvious facts. On the one hand psycho-analysis has revealed as never before the importance of emotion in psychical life and especially in the 'shaping' of thinking. On the other hand, it is precisely these discoveries which have revealed the imperfections of present-day notions and the need for further progress; this is needed to express, in a proper frame of reference, those new insights which previously were beyond reach. To give an example: we are now more fully aware of the influence of emotion on thinking. We know that people see the world according to the emotions they experience; if they are under the influence of paranoid fears they will tend to see people as persecutors; if they have repressed sexual wishes they will find sexuality where others would not discover it; and so on.

All this has become so obvious, so much a matter of daily psycho-analytical observation, that we easily tend to overlook the enormous problems raised by such a view. It is known from experience that a feeling or emotional process may influence thinking, but one might ask how this is possible. By what mysterious process is it possible to establish a connection between these two sets of phenomena, which appear so vastly different? In fact we are so used to seeing this happen that we do not even stop to think of the conceptual difficulty entailed. But it is not in the service of scientific progress to postulate things as *given* without considering *how they are given.*

It seems that a careful observation of various emotional manifesta-

tions may permit a better understanding of the nature of emotion itself as well as of its relation to thinking. Take, for example, the emotion of anger. When we are angry, what do we experience? Introspection reveals, as it seems to me, at least two entirely different aspects: on the one hand the perception of a series of corporal events, on the other a certain form of thinking. Some people experience vague sensations which are difficult to localise with precision but which, nevertheless, are situated somewhere in the upper part of the trunk, in the thorax. Others may become aware of muscular tension in the trunk or limbs. These sensations have in common a certain characteristic which may be defined by saying that *they incline the individual to act*. If they were allowed to unfold in their entirety they would lead to some action, either of a verbal type, such as protesting, speaking angrily, remonstrating; or of a physical type, i.e. striking, beating, etc.

At the same time it is possible to become aware of other sensations which do not lead to action but are only *the expression of some corporal state*. These may be sensations connected with blushing, or with contraction of some smooth fibres, and so on. Whatever they may be, we can group *all* the varieties of internal corporal experiences in anger under the concept of *sensation-feeling*. *In anger or in any other emotion we experience a variety of corporal events which we may always subsume under the concept of sensation-feeling.* This expression is employed here to designate the *psychological grasping of corporal events.*

Sensation-feeling itself may be further analysed and I shall try to do so later, but in order to make my meaning more comprehensible I will first present a general view of the problem before discussing details. So, for the moment we will turn our attention to the second psychological constituent of emotion. If I am angry, I not only experience the above mentioned sensations but there is also another aspect of my anger which is constituted by what we may call 'angry thoughts'. I may, for instance, think badly of the person who has provoked my reaction. Thoughts arise in my mind about his wickedness, his unfairness or his stupidity. I may dwell on these thoughts and develop them, or I may also *think* of the things that I would like to say to him.

When I experience the emotion of love, I think 'loving thoughts', and if I am afraid, I will develop 'thoughts of fear'. The central fact to appreciate is that *in every emotion we develop thoughts which express its particular nature and which we may, therefore, consider as a constituent part of it.*

It is possible to object to these descriptions and say that what I have so far described does not correspond to the nature of emotion itself but only to its concomitants or consequences. This is, basically, only a matter of convention and I would not argue with anybody who chose to use other words to designate the facts, provided that

we agree on the facts. But I will point out, anyway, that in the ordinary use of language when we refer to a given emotion we always refer to a phenomenon in which we can distinguish a variety of sensations-feelings, some of a static nature and others which tend to incline a person to action, verbal or otherwise; and at the same time a more or less developed group of thoughts which express accurately the nature of the emotion we are describing. For this reason I think it is in conformity with the facts of observation to say, at least as a tentative approximation to the truth, that *emotion is a compound of sensation-feeling and thought, each group of which varies from one single emotion to another.*

5. Summary

It is as well to summarise what has so far been considered:

(1) Emotion is a psycho-physical phenomenon.

(2) In its psychological components or aspects it is composed of two different sets of phenomena: sensation-feeling and thinking.

(3) Sensation-feeling comprises two types of phenomena: those which incline one to action and those which are simply experienced as the expression of some corporal state. This distinction does not preempt the possibility that the second type may potentially contain the first or vice versa; it only refers to the more obvious aspects of the reality of emotion.

6. Comparison between this and other views of emotion

Phenomenological analysis has led us to delimit the concept of emotion in a fairly clear and simple way. One may ask what relation the view put forward here has to current views on the subject. I am not sure whether I have sufficient knowledge of the immense literature to answer this question adequately. I can only say that I cannot avoid a certain surprise in finding that the present formulation, while referring to the same general subjects as all the others I know, and having much in common with them, does not entirely coincide with any of them.[1]

I personally am struck by the vagueness and confusion of a great deal of the literature; this is probably due to the difficulty of the subject and our lack of knowledge about it. These features have been pointed out by various authors (see Hillman, 1962, pp. 3-9). The authors who are closer to my point of view (at least in one way) are James (1890) and Russell (1949) but both consider emotion as only sensation-feeling and do not include thinking as a constituent of it.

[1] To give a few examples of the literature, each of which, in its turn, refers to many authors, see, for instance, Dumas (1948), Hillman (1962), James (1890), Lersch (1956), Rapaport (1950), Russell (1949), Ryle (1949), Sartre (1948), Stern (1938), Wolff (1947), Woodworth (1938).

This, as I see it, creates serious problems and amounts to leaving out an important component.[1]

I would like, however, to add that if their views do not entirely coincide with mine, I have for many years tried to learn from these two great writers and apply their methods of approach to interpreting reality. I believe it would not be unfair to them to say that it is by following their general approach to these problems that I have arrived at the conclusions presented here.

In another way, Sartre's (1948) sketch of a phenomenological theory of emotion has some affinity to the view which will be developed in the following pages. We shall consider his views in an Appendix especially devoted to them.

[1] It will be understood that the above remarks do not refer to the famous James-Lange theory but to the phenomenological descriptions of emotions put forward by these authors.

21. A Closer Study of Sensation - Feeling

1. The question of terminology and its implications

I will start by explaining why I have used the composite expression sensation-feeling. It seems that there is a continuity of experiences, from the most elementary sensation, passing through the various simple and more 'biological' emotions to the more elevated feelings. At times it is even difficult to establish the difference between a sensation and an emotion. If I stick a needle into my finger, the pain I experience is usually called the sensation of pain. The same holds for various other experiences directly connected with the sense organs, whatever these may be. But if I experience hunger, is this a sensation? Descriptively it is a fairly complex collection of sensations. Some of us may choose to consider it a feeling, but others may prefer to call it a sensation. Nobody, on the other hand, would call fear a sensation; it is usually considered a feeling, an emotion, the choice of the word depending upon the meaning given to each, a meaning which, as we have seen, varies from one author to another. From the sensory aspects, however, the difference between, say, a pain due to a needle being stuck in the finger and the sensations experienced in fear, is not very significant. The first may be more simple, more localised, whereas if we try to analyse the second we shall find that they are of a more diffuse and complex nature. On the other hand, simple and precise sensations, such as pain in the heart or the sensations that accompany palpitations, may also be present in fear. The similarities between the characteristics of both groups as well as the intermixing and transitions between one group and the other, are such as to permit collecting all under one heading. I have called this sensation-feeling, to put the stress on the basic unity of these (psychological) experiences. Though essentially of the same nature, some are called sensations and others feelings or emotions, according, mainly, to the degree of their complexity and the degree of their diffusion or localisation. It is obvious that they can be studied in detail and differentiated from one another if looked upon from the point of view of the continua 'localisation-diffuseness', 'precision-vagueness' and possibly of other variables too, but I have chosen to treat them as one big unity and concentrate instead on other aspects which seem more important for the understanding of the nature of emotional processes.

2. The passage from sensation-feeling to image and perception

We may start by analysing a very simple phenomenon, such as a sudden pain due to some external stimulus. Introspection shows that as soon as it is felt one tends to attribute to it a characteristic; in other words, in some way, however elementary, one tends spontaneously *to describe it*. One may say it is a piercing pain, a dull one, that it presses, it constricts, etc. If we observe carefully we find that as soon as we become aware of a pain we automatically connect it with some kind of past sensory experience. We may have the image of a knife or of a needle being stuck into us, of some strong hands pressing on us and so on. For our purposes, the meaningful thing in this process is that *the initial 'pure' experience of the senses always blossoms into an image. From this it proceeds until it develops into a perceptual experience.*

This perceptual experience may be of two kinds: it may consist of an actual evaluation or estimation of the sensation in terms of the nature of the stimulus; such would be the case, for instance when a visual stimulation leads me to the identification of the (alien) stimulus. For example: 'That is a chair.' Alternatively, in the second type one remains within the limits of the sensory experience itself, without turning to the actual external world. A *comparison* is then made in terms of past experiences, that is, in terms of former perceptions, but without giving a judgment as to the actual nature of the stimulus. For instance: 'This is a piercing pain' ('a pain as if something was piercing me'). This assertion does not necessarily mean that I am actually being pierced. If we reflect upon these alternatives we immediately see that in both cases there is a reference to an *intellectual organisation of the present initial sensory experience in terms of past experiences.* I could not say 'this is a chair' if I had not *seen* chairs before. But 'to see a chair' implies that I must have conceived (the concept of) the chair, with the multitude of interrelations it entails, and subsequently applied it to the present experience. And exactly the same may be said of the judgment made when I say: 'This is a piercing pain.' In both cases what modern researchers on thinking call *propositional activity* takes place, that is, the enunciation of propositions, which naturally entails the employment of the concept of propositional function. In both cases there is also a reference to a propositional activity exercised in the past. To perceive a chair I need to know a number of concepts; for instance, the concept of surface and all the propositional functions it entails, either uni-positional, bi-positional (relations), or multi-positional; from a certain point of view the chair is a surface on which to sit. I also need to know the relations existing between the co-ordinates of space: the chair is a *horizontal* surface and I must know the relation between this horizontal surface and the legs or base of the chair; a chair is a horizontal surface on which to sit and which is supported by some legs or a base. And so on.

From this analysis we may conclude that *the initial experience of the senses is submitted to a process of propositional activity,* which entails the use of uni-, bi-, or multi-positional propositional functions, that is, a process of (implicit or explicit) establishment or assertion of propositions, classes and relations, etc.; *in other words, a process of thinking, which eventually ends in a perception. This latter represents the point of convergence between sensation and thinking or establishment of relations.*[1] *When an actual perception cannot occur, that is, when the stimulus cannot be identified (and this identification is both the essence and the central function of perception), then we resort to a utilisation and at times also an elaboration of past perceptual experiences. This is the work of so-called imagination; it is also connected with the process of establishment of relations, that is, with thinking.*

All the above amounts to saying that this elementary psychical manifestation which we call sensation-feeling is normally or usually linked up to the other fundamental psychical manifestation which we call establishment of relations, that is, thinking. Now, a further question immediately arises: is it possible for sensation to exist independently of thinking, of establishment of relations? To answer this we must sharpen our introspection. But we must also define our terms with greater precision.

3. Unconscious sensations

The first thing to be decided before broaching this question is whether sensation, in order to exist, must be conscious, or if we are prepared to accept the existence of *unconscious sensations.*

There can be no doubt that there are physiological processes below the level of consciousness, which, if they become more intense, reach consciousness in the form of sensations. But the question is whether such physiological processes provoke something which we may call *unconscious* sensations. The answer seems to be, in part, a matter of convention as to the meanings to be given to the relevant terms. There can be no doubt that the processes in question provoke or may provoke psychic reactions which are unconscious. I will remind the reader of the obvious example of the dreams provoked by internal stimuli which have never reached consciousness. But to call such processes sensations, or, more accurately, to say that among

[1] Thinking is actually propositional activity which may lead to simple propositions, to classes, relations, etc. (uni-, bi-, tri-, etc. – positional propositional functions). As relations usually constitute the most frequent aspect of propositional activity, for the sake of brevity I shall, in future, designate thinking (propositional activity) simply as establishment of relations. It is to be understood, however, that this is only a shorter way of referring to it, but it must also be kept in mind that (as we shall see in Chapter 28, Section 5) all uni-positional functions entail the concept of relation because, essentially, they refer either to the referents or to the relata of a relation. In some cases, this is obvious (e.g. '*x* is hurt' covers the relata); in other cases it is less obvious but can be discovered on reflection.

such processes there are unconscious sensations, is one particular aspect of the problem that needs to be further considered. A given stimulus on the skin may be so light as not to be perceived by consciousness. If it becomes stronger then it is felt as pricking. Was there, before it was felt, a sensation of pricking which did not reach consciousness? It seems better, in order to avoid ambiguity, to call such processes by the name of sensation only when they reach consciousness. At least for the time being we shall adopt this convention whilst still reserving the right to modify it later if the facts suggest doing so.

4. Introspection and time. Attention and its objects

After this discussion of the problem of unconscious sensations we may now turn our attention to the question of conscious sensations. For this purpose we need a careful and accurate use of our capacity for introspection. Let us consider the case of a luminous stimulus falling upon our eyes. Initially the only thing it provokes is a physiological process, first in the eye and subsequently in the rest of the nervous system. The corresponding psychological process comes into play at the moment when our attention is directed towards what is going on in the physiological sphere; this happens only when the physiological processes go beyond a certain limit. Before such a limit is attained, attention is, so to say, dormant. It is obvious that consciousness always comes into play through the activity of attention, which is an essential element of all conscious activity. One might ask whether it is possible, in some cases, for consciousness to be present with attention as its sole constituent. Personally I find it very difficult to answer with certainty this fundamental question. I know of no other way of studying the problem than resorting to introspection. But the difficulty lies precisely in the fact that as soon as introspection comes into play, other elements are added, so that there is no longer *a state of pure attention*. The way out seems to be to use introspection so as to look retrospectively, even if only a fraction of a second later, at what happened at the moment when attention began to appear. And here we come across another fact, which we must consider before we go on: introspection shows in an unmistakable manner, that *introspection itself always works retrospectively*. We are unable to introspect about something that is going on in our consciousness at the moment when it is going on; we can introspect only afterwards, even if this means the immediate instant which follows the phenomenon we are trying to study. This seems an essential feature of introspection. Its name refers to something that happens inside us; in other words, it refers to the *object* of the activity. But if we consider the time of the exercise of introspection, we must conclude that *introspection is always a retrospective activity*. These two characteristics are always indissolubly linked. In

order to stress this fact and avoid confusion *we may call introspection retrospective introspection.*

Now that we have discussed this necessary previous question, we can try to study what happens at the first moment when our attention is focused on the physiological processes provoked by a stimulus. Is attention, at this extremely fleeting, initial instant, the only thing present in consciousness, the exclusive manifestation of consciousness? How extremely difficult it is to answer this question! The difficulty is due precisely to the fleeting nature of the instant, which does not permit much study, even retrospectively, because as soon as we begin to do so we contaminate it with other elements which we are unable to view as though they were separated from the 'pure' initial experience. I believe, however, that it is possible to grasp some basic facts. The first is that attention itself, without an object to which to attend, cannot exist. *Objectless attention does not exist in consciousness* (this construction of the phrase does not mean to imply that it may exist 'somewhere else').

William James called attention to the fundamental importance of the objects of consciousness and came to deny the existence of consciousness itself, affirming that only thoughts, which we may call the objects of consciousness, existed. He writes (James, 1937, p. 37), with reference to consciousness:

> That entity is fictitious, while thoughts in the concrete are fully real. But thoughts in the concrete are made of the same stuff as things are.

I do not feel able to discuss the complete meaning and all the implications of his ingenious view, nor do I consider it necessary for our purposes. Suffice it to note that what he means is that he denies that consciousness stands for an entity but he insists 'most emphatically that it does stand for a function' (loc. cit., p. 3), and he also accepts the dualism between thought and thing: '. . . that dualism, I say, is still preserved in this account but reinterpreted' (loc. cit., p. 10).

Considering that we are interested here in the internal experience we may, therefore, leave aside that aspect of James's view which refers more to the nature of the world, as made by 'pure experience', and turn our attention to the phenomenon of consciousness as revealed by introspection. Though it is true that consciousness is not revealed except through an object of consciousness, a thought, this does not necessarily mean that the object is the only thing that is 'there'. The invisible man of Wells's story was 'there', yet he did not become visible if he was not covered by some opaque material. Consciousness can be compared to the invisible man and the objects of consciousness – thoughts – can themselves be compared to the opaque material which reveals his existence. The shape of the opaque material both implies the invisible man and reveals him;

and the invisible man gives this material its shape. Something similar is true of consciousness. This word is a name employed to designate an abstraction constituted by the ensemble of activities – thoughts – by means of which and at the same time *in which* the objects of consciousness – also thoughts – are revealed. In this sense James seems to be right when he affirms that consciousness stands for a function; but one should, perhaps, add something more, though it must be recognised that the question becomes, ultimately, one which is dependent on the meaning given to the words 'entity' and 'function'. So, instead of arguing in favour of one or the other term (or of both) I shall try to explain what I have in mind. Consciousness can be compared to a pair of parallel mirrors standing in front of each other. If no object is reflected in them, then one mirror reflects the other and the other the first, and the first reflects the reflection of itself in the second, and the second reflects the reflection of itself in the first, and so on till infinity. But if no object is put between the mirrors, none of these reflections is visible, whereas as soon as an object makes its appearance we become aware of the infinite number of reflections.

Consciousness and its objects are of the same nature, i.e. thoughts, but both fulfil different functions: the first, to be aware of the second; the second, to be aware of some external reality. Both complement each other: the objects – thoughts – reveal the existence of consciousness and this latter, in its turn, gives shape to those objects constituted by thoughts, because thoughts are thoughts in so far as the function of consciousness is structured in terms of thoughts. In other words, thoughts would not exist if, in some way, they were not reflected in the thoughts of consciousness, which constitute the very structure of consciousness. It would seem an essential quality of human thinking that it is reflected in consciousness. Thoughts cannot exist without their reflection in consciousness, at least as a possibility, if not always as an actuality. The difference between the thoughts called objects of consciousness and the thoughts called consciousness lies, probably, only in their orientation: towards something external in the case of 'ordinary' thoughts, and towards itself in the case of the thoughts of consciousness. It must be recognised, however, that as soon as thoughts turn towards themselves, that is, become 'thoughts of consciousness', they cannot avoid treating themselves as external to themselves. Asymmetrical activity (and the activity of consciousness *is* asymmetrical activity) cannot avoid the separation inherent in contiguity and succession, because these two notions are essential to the notion of being external. Yet, this 'reflectivity' of thoughts, which establishes the difference between thoughts as objects of consciousness and thoughts as consciousness, points towards a mysterious indivisible unity of these thoughts which we see as belonging to two diverse categories. Perhaps the birth of consciousness is 'situated' at the

exact meeting point of the symmetrical and asymmetrical modes, and this would be the reason for this strange elusiveness of the phenomenon of consciousness: when we describe it we impoverish it because we leave out, in our descriptions, the symmetrical aspects which are essential to consciousness itself. But perhaps, after all, the symmetrical aspect of consciousness is revealed in our descriptions in the reference to the infinite reflectivity of consciousness upon itself, which appears so strange and mysterious to us. Perhaps this is another example of what we have already noted, and shall see yet again: that whenever asymmetrical reason finds itself in front of symmetrical being, the best it can do is to describe it as an infinite set. The infinite 'reflectibility' of consciousness upon itself is a case of an infinite set.

All this, I believe, could be the subject of much further research. Perhaps, if we succeed in disentangling this mystery, we should be in a much better position to understand the capacity for knowledge that symmetrical being has.[1]

5. The possibility of 'pure' sensations

So, even at the first instant when attention is aroused by a stimulus, either internal or external, it applies to an object. Now we can ask the question which constitutes the kernel of the problem under study and which we could not consider before settling the previous questions: what is the object of attention at the initial instant when attention is aroused by the stimulus? Is it simply a *pure sensation*, either of light, touch, pain, or the sensation corresponding to any other sensory experience consequential upon stimuli outside or inside the body? I will remind the reader here of what we have already seen, that if we have a *perception* we have a sensation inextricably mixed, existentially, not conceptually, with establishment of relations, that is, with thinking. Our problem and our question have now become quite circumscribed: what we must try to ascertain is whether before sensation is 'wrapped' with thinking there is an initial moment when it is formed in consciousness in a pure state, with no additions whatsoever.[2] To put it in another way: is sensation in its pure state something, like the invisible man, that cannot be in consciousness if it is not 'clothed' in establishment of

[1] See Chapter 25, Section 5, and Chapter 28, Section 2.

[2] Note that I have used the expression 'formed in consciousness'. As we have concluded that there are no unconscious sensations, this expression is intended to convey that one cannot speak of a sensation *entering* consciousness. But if sensation is formed in consciousness or develops in it, it is clear that attention cannot observe something which was already 'there' because nothing was 'there' before attention began to observe. The inevitable conclusion seems to be that *attention plays a role in the development of sensation*; without attention there would be no sensation.

We might, then, say that attention is at first directed to a corporal process and, as a result of this specific activity, a sensation takes place.

relations, 'wrapped' in propositions, even if these propositions may be of a very rudimentary kind and more implicit than explicit? If this were the case, it would mean that establishment of relations is an essential part of sensation.[1] The answer to this question is, therefore, fundamental for any understanding of emotion and its relation to thinking. It is not easy to answer. I believe that the findings of introspection suggest that there is, in fact, a very fleeting instant of *prise de conscience*, or 'becoming aware', or 'assumption of consciousness' when sensation is in consciousness in a naked state, not clothed in either explicit or implicit propositions, not even rudimentary ones. But an essential feature of this phenomenon is that it is fleeting. As soon as it arises in consciousness, sensation is caught by thoughts, wrapped by them, inextricably combined, existentially, not conceptually, with establishment of relations. Conceptually we can distinguish, of course, the element sensation from the element establishment of relations, even in this combination; but existentially both are here fused into a unity.

So, sensation seems to be born in consciousness in a naked state, like a baby. But the baby can be left naked whereas sensation, in order to remain in consciousness, in order not to disappear immediately *from existence*, needs to be clothed in thoughts, that is, establishment of relations.[2] It is in this property of sensation that we may find the solution of the riddle of the disappearance of pain obtained by hypnosis or by other methods, such as autogenous training. I think the dentist's chair is a good laboratory for studying this question. When the drill pierces the tooth, pain is felt, even if in great intensity, in a pure state. (The fact that sensation in its pure state is an essentially fleeting phenomenon does not mean that it cannot be a very intense one.) But as soon as pain is felt, a variety of images of a visual or other kinds occur. Initially these images may also be pure sensations such as the sensation of light. But immediately they become organised, even if it is in a loose way, they may become 'plays of light'; they may be put in connection with past memories which are summoned in a rapid, developing succession, as in a film. But if one applies introspection to studying what is happening, one soon becomes aware that this more or less formless, primitive material is permeated with establishment of relations, not as in developed thought, but nevertheless establishment of relations; this establishment of relations is to a great extent of the type observed in perception (asymmetrical). The interesting thing about it

[1] The reader will realise, after reading the previous footnote, that the comparison with the invisible man can only hold, and this only up to a point, if establishment of relations is a component or essential part of sensation.

[2] In other words, the invisible man (sensation) turns out to be not altogether invisible, if naked, but some details of his body can only be discovered by means of the opaque material (asymmetrical relations) which covers him. Otherwise, he would be almost transparent but not quite: jelly-like!

is that sensation, though already linked to establishment of relations, still appears very prominently, and is comparatively formless, that is, clothed with only a few primitive relations. In other words, the form given to sensation by this establishment of relations is rather loose, and lightly outlined. It is as though the invisible man was wrapped in a loose mantle which only permitted the vision of its bulk but not of the details of its shape. In other words, the mixture or combination of sensation with establishment of relations is, in these cases, such that the proportion of sensation to the establishment of relations is much more in favour of the former than it is in a well configurated perception, for instance in the clear perception of a house.[1]

We now return to the experience of pain in the dentist's chair. If one tries to escape from this pain one will feel it all the more. If one does not shrink from it but tries, instead, to define exactly what it consists of, several interesting facts soon become evidence. First, the process of 'defining' the pain consists essentially of trying to find the accurate images that the pain provokes. One tries, for instance, to delineate with precision the perceptions which were movable, relatively formless and primitive. The process of defining these images consists of making the relations existing between the parts more precise; in other words, of advancing towards a more precise perception, that is, one which is more permeated with establishment of (asymmetrical) relations.

The second fact we find is that, as we proceed along this path, the pain becomes less intense. Our attention cannot be focused in its fullness on two phenomena at the same time; if one comes to the fore the other recedes into the background, until a moment comes when it is no longer present in consciousness. It would seem as though *the quantity* that can be contained by our attention in our consciousness is a decidedly limited one. Previously there was a mixture of sensation and establishment of relations, in the form of unorganised perceptions or unorganised images, and *now that we are trying to bring the establishment of relations into the focus of attention, correspondingly the proportion of pure sensation in this mixture must necessarily diminish: we are substituting, in consciousness, establishment of relations for sensation and, consequently, the pain diminishes.* It is in this way that we are able to bear pains that otherwise would be quite intolerable.

6. Sensation and thinking and their relation to macular and peripheral consciousness

Reflecting upon these facts of observation we discover another

[1] As can be seen, the kernel of initial 'visibility' of sensation-feeling becomes more and more evident (i.e. 'visible') as the amount of asymmetrical relations superimposed upon it increases ('loose or tight-fitting mantle'). The comparison with the invisible man, which is obviously imperfect even though it has helped us to understand this difficult problem, can be completed by what is said in Chapter 25, especially Section 5.

important feature of the nature of the relation existing between sensation and consciousness. It would seem that all the observations so far made in our study of this question could be expressed in a simple manner by saying that *by its very nature sensation is not at ease in the macular region of consciousness whereas it belongs naturally in the periphery of the field of consciousness. The macular vision, the fullness of consciousness, in contrast, is the natural territory of establishment of relations.* At this point we must add a further observation which introspective people can always make. It concerns a fact which in some cases of anxiety neuroses may be present in a dramatic form. When we think we exercise all of our conscious activity. But when we stop for a moment to consider the process of thinking itself and think that it is we who are thinking, in other words when we try to grasp this very important characteristic of being conscious in its entirety, in its fullness, we find that our consciousness is something fleeting, never fully grasped. To put it in another way: *when we wish to become fully conscious of our being conscious, then our consciousness of being conscious becomes blurred. We can only become conscious of being conscious in a tangential, passing, fleeting way; we cannot stop and remain contemplative to the full extent of our comprehension, at least we cannot in normal conditions because, in order to grasp, our attention must move from one point to another.* I do not know what happens to mystics, who probably have other experiences which elude the average person.

It is relevant to compare these remarks with the observations made by neurophysiologists. When we look, our eyes are never still but, on the contrary, move quickly from one point to another of the object looked at. This rapid movement can be recorded. If we try to look at only one point and keep our sight fixed on this point, then our vision becomes blurred: in order to look we must move our eyes. Exactly the same seems to be the case with the 'mental vision' of consciousness.

I have asserted that sensation is not at home in the macular field of consciousness. But, as we have just seen, macular activity is by nature a fleeting phenomenon. It may be that, as a consequence, our observations are inaccurate, frequently owing to the difficulty of observing. It is with this in mind that I wish to make some additional observations, in the hope that they may contribute to clarifying the question. These refer to some peculiar features observed in obsessive neurotics, which can truly be termed disturbances of the functioning of consciousness, though they are never included among the classical disturbances of consciousness.

An obsessive neurotic closes the door of his house, goes a few steps away and then asks himself whether he has really closed it or not. We need not stop to consider here the unconscious causation of such doubts, but will only concentrate on those aspects which have a

bearing on our subject. The patient actually knows that he has closed the door but is afraid to take this for certain, in case some harm results if he is mistaken; for instance the house might be burgled. What does he do, then? He tries to remember the exact moment when he left the house, in order to make sure of precisely what he did at that moment; he makes every effort to summon his (retrospective) introspection with as much clearness as he can. He tries to fix that moment in his mind, but the more he tries the more fleeting the moment becomes, the more it escapes him. In other words, what happens to him in the case of the recent memory is the same as may happen to anybody in the case of a perception: when he tries to observe a given point of an object with absolute precision and does not wish to let it escape, then vision becomes blurred. It would seem that certainty is only grasped and felt as such if we succeed in accepting the fleeting quality of the moment at which we grasp it. Once we have acquired certainty as such, then we continue to consider it so, to affirm that it is so; but we do this on the basis of the memory of the fleeting instant, without entering a further critical examination. Naturally, it is possible to have successive experiences of the same type which may produce a renewed experience of certainty.

7. The 'timeness' of thinking and the 'timelessness' of feeling

Reflecting upon the above facts, we come across certain important features which differentiate thinking from sensation-feeling. We have seen that macular vision of consciousness is a matter of an instant. Once an object or a part of it has been caught by the macular vision of consciousness, it must immediately be replaced by another. It would seem that consciousness, like the retinal pigment (it is no accident that the comparison with vision is so well suited to describing these phenomena) soon becomes exhausted and attention must be shifted to another point which is still 'unused'. This peculiarity of consciousness is appropriate for the activity of thinking but it is not for sensation-feeling. Thinking, establishment of relations, is essentially an analytical process, one which subdivides its object into its elements. Correspondingly, each element is itself the object of an instantaneous macular vision; and the *process* of thinking is constituted by the succession of all these partial visions which, in their totality, convey the feeling of certainty. The total certainty is based on all these partial certainties. We may recall at this point the observations of Bergson about instinct and intelligence, because our own observations may be viewed as an application of them to the problem of the functioning of consciousness. Bergson points out that intelligence is analytical by nature; it reduces reality into a variety of partial aspects. This is exactly what we have found in the study of consciousness in its relation to the process of

thinking. Bergson's remarks about instinct, on the other hand, correspond to our observations of consciousness in its relation to sensation-feeling.

At this point we may consider, once more, the example of pain. We saw that the natural habitat of pain or of any other sensation is the periphery of consciousness, but we also accepted the possibility that pain may reach the macular field of consciousness. Most probably things happen as follows: initially, at the first instant, it is probable that pain makes its appearance in the macular region of consciousness. But this is only for a fleeting instant. For pain to remain there, macular vision must shift, as otherwise consciousness is blurred. And it is here that there lies an essential difference between feeling and thinking or establishment of relations. By its nature, pain or any other sensation is simple. It is *felt* as simple, as one unity, an *indivisible* unit. In contrast, thinking always has aspects, or parts. And sensation-feeling is *experienced* as a simple unity, even if many elements may contribute to it, while thinking is *experienced* as a complex unity, a structure made of many aspects or parts. This may be viewed from another angle. Thinking, a thing composed of aspects or parts, *develops in time*, whereas sensation-feeling is simply *there* for one instant, and this instant, not having, as far as this particular experience goes, either a previous or a subsequent instant, is felt not to have the temporal quality, which entails succession. There can be no succession in something which in itself has no parts before, during or after it happens. When we say it takes an instant, this assertion is true only if it refers to feeling as seen by an observer, but feeling, having neither previous nor present or subsequent elements, may be said to be *felt outside time* by the person who experiences it. Thinking is a process, an event or a series of events, it is something that *happens*; whereas sensation-feeling – which, in itself, as such, is simple, even if many elements contribute to its appearance and are represented in it – however much it 'takes place' for an external observer (or for the observer aspect which is in all of us) is *experienced as something that does not happen but is, simply is.* If we seem to experience it as an event, as we actually seem to do, this is due to the fact that we cover it with thinking; in other words, we try to become intellectually aware of it, to describe it: *to think it.*

So sensation can remain in the macular field of consciousness only for one instant and thereupon it passes on to the peripheral field, which seems to be its natural place. One may ask what would happen if we tried to keep it in macular vision. Owing to the nature of macular consciousness, we would have to shift our attention from one aspect to another. In order to do this we would have to split the unity into parts, and this can only be done by means of the establishment of relations. As we have already seen, what happens in this case is that we attempt to analyse the feeling, having recourse to comparisons, and to past experiences: 'This is a pain as though a

knife was being stuck into me', 'This is a dull pain, an oppressive one', etc. In the course of this process, pain, which is a sensation, has been replaced by a perception or an imagination, both of which imply establishment of relations; but as a result of it, pain is pain no longer: it has disappeared. This can be observed at the dentist's chair: every time we place pain in the centre of our attention, pain disappears as such *for the period during which we are doing this.* We substitute pain for a dialectical discussion within ourselves; the result is that we can tolerate the dentist's manoeuvres with ease.

The above does not mean that macular experience of pain may not return again many times, but each of these times it will last only for a fleeting instant. On the other hand, if we do not concentrate on this work of establishment of relations, of describing pain, the sensation of pain will remain in the periphery of consciousness and from there it will claim its full due: it will be felt as such. We may conclude, then, that *for the periphery of consciousness to be (relatively) discarded it is necessary that the concentration of attention on the macular field should be intense.*

I mentioned above the fact that hypnosis could remove pain. It would appear that the mechanism whereby this is achieved is not exclusively that of filling the macular field of consciousness with establishment of relations. There would also be the possibility of a partial 'purging' of consciousness, both macular and peripheral, by some process of inhibition whereby what is not wanted is prevented from entering it.

8. A summary of all the above on sensation-feeling

We may now sum up all our conclusions in a few propositions:

(1) We reserve the term sensation to refer to conscious experiences.

(2) The method employed to study sensation-feeling is introspection. Introspection is always retrospective introspection, because it is impossible to experience a phenomenon and at the same time to study it fully in consciousness. The macular vision of consciousness — does not permit more than one thing at the same time in its field.

(3) As soon as sensation is experienced, it is submitted to a work of establishment of relations, which may either take the form of a perception or of imagination. The outcome of this work is an explicit or implicit description of the phenomenon and its comparison with others which are similar to it and have taken place previously.

(4) We know consciousness only through the objects which are present in it. Objectless consciousness is something virtual, which can be postulated conceptually, deducting it from our observations, but which cannot be observed directly, in its pure state.

(5) Sensation seems to appear initially in macular consciousness in a pure state, naked, so to speak. This happens only for a fleeting instant; immediately afterwards it is clothed or covered by the

establishment of relations, without which it does not seem to be able to remain in macular consciousness.

(6) The incapacity of sensation to remain in macular consciousness seems to be due to the nature both of consciousness and of sensation. Macular consciousness must be constantly shifting from one object to another, in the same way as macular vision: the eyes cannot fix on one point of the object but must shift constantly from one point to another. Similarly, when consciousness is engaged in a process of thinking or establishment of relations (which is composed of many aspects and is performed in a succession) it moves or shifts from one term or element of thinking to the next; thinking takes place in this way. On the other hand an external observer (and this also applies to anybody as observer of himself) may possibly differentiate parts in sensation-feeling. But in itself sensation-feeling is *experienced* as an indivisible unity, not as a sequence, and as such it is outside succession or time and does not lend itself to the work of macular consciousness, which shifts in time, with successive considerations, first of one aspect and then of another. *Thinking happens, or unfolds, sensation is.*

(7) The natural habitat of sensation-feeling seems to be the peripheral field of consciousness. There it may be clothed by establishment of relations, but in a rather loose manner. The proportion, if we may say so, between sensation and establishment of relations can be to the relative advantage of the former over the latter when things happen in the peripheral field of consciousness; whereas in macular consciousness, the natural habitat of thinking, establishment of relations must necessarily predominate.

(8) Though macular consciousness of feeling (as seen by an observer) is a matter of a fleeting instant, this does not mean that this instant cannot be repeated over and over again in the course of time. Much remains to be understood as to the question of the timelessness of these macular sensations which, if viewed by an external observer, lasts for an instant, however short, but which is anyway a portion of time.

22. *The Second Component of Emotion: Thinking (Establishment of Relations)*

Foreword

At the beginning of this Part we saw that in its psychological aspects emotion could be considered as constituted by at least two components, sensation-feeling and propositional activity (thinking), which we agreed to designate by its most prominent feature, establishment of relations. We did not then decide whether the establishment of relations seen in emotion is identical to that seen in what, in everyday life, is usually called thinking. So far we have only studied sensation-feeling, but could not avoid frequently turning our attention to thinking, because we discovered that the first enters into intimate relations with the latter on account of the fact that sensation develops naturally into perception or the imagination of it. Sensation-feeling, therefore, is far from being existentially independent from establishment of relations. But in itself it is something radically different from it.

When we studied establishment of relations in connection with sensation-feeling we found nothing in it which suggested different features from those of usual thinking processes. We shall now leave aside this thinking activity which is, we might say, an auxiliary of sensation-feeling (in the sense of uncovering or making explicit what is virtual or implicit in it), and shall turn our attention to establishment of relations viewed, more specifically, as the second component of emotion. It seems that the best way to approach this difficult question is to start by considering some concrete cases.

1. Some examples

(1) A young man is *in love* with a beautiful girl. She may have dreamy eyes. For him these are not simply a concrete thing, but also evoke a sense of unlimited beauty, of inexhaustible goodness; they are the embodiment of many more or less obscure longings, and so is her every feature. To be near her is to enter a universe filled with promises, which he may not know very well but which are potentially there and which her presence begins to unfold. A man who does not obscurely feel an ideal beauty in the girl he loves but only limits himself to verifying some pleasant characteristics of hers,

is a man who does not know or has forgotten what love is.

(2) The attraction felt towards a woman may not be love but more simply carnal or sensual. In this case the promises of her demeanour, of her gestures and movements will also be plentiful but in another sense. Fantasy leads to imagining pleasures which go far beyond what one knows they are in reality. This knowledge will not prevent him from indulging in such fantasies. For a sensual man, an attractive woman is like those idealised inhabitants of the Mohammedan paradise, the *houris*, ready to satisfy his innermost desires.

(3) A person experiences *fear* in the dark. His reason may tell him that in reality there is nothing to be afraid of, but this is no help to him. What does he fear? Careful observation will reveal to him that it is something cataclysmic, overwhelming, and indescribable, even if he may be able to name the object of his fear, for instance a robber or a murderer. Behind these *apparently* concrete images there is a world of terror which invests them. When I am afraid of a robber, he is, in my eyes, not just another person whom I could overcome and prevent from harming me. In his image I see (in my emotion) all the robbers of the world, invested with all the diabolical powers of the concept of robber carried to its extreme, threatening me with unknown dangers, which certainly go far beyond the danger of being deprived of some concrete material objects. Were he in my eyes simply another man like anybody else, I would not be afraid of him. What causes fear is, precisely, the exaggeration of his dangerousness. The same thing holds for being afraid of a murderer. However precious life is to all human beings, the fear of it being taken away is not simply the fear of losing it but of something that goes far beyond that. This possibility is invested with transcendental characteristics, is imagined as pregnant with much deeper terrors than those which anybody, even the most fearful of beings, would attach to the fact of losing his life, if he could view this fact in its limited meaning.

Psycho-analysis has discovered that these primitive fears are ultimately the projection of one's own aggression. The meaningful thing to consider here is that our own aggression is felt as much greater and more overwhelming then it actually can be. In other words, the potentialities which we feel in our (aggressive) emotions are of the highest magnitude.

(4) We may now consider another frequent emotion, that of *discouragement.* A child is learning arithmetic. After grasping the first initial notions he feels happy about the possibilities opened to him. But a moment may come when he does not understand a given problem or does not know how to solve it. He is plunged into discouragement. Observation soon shows that he takes this difficulty or circumscribed failure as a proof that he does not know anything, that he is incapable of understanding. Of course, he does not say this to himself in such explicit terms, but his behaviour and his utterances reveal this feeling. The same can be said of discouragement in adults,

only that the feelings are more disguised, less visible, but no less active. The unformulated and objectively unjustified aspects of discouragement may produce innumerable limitations; many people would have obtained things which meant much to them if they had not been prevented from doing what was required to achieve these ends, by a vague but nonetheless powerful feeling that they were not up to the task.

Analysis of discouragement reveals that its cause is not the realisation of having failed in *one* task but the 'feeling' that failure will be the outcome of *all* subsequent tasks, that one will never be able to learn, or obtain what one wants. This impression produces a variety of sensations: lassitude, lack of response to external stimuli, more or less vague and diffuse sensations in various parts of the body, similar to those experienced in sadness. The total of these sensations, together with the 'judgment' of incapacity for the task, constitute precisely the emotion called discouragement.

(5) In *sadness* we also experience a variety of sensations and at the same time we tend to look at things in a gloomy light. However circumscribed the cause of sadness is, the fact is that this emotion tends to *irradiate* in all directions, and eventually tinges everything with sadness. This peculiarity does not detract from the fact that, if a person is sufficiently balanced, he may succeed in (intellectually) restricting this irradiation and limiting it to where it belongs. But already this represents a reaction to the initial feeling. By its very nature sadness does not remain confined to the subject with which it is initially connected but tends to irradiate into other territories; this is also the case with all basic emotions. This peculiarity can, perhaps, be more clearly seen in children. When deprived of something, children react with such a great intensity, either of protest or sadness, that it seems as though the experience they are living at the moment completely invades all aspects of their life, not only the present but also by extension to the past and future. Because of this, children are frequently unable to see the real perspective and the true dimension of the present frustration: they feel, or behave as though they felt, that it is decisive and all-invading and that it will last forever.

(6) The emotion of *anger* may at first sight appear more difficult to analyse. We usually react with anger when we are suddenly frustrated about something which, at least at the moment, means a great deal to us. If somebody breaks an object we are very fond of and we react angrily, it may easily be shown that in this case the meaning attached to the object goes far beyond the meaning or function it may have in actual reality. If instead of sadness (which frequently appears in cases of this type) the emotion provoked is anger, we can observe some additional features. The object is overvalued as in sadness but, instead of having only a feeling of loss, the person who becomes angry alters the course of the emotion

aroused and discharges it, in fantasy or in action (verbal or otherwise) against the person who caused the frustration or loss. Anger is, therefore, a discharge against somebody.

Overvaluation of the lost object, as just remarked, seems to be a constant feature of anger consequential upon the loss of a concrete object. This can also be observed in cases where the loss is of a subtler nature. For instance, at times anger is experienced because we are either made to do something which we do not wish to do or because after hopefully waiting (for instance for somebody) we are frustrated and are prevented from having the expected satisfaction. It seems that the objective frustration in question is always subjectively magnified. In these cases the concept of loss also plays a central part, but it must be enlarged to comprise not only objects but situations of loss (as in the case of waiting) or of violence (as in the case of being forced to do something), which ultimately also represent a loss or deprivation (of freedom, of the right to make a decision, etc.).

Furthermore, it would seem that the *suddenness* of the stimulus plays a role in the genesis of anger. It is the fact (in some cases) that desire has been suddenly compressed or frustrated that arouses anger in us. It would seem that a desire carried to the brink of satisfaction and then prevented from being satisfied is felt as something very intense.

(7) We may now consider the cases of *an emotion in which the interpersonal relation is not in the first plane.* I visit a town previously unknown to me and experience a complex emotion of attraction towards it. Its ancient buildings, its narrow and tortuous streets, its sober squares and the general atmosphere it irradiates provoke in me obscure, intense feelings. I may refer to this emotional state by saying that the town *evokes* in me the world of the past. Various memories of what I have seen or read are, more or less openly, brought to the fore, but all of them cannot enter the field of my macular consciousness at the same time. Only here and there some image comes up, one of the many that are palpitating in me, but I know that each image which succeeds in emerging to my full consciousness is only one among many: it is the representative, at that moment, of the others. In this way the charm of an ancient town brings me into contact with past history. I project myself backwards and identify myself with centuries of life. But at the same time I remain in the present; I am both in the present and in the past. I may, in my fantasy, identify myself with various characters of other epochs. The girls that pass by may, in my imagination, be not just themselves, but also beauties dressed in the style of the Middle Ages; and I may hear the sound of lutes, and conjure up the feasts, fights and love-making of days gone by.

(8) In contrast, a futuristic town may evoke entirely different feelings. Through its audacious buildings, the new conceptions seen in its general outline and architecture, the new functions of streets

and the separation of various sectors, commercial, residential, recreational, I may visualise the future towards which mankind is progressing. If I do not look at all this in a purely intellectual way but I feel it, my vision will be full of 'future memories' in which I will experience a feeling of participation with the future inhabitants of the earth. I will identify myself with them, I will see their lives, which to me are in the future as though they were my present.

It is, naturally, conceivable that a modern town will only provoke reflections about the advantages of new planning and an appreciation of the intelligence of the solutions, and not stimulate any of the emotions described. This would be an intellectual reaction.

What can be said about the impression given by a town applies equally to the emotions aroused by any work of art. Here, as in the other case, one can also react intellectually. But we are at present concerned with the emotional state.

2. The thinking implicit in emotions entails generalisation, maximisation and irradiation

In all the cases discussed so far emotion contains in an extreme degree certain characteristics which we shall now consider. It cannot be denied, however, that there are emotions which are not of this type. Such, for instance, would be *boredom*, a constitutive element of which is mildness, and lack of intensity; and there are many others of subdued or mild intensity. Following Rapaport, we may call them *tamed emotions*. Though the understanding of their nature requires some additional considerations, it cannot be denied that they stand in an intimate relation to the primitive, intense emotions we have considered so far. It is therefore first necessary to study the nature of these latter before we can tackle the study of their complex structure with any hope of success.

The first striking characteristic of the examples mentioned is the fact that each emotion refers, not only to the concrete object which provokes it, but also irradiates to neighbouring objects which have something in common with it. When, for instance, I feel intensely attracted by a beautiful girl, she is something which far surpasses her purely objective corporal and spiritual limits. *So far as I am feeling*, for me she is '*all* beautiful girls': in other words the personification of beauty. The prospect of a relationship with her opens up the possibility of unlimited joy. This extreme judgment is the spontaneous sign of emotion, and it is perfectly possible for it to coexist with a more sober appreciation coming from 'reason'. But we are concerned here with emotional judgments. What I have just described corresponds to the concept of idealisation. Idealisation, as is well known, has two important roots: the need to counteract the (projected) aggressive tendencies by creating a perfect (lovable) being; and the need, caused by 'loving reasons', that this being should

contain the maximum potentialities for goodness. *But both these motives for idealisation are only made possible on account of the possibility inherent in the human mind of seeing a limited goodness as the supreme goodness, and a limited beauty as the supreme beauty.* If there were only reason and we only had 'realistic' estimations of things, we could not idealise. It is emotion that makes us carry to their extreme and utmost potentialities the characteristics of a given situation or person.

If we now consider the other examples studied we can easily realise that exactly the same happens in all of them. Idealisation may at times be more disguised, but basically we always encounter the same situation. To take some of the examples given: the physical attractiveness of a girl may be idealised to the point of feeling that she offers unlimited pleasure. Fear of the dark, however much reason may tell us that it is fantastic, populates darkness with the most terrifying monsters with unlimited potentialities for evil and capable of rendering the subject completely helpless. If this fear was 'reasonable' it would not be fear. Sometimes one may succeed in controlling it and not letting oneself go into all the horrors one dreads. In such cases it is a part of the subject that keeps fear at bay, controls it, prevents it from developing and expressing the full potentialities implicit in it. This is the result of a fight of opposing forces: fear on the one side and reason, strength, courage, etc., on the other. What I wish to stress here is that when we fear and in as much as we fear, we conceive the corresponding dangers as having a maximum degree and if they are not fully felt, this is only due to the action of other forces which act in the opposite direction.

Something similar happens in discouragement and sadness.

We shall now try to express these observations in general terms. From the examples mentioned we may deduce two ways in which things are carried to their extreme: the *number of possibilities* and the *degree or magnitude of possibilities.* Let us consider these two aspects in each of the examples mentioned. When somebody feels attracted by the beauty of a girl, he spontaneously imagines, more or less consciously, that she possesses all possible attractions of beauty. He may dwell upon the delicacy of her facial features, the powerful feeling of goodness and grace that she suggests, the softness of her smile and so on. He will tend to see her as the summum of attractiveness and, correspondingly, he will attribute to her every one of the concrete qualities which characterise attractiveness. Each of these qualities will, in its turn, be present for him, in its maximum degree or intensity. In other words, both the number and the magnitude of the characteristics of attractiveness are carried to their extreme.

As a consequence of this investing the object of emotion with all possible qualities or traits of the type it represents, and with the maximum intensity of these qualities, the object comes to represent

all individuals of the same type. What we have seen in the attractiveness of a girl equally applies to the objects of other emotions, as a detailed examination of each case will soon show.

If we read fairy tales to children and observe their reaction we can easily realise that both the author and the young audience are involved in an atmosphere where there are no half-measures, where everything which is good or bad is so in an extreme degree. And when a child or an adult is prevented from accomplishing something by discouragement, he sees things in the darkest of colours. When we are sad, our misery is something which possesses us deeply and entirely.

It is as well to remember that after we have studied the potentialities implicit in deep and primitive emotions we shall briefly consider the case of those which are not so strong, the so-called 'tamed emotions'. So far it seems clear that these potentialities of primitive and deep emotions imply three things: (*a*) a generalisation which starts from the concrete characteristics of the object which arouses the emotion, and goes on to a point at which this object is seen as having all the characteristics or features of the quality attributed to it, and which any objects invested with this quality could contain or express in a greater or smaller number; (*b*) the characteristics attributed to the object are supposed to be in their maximum degree or magnitude; (*c*) as a consequence of (*a*) and (*b*), the object comes to represent all similar objects.

In other words: *generalisation of the characteristics or features attributed to the object so that all features of this type come to be contained in it; maximisation of the magnitude of these characteristics; and, as a consequence of both, irradiation from the concrete object to all others, which in this way come to be represented in it.*

3. Expression of the above in terms of symbolic logic

We can now go one step further and try to express all the above in precise logical terms. When we feel an emotion towards a given object (e.g. a person) we attribute to this object the totality of the potentialities which are contained in the class into which we have placed (from the viewpoint of the emotion experienced) the object. A class is the collection of all objects which satisfy a given propositional function or open sentence. The class of good persons is the collection of all persons who satisfy the propositional function or open sentence: 'x is a good person.' In this class we include, by definition, those persons who in any way may be said to be good. The attribute (to be good) may be possessed by some members in a small degree or in a high degree, up to the highest conceivable degree. Such would be the case with God. It is sufficient that someone possesses this attribute of 'goodness' for him to belong to the class of good persons.

If we wish to attribute goodness to a given person in a degree which may comprise the goodness possessed by any of the elements or members of the class, it is obvious that the goodness to be attributed must be of the highest degree, otherwise he could not have the goodness possessed by those who have this characteristic in a still higher degree than him. This is exactly what happens in emotion. *When and in as much as we see things in an emotional manner we identify the individual with the class to which he belongs and, therefore, we attribute to him all the potentialities comprised in the propositional function or open sentence which defines the class.*

We could put the same thing in a different way: *emotion, in so far as it is emotion, does not know individuals but only classes or propositional functions and, therefore, when confronted with an individual, tends to identify this individual with the class to which it belongs (or the propositional function applied to it).*

Once we have arrived at this simple formulation, the mysteries of emotion begin to become understandable and can be seen in a clear fashion. To start with a very general question, if propositional activity is a constitutive aspect of emotion then we are immediately freed from the tremendous confusion that pervades the psychological literature, including the psycho-analytical, about the relationship existing between thinking and emotion. Everybody accepts the enormous influence that emotions have on thinking, but nobody, as far as I know, has been able to present a comprehensible account of how a link can be established between both, which have been viewed as entirely different. Now, if one aspect of emotion is a form of thinking, then it is easier to understand that it may have intimate connections with other forms of thinking. We shall approach this question later.

When we view emotional thinking as that type of thinking which identifies the individual with the class, then we understand why, from the point of view of normal adult, so-called logical thinking, every emotion implies a generalisation, implicitly affirms a generalisation, and is, in its thinking aspects, a generalisation. To make this clear we must consider the problem from two different viewpoints. Whenever we view an individual from the vantage point of our own emotions, the 'thinking aspect' of our emotion does not see an individual, but a class, and this entails all the potentialities implicit in the corresponding propositional function. But from the point of view of adult logical thinking what is seen is only an individual, *a member of a class*, who expresses the propositional function of the class, though not all the potentialities of this propositional function. So, when we apply logical thinking to studying the way in which emotion considers an individual, we cannot but conclude that infinite irradiations have taken place from the individual to all other individuals which belong to the same class, until the whole class is covered, and engulfed by the individual.

4. A closer look at the logic of emotional thinking

In emotional thinking, as we have seen, there is a confusion of the individual with the class, so that each individual or element belonging to a given class contains in itself all the other elements which also satisfy the propositional function of the class, and this applies to every degree or magnitude. There is another way of looking at this peculiarity from the logical point of view, that is, of describing it in logical terms. This way throws, perhaps, a greater light on the nature of the process. The fact that the individual stands for the class implies an equalisation between the element or part and the whole. Now, from the logical point of view this can be achieved if, *within the class*, we apply the principle of symmetry. According to this principle, if a is part of B, then B is part of a. Thus the part becomes equal to the whole, and in this way each element or member of a class contains all the other potentialities of the class, as class.

If the characteristics of emotion are described with the help of the principle of symmetry, some new properties come to light. When the principle of symmetry rules, there can be no contiguity or succession.[1] This is quite understandable, because both contiguity and succession require serial ordination, which cannot exist without asymmetrical relations.

With this piece of logical knowledge to hand, we can now understand better some distinctive marks of emotion which we have already begun to study. We had a first glimpse that emotion is outside time when we studied its presence in consciousness. We may now proceed further along this line of research. Emotion is not only timeless with regard to its presence in consciousness, but also with regard to various other aspects of it. When someone loves, his feeling transcends the particular moment and wraps his whole person in a peculiar non-temporal state of mind. A young man in love would not express his feelings adequately if he were to say to his beloved: 'I love you for this limited moment of time and then I shall love you no more.' An outsider, or even he himself (as spectator of himself) may know that this emotion is a passing one, but when he feels it, he feels it as something which will last forever. But emotion is also projected into the past: when we love it seems to us that, even before we met them, in some mysterious way we have always loved those whom we love. The limitations of space are also overcome by love, by means of well-known devices of lovers, such as communicating through the moon or the stars. What these 'ingenuous ingenuities' show is that love does not accept being circumscribed by time and space; in other words, the absence of the notions of contiguity and succession seems essential to the concept of love. *Love*, true to the saying, *transcends space and time.*

There is another characteristic of love which reveals the same type

[1] See Chapter 3.

of 'symmetrical logic' in operation. The lovers feel, not just near one another but *one*, simply one. Poets and mystics have extensively sung about this characteristic of love. Two people in love know intellectually that they remain two separate individuals, but their loving feeling leads them to rebel against this physical reality and they excel in finding ways of denying it. They may use expressions such as one person in two bodies, total union, fusion, complete identity, disappearance of limits, etc. All of these show that love, so far as it is love, finds foreign to its nature the physical division into two. All this may be clearly formulated with the help of the notions we already have at our disposal (even if this formulation sounds anti-climactic and even sacrilegious to lovers!). If we postulate that the emotion of love knows, so far as it is emotion, no individuals but only classes, then the loved one is, for the lover, the same as and one with him. The characteristic of narcissism which frequently tends to pervade the emotion of love also becomes comprehensible. Loving another becomes loving a part of oneself, or simply oneself. What in psycho-analysis is known as well-developed or mature object-love is achieved when one is able to immerse oneself in the depth of the emotion of love while at the same time not sacrificing the chronologically later acquisitions of individuality. It must be recognised, however, that all this remains mysterious.

The considerations applied to love can also be applied, *mutatis mutandis*, to all other basic emotions. I shall not go into details here, but shall content myself with only one remark. The confusion of subject and object which we have just seen in love would not, at first sight, appear so clearly in other emotions. But further reflection shows that, in fact, it basically exists. To take only one or two examples, when we hate we attribute the same feeling to the person hated and when we are depressed the world seems sad and weary. When in psycho-analysis we describe such phenomena as projections we are applying a spatio-temporal framework to something which is in itself non-spatial and non-temporal.

When these considerations are made we must keep in mind the notion of level, which we have already studied and which we shall apply again when we consider the case of 'tamed emotions' and the 'function of unfolding' or, to be more concise, the 'unfolding function'.[1]

5. Summary, perspective and meaning of the views presented above

If we now look back to contemplate the path followed in this

[1] It is possible for instance, that even though the confusion of subject and object is constitutive of the emotion of hate, the distinction between both would also be, at a more superficial level, equally constitutive, and more so than in love. This would also hold in the case of other emotions. 'Total emotion' would then be, at least in such cases, a structure which would simultaneously comprise several levels.

chapter, we soon become aware that we have gone a long way. Starting from the recognition that propositional activity (establishment of relations) is not a concomitant of feeling but an integral part of it, we have begun to see that many questions so far obscure, and in fact insoluble, could become the subject of a precise study. As soon as we began this line of approach we realised that the propositional activity implicit in emotion is quite different from that to which we are accustomed in thinking. Though from one aspect emotion is a form of thinking, it must be recognised that it is a very special form of thinking. The analysis of various cases of basic emotions led us to discover three important features in them: generalisation, maximisation and irradiation of the characteristics of the object. Further analysis led us to the conclusion that all this was the expression of the identity established between the individual and the class, which is a corollary of the principle of symmetry. In short, we discovered that the type of thinking observed in emotion is what we may call symmetrical thinking or anaclitical logic (which is a union of thinking (=asymmetry) with the applications of the principle of symmetry).

Once we had obtained this insight, a further analysis led us to understand other striking features of emotion, such as that of being (by its nature, outside space and time). Finally, the fact that emotion abolishes the limits between subject and object also became comprehensible in terms of the present formulation.

So, we have come to a very simple view of the nature of the thinking aspect of emotion, a view which at the same time unravels and brings into full light some features of emotion which have been, so far, quite imperfectly formulated.

But, it must be added, we have not yet finished the study of the possibilities of understanding inherent in our view. Further consideration of the question in terms of the notions put forward here leads, as will already have been found by the reader who has followed this book with care, to the notion of emotion as infinite sets. This will be the subject of Chapter 24.

6. Comparison of our view with views put forward in the relevant literature

I believe that the greater precision, wider reach and other advantages of our view can be better grasped if we compare it with other views presented in the relevant literature. I shall not attempt this task in full but will content myself with some remarks, leaving the reader to follow them up for himself. From the literature I know, it seems to me that Hillman (1962) studies this subject with greater precision and knowledge of other authors than anyone else. My information on this point will be largely taken from him.

The literature. In his chapter entitled 'Emotion as Signification' Hillman reviews the writings of many authors who have been concerned with this problem. I shall make a few significant quotations from this book, giving the reference of the corresponding author.

(1) Sartre (1948, pp. 41 and 58, English translation):

> One can understand emotion only if he looks for a *signification.* This signification is by nature of a functional order. We are therefore led to speak of a finality of emotion. We grasp this finality in a very concrete way by objective examination of emotional behaviour . . . we can conceive of what an emotion is. It is a transformation of the world. When the paths traced out become too difficult, or when we see no path, we can no longer live in so urgent and difficult a world. All the ways are barred. However, we must act. So we try to change the world, that is, to live as if the connection between things and their potentialities were not ruled by deterministic processes, but by magic.

(2) Burloud (1954, pp. 67-8):

> Mais il est bien vrai que l'émotion se caractérise, dès le premier moment, par une manière nouvelle de voir les objets . . . *Le phénomène initial n'est pas, comme le croit James, une perception qui bouleverse mon organisme, mais un bouleversement affectif de ma perception.*

(3) Hillman (p. 187), referring to Dejean (1933, p. 187):

> Dejean first makes maladaptation the criterion of emotion. It would appear that she presents a view of emotion as disorder such as we shall see . . . But Dejean makes a significant distinction by refusing to judge the maladaptation which occurs in emotional behaviour in terms of adaptation to reality as in other forms of behaviour. The deficient behaviour in emotion has a cognitive function; it reveals the value of an event by means of this being 'affected', 'derailed', and 'over-excited'.

(4) Finally we find an assertion which, in its general outline, coincides exactly with one aspect of the formulation put forward in this book. Price (1953, p. 152) writes:

> Emotions and conations are directed towards something, whether real or fictitious. They have objects . . . One cannot be just afraid or surprised. One is afraid *of* something . . . It follows that cognition is not just an accompaniment of emotion and conation, but an essential constituent of them.

(5) Hillman (pp. 188-9) continues:

> A recent paper of Broad's [1954] describes emotion along the same lines as a kind of cognition, while Rosenzweig [1958] from another point of view, says, 'the affect system is a predicting device which anticipates the future in terms of the past'.
>
> Reviewing the material we have covered so far we find that emotion signifies the values of objects. As such, it is a way of perceiving, a way of

knowing, a way of adapting and a way of being in the world. It intends a specific object, goal, or end-result. In short, there is reason in emotion. 'Le coeur a ses raisons que la raison ne connaît pas.'

The relation of emotion and reason is an ancient problem solved usually by splitting them asunder . . . Woodger [1956], in his short and valuable essay on the methods of physics, psychology and medicine, thinks the split and conflict between emotion and reason unnecessary.

(6) Dewey (1939, p. 65):

> The split which exists in present social life between ideas that have *scientific* warrant and uncontrolled emotions that dominate practice, the split between the affectional and the cognitive, is probably one of the chief sources of the maladjustments and unendurable strains from which the world is suffering.

(7) Hillman (p. 189) remarks that M.D. Chenu (1950, p. 126)

> observes that all the medieval theologians 'tried to overcome the irreducible and necessary distinction between cognitive faculties and affective faculties . . .'.

(8) Hillman (p. 190):

> The divorce of emotion and reason is now so long-standing and has worked so to the benefit of reason that emotion has become . . . a pejorative concept of irrationality bordering on the insane.

(9) Hillman (pp. 190-1) remarks that McGill (1954, p. 62)

> also challenges the divorce of emotion and reason . . . He seeks to find reason *in* emotion, not to find the reason *of* emotion as do Adler, Sartre, Britan and Behean.

(10) MacMurray (1935, pp. 49-50):

> Reason reveals itself in emotion by its objectivity, by the way it corresponds to and apprehends reality. . . . Reason in the emotional life determines our behaviour in terms of the real values of the world in which we live. It discovers and reveals goodness and badness, right and wrong, beauty and ugliness and all the infinite variety of values of which these are only the rough, general, intellectual abstractions.

This author also makes a distinction between rational and irrational emotion.

(11) Hillman (pp. 192-3) refers to and quotes Drever's (1917, p. 258) work in which this author affirms that meaning has two aspects – affective and cognitive. He also refers to Whitehead's (1938, pp. 159-60) distinction between two modes of thought, which he calls 'importance' and 'matters-of-fact'. This view would consider emotion as the *primary mode of* cognition.

(12) Hillman (p. 193) concludes this long review with the following words:

To sum up briefly: we have been told that emotion signifies objects – and not just objects, but an objective psychic world of qualities and values. It either has a rational component or it is rational in itself and therefore is not to be separated from reason. In fact, it is a primary kind of reason, giving meaning and importance to a world of bare sense cognitions and matters-of-fact. Emotion signifies something as Adler and Sartre said; but more, *it is signification itself.* Where there is emotion, there is meaning; where there is meaning, there is emotion. Emotion also gives ourselves meaning. As Whitehead says: 'My importance is my emotional worth now. . . .' Further, emotion is the only mode of apprehending, cognising and experiencing certain aspects of existence. Examples would be the *numinosum** or the love-encounter where the other is grasped through the emotions. It is only through emotion that we are led to higher spiritual and aesthetic awareness, and to God.

Practically, this point of view means that there is so much hatred, fear and depression in our lives because there is so much to hate, fear and be sad about. The emotions only cognise the real facts.

* Otto, R., *The Idea of the Holy*, Oxford, 1923.

A comment. These quotations leave no doubt as to the fact that various authors have fully realised that there is a cognitive aspect in emotion. Perhaps the clearest expressions on this point are those found in Price and in Whitehead. The pity is, however, that the various authors quoted have not made a clear distinction between cognition – which refers to cognition *of an object* and therefore implies a *true* assertion about the nature of this object (otherwise it would not be cognition) – and thinking or propositional activity, which does not of necessity imply such a condition. To put it in another way, cognition is *one* form of propositional activity; all cognition is propositional activity but not all propositional activity is cognition. My view, in contrast, affirms that a constitutive part of emotion is, not cognition, but propositional activity *about an object.* To mention an example: the implicit propositional activity which results in a view of the beloved as the summum of perfection may not be a cognition of the object *at all*, though it is propositional activity about the object. It may not be a cognition because the loved person may, indeed, be very imperfect. The same can be said of any basic emotion.

Objection might be raised to the above by saying that, after all, in some way the beloved person *is* a summum of perfection, and the hated one is hateful, and so on. There is some truth in this, but then it must be recognised that the perfection of the person loved or the hatefulness of the one hated are not perfection and hatefulness in the sense in which we normally use such terms. A distinction should therefore be made, that is, a further precision should be established as to the difference between these two types either of perfection, hatefulness or whatever the case may be: that grasped by ordinary cognition and that grasped by emotional cognition.

It is precisely here that the literature is either silent or vague. We have found references to a way of perceiving, a way of knowing, a

way of being in the world, to signification, to reason, to rational and irrational, to 'le coeur a ses raisons que la raison ne connaît pas', but none of this is precise. The meanings attached to the above expressions may very well vary from one person to another, for the simple reason that it is the expressions that are vague or incomprehensible.

The view put forward here suggests, instead, a quite definite conception of the nature of the propositional activity (establishment of relations) observed in emotion. While having something in common with the propositional activity which is usually known as thinking, at the same time it differs widely from it. The nature of this activity, on the other hand, throws a clear light on the nature of the essential features of emotion. But not only does it throw light on these features: it also enables us to define them in a far more precise way.[1] At this point our conception begins to differ still more widely from all previous views of emotion. The application of the principle of symmetry leads to the identification of the individual with the class, to the timelessness and spacelessness of emotion and, ultimately, to the view of emotion as infinite set. From there we go on to understand with further precision the intimate connection of emotion with a way of being, the symmetrical or homogeneous and indivisible way of being. We shall see this in the remainder of the book.

[1] My view has some resemblances to Sartre's; see Appendix.

23. The Question of the Measurability of Emotion : a General Formulation. Sensation - Feeling and Measurement

Foreword

It is a matter of common knowledge that the concepts of greater or smaller are applied to emotion, both in everyday life and in general psychological as well as psycho-analytical thinking. No one doubts that a given feeling of love may be greater or smaller than another feeling of love; the same applies to any other emotion. But it *appears* senseless to say, for instance, that this feeling is two and a half times greater than another. This fact raises the question whether the (apparent) impossibility of applying the concept of measurement to emotion is something inherent in its nature or is something that only indicates our present state of ignorance. It may be remembered in passing that in ancient times man was able to tell that a given object was hotter than another but could not say precisely how much hotter it was. The thermometer resolved this impossibility. One could then think that some day a sort of 'thermometer for measuring emotion' will be found. It may even turn out to be that in this case we shall find, not one thermometer, that is, not one measure but several; in an analogous way, we can measure a flame from various points of view: its temperature, its size (and this comprises the three co-ordinates of space), its brightness, its duration, etc. So that when we say that a given flame is greater than another we must specify which of these variables we are referring to.

Emotion has several different relations to the concepts of magnitude, quantity and measurement. Emotion is not a simple but a rather complex psychical manifestation; we have isolated two fundamental aspects in it. The first is sensation; the second is thinking or propositional activity, whose basic materials are connected with three basic themes of logic: propositions and propositional functions, classes and relations. We have, furthermore, seen that as soon as sensation-feeling emerges it is wrapped, so to speak, in the establishment of relations, so that in the end we find that this latter permeates all the aspects of emotion, though in different ways.

When one considers the variety of phenomena subsumed under the heading 'sensation-feeling' and the variety of manifestations of the thinking aspect of emotion, one realises that the relation existing between emotion and magnitude, quantity and measurement cannot

be unique. We must therefore consider the question under different headings, to study each case separately. This will be the subject of the present and the following chapter.

We shall now devote our attention to the more specific subject of this chapter: sensation-feeling and measurement.

A warning

We may start with a very general statement: the possibility of measurement both conceptual and practical, seems to correspond, in the case of sensation-feeling, to the nature of things. So-called 'psychophysics' deals precisely with this question. But great care must be taken, even here, if we wish to avoid falling into over-simplification. This matter is frequently approached without due consideration of the various distinctions required in order to avoid falling into logical errors. The situation prevailing here is, in a way, similar to that existing in arithmetic before the logical analysis made at the end of the last century and the beginning of this one succeeded in resolving some basic problems. The solution of various paradoxes which had shaken the structure of arithmetic could be found precisely in a refining of logical analysis. The resulting subtlety seemed at times strange, involved and unnecessary, as, for instance, when number was defined by Frege as 'a plurality of pluralities of pluralities'. But this subtlety was required, for 'the elementary grammatical mistake of confounding this with the simple plurality of a given triad,[1] made the whole philosophy of number, before Frege, a tissue of nonsense in the strictest sense of the term "nonsense" ' (Russell, 1961, p. 784).

In this subject one must proceed with great care because the obstacles are many and they are caused, on the one hand, by the complexity of the subject itself and, on the other, by the great amount of prejudice with which it has been treated.

1. Introduction: a summary and some comments

As this subject is very difficult to follow I shall first make a summary of the findings of this research, which it is advisable to read both at the beginning and at the end of the chapter.

We shall identify in this chapter three aspects of sensation-feeling which bear a relation to the question of measurement:

(1) Definition of the stimulus, which obviously makes use of asymmetrical relations.

(2) 'Internal' or intimate aspects of sensation-feeling itself, which are revealed in imagination as observed in macular consciousness. This also makes use of asymmetrical relations.

[1] He is giving the triad as an example.

(3) The peripheral-consciousness aspects of sensation-feeling.

The first two are phenomena which can deal with bi-univocal correspondences with the external world or with images of it. Owing to the property of transitivity they can, therefore, be put into bi-univocal correspondence with the series of numbers, that is, they are, in principle, measurable. As for the third, it merges into the subject of the next chapter and will be considered again there.

It will be seen that in each of the first two cases we establish two successive types of correspondences: (*a*) from the non-material (psychical) event of sensation-feeling to a material object: the object perceived, in the first case, and an image of it in the second; (*b*) from the object or the image of it to the series of numbers. As both are, supposedly, bi-univocal, the property of transitivity permits measurement. But the question arises: if we are going to establish a correspondence between something non-material, sensation-feeling, and something non-material, the numbers, why not do it directly, without having first to descend to the material, and to ascend again to the non-material? (This direct correspondence between non-material objects is done, for instance, in pure mathematics.) The answer is that we simply do not know how to do it and we do not even know whether in principle it can be done. We know of no other way of doing it than the way we do it. The only way we know of measuring the psychical is by relating it in some way to the material, that is, discovering its relation to the material, and subsequently measuring the material phenomenon whose connection with sensation-feeling we have discovered. This is the nature of things, as it appears to us. Mental manifestations, which appear as something different from material manifestations, are revealed to us only through the mediation of these latter.

We shall now consider separately the various aspects inherent in sensation-feeling or related to it.

2. Identification of the stimulus

Psycho-physics has succeeded in establishing one-one or bi-univocal correspondences between series of stimuli and series of sensations, so that it has become possible, in various cases, to construct at least an ordinal scale of sensations which identify stimuli ordered in ascending or descending degrees. In some cases the scales constructed may be of a more complex type, even up to ratio-scales, which are the most complex. What interests us at the moment is that the establishment of this correspondence may amount to some sort of measurement of sensation. It is not my task to describe these complex and multiple researches in detail, as they can be found in books on experimental psychology.[1] But I should like to analyse

[1] See, for instance, Stevens (1951) and the recent monograph by Ancona (1970) which represents an admirable effort towards the integration of the physiological and psychological, experimental and clinical facts.

here the general meaning of this type of finding. I have just mentioned that it amounts to *some sort* of measurement, and it is precisely this that must be kept in mind. Such measurements as have been performed can hardly be said to have exhausted the multiplicity of contents of sensation, even in those aspects which we may consider measurable; much less have they refuted the possibility that there may be other aspects in sensation-feeling that may not be measurable, owing to their nature and not to circumstances or practical difficulties. The fact that an individual may differentiate between various external stimuli and that a scale can be constructed, which orders these stimuli according to their increasing or decreasing magnitude, does not necessarily give us any information about other aspects of the sensory reaction to these stimuli: it only informs us about the capacity of differentiating accurately between various external stimuli by paying attention to some aspect of the corresponding sensation. The bi-univocal correspondence between the stimulus and the response gives us the right to consider the former an indicant of the latter, even a calibrated indicant (the terms are used in Stevens's sense). But it must be understood that this is an indicant of only one aspect of sensation-feeling, precisely that which is directed towards the external world, whereas it gives us no hint as to other possible and more central aspects of sensation-feeling. Psycho-physics has devoted itself entirely to this task and has made the definition of the stimulus its only problem (Stevens, loc. cit., p. 31). By varying the diverse properties of the stimulus, psycho-physics studies the capacity of the individual to differentiate between various stimuli in various circumstances; and it also establishes the limits to this capacity. When one leafs through the books on experimental psychology one cannot avoid feeling a profound disappointment. By studying only problems which are related to the measurement of stimuli, experimental researchers have succeeded in creating a science which is in fact much more a chapter of physiology than of psychology. It is true that the human mind is investigated in psycho-physical experiments, but only in the sense of ascertaining its capacity for differentiating all aspects and variations of stimuli; it is a mind at the service of this task and nothing else. Stevens quite rightly remarks that 'in order to get on with science we must break its problems into manageable sections. We cannot solve the universe at a stroke' (Stevens, loc. cit., p. 32). In all fairness it should be added that, so far, the sections studied are precisely those which have less to do with the intimacy of mind. Such studies seem to have been made for one simple reason: because they are the most manageable! But, one must add, they are also the least interesting for a study of the intimate nature of mental phenomena.

3. Sensation-feeling so far as it is oriented inwards: the 'internal' or intimate aspects

The differentiation of stimuli corresponds to a study of *mind directed outwards* which, as a result of the use of (calibrated) indicants can be said to be measurable mind. Or can it? Would the fact that we can distinguish between two given stimuli necessarily mean that our *intimate reactions* of discrimination bear between themselves – in that part which pertains not to the stimulus but to ourselves – the same quantitative relations as those existing between the stimuli? To affirm this, it would seem, would amount to going further than observation allows. To mention a simple example: I may be able to differentiate between a given line and another whose length is double that of the first. In one case the number of retinal portions stimulated is double that in the other. Does that give us the right to say that the corresponding sensation is double in magnitude? The answer seems clearly negative. It must be noted that it is not a question here of another measure which may link stimulus and response, such as Weber's law. For it is perfectly possible that what at the level of the retina may be the ratio of two to one, may become another, still measurable function in some higher centre. But this would leave us in complete ignorance as to the intimate reaction; it would only remain at the level of discriminating stimuli. The same can be said of any other stimulus, either painful or electrical, of the skin or any other sense organ. To calibrate stimuli can only mean to ascertain the capacity of the sensory organ to differentiate them; we can go no further than affirming this. The relation between the stimulus and the capacity of recognising it can be well established, but there is an abyss between this pair and the magnitude of the internal sensation.

To put the same thing in other words. We are able to differentiate, by means of our sensations, a series of stimuli in such a way as to establish a serial ordination of the stimuli in an ascending or descending order of magnitude. This implies a corresponding ordination of our sensations, but *only in that aspect which concerns the identification of the stimuli.* Anyway, this ordination seems to amount to *one* form of measurement of a psychical process. So far so good. But this does not mean that one can exclude the possibility that our sensations have other aspects, more intimate ones, directed inwards and which, so far, have not been ordered at all, even if we may assume that they could be ordered and hence could be measurable if this order could be put in correspondence with the series of numbers. We must, therefore, turn our attention from the stimuli towards ourselves.

Everything remains to be done about the question of measuring these more intimate aspects of our sensations. For it can easily be shown that the great mass, perhaps the totality of experimental

evidence about measurement of sensations refers to the definition of stimuli, as Stevens himself has remarked. So, at this point we can do no more than just formulate the problem in as clear a manner as possible. This is by no means easy to do. A first difficulty is that even the simplest of sensations engages the activity of large portions of the nervous system and this makes measurement difficult even if we start from the supposition that it is theoretically possible. To measure the discrimination between stimuli as has been done so many times, is a very circumscribed task. It is like measuring the distance between two points of the earth. But to measure the *internal reactions* to a stimulus would amount (to continue with the comparison) to measuring all that is measurable between these two points, not only in terms of distance but also of, say, temperature, atmospheric pressure, weight, electricity, etc. If we wish to measure, for instance, the intensity of pain in terms of stimuli of different intensity, we must realise, first of all, that we cannot take for granted that the greater the stimulus the greater the pain. Even if we had succeeded in discovering and identifying accurately the various intensities of the stimuli, this would not mean that the intensity of our reactions to pain necessarily follow a parallel course with these intensities or a course which can be determined by any mathematical function. The conclusion is that, in order to study the magnitudes of pain we must necessarily resort first to a study of pain *in itself*, and subsequently try to see whether we can establish a bi-univocal correspondence between it and some measurable phenomenon, either (for instance) the stimulus or the physiological processes associated with pain. The trouble is that both sides of the correspondence are most difficult to delimit. The reaction of pain can, in itself, be studied only by introspection which, we know, is retrospective introspection. We could, perhaps, succeed in establishing an ordinal scale of increasing or decreasing magnitudes. After completing this step we could try to establish the correspondence with external stimuli; this would be more feasible but probably less meaningful. A correspondence with internal processes, instead, would be of much greater interest. Unfortunately these are, as just remarked, of great complexity because many parts of the nervous system are involved; furthermore, there is a participation of the functions of various other organs of the body. In spite of these difficulties these processes are not, by their own nature, excluded from measurement. But we are a long way from arriving at measurement. So, in order to arrive at a measuring of psychical processes we need further researches from both sides: that of introspection about sensation-feeling and that of measurement of a great variety of internal physiological processes.

A further difficulty arises when we consider that the psychological processes which are of interest in the study of emotions are, not just sensations provoked by external processes (grasped by our sensory organs) but *sensation-feelings*, which correspond to the most

intimate internal processes. Of these we know next to nothing (see, for instance, Jenkins, 1951, pp. 1172-90). But the meaningful provisional conclusion that we can draw is that, so far, we have found nothing definite against the assertion that these internal or intimate sensation-feelings (to use a redundant expression which stresses the fact that they are not directed towards the knowledge of the external world) *seem in principle susceptible of measurement*, because they seem susceptible of being put in bi-univocal correspondence with physical or physiological processes which, however complicated, are by nature measurable. The property of transitivity would then permit a measurement of the psychological by means of its correspondence with the physiological.

In conclusion, it seems at first sight possible that even that intimate aspect of sensation-feeling can be put in correspondence with the numbers, that is, can be measured. If this were so, it would then be possible to develop the hedonistic calculus, mentioned by Bertrand Russell, which would start from such judgments as that a boy taking one chocolate ice-cream proves the same quantity of pleasure as that experienced in taking two orange ice-creams. This sort of comparison would entail an additional task to that involved in establishing a scale of pains or pleasures resulting, for instance, from smelling something: it would involve comparisons between various types of sensations. If we succeeded in establishing scales for each type of sensations, it would not be difficult, in principle, to devise some sort of convention by which we might come to compare sensations of diverse types. But this needs a further explanation. Assuming that we would be able to measure, for instance, the sensation-feelings of pain and those of pleasure, this would not necessarily mean that both would refer to the same type of measurable things. Metres, kilograms and seconds are all units of measurement, but each belongs, at first sight, to a different region of the measurable. Space and time seem to form one unity. Similarly, the various different possible measures of sensation-feeling may basically be the same thing. But they also may not be the same thing. We cannot affirm anything *a priori*.

The convention just alluded to might, therefore, be the expression of an intimate unity or it might be a way of establishing connections between realities which in themselves are different. If things are understood in this way, then the phrase of Bentham would make sense in either of the two alternatives just mentioned: 'If the quantities of pleasure are equal, then hopscotch is as good as poetry.'

Considerations such as these can easily be criticised as purely theoretical and as having no hold on the reality of things. The answer to this objection is that before we are ready to enter the realm of observation or experiment we must be clear as to what we are trying to seek. Experimental psychology and psycho-physics have accumulated a tremendous mass of facts which have no real bearing on the

study of the intimacy of the mind. One may ask whether this accumulation is the outcome of a premeditated purpose or just a result of the fact that the problems were, initially, not formulated properly. If one thinks of the beginnings of psychophysics during the last century, one is inclined to think that the initial ambition was precisely to measure *mind.* The term psychophysics itself is a witness to this ambition. But developments took place along different lines. Looking back, the name that would truthfully express the data gathered, is not psycho-physics, because there is comparatively little of 'psycho' in the data, but rather *physio-physics.* For we have learned much about physiology (of the nervous system) but little about psychology. The cause of this would ultimately lie in the fact that the formulations made were not clear. Perhaps they could not be, at the time. But nothing prevents us from trying again. It is for these reasons, it seems, that repeated reflection on these themes may eventually open the way towards a satisfactory formulation of an observational and experimental programme.

4. A brief summary

Summing up the above considerations we may conclude that sensation-feeling appears clearly measurable in that aspect which concerns the identification of the stimuli. Instead, with respect to its specific *internal or intimate* aspects, i.e. those which are not oriented outwards but inwards (such as the reaction in pain, heat and all internal emotional states), we must further explore the problem. We shall now proceed to do so.

5. The difference between macular and peripheral sensation-feeling in their relation to measurability

So far we have identified two aspects in sensation-feeling: definition of the stimulus (either external or within the body) and the 'internal' or intimate aspects. The first is actually a perception. It is sensation-feeling utilised as an instrument of knowledge of the external world or of the world of the body. We shall now try to understand some further properties of the intimate reaction which, as a first approximation, we have considered as possibly being, on principle, susceptible of measurement. Further reflection shows that the problem is more complex than it might appear at first sight.

The first thing that can be said about this intimate aspect of sensation-feeling, that which is not directed to the identification of the stimulus, is that it is not a perception, but a *pure sensation-feeling* (imagine a pain, a sensation-feeling of constriction (as in anxiety), a tickling in the heart (as in love), etc.). But this pure sensation-feeling, as we saw in Chapter 21, on account of its own nature can enter macular consciousness only for fleeting instants and,

for it to be further scrutinised there, it needs to be 'covered' by establishment of relations. On the other hand, when sensation-feeling remains in the periphery of consciousness, it also is 'covered' by establishment of relations. In other words, sensation-feeling either in macular or peripheral consciousness always ends up by making contact with propositional activity or establishment of relations. It would seem that in itself it is something like an ion, which by its nature tends to combine and form molecules.

We must now consider some properties which differentiate what we may call *macular* from *peripheral sensation-feeling*, that is, sensation-feeling expressed in terms of the functioning of macular or peripheral consciousness. The first has the characteristics of developed thought, precisely because the function of macular consciousness is precision, definition, clearness. Macular thinking, i.e. propositional activity exercised at the macular level of consciousness, uses all the resources of developed thought, which include a large amount of non-symmetrical and asymmetrical relations. It is these which permit the differentiation between the individuals belonging to a class or set. Peripheral consciousness, in contrast, tends to be, as we have already seen, of a rather loose type, i.e. it is loosely clothed with relations. The relations which tend to perpetuate 'peripheral sensation-feeling' in order that it may continue to exist (instead of disappearing as a present experience) are, in their turn, of a very general type: they are not very definite, and are capable of applying to many phenomena. Various classes are, in this way, treated as subclasses of a more general class, and viewed in terms of this class. To put it in another way, sensation-feeling combined in this way with propositional activity, to form a primitive variety of the imagination of a perception, would be of the same type as is obtained when owing to external conditions perception lacks precision. Such would be the case, for instance, of a shape seen in the night, when we are not able to differentiate whether what we see is a man, a plant, or any other object of a similar size. In other words, this type of perception corresponds to grasping classes, without being able to differentiate between the individuals that may be contained in, or represent the class at a given moment. But this is exactly the type of thinking observed in the second fundamental aspect of emotion: establishment of symmetrical relations.

The reader will remember that although sensation-feeling, on account of its unavoidable association with consciousness (which gives birth to it, even though it (sensation-feeling) is something more than consciousness: hence the word 'association') blossoms into imagination of perceptions, this in no way refers to the identification of the stimulus. This latter is a perception, but we are now concerned with imaginations of perceptions, which reveal the intimate aspects of sensation-feeling and reveal nothing about the stimulus, either external or internal (i.e. stimulus coming from the body). Now that

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we have distinguished between a macular and a peripheral type of this aspect of sensation-feeling, we may consider them in more detail.

6. Sensation-feeling, perception and imagination

We must start by directing our attention to a point which seems essential to the understanding of sensation-feeling, and about which, so far, I have made statements which are not sufficiently explicit. I said above that sensation-feeling starts as pure sensation-feeling and it is soon covered by establishment of relations. As something similar can be said of an actual perception (of an external or internal phenomenon) a central question arises: once pure sensation-feeling has entered into association with establishment of relations, does it develop into a perception? The answer is definitely negative. An actual perception, that is, a process of cognition, is linked to the aspect of sensation-feeling which is directed to the definition of the stimulus, to use Stevens's words. *But if we consider the intimate or second aspect of sensation-feeling, we find the interesting fact that, by its own nature, this aspect is linked, not to a perception, but to an imagination of a perception.* I believe that this simple fact opens the door to a penetrating analysis of *the difference between intimate sensation-feeling and perception.* Both entail establishments of relations, but *perception identifies a zone of happening outside our own intimate nature*, whereas sensation-feeling only concerns our own intimate nature. The zone of perception may be the external world or our own body, but so far as it is an object of perception, even our own body is alien to us, that is, alien to our own intimacy. This is clearly shown in many expressions about bodily experiences. We say, for instance, 'I *have* a headache', exactly as we could say 'I *have* a pair of shoes'. The headache is a perception of a disturbance in my head, even if the definition of the stimulus is not extremely precise. It (implicitly) entails a judgment about something that is provoking disturbances in my head. If I hear a noise outside my room, I conclude that something or somebody has produced it, even if I do not know who or what has produced it. In this sense, as in the case of a headache, to hear a noise is to have a perception. Of course the headache also has intimate aspects ('intimate sensation-feeling') but in as much as it is a perception I treat it as something alien to me. Otherwise I would say '*I am a headache or a part of me is a headache*'. This touches on the mysterious question of the body-mind or physical-psychical relations, which, in spite of all that has been said against it, is not a pseudo-problem, as Feigl (1960, Chapter 2) quite rightly remarks.

When, instead, we turn our attention to study the intimate aspects of our sensation-feeling, when we cover these aspects with establishment of relations, either in macular or peripheral consciousness, we then resort to a different procedure: *we use imagination.* If I try to

define a pain, 'a choking', 'a tickling in the heart', 'a feeling of uneasiness', etc., when I try to define it not in terms of the external or internal provoking stimuli, but in terms of what the sensation itself yields about its own nature, I can only find *a pure sensation. Pure sensation is, in sensation-feeling, the counterpart of the stimulus (object) in perception: it is the object of sensation-feeling. It cannot ever become a perception, because sensation-feeling would then cease to be sensation-feeling. But as, on the other hand, it cannot remain long in consciousness, it is soon covered by the establishment of relations inherent in the imagination of a perception.* And so we say 'this is a pain *as though* somebody were piercing me', '*as though* somebody were tearing me', '*as though* somebody were pressing upon me', 'I feel *as though* I was choking'. In some cases the sensation-feeling may coincide with an actual tearing, piercing or choking. In others not. But the identification of the stimulus and of the details of its action (a perception) is accidental to the study of the intimacy of sensation-feeling when it is being studied as such. But we could not describe sensation-feeling if we had not had previous experiences of perception, from which we now *borrow*, with the help of our imagination. It is as though this most intimate world of the mind, so distant from the external world, cannot exist without the external world, to which, all the same, it has some affinity. It is this condition (which we might refer to as *the nostalgia of the mind for the body*) which makes its appearance in imagination.

It must be noted that *imagination applied to sensation-feeling may fulfil a cognitive function.* Remember the experiences at the dentist (Chapter 21). To try to describe the nature of pain by means of comparisons ('it is as though somebody were piercing, tearing, compressing me', etc.) amounts to an attempt at *knowing* pain. We shall soon return to this question.

Now that we have reached this insight, which seems decisive for a precise analysis of these difficult problems, we may now turn our attention again to the study of macular and peripheral consciousness in sensation-feeling.

7. Further remarks on macular and peripheral consciousness in sensation-feeling

We may start with macular sensation-feeling. There is little I can say about it, and this is fairly definite. Sensation-feeling can only make its appearance in macular consciousness by depending on material objects. In other words, the macular consciousness of sensation-feeling is simply the imagination of material objects. These imagined objects, in their turn, have exactly the same characteristics as the material objects studied in physics; they conform to the laws of space and time, which means that they admit of serial ordination. Hence they are susceptible of measurement. The inevitable con-

clusion to be drawn from this is that the aspect of sensation-feeling which can be identified in macular consciousness by means of the imagination of material objects or happenings, is susceptible of measurement; always provided that there is a one-one correspondence between those measurable objects and the aspects of sensation that are expressed with their help. The problem thus becomes one of ascertaining whether such correspondence is one-one or not.

I know of no evidence which would lead to the conclusion that the correspondence is not bi-univocal; on the contrary, the known facts lead us to think that this actually is so. In fact, when we compare a given sensation to a given perception – for example when we say, 'this is a piercing pain', or 'an oppressive sensation', 'a feeling of choking', etc. – it seems clear that this comparison is not one of many possible ways to describe the sensation in question in an appropriate manner, but that it represents the sole suitable way, at that precise moment, of describing what is going on within ourselves. If we make more than one comparison it is because each of these comparisons is used to describe a particular aspect of a complex phenomenon; and if we replace one comparison by another it is because it seems to us that the latter represents a more accurate way of describing an elusive internal reality. All this leads us to the conclusion that this reality *is there*, within ourselves, quite well-shaped and precise, and that the problem lies not in the intrinsic impossibility of describing it but rather in the difficulty of finding ways which describe it accurately. For all these reasons we may conclude that the aspect of sensation-feeling which we connect with perceptual images is something that can be accurately expressed, with greater or lesser effort, with the help of these images and, hence, is, so far as is expressed in such images, susceptible of being put in correspondence with the series of numbers. In other words, it is measurable.

As already remarked, this measurable (in principle) aspect of sensation-feeling is also a form of cognition.

We must now consider sensation-feeling as it appears when it remains in the field of peripheral consciousness. We have seen that this part of sensation-feeling is expressed by means of symmetrical relations. As, on the other hand, we have described the second aspect of emotion precisely as that in which we see the establishment of symmetrical relations, the question arises whether both are the same or not. It seems they are. It seems that around the obscure sensation-feelings, which, as we have seen, refer to or are the result of bodily processes, we build or develop a colossal halo of symmetrical relations. (Perhaps this is a feature which differentiates man from animals.) This happens in peripheral consciousness, because whole classes cannot as such enter macular consciousness; they cannot be contained in it. Macular consciousness contains one thing at a time.

Classes can be *conceived*, but in 'imaginative consciousness'[1] they can only be represented by individuals belonging to it. The problem of the measurability of this aspect of emotion will be the subject of the next chapter. But at this point we must have clearly in mind that our considerations lead us to distinguish between two types of symmetrical thinking (which is characteristic of peripheral consciousness): that directed to the study of the intimate aspects of sensation-feeling, which has been considered in this chapter; and that which is directed towards the object, which we studied in the previous chapter. In other words, symmetrical relations are initially applied both to subject and object. But as it is in the nature of symmetrical thinking not to know space-time, nor the difference between the self and others, there comes a moment (when symmetrical thinking has a preponderance over asymmetrical thinking) in which subject and object become the same, and when this moment has come, what I feel is the same thing as what the object is. Because what I feel is neither more nor less than what I am (in conformity with the principle of symmetry I am identical to my feeling or to any part of myself) and at a deep symmetrical level I am myself *and* the other. The famous expression of the Spanish philosopher Ortega y Gasset, 'Yo soy yo y mis circunstancias', could, at this deep level, be paraphrased by saying: 'Mis circunstancias y yo somos la misma cosa.'[2]

Still further precision becomes necessary here. Sensation-feeling *starts* at the periphery of consciousness. But as symmetrical relations increase in proportion, as the classes become larger and the individual no longer has his own limits, symmetrical being can no longer be conscious. So the two 'symmetrical aspects' of consciousness which we have described (establishment of relations as the second component of emotion and sensation-feeling present in the peripheral field of consciousness) become the same, as we have said, but outside consciousness; they are, at this level, *unconscious by nature*. This is a subject which needs study.

Before finishing I should like to make some comment about cognition and the 'symmetrical aspect' of emotion. We have seen that the 'study' of sensation-feeling made (with the help of imagination) in macular consciousness, is a form of cognition, but cognition *of sensation feeling*: the object of this cognition is sensation-feeling itself. The establishment of symmetrical relations in emotion, in contrast, is directed to the object towards which the emotion is felt. Is it cognition? We have already touched on this problem in the previous chapter. It must be recognised that, if it is cognition, it is quite different from what is usually referred to by this name, which

[1] This expression points to a property of consciousness which may be useful for differentiating it from thinking. But we shall not delay on this subject here.

[2] 'I am myself and my circumstances' and 'My circumstances and myself are the same thing'.

seems to be necessarily linked to asymmetrical relations. It might be said that symmetrical relations reveal obscure aspects of being, those where the individual merges into the others (through disappearance of contiguity relations or space) and into the infinite (through disappearance of both space and time or relations of succession). This matter should be studied in greater detail.

At this point the reader is advised to go back to the beginning of the chapter and re-read Section 1.

24. The Question of the Measurability of Emotion. Emotions as Infinite Sets

Foreword

The study of the subject of this chapter is made easier by all the work previously done in this book, especially in Parts IV, V and VI. It will not be necessary, therefore, to treat in detail subjects which have already been dealt with. Mostly I will restrict myself to some delimitations and to attempting to introduce further precision.

1. The possibility of measuring the 'thinking aspect' of emotion. Emotion as infinite set

Introduction. We shall consider here only the thinking or propositional-activity aspect of emotion which is characteristic of it, namely the peculiar use of symmetrical relations, as studied in Chapter 22. If we consider that the numbers form a series, if we wish to put something in bi-univocal correspondence with the numbers, that is, if we wish to measure it, then it must be susceptible of serial ordination. But serial ordination requires asymmetrical relations. The inevitable conclusion seems to be that this central aspect of emotion, where there is an establishment of symmetrical relations, is, by its very nature, not susceptible of measurement.

But we have seen in Part IV that if we interpret the corollary of the principle of symmetry which establishes the identity between the part and the whole in terms of Dedekind's definition of infinite set, the problem can be viewed in a new light. We concluded that whenever we find that the principle of symmetry applies, the set in question is an infinite set. In the case of emotion the principle of symmetry applies, and we, therefore, cannot avoid the conclusion that emotion is an infinite set. This opened the door to the possibility of measurement because an infinite set is formed by an infinite number of discrete elements, i.e. elements distinguishable from one another. This is of the utmost importance. Seen directly, the principle of symmetry precludes the possibility of measurement because if the individual and the class are identical there are in fact no individuals and there is no possibility of serial ordination. But seen in terms of infinite sets, that is, *interpreted* in conformity with Dedekind's definition, then the hyaline unity is transformed into a set with an infinite number of elements.

The previous chapters on emotion have already made quite obvious that emotion is an infinite set. Some additional considerations may, however, be useful.

In their 'thinking aspect' emotions deal with classes with infinite values of the variables x **and** y, q, z, **etc.** To understand this statement the reader must be conversant with the considerations discussed in Chapter 13 where the meaning of x and y, q, z, etc., was explained.

We must remember, first, that here we are studying the thinking aspect of emotion, that is, the use of symmetrical relations. We have already seen that, as seen by an outside observer, this aspect may refer, either to the object of the emotion or to the experience of sensation-feeling. In both cases this thinking aspect corresponds to the peripheral field of consciousness or to the unconscious. As the use of symmetrical relations entails the disappearance of the limits of the self (when the proportion between symmetrical and asymmetrical relations increases in favour of the first), what is said of the object can equally be said of the subject, because both are the same at a deep level. It is here that we see that the question at issue goes far beyond a mode of thinking: it is *a mode of being.*

From the point of view of an outside observer such as a scientific researcher, however, it is much easier (because it is more external, and therefore nearer to the observer) to study the characteristics of symmetrical thinking as seen when directed to the object of emotion. If we remember that object and subject coincide at a deeper level, then we shall know that what applies to the object also applies to the subject. If the subject of my love is infinitely perfect I am infinitely perfect and if something is worthy of deep distrust I am worthy of deep distrust. Naturally, this is valid only at these deeper levels, which are only one part of the nature of man; and if we speak of infinite, this is valid only for the interpretation of the principle of symmetry in terms of Dedekind's definition of infinite set, because otherwise we have no right to speak of infinite sets.

The task delimited is therefore an easy one because most of the work has already been done in previous chapters.

We saw in Chapter 22 that three basic characteristics of emotion are, 'generalisation of the characteristics or features attributed to the object so that all features of this type come to be contained in it, maximisation of the magnitude of these characteristics, and, as a consequence of both, irradiation from the concrete object to all others, which in this way come to be represented in it'. Now, a moment's reflection is sufficient to realise that the three together lead towards the infinite set. Generalisation, so that all features of the class are contained in the object, leads to the identification of the individual with the class. Maximisation of these characteristics entails the possibility that the variables y, q, z, etc., by means

of which the propositional function of the class is defined, may have all values up to infinite values. The values described in this way from the smallest in degree to that of infinite degree obviously form an infinite set. Irradiation, so that all members of the class come to be represented in the object, entails that, as a member of a class, the individual contains all the members of the class. If emotion dealt with classes with a finite number of elements, irradiation would entail there being only a limited number of individuals. But emotion, exactly like the unconscious or symmetrical being, only deals with classes which can have an infinite number of elements, that is an infinite number of x at each value of y, q, z, etc. Such classes are, for instance, those of loveable people, good people, dangerous people, etc. So, the number of x is infinite. There are, therefore, two infinites in these classes: infinite number of values of y, etc. and infinite number of x for each value of y. That seems to be not the power of the denumerable but that of the continuum: an infinite number of people for each of the infinite number of values of the propositional function.[1]

I believe this is sufficient to show that the concept of emotion entails that of infinite sets. This, on the other hand, was already implied simply by affirming that in emotion we find symmetrical relations. The above considerations, however, are of interest, because by means of an analytical procedure they reach the same conclusion that follows from a corollary of the principle of symmetry, that of the identity between the part and the whole. *It is like a confirmation that the interpretation of the principle of symmetry in terms of Dedekind's definition of infinite set was right.*

Some reflections on chairness and femininity. I have already dealt with the essential concepts which are pertinent to the consideration of emotion as infinite sets. It does not seem superfluous, however, to consider with the help of two examples the question of the infinites in a class still further. This will probably add nothing new from the conceptual point of view but may, instead, be useful for better establishing in our minds the concept of the class as an infinite. Let us consider, then, the class of chairs and that of feminine women. The first is the collection of all values which satisfy the propositional function, 'x is a chair', and the second the collection of all values which satisfy the propositional function, 'x is a feminine woman'. Now, femininity, as we may call the second propositional function in a short expression, can itself be defined by making reference to a number of features; for instance receptiveness, softness, roundness, protectiveness, capacity for feeding, capacity for becoming pregnant, etc. The propositional function should include all of them. Each (or

[1] Note that what is being said here about these two infinites in emotion applies equally to the unconscious, viewed as an infinite set, which we considered in Part IV.

most)[1] of these characteristics is itself susceptible of assuming various magnitudes. When emotionally we attribute femininity to a given woman we implicitly attribute to her all these various features, each in its maximum possible value. So we may say: she is the *essence* of femininity, and by this we imply both the total *number* of the traits or features of femininity and the maximum *degree* of each of these traits. In other words, when, emotionally, we attribute femininity to a woman, we attribute to her all possible ways of being feminine and the maximum degree of each of these ways. I may remind the reader that here, once more, this extreme situation may be tempered and attenuated in certain circumstances which we shall briefly consider later: namely in the case of 'tamed emotions'. For the time being we are considering only the full potentialities implicit in emotion without discussing yet the 'attenuated' cases.

If instead of concentrating all the manifestations of femininity and the maximum degree of these manifestations in one person we were to distribute them in different women we would have an infinite collection, each one of whose elements would represent a given quality of femininity in a given magnitude or degree. If in the class of feminine women we include not only existing women but all possible ones; and if, furthermore, we conceive the various y, q, z, etc. which define the propositional function as susceptible of assuming values of infinite magnitude, then the class of feminine women can be included in the infinite sets. It can easily be shown that in emotion, the y, q, z, etc. *are* conceived as susceptible of assuming infinite values. Take, for instance, receptiveness or the capacity for feeding. Apart from physical receptiveness and physical feeding we may conceive symbolic receptiveness and feeding. The woman loved, owing to the idealisation characteristic of emotion, is conceived as having infinite receptivity. No person in love would stop short of that. And the same holds for all other traits. The class is, therefore, obviously an infinite set.

If after we had collected all possible variations of magnitude of all possible characteristics of femininity we added all possible combinations of these variations, we would then have the totality of the possibilities implicit in the propositional function which defines the class of feminine women. Looking at the question in this way we may now see in greater detail why, by concentrating in one individual all the possibilities of the propositional function which defines the class, emotion paves the way for making the individual identical to the class. But it must be pointed out that, in rigorous bivalent-logical thinking, this concentration of possibilities (all values

[1] I say 'most' because, so far as I can see, roundness is not susceptible of degrees; either it is or it is not. But, on further analysis it can be put in another way: if we consider that a circle is the limit of the series of polygonal figures with an increasing number of sides, roundness can be viewed as the shape of a polygonal figure with an infinite number of sides. The magnitude of roundness could then be said to be only one: infinite.

of *y*, *q*, *z*, etc.) is not enough to make the individual identical to the class, as can be seen from the following considerations: once we have circumscribed *one* particular possibility permitted by the propositional function, say, for instance, a degree *a* of receptiveness, together with a degree *f* of protectiveness, we have not yet circumscribed or identified *an individual* (that is, a value of the propositional function) but only one value of each of two variables which, together with other variables, define the propositional function. In fact, there can be, in principle, an infinite number of women who satisfy this particular combination of values of these two variables. Each of these women would be identical to the others in the possession of a degree *a* of receptiveness, together with a degree *f* of protectiveness, but would differ from all the others in a great number of other variables either connected with the propositional function or not. So, we may say that for each value of the variables *y*, *q*, *z*, etc. defining the propositional function there is an infinite number of variables *x* which may assume this value, that is, an infinite number of elements of the class. From this we conclude that it is not enough to concentrate in one individual all the possible values of *y*, *q*, *z*, etc., in order to identify the individual with the class. Something more is necessary. This individual would have to have, not only all possible values of *y*, *q*, *z*, etc. (which are infinite), but in each of these values he would have to be all possible individuals who assume this value. The differences between the infinite number of individuals who may assume each value of *y*, *q*, *z*, etc. is no longer established in terms of the propositional function which defines the class but in terms of other classes (height, age, race, colour, etc.). So, by this path we do not arrive at the identification of the individual with the class because to follow this procedure would lead to identifying the individual not only with this class but with an infinite number of classes. We arrive, instead, at the identification of the individual with the class under consideration, by the use of symmetrical relations, which leads *directly* to making the individual equal to the class: according to the principle of symmetry, if *a* is an element of the class *A*, then *A* is an element of *a*. This type of thinking leads to ignoring all characteristics of the individual which are not expressed in the propositional function under consideration, and this results in the identification of the values of the variables *y*, *q*, *z*, etc., alluded to in the propositional function, with the values of the variables *x* which are assumed by an infinite number of individuals or elements of the class. *In conclusion it is only by starting from a situation where the principle of symmetry rules that we can subsequently apply, for our purposes, analysis in terms of differentiating elements, that is, in terms of series, which presuppose asymmetrical relations.* The situation existing here is similar, I believe, to that obtained where we conceive a segment of a straight line as formed by an infinite number of points; or the

movement (from a point *A* to a point *B* separated from it by a finite distance) as formed by an infinite number of component movements. Pragmatic reality puts the segment and the movement before our eyes as indivisible units, and analysis divides them into infinite components. Similarly, the application of the principle of symmetry presents us with the identity between the individual and the class; we may subsequently analyse it as we have done.[1]

We may now consider the concept chair. The propositional function which defines the class (we may call it 'chairness') can be, so to speak, unfolded in a series of subsidiary propositions, each one of which can limit a certain 'territory of chairness'. Take for instance three-legged, four-legged and rocking chairs (which have no legs). Each of these groups may be subdivided into smaller groups and so on, until we finally arrive at individuals. *The potentialities of the propositional function have unfolded until each one of them has come to be represented by an individual or by an infinite number of individuals.* We can see here the intimate connection between the propositional function and the elements of the class. Perhaps this is related to what logicians have in mind when they say that functions only occur through their values and that classes, as distinct from functions, disappear, that is in a rigorous formulation (see Whitehead and Russell, 1950, vol. 1, p. xxxix). I may say in passing that it would not be surprising if introspection (and the psycho-analytical study of psychological reality) could be helpful in the understanding of logical concepts just as the converse is also true.

The various infinites implicit in emotion. In this very difficult problem one constantly comes across a great number of ramifications and subtleties which must be considered in order not to fall into simplifications which distort reality. At first one grasps intuitively certain aspects of the problem, feels one's way through the mass of data provided by observation and establishes 'total contact' with reality. But as this is a personal experience, and incommunicable as such, one must devise methods of formulating one's intuition in an understandable way. The reality which has been intuitively grasped as an indivisible whole, must be analysed, broken into pieces and then presented in a reconstructed way, so that it may give the impression of reality. It is here that the trouble starts. On the one hand no logical analysis ever succeeds in giving the exact impression of indivisible reality and on the other the application of analysis seems interminable: the more one thinks about a problem, the more one sees ramifications, difficulties and as yet neglected subtleties. One runs the risk of getting lost in a sea of distinctions and counterdistinctions and losing clarity of thought; and also of losing the contact with the reality from which one started.

[1] After I wrote this I realised that it is inspired by Bergson, that is, in ideas of his which I learned many years ago.

Though what follows has already been considered in detail in the previous pages, it still seems worth remarking that the object of emotion is viewed by the subject in terms of several infinites. This is ultimately the expression of the fact that, according to the principle of symmetry, the individual is identical to the class. If, with the help of Dedekind's definition of infinite set, we consider this property in terms of infinite sets, we come to discover some interesting aspects of the question. On account of the fact of having all the magnitudes of the features defining the class, the object (or the subject) of emotion has an infinite number of magnitudes. This is a first infinite set. As some of these magnitudes must necessarily assume infinite values, we have in this infinite number of magnitudes some which have an infinite magnitude. This is a second infinite set. Finally, as the individual must, according to the principle of symmetry, stand for all the elements of the class and as for each value of y, q, z, etc., there can be an infinite number of x, that is, of elements of the class, which assume this value, we have a third infinite implicit in the concept of emotion: infinite number of elements, which the object (or the subject) of emotion stands for. In short, we find at least three different infinite sets implicit in the concept of emotion.

I hope it is clear that none of this holds if we simply view emotion in terms of the principle of symmetry and not from the point of view of its interpretation in terms of infinite sets. *The principle of symmetry corresponds to a way of being other than that of the infinite as conceived in mathematics. The interpretation of the principle of symmetry in terms of infinite sets is an asymmetrical way of studying the principle of symmetry.* This is most important to keep in mind. The homogeneity of symmetry, where no discrete elements are possible (in contrast to what happens in infinite sets), is a mode of being alien to science, which by its nature employs discrete elements, that is, elements which by the fact of being discrete presuppose asymmetrical relations. To this it must, as we have already remarked, be added that the principle of symmetry itself is anaclitic logic, i.e. a logic which already uses bivalent logic and which by this means succeeds in revealing something which would otherwise remain in complete obscurity.

I believe that to have reached this understanding indicates more than a little progress: it can be made the subject of still further reflections about the two ways of being in man.

The above considerations can be applied, as a special case, to the study of the mysterious relationship between consciousness and the unconscious.

2. Emotion: non-measurable and measurable. Emotion as mother of the measurable and as mother of language

Though, here again, what I am about to discuss is not a new element

of our argument, making certain things more explicit will enable us to see things in a more complete perspective. We have repeated many times that symmetrical relations rule *within* the realm of emotion. If we consider that measurement requires the existence of series both of numbers and of the things that are to be put in bi-univocal correspondence with the numbers, and that the concept of series requires the concept of asymmetrical relations, we realise that it follows that where there are no series there can be no measurement. This applies to emotion. Hence, if viewed from the vantage point of the principle of symmetry, emotion is not measurable. Whereas, if viewed in terms of infinite sets, emotion is measurable *in principle* because all the considerations made in Part V apply to it. So we have the interesting fact that emotion is either not measurable or measurable (in principle), according to the vantage point from which we view it. In other words, *emotion, which is a unitary being, appears to have two entirely different faces.* Janus-faced, emotion, on the one side, looks towards and *is* in the realm of obscure mind which is felt rather than seen, whereas, on the other, it looks towards the external world, from which it is seen as infinite.

All the above touches on the question, or better, *is* the question of the immeasurability of the psychical and the measurability of the physical. As the psychical in man can only appear by its association with the physical we encounter this peculiar situation, of immeasurability in itself and measurability in its manifestations. Again, this might be the subject of further reflection.

The fact that we can consider emotion *either* not measurable *or* measurable (in principle), according to which angle of vision we choose to take, does not detract from the fact that *in actual reality* emotion cannot be measured because it is an infinite set, and we can only measure finite quantities. But if we consider the aspect which is, in principle, measurable, we find that it can produce infinite *actual* measures: those of each of its manifestations in the form of fantasy, as we have already considered, which on account of their being expressed in images, or (perhaps) simply being images, can have all the measures of physical things and physical happenings. This is emotion descending to the region of space-time.

Within immeasurable emotion there is, therefore, an infinite number of measurables which continuously emerge from it, in its inevitable (owing to the nature of things) contacts with the realm of the measurable.

From these considerations there follows a corollary. Language, which is the instrument developed by nature to identify with greater and greater precision all the subtleties of internal and external reality, is inconceivable without an extensive use of asymmetrical relations. *Emotion, therefore, so far as it is symmetry, cannot in itself have language. But, just as, being immeasurable, it is the mother of the measurable, emotion is also the mother of language.* From the

depths of emotion language emerges as a manifestation and a revelation of some aspects of the nature of emotion. What is frequently called the language of emotion is nothing else than one or many of these revelations. It has the peculiar and quite mysterious power of recreating, in the person who receives it, the same emotion from which this revelation emerged. In the end we find two emotions (two individuals who *are* emotions) of the same kind, one in front of the other, communicating by the means of this language, as shown in expression. It is as though two infinites could pour each other into each other, and could do it quite comfortably, through these finite and narrow channels. But perhaps this is not the whole story, because we also have the right to say that the emotion of one individual, which knows no space and time, enters into direct contact with the emotion of another individual.

All the above applies equally to the unconscious, as studied in Parts IV and V. In fact, *the study of emotion has furnished us with the opportunity to complete the observations which we made when we studied the unconscious.* At the same time it is becoming increasingly evident to us that emotion and the unconscious are basically the same thing. But here we should consider not only the question of terminology but other questions as well. These will be the subject of Chapter 26.

3. Emotion: an intensive infinite set or infinite within finite limits?

What I am about to discuss briefly here is also something which has already become obvious. It does not seem superfluous, however, to make it entirely explicit. Within emotion the principle of symmetry rules; at the same time, as the various emotions (love, hate, sadness, etc.) can be clearly differentiated from one another, it is obvious that this delimitation presupposes the use of asymmetrical relations. So each emotion marks a limited territory within which there is an infinite set. This is an example of what I have proposed calling intensive infinite sets. It is an infinite circumscribed by finite limits, like a segment of a line.

To say that there are various emotions, and considering that each is an intensive infinite set, amounts to saying that there are, in man, various intensive infinite sets. The realm of emotion in human beings is not the realm of *one* infinite set but of both several and many. Exactly the same applies to the unconscious. Emotion, therefore, like the unconscious, must be viewed in its totality, not as an infinite set but as a set or collection of infinite sets. This consideration lies behind the title of this book.

Conclusion. The analysis made in the preceeding pages permits us to affirm that the same conclusions reached in Part V apply with

equal right to emotion. We have, in consequence, delimited the question of the measurability of the aspect of emotion which we set out to study in this chapter.

25. *The Translating Function and the Quantum of Intellect-Emotion*

Foreword

Now that the question of basic emotions viewed as infinite sets has been considered, we may turn our attention to the study of so-called 'tamed emotions'. It can soon be seen that this problem is like a cross-roads, where many different aspects of the concept of emotion meet. In fact, considering this problem amounts to considering the problem of the relationship between thinking and emotion, that of the measurability of emotion and that of the relationship between consciousness and the symmetrical mode of being.

It seems that the best way to approach such difficult matters is to start with a clinical example.

1. A clinical example

The fact that I had agreed to deliver a certain paper at a given date, and that this date was approaching and I still was far from completing the paper, caused me to interrupt my clinical work for ten days. When one of my analysands came to his first session after this period of interruption he began to speak about the Pope. He criticised him for a recent letter of his in which he referred to the communists. The Pope, the patient explained, had condemned the communists; he had made a distinction between those who were deceived by them and in consequence identified with them, and those who were convinced communists, i.e. those who took a theoretical stand as communists. It was these latter who were condemned. Now, the patient was a convinced communist and he therefore felt included among those who were condemned. He went on to comment that the Pope was irresponsible and a delinquent to have made such a pronouncement.

Further, he had become aware that our analytical sessions meant nothing to him in any deep sense but, instead, they gave him the opportunity of having somebody to talk to about personal feelings and problems. He felt lonely and talking to me alleviated his loneliness. He then went on to say that one evening he had to go to a seminar at the University and felt it would be very boring; so he decided to go to a strip-tease show instead. At a certain point of the show two women began to undress and to make sexual advances to

each other. He felt this to be very obscene and left the show.

He also said that during this period he had let himself be spoilt by his wife, who had been very sweet to him. She had commented that she now had one more child, i.e. him. He himself also felt as if his wife were his mother.

At this point I made an interpretation. The irresponsible and delinquent Pope was myself, who had banished or separated the communists, who represented the patient (as he actually was a communist), from his communion. When he did not go to the University for a seminar but went instead to a strip-tease show, he had at the same time rejected me in the formal role of a university professor and had sought to know me as a mother in the intimacy of undressing. At this moment he remembered that as a child he once had peeped at his mother in the act of undressing and had felt very guilty about it.

As to the obscenity of the two women in intimate contact with their nude bodies, I suggested that this had probably evoked the unbearable feelings he must have had when his mother gave birth and suckled his sister. As he knew I had interrupted the sessions because I had to finish some writing, he had taken this as a symbolical pregnancy, giving birth to a child and enjoying the intimacy with my own child, while at the same time I excluded him from it all. All this corresponded to the experience of the birth of his sister.

A logical analysis of this case. We can now try to evaluate the situation in order to get a perspective of it which is useful to our study. It is obvious, first of all, that the young man had reacted to the interruption of the sessions with a deep feeling of rejection. This feeling had led him to see every situation which took place during that interruption in a dark light. I may add that I have not reported all his associations and that there were others pointing in the same direction. His attitude obviously was the expression of an emotion, and in it we see, in fact, the typical characteristics of emotional thinking. The Pope and myself, the two women making love to each other in the strip-tease show and his mother giving birth to his sister were all in some way the same thing for him: the rejecting mother. '*The class of rejecting mothers*' which he had (implicitly) considered was a very wide class, so wide in fact, that, from a logical point of view, it is not accurate to call it by that name. For the Pope and I were not even women; and the two women in the show did not outwardly appear as mothers. From a logical point of view 'the class of rejecting mothers' was only a subclass of a wider class which could be defined as '*the class of all individuals who in any way do something which is either an active rejection or a turning away of the attention from the individual who seeks them*'. The collection of all the mothers who conform to this propositional function is a subclass of this class, and it is only this subclass which could accurately be called 'the class of

rejecting mothers'. The women in the show would, logically, belong to another subclass, the Pope to another and myself to yet another subclass of this wide class. But, emotionally, he had treated the more general class just defined as though it were identical to 'the class of rejecting mothers' and all the other subclasses also as identical both to the class of rejecting mothers and to the more general class. Moreoever, he had treated myself, the Pope and the women in the show (all of whom were only *elements* of subclasses) as identical not only to the corresponding subclass but to all the other subclasses and to the general class.

In other words, the feeling of being abandoned was experienced by him in relation to anybody who in any way, even the most indirect, fulfilled the propositional function defining the wide class. The most accurate way of describing what happened to him in his emotional state would be to say that individual, subclasses, the general class and the propositional function defining the class were all one and the same thing. No distinctions were made between various individuals and situations of abandonment. This is a typical case of identification of the individual with the class or the propositional function defining it, which is characteristic of symmetrical thinking, as seen in emotion or in deep unconscious manifestations. The generalising quality of symmetry is obvious in this case.

At the same time, however, the facts referred to above are also the expression of quite individual and circumscribed experiences, as is shown in the fact that what appeared in the consciousness of the subject were not the classes but *emotions directed towards individuals*: the Pope, myself, his wife and the show-women. One may say that this is a case of a 'tamed' emotion. He was angry with the Pope, felt indifferent towards me and disapproved of the women, but was not aware that at a deeper, more symmetrical level, we were all one and the same thing, a thing identical to the general class. To put it in another way, he was not aware that at a deeper level there was no Pope, no 'myself', no 'one pair of women making love to each other', but an immense '*Popeness*' – '*myselfness*' – '*women-making-loveness*' – '*rejectingness*'[1] in which each of these partial aspects impregnated, so to speak, all the others and the whole impregnated each part. Neither was he aware that *the description just given is an external, asymmetrical way of grasping – in terms of discrete entities – a reality which has no discrete entities or parts, and which, as such, cannot enter consciousness unless it is translated into discrete entities*, i.e. entities separable from one another; and that the logical act of differentiating one entity from another presupposes the use of asymmetrical relations. He was not aware of all this because he was

[1] Or 'rejecting-motherness', if one wishes to be more accurate, at the price of adding yet another neologism!

not thinking about the circumstances described but simply *feeling* about them.

I believe the above, summary description of an analytical session gives us the opportunity of discussing various interrelated subjects, which we shall now consider under separate headings.

2. A comment on the 'lateral insertion of instinct into mind'

The 'class of rejecting mothers', in the case mentioned, is only one subclass of a more general class. The Pope belonged to another subclass and myself to still another; from a rigorous logical point of view neither the Pope nor myself belonged to the class of rejecting mothers. Nevertheless, it was not only us but also the more general class who were treated as though belonging to the class of rejecting mothers. This is a peculiar situation, which needs further understanding. In the first place, unless the more general class were taken into consideration, there would have been no possibility of including the Pope and myself in the class of rejecting mothers, because neither of us was a mother. So, *from a logical point of view*, in order to include us in that class it was necessary to conceive of a still more general class to which we (or better: we, so far as we exercised the functions attributed to us by the analysand) belonged, as elements of subclasses of this general class. Once this logical 'ascending' to a more general class was completed, the application of the principle of symmetry permitted the various equalities or identifications mentioned above. It must be stressed, once more, that this is a logical way of considering a reality which in itself is not divisible in so many steps but *is given all at once*.

The above considerations, however, are not sufficient to explain the preference given, in the patient's feelings, to the class of rejecting mothers which, in strict 'symmetrical logic', should be on an equal plane with any of the other subclasses, or with the general class. This preference is witness to the fact that some asymmetry has crept into the midst of the application, in this particular case, of the principle of symmetry. The explanation for this is found in psycho-biological reality. The patient was not a logician performing subtle games but a *living* person in need of affection and care and whose needs were expressed in feeling-thinking. There are two relevant remarks to be made here. First, that the patient wished or expected something from me and from the Pope;[1] both of us were, in this sense, potential sources of satisfying instinctive desires. The desires towards us, all the same, did not refer to primitive needs *directly*, but to rather elaborate or disguised manifestations of such needs. He

[1] It will have been noticed that I have left the two show-women out of these reflections. This is only not to complicate matters; for, though essentially the same considerations apply in their case, some additional remarks would have to be made, which would complicate the reasoning to the detriment of clearness.

wished, for instance (among other things), to be understood and intellectually approved by me and the Pope.

The second remark refers to the fact that, as already seen, such desires had something in common with other desires which were more *directly biological* and also chronologically earlier: those referring to the care and affection given him by his mother when he was a little child. It is this interaction between biological needs and satisfaction which we may consider to be a *basic* instinctive situation, and it is this type of situation which enjoys the privilege of primacy over all others in which the needs and desires are on a symbolical, less directly biological plane. As already recognised in Chapter 10, the concept of instinct, a biological concept, entails asymmetry, because it is not possible to satisfy hunger with symbolical food (such as reading) but only with the precise food required from a biological point of view. Correspondingly, the mental activities connected with the direct satisfaction of instinctive needs must necessarily distinguish food from reading, and this implies the use of asymmetrical relations. *The biological processes of instinct, therefore, make their first appearance in mental life at an asymmetrical level, that is, at a level which is not the deepest of all.* This is what I have called 'the lateral insertion of instinct into mental life'. Once the instinctive processes are present in the mind as desires, they are treated in conformity with the nature of emotion and thus they come to be felt in a 'symmetrical manner'. This entails a deeper level. The primacy of the original need, however, persists throughout life, even when it is expressed in highly symbolical (symmetrical) ways. We might, perhaps, relate this to the phenomenon of 'imprinting'. Anyway it is this primacy that explains the apparently peculiar fact (which surprises or repels many of the 'uninitiated') that analysts are always speaking of primary situations and organs (feeding, breast, penis, Oedipus, etc.). One must add, however, that behind each concrete situation there is an infinite set.

It is pertinent to mention here that in a study of cognitive development Money-Kyrle (1968) has some interesting reflections on the formation of concepts. He writes:

> So far as our present knowledge goes, the first innate preconception to operate in a new-born baby is presumably one of a breast or nipple. Or rather . . . of a good breast and a bad one. The two classes . . . cover a wide range: a number of objects could be *recognised* as members (or in Bion's terms, could mate with them). But whatever is first recognised as such – a particular breast or bottle given in a particular way – would seem to have the effect of narrowing the class . . . it limits what can be recognised as members to objects that resemble it fairly closely. At any rate, the baby can now be satisfied only by the good breast it has had before, and not by an alternative which would have satisfied it if this had been offered in the first place . . . The process would appear to be the same as that observed behaviouristically by ethologists and called 'imprinting' by them.
>
> Side by side with the development of a concept of a breast, or more specifically, of a nipple, we may suppose the development of a concept of

> something which receives, or contains, the nipple, that is, a mouth . . . From these two concepts it would seem that all, or almost all, of the vast number of concepts we employ are ultimately derived by processes of division and combination (splitting and integration).

As a brief comment I would like to say that the concept of preconception seems to have a certain correspondence with the notion of symmetrical being; to make a complete comparative analysis of both is beyond the scope of this work. On the other hand I would add that the process described by Money-Kyrle in the latter part of this quotation, especially the remarks about the division and combination of concepts, corresponds to a process of translating symmetrical being into asymmetrical expressions, as already considered and will be studied further in Section 4 of this chapter.

If we now return to the clinical case, I believe we can understand better the complexity of the situation. The asymmetry introduced in the (implicit) preference of 'the class of rejecting mothers' over all other elements and subclasses of the larger class and over the larger class itself, is due to the primary central role that the basic themes of instinct have in mental life. The formation of the larger class, on the other hand, is a witness to the fact that starting from the relatively small symmetry of *instinct presentation*, to use Freud's expression, the interaction between the symmetrical and asymmetrical modes of being may arrive at much larger classes and, consequently, at a much greater range of application of the principle of symmetry.

The rest of the question (identification of individual and class with all its consequences) is already a familiar story.

3. A short comment on the level of logical complexity of the present approach

Throughout this book we have made ample use of the concepts of symmetrical and asymmetrical relations and now, in the study of the translating function, we continue to give preponderant attention to these two logical concepts. It seems natural, therefore, to ask what the reason for such a preference is. I must point out that after I came to the formulation of the principle of symmetry and began to see that so many things became understandable with its help I have frequently asked myself why the concepts of symmetrical-asymmetrical relations should be exclusively at the centre of all these explanations. There are so many other logical concepts which, in principle, could be important in the description of psychological phenomena. In particular, the logico-mathematical notion of *operation* seems to be destined to play an outstanding role. The use of this and other such notions, however, is all on the side of the translating function and not on that of symmetrical being.

It is only recently that I have come to see the reason for this

preponderance with great clarity. It simply lies in the fact that the concept of relation is probably the most fundamental concept of logic and seems to be prior to all other logical not-defined concepts. Moreover, the concept of relation itself entails that of asymmetrical relation, so that it can truly be said that all logic starts from this concept. If things are understood in this way, as they must be, there is nothing to be surprised at if the distinction between the logical and alogical worlds is made in terms of the availability or not of asymmetrical relations. This will be considered in Chapter 28, especially in Sections 1 and 5. In the meantime I shall give some examples which show why the approach adopted here is *basic*, however imperfect it may be. A breast may roughly be defined as an organ which supplies milk to the young: 'a breast is a supplier of milk to . . .'. This phrase means, in logical terms, that the breast is in the relation of supplier to somebody who receives. As is obvious, this relation is asymmetrical, because the young is not in the relation of supplier to the breast. 'The penis is an organ which penetrates into . . .' also implies an asymmetrical relation. The set of all breasts and the set of all penises and any other set or class with which we deal in psycho-analysis entail in their definition one or more asymmetrical relations. These may be more or less obvious, but without asymmetrical relations thinking cannot take place. We may consider, as another instance, the class of those who are hurt (to use Whitehead's and Russell's example), defined by the propositional function 'x is hurt'. The meaning of hurt, if further investigated, entails the asymmetrical relation hurting-hurt. The class of mothers ('x is a mother') entails several asymmetrical relations ('giving life', 'forming inside the womb', have as converses 'being given life', 'being formed . . .', etc.). In short, it is impossible to consider mental life without asymmetrical relations, and this is one of the reasons why the pair asymmetrical-symmetrical plays such an important role in the present approach. It seems that we must first try to understand this fundamental question of the relationship between symmetrical and asymmetrical relations in mental life before we can proceed with our studies. For we are confronted here by a most extraordinary fact, namely that there are central aspects in man which are completely alien to the notion of asymmetrical relations.[1] This fact, as far as I know, is unique in nature. It is for this main reason that, if we wish to know something about the intimate being of man, we must try to understand the meaning of this fact, its extent, its projections and all that it entails.

We can now return to our subject.

[1] I repeat again, *if seen from the outside*, because, from the inside they are alien not only to that, but to *any* logical concept. See Chapters 3 and 28.

4. Presence and density of, and interaction between, symmetrical and asymmetrical relations

It is easy to understand from the case chosen as an example that the symmetrical and asymmetrical modes of being are in constant and very complex interaction and that neither of them appears in isolation. The fact that in the case mentioned there are classes, subclasses and individuals shows the use of asymmetrical relations, as it follows from the preceding considerations. On the other hand, the symmetrical equalisation appears, in our example, at various levels and in various modes. The wide class to which we referred above ('the class of all individuals who in any way do something which is either an active rejection or a turning away of the attention from the individual who seeks them') is an example of an infinite set of the extensive type, as it is formed by gathering together individuals or elements to form various sets, each one of which contains an infinite number of elements; and then collecting all these sets together in a larger set. The emotional way of viewing an individual in terms of concrete happenings is, at least in some cases, an example of an intensive infinite set, because various classes – infinite sets – come to be represented in this individual. In the case considered above, the large class that was formed is delimited and distinct from other classes, and this requires asymmetrical relations; but *inside* the class or set the principle of symmetry rules. If a class is defined by very precise and limiting conditions, whilst, nonetheless, being an infinite set, it *may* then have a power or cardinal number smaller than that of a class defined by more general conditions and which can, in consequence, contain or be formed by a larger number of different subclasses. If we conceive mental activity as the (implicit or explicit) formation of various propositional functions, classes and relations, then the smaller and less comprehensive the classes are, the greater the number of classes and also the greater the number of asymmetrical relations delimiting the classes will be. For each class is delimited by asymmetrical relations. In contrast, the larger and more comprehensive the classes are, the smaller the number of classes and the smaller the number of asymmetrical relations will be. If we represented the mind by a volume, for instance by a vertical cylinder, then we would find that the number of asymmetrical relations, the *density of the population of asymmetrical relations*, increases as we go up towards the higher parts and decreases as we go down towards the lower parts of the cylinder. The function describing this state of affairs would be a continuous function. But *within* each class, whether large or small, symmetry rules, whereas asymmetry rules at the boundaries of the class.

An *all-invading* emotion of love wraps, so to speak, the individual in an *atmosphere of love*. When one is in love, the loved one is felt, so far as he or she is felt in terms of love, as a vast unity in which

everything is lovable and in which the details are experienced only as a way of approaching or a way of entering, or a way of remaining in, the atmosphere of love. The loved one is *felt*, and this feeling may be looked upon as a wide class with infinitely varied and infinitely great qualities. (Of course this does not prevent the coexistence of a 'realistic' judgment.) In other words, love is treated as an extensive infinite set. The same holds for all the other basic, all-invading emotions. To put it in the terms employed above, the *density* of asymmetrical relations is low in such cases.

If we now consider the case of the reaction of the patient to the Pope or to the interruption, we find an entirely contrasting situation. The patient criticised the Pope, or made judgments about me, not in a general way, where the details did not matter, but *in a very precise way*. Things appear circumscribed and controlled: 'tamed emotion'. Each phrase, each circumstance, was evaluated, analysed and criticised with reasons explicitly given. Yet, behind this very asymmetrical analysis there was an immense amount of feeling and, as we have seen, there were also a number of classes which were represented in the individual – the Pope or myself – and which *were* the individual, just as the individual was the class. This is a case of intensive infinite sets.

It is perfectly conceivable that there are other cases in which there is not such a concentration of classes in one individual: in these cases asymmetrical relations (the conscious thinking aspect) is present in a greater proportion or, alternatively expressed, has a greater density. To continue with the analogy made earlier, there are regions (such as towns) in which the density of the population is greater than in other regions, for instance in the country. But *it appears inconceivable that in human beings there is any self-experience and/or mental activity which is not both symmetrical and asymmetrical. The proportion may vary from a great preponderance of asymmetry to a great preponderance of symmetry. The so-called tamed emotions are placed at different points of this line of variation from greater asymmetry to greater symmetry, according to the case.*

The formulation made above is the expression of the relationship between what can approximately be called emotion and thinking in mental life. I believe that put in these precise terms, it throws a clear light on their respective roles and dispels much confusion on this question.[1] But it must be kept in mind that emotion and thinking, as any human mental manifestation, are already an expression of both

[1] Rapaport (1960, p. 843), quoted by Pinchas Noy (1969, p. 172) had a similar idea when he wrote: 'All thought forms involve both primary and secondary processes but differ from each other in the kind of synthetic function they involve, that is to say, they differ in the degree of dominance the secondary process achieves over the primary. Not even our ordered thinking is free of primary processes.' The analogies are obvious. I believe, however, that the conception of primary process already entails some asymmetry.

the symmetrical and asymmetrical modes, though in different proportions.

The case of the products of mental activity. If all the above holds for the inner experiences, in the case of a mental product, such as a piece of writing, things must be viewed differently. A textbook on mathematics or logic can be viewed as an 'asymmetrical document'. For, even if symmetrical relations are considered, they are considered in an asymmetrical way, that is, by establishing their differences from other relations. *They are described, not lived.*

A poem, on the other hand, though written with words, may have a highly symmetrical structure. Here we find a mixture of asymmetrical and symmetrical, in the same way as occurs in mental life.

There therefore seems to be a certain difference between inner life and mental products, in the sense that asymmetry may appear in these latter in a pure state, which is not the case with the former. It must be added, however, that mental products seem to have the power to provoke reactions at different levels, but they never provoke purely 'symmetrical reactions' or 'asymmetrical reactions'. A mathematical demonstration, to give an example, stimulates 'asymmetrical relations' (i.e. understanding) but may also provoke some emotion. A good poem, in contrast, is likely to provoke a greater proportion of emotion.

5. Translating function, 'light' and 'darkness'

> . . . for the property of being conscious or not is in the last resort our one beacon-light in the darkness of depth psychology. (Freud, 1923, p. 18)

A question repeated: is there thinking in emotion? These meditations about the reality of psychical life, as revealed by observation, again bring us to the question of whether it is accurate to speak of thinking when we speak of the symmetry within the class. For we are used to viewing thinking as an asymmetrical process in which elements are distinguished from one another, and this is not the case when only symmetrical relations are always established within the class: in such a case all order is lost, including the symmetrical relations themselves. Thinking entails *some* relation to space-time, because it is a process in which one portion *follows* another (as for instance in a logical argument), and this implies relations similar to those seen in succession or in time. On the other hand, the various aspects of a discourse stand to each other in a relation *similar* to that existing between material objects in space. In this sense we can say that thinking is a spatio-temporal affair. In 'symmetrical thinking', by way of contrast, none of this holds good, for each element (as seen from an asymmetrical vantage point, because otherwise there can be no elements) occupies the whole 'space' of the class; neither is each element distinguished temporally from the others or from the class,

even in a symbolical way or any other which could be compared to time. All this is so alien to our thinking that one feels tempted to throw overboard any consideration of similarity between thinking and feeling.

A general concept comprising both thinking and feeling. This would definitely be an error because, if we leave aside these obvious differences, we find that there is a fundamental similarity between the symmetrical and asymmetrical mode of being, which we could describe with the help of the concept of *intentional presence*, proposed in modern times by Brentano, following Aristotle, St. Augustine and the scholastic philosophers. I quote (Brentano, 1944, p. 102):

> Every psychical phenomenon contains in itself something as object, but each phenomenon contains this object in its own way. In representation, it is something that is represented, in judgment it is something that is admitted or rejected, in love it is something that is loved, in hate it is something that is hated, in desire it is something that is desired, and so on.*

* Aristotle already speaks of this psychical inhabiting. In his treatise *De Anima*, he says that the object felt is, as such, in the subject who is feeling, that the spirit contains immaterially the object felt, that the object thought is in the thinking intellect, etc.

In both modes of being, symmetrical and asymmetrical, there is, therefore, a psychical contact with, or a psychical movement towards a psychical object. To put it in a symbolical way (because words are insufficient to express it directly) both modes of being illuminate the object, bring it from an external obscurity into an internal clarity; and both bring it from an external cold into an internal warmth. Whereas symmetrical light appears dim compared to asymmetrical light, asymmetrical warmth, in contrast, appears tepid compared to symmetrical warmth. But there is in both modes light and warmth, i.e. logic and energy.

We may, then, conclude that there is something in common between thinking and feeling, and we can describe this something in an approximative way by saying that there is thinking in feeling and feeling in thinking.[1] But the 'thinking' of feeling contains the object by feeling it; when this '*feeling it*' is considered by thinking, it appears that the object is an infinite set which is held in its entirety by feeling, whereas in thinking the object appears as a limited entity. Behind it, however, there is, as we have seen, a hidden infinite set in the *experience* of thinking, if not in the *act* of thinking viewed from an external, objective point of view.[2]

[1] See also Chapter 21, Section 4.

[2] The reader will have noticed that everything that is said in this sub-section makes use of asymmetrical relations and attributes such relations to symmetrical being. As a result, it is not faithful to reality; there is, however, no alternative to this procedure as we shall now

The 'light' and 'darkness' of thinking and feeling. It is at this point that we come to one of the most significant aspects of the relationship between the two modes of being.

Whenever we wish to *study* any of the two modes of being or their relationship, we are forced by our own nature to do it with the help of asymmetrical relations. Otherwise there is no possibility of studying or formulation. This does not mean that there is no possibility of 'symmetrical contacts' or 'symmetrical fusion' with the objects; I am only referring to the study or formulation (such as that outlined above), which, by its very nature is an asymmetrical activity, if it is looked upon in terms of its results and not in terms of the person who exercises it.

We may consider the emotion of love towards a given person, viewed as a vast class within which the principle of symmetry rules. This emotion is distinguished from other emotions and this entails the use of asymmetrical relations. For the person who experiences it, love, so far as it is love, is felt outside space and time and outside any particular description of details; it is a vast, immense experience with no parts or aspects that can be distinguished in it. This entails that the person who loves and the person who is loved are not separated from one another. Viewed from an asymmetrical vantage point, if no details are distinguishable, and if this lack of distinction arrives at the point when the individuals are not even separated and class and individuals are the same, the whole thing looks like a colossal confusion. In other words, love, as seen from an asymmetrical vantage point, appears to be a very obscure affair, because *the light of understanding* entails the differentiation between various aspects: the greater the differentiation, the greater the light will be. Yet, it cannot, in truth, be said that love does not know its object. The fusion between subject and object is a fusion which is also knowledge: *it is the convergence of fusion and knowledge into one and the same thing.* If we look upon this question from the point of view of the comparison with 'the light of understanding', we could say that, viewed from the inside, love (or any other basic emotion) is not a darkness or a dim light, but, on the contrary, a light which is so immensely strong that it is dazzling to the point of being blinding. It must be noted, however, that to say 'dazzling to the point of blinding' is only an asymmetrical way of describing the experience, and is not the experience itself. It is an asymmetrical way of describing it, because in asymmetrical thinking too much light prevents one from seeing details and for this reason becomes identical – for asymmetrical differentiation between things or aspects – to complete darkness: in both cases asymmetry sees nothing. In the case of darkness no asymmetrical relations are

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see. An effort must be made to go beyond this *description* to arrive at *being*, in which the object is indistinguishable from the subject, yet *there*. Perhaps the concept of infinite dimensions would solve this impasse (see also Chapter 28).

established at all. If one establishes some asymmetrical relations, this amounts to having some light. If more are established, there is more light and more understanding. But if the number of relations increases more and more, a moment comes when consciousness can no longer consider them all, even one after another, because it would take longer and longer. When an infinite number of relations is given, the light is so strong and consciousness so weak and so short-lived that an infinite number of relations becomes identical to no relations at all, *so far as the functioning of consciousness is concerned.*

This line of reasoning has led us to considering *the symmetry within the class as an infinite set, if viewed from the point of view of asymmetrical thinking. And it has also led us to viewing 'complete symmetry' as having the quality of being unconscious, because consciousness cannot contain it.*

Let us return now to the dazzling light, as seen from the inside of the class, by the person who experiences an emotion. There are no parts to be distinguished in this light, but to symmetrical being this is no obstacle to the knowledge of the subject-object. On the contrary, *it is perfect knowledge. Perfect knowledge is achieved, in emotion, because knowledge and being are one and the same thing. It is not the knowledge of a spectator but the knowledge inherent in being. It is not darkness – to symmetrical being – but the totality of light. In contrast to asymmetrical knowledge, it is the knowledge without parts.* Viewed from the inside, the question of infinite is not put: it is the question of knowledge-being of the totality. Viewed from the outside, this can be described as an infinite set, but it is an infinite set which we *think* is formed of discrete elements. From the inside, the infinite sets with which we deal in psycho-analysis do not exist: they are *interpretations* of symmetrical being, as proposed in Part IV. *It is an asymmetrical description of feeling, which is an indivisible reality.*

The reader who is a psycho-analyst will have noticed that the efforts just made towards describing the ineffable reality of emotion have brought us to an everyday experience of psycho-analysis: *emotional understanding.* It is my hope that they have contributed something to illuminating this dazzling light which is at the same time a complete darkness, depending on the angle from which it is looked at.

6. A further look at the relationship between symmetrical and asymmetrical being. A structural origin of dynamics

It can be concluded, from the above reflections, that, however much symmetrical and asymmetrical being are 'given' together, and however much they may be inextricably linked to each other in the most varied ways, they remain, as far as their being is concerned, permanently separate. The question proposed in Chapter 13, of the

possibility of transitions from one to the other can only be answered, so far as we can see, in a distinctly negative way. In the human mind we see either symmetrical or asymmetrical manifestations, but never transitions. The interrelations between these two inseparable modes of being, however, vary greatly from one case to another; but we shall not consider this aspect here.

The impossibility of symmetrical being ever becoming asymmetrical and vice versa does not detract from the fact that with our asymmetrical being (our understanding or our thinking) we are constantly trying to grasp the nature of symmetry. Every time we apply ourselves to this task we translate symmetry in terms of (asymmetrical) infinite sets. The tendency to understand, *to think that which is unthinkable* (symmetrical being) seems a powerful source of mental activity. This activity can and must be viewed in terms of the dynamics of instincts, because the epistemophilic tendency is, no doubt, a manifestation of instinct. *But there seems to be another, non-instinctive source of the epistemophilic tendency, and this would be the consequence of the nature of the mental structure of man.* I shall try to explain. The fact that classes where the principle of symmetry rules are determined (one might say are contained) by asymmetrical relations, creates a structure which is at the same time the source of a tendency. Propositional-relational activity (i.e. the act of thinking) is constantly brought into being active by the fact of its being surrounded by symmetry, because, if classes are separated by asymmetrical definitions, within the classes (that is, if we consider, for instance, the case of two neighbouring classes) symmetry rules. Which amounts to saying that thinking, in the case in question, is like a thin sheet of asymmetry between two great volumes of symmetry. But by its very nature propositional-relational activity tends to *understand*, to express the distinctions between things, i.e. to establish asymmetrical relations.[1] Confronted by these oceans of symmetry, man's thought tries to understand them. In the effort of understanding something which in itself is outside the realm of (conscious) human understanding, thinking comes to express symmetrical being in terms of infinite sets. It can be said that it is in the infinite that both natures of man, the symmetrical and the asymmetrical, meet. For the asymmetrical expression of the symmetrical in terms of infinite sets comes to be, curiously enough, a way of expressing the indivisible unity in terms of an infinite number of elements. This expression can be considered as a mathematical limit. It is only at the infinite that the symmetrical and the asymmetrical come to coincide. And this is, I think, the real

[1] Here again, and again from a different angle, Money-Kyrle comes to a similar conclusion. When he says (1968) that the class of penises buds off from the class of breasts, he is obviously referring to a process of introducing asymmetrical relations, which, if seen from the viewpoint presented here, amounts to introducing asymmetry in an infinite set and in this way extracting from it another infinite set: the class of penises.

meaning of the translating or unfolding function.

Here there is another paradox. *The concept of infinite can be considered (at least in some of its aspects) in a precise manner by thought, but our asymmetrical nature cannot live it all at once.* It is as though thinking can see infinite vistas which unfold before its eyes, but thinking cannot arrive at the infinite in the process of exploration of the whole of these vistas. Symmetrical being can then enter the scene and *live* fully, in dazzling light, what it cannot see in its details. In this way both aspects of our being completely complement each other, without, however, ever leaving us satisfied. This seems to be an essential feature of the nature of man which has been known to poets and mystics from times immemorial:

> Inútil la fiebre que aviva tu paso
> No hay nada que pueda saciar tu ansiedad
> Por mucho que bebas: el alma es un vaso
> Que sólo se llena con eternidad.[1]
>
> Amado Nervo

The 'pouring' of emotion into thinking or the 'extraction' of thinking from emotion. From this situation a further consequence follows: the exploration of symmetrical being by asymmetrical activity furnishes this latter with an inexhaustible (infinite) source of knowledge. It is here that one of the etymological senses of the word intelligence can be applied: *intellegere*, to read within. All artistic activity is the result of a reading inside of symmetrical being, and so is psychological and mathematical knowledge. The unconscious is inexhaustible and the translating function is, at its best, the beginning of a task that would only end in the unfolding of infinite space-time.

This process can be described as a continuous extraction by asymmetrical thinking from the infinite possibilities of symmetrical being. Conversely, it could also be looked upon as a (symbolical) pouring[2] of symmetrical being into asymmetrical being. Whichever of the two expressions we choose to use, the fact is that both beings remain forever distinct from one another, however much symmetrical being is *reflected* in asymmetrical being. This situation can be compared to that existing in the production of induced current: both coils never touch one another, yet induced current is produced as a result of the action of direct current. *The 'induction situation' is an essential feature of the structure of the human mind.*

[1] The fever that hastens your pace is useless
There is nothing that can satiate your eagerness
However much you drink, for the soul is a vase
Which can only be filled by eternity.

[2] See, in this respect, Section 10 of this chapter.

7. Various aspects of the work of translation as seen in a clinical example

A young man got married during his analysis. Several weeks afterwards, in one of the sessions he began to speak about the attitude taken by his workmates to the question of a wedding-present which he was to receive from them. A collection had been made and the group decided that the best thing to do would be to give him the money so that he could do what he liked with it. Some time after returning from his honeymoon, the person who was in charge of the collection told him that some people had not yet given their contribution and added that as soon as the sum was completed he would hand it over to him. Some weeks had passed by and still nothing had happened. He began to feel that they had been inconsiderate to him and commented that the individual contributions to the present (as agreed) were quite low. On the other hand, some people had made him a personal present, apart from that of the group. But others who had a rather intimate relationship with him had, instead, contented themselves just with their contribution to the present in common. This hurt him.

Thinking and brooding over these facts he came to the conclusion that, if more than a few days elapsed and the wedding-present was not given to him, he would then reject it when the time came for it to be handed over to him. In this way, he felt, he would show them his feeling.

Free association about the subject furnished some further details which permitted me to make the following comments. He felt that the whole behaviour of the group, as described above, indicated that their attitude towards him was not friendly but was, on the contrary, one of rejection. This would be the result of his having, in various ways, affirmed himself in front of the others, and having tried to get a position of prestige. Rejection meant, in this context, withdrawal of love and implicit disapproval of his self-assertion, which was felt to be something bad and aggressive. As a consequence of his behaviour, the delay in the collection and what he felt to be the smallness of the sum to be given by each one of his companions, was the expression of feelings of hostility and total isolation from his colleagues. This aroused intense feelings of abandonment and guilt. He felt as though his loneliness was identical to the loss of all rights to existence, in fact to non-existence; and that the feelings of guilt *deliberately* provoked by his companions amounted to their trying to make him feel as though he were completely bad, the summum of badness and aggression.

I added that, owing to his being the prey to such violent emotions, he was unable to see other alternatives which could explain the behaviour towards him. It might be, for instance, that the person in charge of the collection was too scrupulous and felt he had to wait

until the last of the group had given his contribution, while some of those who had not given it yet might have had their own personal problems which, in one way or another, had delayed their handing it over. Anyway, there seemed to be many possible reasons for the delay which were just as plausible as his own explanation, which he felt amounted to an attempt at annihilating him and at transforming him into a supremely bad person.

As for his own (fantasied) reaction to such proposed attacks on him, i.e. his rejection of the gift and violent assertion of his own independence, this corresponded, among other things, to bringing himself back from non-existence into being, and a powerful being at that; and also to a rejection of the feeling that his aggressiveness was a bad thing, and to the exercising of this aggression without guilt.

The patient had no difficulty in accepting my interpretations of his inner experiences and felt an immediate relief. He came to see the whole situation as having much less importance than he had so far given it and came to smile at his own feelings about this question.

At the following session he reported that after he left my consulting-room he had to go back to work. He had felt so relieved by my interpretations that a problem, which he had to face and which before the session seemed very difficult, had become, in his eyes, quite simple and easy to tackle. In fact, he found a very good solution to this problem, which consisted of some decisions he had to make about certain people. He then went on to say that he had thought the matter over and had decided that he would give his workmates several more days; if after this time the present was not handed over to him, he would definitely reject it. He also said that he had felt great reluctance to have a session with me and only succeeded in forcing himself to come to it with a great effort. He concluded that, though it was evident that the previous session had greatly helped him, the problem was by no means entirely solved.

At this point I commented that it seemed to me that the feeling of rejection and the significance it had for him was very strong and that only a part of it was dissipated in the previous session; he once again felt confronted by being thrown into non-existence. He also felt that I represented an obstacle to his defending himself vigorously and that, on this account, I was contributing to his annihilation. And he was reluctant to come to the session because I would paralyse his self-defence and self-assertion.

A new relief ensued from these interpretations. We then went on to consider various aspects of the same question, but what I have already reported is sufficient for our purpose.

A preliminary comment on the above data. I shall start by pointing out that my interpretations in this case do not contain any reference to any of the instinctive processes that are commonly mentioned in interpretations, either oral, anal, or Oedipal and so

forth. Neither do they make use of the notions of introjection and projection and their correlate, the objects. This may provoke a feeling of suspicion in some, and for this reason I should like to comment that my abstaining from using, in this case, such notions, is not due to my belief that these notions do not apply here. In fact, it could easily be shown or found that the withdrawal of love is connected with the withdrawal of the breast and its milk, or with the incapacity, owing to aggression, to keep the breast as a good introjected object. Again, it could also be shown that this rejection was felt as a castrating attack, consequent on the aggressive self-assertion of the patient. And the same could be said of other alternative ways of interpreting the same material. I am certain that a complete version of what the patient said and showed during this session, and the discernible connections between the material from the sessions reported and that found throughout the analysis would provide convincing grounds for various types of accurate interpretations. But my feeling is that, however true to some aspects of the patient such types of interpretations may be, there was no need, *at this point*, to give them. For the real issue at stake was that the patient felt as though he were in danger of falling into non-existence. This could result, for instance, from being starved to death by a breast which did not supply him with the milk needed for his survival; or from losing the breast as a good introjected object; or from being castrated; or from being annihilated by angry attacks. What was central to all such alternatives was that the fantasied object, activity or event, was felt as an infinite set: infinite life-giving power in the milk-giving breast; infinite power for keeping him alive and organising him psychically in the case of the introjected breast; infinite sustaining, organising and life-giving power in his penis and consequent annihilation in castration; and infinite destructive powers in the imagined attacks. In a certain way, i.e. as far as they were infinite sets, all these alternatives were equivalent and, for the deep unconscious, identical. So, what was needed here was the interpretation in terms of infinite sets, which is the interpretation I gave, though I did not use this expression. Nothing prevented us from giving and elaborating in subsequent sessions and according to the development of events, interpretations along one or several of the lines just mentioned. What was immediately needed at that moment was to relieve the characteristic of extreme and distressing urgency and intensity which his feelings had.

I should add that, if any of the various alternative interpretative lines just mentioned had been pursued during the session, a relief would, most likely, have followed. One may ask how is it possible that the same thing may occur from various alternative courses. The reply seems to lie, as I see it, in the fact that the reference to the infinite danger would have been made, more or less implicitly, in all cases where a therapeutic effect would have been obtained. The

trouble is, however, that a more or less implicit reference may bring the problem more or less near to the focus of attention and that the further the distance, the smaller the therapeutic effect. In fact, these concepts are implicitly used, but a full awareness of them is, as I believe, far more powerful and effective from the therapeutic point of view.

Symmetrical emotion and asymmetrical awareness (consciousness). The patient was no doubt worried about the question of the wedding-present but had no conscious awareness of *all* that this question meant to him. He put the accent on the hostility and lack of interest of his colleagues and on the fact that he was not willing to let their negative behaviour pass without any reaction from him. When I interpreted in the sense explained above, he immediately agreed that my interpretations corresponded exactly to his feeling and added that he had not thought of it before. He had no difficulty in accepting them because they fitted in with what he already knew and accepted about his feelings. In fact, he had had a dim awareness that his reaction was, in the circumstances, excessive, but at the same time, when thinking about these circumstances, he soon found motives to confirm his opinion that his colleagues deserved the slap implicit in what he was planning to do.

We are confronted by a curious situation here which is in sharp contrast to that obtained in a process of repression. Whereas in this latter, if successful, the person who represses is not aware at all of his emotions, or may even be aware of an emotion in the opposite direction (as is the case in reaction formation), in this case the interpretations provoked only the increase of an awareness that was already present, though only in budding form. In this sense there was no difficulty in accepting it. It must be recognised, however, that this increase was so great that the final result was something entirely different from the previous conscious knowledge; this is shown in the fact that the patient was very surprised to realise that he had feared annihilation and that all his moves were directed, not towards 'teaching them a lesson' but to avoiding both annihilation and the feeling of being extremely bad. Even though both belonged to the same general class, it can truly be said (from an asymmetrical point of view) that a completely new awareness had taken the place of his previous awareness.

Yet, it must be recognised that all his thoughts about the behaviour of his workmates and the attitude he was planning to take, in some obscure way implied what was openly said in the interpretation. This situation could be described by saying that beneath apparently circumscribed thoughts and feelings there was a looming suggestion of an infinite set. His criticisms of the others implied a refusal to allow these to plunge him into an abyss and his fantasies about taking vigorous action fulfilled the function of

avoiding his feeling of being so bad that the others could not stand his company or associating with him.

It is extremely difficult to understand exactly what happened as a result of my comments, why he experienced a relief and why this relief, though very obvious and mutative (to borrow Strachey's terminology) was only temporary. It seems to me that an answer to these questions would throw much light on the nature of the relationship between consciousness and the unconscious, and between the asymmetrical and symmetrical modes of being. It must be recognised, however, that a complete answer is yet to come. In what follows I shall try to make some comments which may be of interest.

The first thing that can be established with certainty is that the notion that he was considering the situation in terms of (distressing) infinite sets entered his consciousness for the first time, that is to say, for the first time as far as this particular situation was concerned. *It must be noted that this does not mean that the infinite sets entered his consciousness.* In fact, the notion that he was dealing in this case with infinite sets is a very circumscribed notion indeed and it is entirely formed in terms of a few asymmetrical relations. 'You believe that you are in infinite danger' or 'you feel you are falling into non-existence' are propositions which can be considered as a fair expression of this notion, and it is obvious that no symmetrical relations are employed in these propositions. The propositions 'an infinite danger believes that it is in you' and 'non-existence feels it is falling into you', in contrast, imply treating the two previous propositions as though the relations expressed in them were symmetrical. Now, this treatment of the relations may, perhaps, apply to the state of mind of the patient, in whom infinite dangers and non-existence may come to be, at a very deep level, identical to himself. So, it seems legitimate to use this latter pair of propositions to *describe the state of mind of the patient.* But it must be clearly stated that *this description is not identical to the state of mind itself*, but is only an external view of it. Otherwise the patient, his state of mind, the two pairs of propositions, my employing them and myself would be one and the same thing. Though this may be actually true at a deep level, it is certainly not *the whole truth*, because there are also other levels, such as that of my interpretation of the patient's behaviour and feelings, and at this level a distinction is made between myself and the patient and also between the patient and what he feels at the moment; all of this implies the use of asymmetrical relations.

So, when I gave the above interpretations to the patient and he experienced a relief, my interpretation in terms of infinite sets, which entered his consciousness, was itself not an infinite set. No infinite set entered his conscious awareness. His conscious awareness was a very finite awareness of the existence of an infinite set in the

case in question and it was not a scientific but an intuitive notion of such a set.[1] For an infinite set to enter consciousness it would be necessary that each and every one of the infinite number of relations which an infinite set entails should enter and remain in consciousness together with all the other relations. Take the simplest example of an infinite set, that of the natural numbers; we can say that this set is in consciousness or has entered consciousness only if each and every one of the numbers and the relations which it has with each and every one of the other numbers is in consciousness simultaneously with every other number and its corresponding relations. It is obvious that this is impossible. *Human consciousness cannot contain an infinite set.*

I am aware that this discussion may seem extremely involved (some would say obsessive) to more than one analyst. I am hopeful that it will appear legitimate to mathematicians and logicians. Personally, I can find no other way of tackling this angle of the question of the relationship between consciousness and the unconscious. It must be recognised that this question has preoccupied analysts since the beginning of psycho-analysis and it has never been, let us not say resolved, but even adequately formulated. The old formula 'to make the unconscious conscious' was felt not to be satisfactory and it was replaced by that of 'overcoming the resistances', which, however true it may be from another point of view, actually begs the question simply by shifting the accent from the relationship conscious-unconscious to the requisites for a change in this relationship. This is so much so that 'overcoming the resistances' never actually blotted out or replaced 'making the unconscious conscious' which many analysts still employ, following Freud, who continued to use it after the introduction of the second formula.

This question of making the unconscious conscious occupied Freud throughout his life and it can truly be said that he never succeeded in resolving it. The frequently misunderstood expression that the unconscious becomes conscious through getting into contact with word presentations or mnemic traces of words seems to point to a very important aspect, but it definitely does not solve the question. We now can take up this aspect again and express it in logical terms. We can then say that, confronted by the infinite set (which is the way in which symmetrical being appears to conscious, asymmetrical thinking), consciousness is put to work and succeeds in singling out some asymmetrical relations which are a translation or an unfolding of some of the potentialities implicit in the unconscious or symmetrical mode of being. These relations can be considered to be

[1] The adjective 'intuitive' is meant to convey that his awareness was actually not expressed in terms of the explicit mathematical concept of infinite, but in terms of everyday expressions which implied this concept.

the same as what Freud calls the word-presentations or mnemic traces of words. I believe, however, that this expression of Freud's is equivocal, first because it points to the question of memory, which, however much it is pertinent in this respect, is not at the centre of the problem. Furthermore, the core of this aspect of the relationship between the unconscious and consciousness lies in the possibility of expressing some of the implicit potentialities of the unconscious, not so much in terms of words but, to use Strawson's expression (1952), in terms of statements. Although when Freud uses the expression 'mnemic-traces of words' he is actually referring to a meaning, the expression is ambiguous because (as he himself pointed out in his book on aphasia) a word is also a sound, something that can be seen (written word) or a movement (spoken word). What in this context interests us is the meaning, and as the same meaning (as Strawson points out) can be expressed with different words, the only way of avoiding this ambiguity is to speak of statements. It must be kept in mind at this point that the more elementary components of statements are ultimately relations.

To return to the question of making the unconscious conscious, and to return to this question in terms of the clinical example we are studying, one may ask: did my interpretations make the unconscious conscious? To answer this question we must reformulate it, as we have done before, because, as we have seen, the quality of being unconscious is not an essential feature of symmetrical being. We would say: does symmetrical being become asymmetrical and can it then enter consciousness? A prolonged and most careful reflection about this question leads, in my opinion, to a most emphatic answer: *symmetrical being can never, in itself, become asymmetrical, and hence can never enter human consciousness. In other words, the unconscious cannot ever be made conscious. What we can do, instead, is to become (asymmetrically) conscious (aware) of some aspects of symmetrical being.* Just as we cannot make our liver conscious but only become conscious of our liver.

8. The quantum intellect-emotion

The interpretations about the fear of falling into non-existence, therefore, made *the patient* conscious of the presence in him of an infinite set (an emotion) but did not make *this infinite set* (emotion) conscious. Two questions arise at this point: why did the patient experience a relief and what happened to the emotion in question? When one begins to consider all the aspects of this problem one cannot avoid feeling the extreme complexity of it. The reply to the first question seems to lie in the fact that the patient realised that there was not such a danger and that his existence was not threatened at all; also that the behaviour of his colleagues did not mean that they looked upon him as an extremely bad person. This

realisation produced an immediate, though temporary, disappearance and considerable mitigation of the emotions in play. It is as though those manifestations of these emotions as expressed in consciousness in terms of the patient's reflections about the question of the wedding-present, had been suddenly dissipated. This situation can be compared to that existing when a balloon is pierced and immediately deflates. There obviously was in this case a process of discharge or of relief of an emotional state. This is well known in psycho-analysis and has been discussed from various points of view by many authors. I do not intend to review these contributions here, as my intention is to study the question from the point of view of the relationship between the symmetrical and the asymmetrical modes, i.e. between the infinite sets and the finite consciousness. Neither will I deal with the question of transference, which is irrelevant to our purpose, in the sense that the confrontation between the two modes may be studied, if one wishes, in the transference, but even in that case it must be studied in the light of the intimate nature of the meaning of the relationship between infinite and finite.

To return, once again, to our patient, we can say that the relief was due in this case, to the fact that the emotion was all 'concentrated' in what we might call 'the wedding-present situation'. However absurd it may seem, an infinite set was at play in this situation. This is a case of an intensive infinite set. Its visible manifestation was something which had entered consciousness. It is as though this, from an objective point of view relatively unimportant situation, was the emissary sent into consciousness by this infinite set. Though as an emissary it did not have the power of the set itself, it was a reminder of this power, in the same way as an ambassador of a powerful country is himself relatively powerless, but is the outward reminder of the power behind him. The interpretation resulted in a momentary divesting of this ambassador of all his threatening power and so brought relief in consciousness. It was as though the ambassador had suddenly become a private citizen and there was no longer the menace of a big power. But the relief was soon over because the emotion made itself present again.

The situation described here is essentially the same as that described by various authors. Strachey (1969, p. 283) emphasised the fact that the changes effected in psycho-analysis 'are the result of the summation of an immense number of minute steps' and added that 'each interpretation involves the release of a certain quantity of id-energy'. This formulation, which involves the use of the notion of energy, can be looked at from another angle, i.e. that of the relationship between emotion and consciousness. The fact that the patient referred to above experienced a relief might be looked at, from the vantage point of a slightly different version of Strachey's description, as a disappearance or dissolution of a fear which was expressed in 'the wedding-present situation'. Here there was a

significant union of asymmetrical meaning and symmetrical feeling. The feeling did not enter consciousness in its totality, nor was it exhausted by the interpretation, yet some process of discharge had taken place, in a minute quantity. There is a mysterious union between the concrete, explicit meaning of an emotion and the infinite possible meanings of that same emotion which are implicitly expressed in the concrete meaning. I propose to call this phenomenon by the name of the 'quantum of intellect-emotion', to emphasise the fact of the union of the infinite and finite which meet for an instant in consciousness in spite of the fact that the infinite remains outside consciousness: it is as though they met at the limit between consciousness and the unconscious. It is like a pouring of an infinite set into a limited group of relations: a 'quantum'. It is a question of an intensive infinite set.

It must be clearly recognised that the notion of 'quantum of intellect-emotion' implies that of discharge of psychical energy and in this respect it is similar to Strachey's concept of release of a certain quantity of id-energy, though some further delimitations would be needed here in order to identify the points where both notions coincide and the points where they differ. But, apart from the purely quantitative aspect, the concept put forward here refers to two other notions which are not clear in Strachey's presentation: first that of intellect, which points to the role of knowledge, and to the way in which this notion works in the process of improvement; this bears a relation to but is far from being identical to the concept of making the unconscious conscious, which, if understood as in Section 8, plays such an important role in the cure without being the only element in the cure. The second notion is that of emotion, which brings with itself, according to the angle from which it is looked at, two additional concepts: that of infinite sets and that of the relationship with other persons; we know that for symmetrical being there is no distinction between self and not-self.

I believe that if the concept of 'quantum of intellect-emotion' is adopted we would have a more accurate frame of reference to tackle the question of the nature of the changes occurring in analysis. The study of this question is full of promise for a deeper understanding of the relationship between consciousness and the unconscious.

9. The potentialities of the translating function and the meaning of interpersonal relations

I have tried to give some hints as to the relation between symmetrical and asymmetrical being. I shall now try to make a summary and restatement. The translating function consists of expressing symmetrical being in asymmetrical relations. *If the whole potentialities of symmetrical being were to be expressed, it would be necessary to find an infinite number of asymmetrical relations. But the strange*

thing is that in each one of these relations the infinite set would still be present, so far as the experience of the patient is concerned. It is as though in man, the finite and the infinite sets can never be separated. The fact that man is *also* his fellow-beings is a consequence of it. Among psycho-analysts, it is now in vogue to speak of the object-relations, just as the sense of the community is the preoccupation of all modern socio-political developments. The ideas which I am trying to develop here stem directly from Freud's description of the characteristics of the system unconscious, expressed in logico-mathematical terms; it follows from them that, at a deep level, man does not have relations with his fellow-beings but *is* his fellow-beings. I believe this consideration may put the so-called object-relations theory on a basis which need not be in opposition to the instinctive and so-called structural aspects of the human mind. To renounce the study of man in terms of his internal constitution (instinct, conflict, etc.) in order to consider only his relations with others is just as unsatisfactory as to study only the first to the neglect of the latter. The aspect of the unconscious just considered may furnish the basis for a synthesis of both approaches.

If emotion is an infinite set, *the translating function is, potentially, necessarily infinite.* In fact it is only a small part of the translating function that takes place. But the potentialities of the unconscious are actually infinite. And so are the theoretical possibilities of art. Note, again, that when we describe emotion as an infinite set this is an asymmetrical way of describing something which in itself is alien to asymmetry: it is a process of translation.

Possibility of measuring emotion as an infinite set. By means of the translation or unfolding of an emotion into an infinite set, we can apply to it the approach to the question of measurement which we studied in Part V.

10. 'Where id was, there ego shall be' (Freud, 1933, p. 80)

If the ego is not a province or region but a function of the self, it is difficult to see how this phrase can be true, if taken literally. On the other hand, it would seem, as we discussed, that symmetrical being can never become asymmetrical. If we put this in terms of id, we should say that the id can never diminish its size: it is always infinite and it cannot be replaced by ego.

Yet, as I see it, Freud expressed a certain truth in the phrase just quoted. How are we to reconcile these apparently divergent considerations? I believe that the translating function, which draws asymmetrical relations from the unconscious and which draws them without limitation, provides an inexhaustible source of enrichment of asymmetry and hence, of the ego. The personal history of a man in process of development and the history of mankind is a witness to

this. So the enrichment of asymmetry, both personal and cultural, goes on all the time. But this does not reduce the size of the source, not simply because the source is infinite, but on account of the fact that the translation of symmetrical being into asymmetrical terms does not take anything *away* from symmetrical being: it only increases the total amount of asymmetry. In a similar way, the fact that an object is reflected in a mirror, or in a million mirrors, does not diminish the size of the object.

Mathematical activity is a typical example of the unfolding or translating function. It is quite clear that mathematical creation draws from the unconscious (see Hadamard, 1945), in the sense just explained. In what appears at first to be a fairly homogeneous whole, mathematical thinking discovers increasingly complex aspects. To mention one example, the concept of number appeared at first fairly simple. When some paradoxes were found, it was necessary to redefine it as 'a collection of collections of collections'. To give another: Euclidean space for a long time seemed to be the only space possible. Now there are various others. To give yet another example, bivalent logic seemed to be the only possible basis for logic. Now we have multi-valued logic. And so on.

Psycho-analysis is doing to the *real* psychical being that man is, what mathematics has done to its object, which is *ideal* psychical being: it is discovering ever and ever increasing complexities and subtleties. This is a translating function: it is 'tearing off' from the symmetrical infinites many of the asymmetrical relations potentially implicit in them. But it is a peculiar type of tearing off, because the source remains both distant from asymmetry and untouched by it. The translating function is, paradoxically enough, like a mirror image of something which in itself has no shape and no structure, as we have repeatedly seen throughout the book, but which potentially suggests an infinite number of shapes and structures: it is the creation of a (potentially) infinite number of images of something which by itself is not capable of being reflected at all. It is a translation into space-time of something which in itself is outside space-time. When Freud speaks of 'reclamation work, like the draining of the Zuider Zee', and also in the phrase at the heading of this section, if taken literally his words seem inaccurate and do not appear to represent the actual situation, but at the same time they convey something of the peculiar relation existing between symmetry and asymmetry, for the latter increases by drawing from the former, even if without touching it.

If things were considered in detail in terms of spaces of infinite dimensions, perhaps more of this mystery could be unravelled. Yet, there will, perhaps, always remain the paradox of the same cardinality of the whole and the part; if this paradox is considered in the present case we might say that even if we take a part from the whole the whole remains infinite. It is interesting to reflect that, just

as mathematics is useful for the understanding of the mind, a day will come when mathematically trained analysts will discover relations in the mind which will have to be expressed in new, and not yet existing, mathematical conceptions, which will have to be developed *ad hoc*: psycho-analysis will be a source of mathematical developments.

11. The respective roles of lifting of repression and the translating function. The two types of barriers

The consideration of the translating function brings the realisation that much, probably the majority of present-day analytical work deals with this function rather than with lifting of repression. In other words, 'becoming conscious' seems to be attained more frequently with the help of the translating function than through lifting of repression. This is inevitably so because, after all, the repressed is only a small portion of the unconscious, which is a collection of infinite sets. In actual practice we frequently have to work simultaneously on the lifting of repression and translation.

At this point there is an interesting consideration to be made. As already noted in Part III, in his *Outline* Freud gave importance to the notion of 'barrier' in the constitution of mental structures and in the workings of the mind. Now, there seem to be two quite different types of barriers. The barrier of repression is by far the best known. Repression keeps mental contents away from consciousness, and it is for this reason that it can be compared to a barrier. If, on the other hand, we consider that the various classes in the unconscious, within each of which symmetry rules, are distinguished from one another by asymmetrical relations, then we may compare the asymmetrical relations defining a given class to a sort of bag which keeps the class together. In this sense asymmetrical relations are like barriers.

Now that we have studied the translating function we may realise more fully that asymmetrical relations fulfil an entirely different function from that of the barrier of repression. If we remember that confronted by the infinite set, the intellect is engaged in a perpetual work of 'extracting' asymmetrical relations from it – or, alternatively expressed, symmetrical being is perpetually being 'poured' into asymmetrical relations – then we may consider the barriers of asymmetrical relations as many bags which carry symmetrical being from its deep unconscious nature into some sort of representation into consciousness (the surface). Asymmetrical relations would then be something that pushes the unconscious towards consciousness, in a never-ending process. They would act in exactly the opposite way to repression.

In short, repression is a barrier that prevents, and asymmetrical relations are barriers that (like the walls of a container) facilitate, the access to consciousness, the carrying of contents from the uncon-

scious to consciousness. On the other hand both lifting of repression and the translating function (which increases the quantity of asymmetrical relations) facilitate the access to consciousness. Viewed from this angle it can be said that emotion offers the intellect unlimited possibilities of development. For this reason, if viewed from the inside, emotion is not thinking because it is not propositional-relational activity; *but emotion is the mother of thinking.*

26. *The Place of Emotion in the Psycho-Analytical Conception*

Throughout this book we have come to see with increasing clarity that no mental manifestation can exist with only symmetrical relations. Correspondingly, the symmetrical aspect of emotion always appears in connection with asymmetrical relations, and the proportion between both varies according to the type of emotion, the more primitive and all-embracing emotions being characterised by greater symmetry and the 'tamed emotions' by a greater presence of asymmetrical relations.

In the previous parts of this book the concept of the unconscious has also been seen in the light of the relationship between symmetrical and asymmetrical being and we have also found that in its case, as in emotion, the proportion between symmetrical and asymmetrical relations varies from one case to another, the symmetrical relations increasing in proportion as the characteristics of the system unconscious become more visible. At this point a question automatically arises: what is the relationship existing between the concept of emotion and that of the unconscious?

Once things are reformulated in terms of symmetrical and asymmetrical relations and the notion of unconscious is considered, not as an expression of the nature of one aspect of our being but as a consequence of the relationship between the symmetrical mode of being and consciousness, then *we are in a position to see more clearly the place of emotion in psycho-analytic theory. This can be expressed, in the first place, by saying that in that aspect which is pertinent to the relationship symmetrical-asymmetrical, emotion is entirely coincident with that aspect of psycho-analytic theory which pertains to the relationship symmetrical-asymmetrical.* It appears impossible that it could be otherwise because both aspects are identical in every one of their features, down to the minutest detail; to postulate two different entities which coincide in everything is not justified, and it would not in fact be possible to distinguish one from the other.

It is understandable that to shift the problem from the relationship unconscious-conscious to that of symmetrical-asymmetrical may be disappointing, because it is then no longer possible to say, for instance, that 'emotion coincides with the unconscious' or 'emotion is conscious' but a more complex relationship must, instead, be

considered. Yet one could attempt to translate one relationship into the other. If one remembers that, so far as symmetry rules within the class, consciousness is precluded, one can say: *in its more preponderantly symmetrical aspects emotion coincides with the system unconscious.* But what about the asymmetrical aspects of emotion, which are always present, in varying degrees? To answer this question one must take into consideration several points. First, that the Freudian concept of 'the unconscious' or the system unconscious, or the id as a 'seething cauldron', already entails the use of asymmetrical relations. Pure symmetry, as we have already discussed, is an extreme, where everything is the same as everything else. Secondly, that the (asymmetrical) awareness of an emotion is a relative thing. If I love or I am angry I am aware that I love or that I am angry but only up to a certain point, as we saw in the previous chapter. My awareness could be described as the awareness of the existence of something of which I cannot ever be fully aware, but which I 'locate' as having certain characteristics (for instance love, as distinct from hate or fear). The translating function is a perpetual process of becoming increasingly aware of this something which we will never experience in its fullness in consciousness.

So, the symmetrical and asymmetrical modes of being are inextricably linked, yet they are forever separate from one another, and one never becomes the other; the infinite sets by means of which the symmetrical mode of being is (asymmetrically) represented never enter consciousness except through the representation of a few of the relations of the infinite set.

The relation between conscious and unconscious must be viewed in the light of these considerations.

This brings us to the third point to be considered. Freud attributed the qualities of being conscious and unconscious to the ego and super-ego but the id, in his conception, was only unconscious. This may appear surprising and in a way illogical. As I see it, it is the expression of a truth which can be formulated in a different way. According to the threefold conception, conscious and unconscious became, to Freud's openly expressed disappointment, only qualities. It is obvious that *in the change from 'true psychical reality' (as he called the unconscious in* The Interpretation of Dreams*) to quality Freud is suggesting a shift of meaning, from something essential to something less important.* But when one thinks that the id is postulated as being *only* unconscious one senses that the term unconscious is implicitly employed in the old meaning for here it becomes something inherent in the structure and in the essence of the id; something which cannot be done away with, and this brings us exactly back to the old concept of the unconscious. As the reader will remember, in Part IV I expressed the opinion that the threefold conception did not supersede the twofold conception, that of consciousness and the unconscious.

If one thinks, instead, that 'unconscious' was only *a consequence* of the essence of the world described by Freud and of the relationship between the symmetrical mode and consciousness, then everything becomes clear and Freud's first fundamental discovery remains unaltered, except for its name and for the new potentialities of understanding and development that come from this new formulation. The changes in terminology become necessary in order to avoid ambiguity. As I have suggested earlier, we may, out of respect for Freud and the tradition, continue to use the expression 'the unconscious', provided we understand by it a special zone of a continuous (mathematical) function, that of the relationship symmetrical-asymmetrical; in fact the zone of this function which is towards the end of greater symmetry.

With these ideas in mind we may now return to Freud's notion of the id as being exclusively unconscious. As the id corresponds exactly to that zone of preponderance of symmetry over asymmetry, it is, therefore, natural to conceive of it as being entirely unconscious. Such a conception, as I see it, obscurely expresses the intuition that symmetrical being cannot ever enter consciousness, and in this sense it is right. But it is unsatisfactory from other points of view. As already discussed in Part III, to speak of id, ego and super-ego as regions or provinces of the mind is to do violence to the facts, because no aspect of the mind is 'pure id', 'pure ego' or 'pure super-ego'. I have proposed considering them rather as functions of the self.

But the self is structured in terms of symmetry-asymmetry. If we consider its functions (or should one say *his* functions, as the self is the person?) one can say that at the deepest levels, where symmetry is in relatively greater proportion, desires are necessarily unconscious. Desires are emotions. When we examine the more superficial levels, where asymmetry preponderates, it is nothing to wonder at if some parts or aspects of emotions (desires) actually enter consciousness. It is in this sense that, forcing the meaning of the terms, one may speak of the conscious aspects of the id or of the primary process.

In order to complete the picture, one must remember that one of the psychological components of emotion, *sensation-feeling*, *is oriented towards the grasping of corporal events*. This latter part also corresponds to the Freudian notion of id. Freud (1940, p. 198) writes:

> The id . . . has a world of perception of its own. It detects with extraordinary acuteness certain changes in its interior, especially oscillations in the tension of its instinctual needs, and these changes become conscious as feelings in the pleasure-unpleasure series . . . But it is an established fact that self-perceptions – coenaesthetic feelings and feelings of pleasure-unpleasure – govern the passage of events in the id with despotic force.

What Freud describes here as features of the id correspond exactly to what I have called the sensation-feeling component of emotion. So, in the end we find that both psychological components of emotion are an integral part of psycho-analytical theory. If we cannot simply say, 'emotion coincides with the id', it is because we feel that the concept of id itself needs reformulation, as we have tried to do. But if, instead, we formulate the psycho-analytical conception of the mind in terms of the interaction between the symmetrical and asymmetrical modes of being (from which interaction the notion of the unconscious follows) then the concept of emotion, together with its relationship with thinking, comes to coincide entirely with the psycho-analytical conception of the mind. Only one more thing remains to be clarified: the place of the physical aspects of emotion. I said at the beginning of this Part that to include these aspects in the concept of emotion was, ultimately, a matter of convention. We could then decide either to exclude them or simply affirm that in its psychological aspects the concept of emotion and its relationship with thinking coincides with the psycho-analytic conception of the mind.

I believe that this formulation clarifies the so-called psycho-analytic theory of affects. It also provides a solid ground for an integration of psycho-analysis into psychology, not through a service door, as I feel that so-called ego-psychology has tried to do, owing to the fact that it has developed an Aristotelian type of reasoning in which very little attention is paid to the system unconscious.

Summary

(1) The formulation of the characteristics of the system unconscious leads to the delimitation of two modes of being and their interaction.

(2) This formulation shows that the quality of being unconscious is not primary but rather a necessary consequence of the relationship between the symmetrical mode and the structure of consciousness.

(3) The application of these findings to the study of emotion leads to a new conception of emotion.

(4) It then becomes evident that psycho-analytic concepts reformulated in such terms as those proposed and the new formulation of emotion come to coincide entirely.

(5) In short, when Freud discovered the laws governing the unconscious, he actually discovered the intimate nature of emotion, even thought he did not express it in this way.

(6) It becomes necessary, in order to avoid confusion, to keep in mind the new expressions and meanings which emerge from this approach.

PART SEVEN

The General Laws of the Bipolarity Symmetrical - Asymmetrical or Unconscious - Conscious

EXPLANATION

The arguments discussed throughout this book raise a variety of questions about the nature of man as seen from the angle of the bipolarity unconscious-conscious or symmetrical-asymmetrical, that is, of the interaction between the two modes of being coexisting in man. In this Part we shall attempt to discuss these problems further with a view to widening our perspective.

Most of the subjects treated here have already been discussed in previous chapters. It is, however, hoped that the following study may contribute to clarifying these difficult problems and help to open up possibilities from the point of view of the philosophy and methodology of psychological science and altogether lead to a view which is more of a general synthesis. This latter is, in particular, put forward in Chapter 28.

I apologise for the repetitions and hope that, considering the difficulty of the subject, these may be welcome as a help towards understanding, and, especially, as a help in attaining that which underlies understanding: being.

27. *A Perspective of the Interaction Unconscious - Conscious (Symmetrical - Asymmetrical)*

Foreword

We shall tackle in this chapter various questions which, I believe, may help to gain further insight into the subjects discussed.

1. The principle of generalisation as a corollary of the principle of symmetry or the principle of symmetry as a generalising principle

As was seen in Chapter 3, the principle of generalisation was formulated in terms of classes. So, initially, was the principle of symmetry. Classes are defined in terms of propositional functions. A class may itself be a subclass of a (more general) class, which is formulated in terms of a propositional function of a more general type, i.e. which includes a greater number of subclasses or individuals. Seen in this light the principle of generalisation is an expression of a logical procedure which leads to more and more general classes.

For our psychological purposes there is another way of looking at the same question. We may consider a set formed by a variety of heterogeneous elements which have in common only the fact that they belong to the set. If the principle of symmetry is applied to this set, then each subset or element becomes identical to any other subset or element. Consequently, from a symmetrical-logical point of view, each element has the properties or defining features of all of the other elements or subsets, even in those aspects which do not refer to the propositional function defining the set (or class). (This has already been seen in Chapter 3.) Suppose we form a set by joining the set composed of all women and the set composed of all men. If the principle of symmetry is applied, all and any of the women are men and all and any of the men are women. This *implies* a more general class or set which includes both the women and the men, that is, the more general class of human beings. But, on account of the application of the principle of symmetry, any element (man or woman) is identical to any other element and to the whole class, hence any man is a woman and any woman is a man.

Put in another way, the application ot the principle of symmetry

to a set defined *extensively* may lead to an implicit formulation of a certain propositional function, and in this way the set can be defined *intensively* in terms of a propositional function which applies to the various elements or subsets of the set. This amounts to the same thing as results from the application of the principle of generalisation. It is in this sense that it can be affirmed that this latter principle is a consequence of the principle of symmetry. It must be noted, however, that owing to the application of the principle of symmetry to this wider class, any element of this class becomes identical to any other and to the whole class; in the case just mentioned, men will be women and women will be men, which would never be the case if *only* the principle of generalisation was applied: in this case men would, all together, be a subclass of the more general class and so would women be; but both subclasses would be distinguishable from one another.

In other words: a first application of the principle of symmetry leads to the formulation of a wider class; a second application of it leads to the identity between the elements of the subclasses and also the subclasses, with this wider class. Put in more general terms: *if the principle of symmetry is continually and/or continuously applied, the result is the formation of increasingly wide classes and it also is the identification of any individual with these ever wider classes. In other words, this application leads to an ever increasing degree of width (or general value) of the individual, on account of its identification with more and more inclusive classes or sets.*

The principle of symmetry comes in this way to be seen as a generalising principle, which tends to identify the individual with infinite sets of ever increasing power or cardinal number: the power of the denumerable, of the continuum and powers higher than that of the continuum.[1]

Psychological and logical derivation. It must be clearly kept in mind that the derivation of the principle of generalisation from the principle of symmetry, which we have just considered, is not simply a logical but, we might say, also a psychological procedure. This needs a further comment, to make things clear. From a strictly logical point of view we may conceive or develop increasingly wide classes formed by subclasses which are distinguishable from one another but which have something in common. In this way we may include the class of men and the class of women in the class of

[1] The power of the denumerable corresponds to the cardinal number of the (infinite) set of the natural numbers, that of the continuum corresponds for instance, to the power set of the set of the natural numbers, that is, to the cardinal number of a set formed by all the subsets contained in the set of natural numbers. The power higher than that of the continuum can be understood in a similar way.

To give an example of a power set, let us consider the set formed by the numbers 1,2 and 3. $S = (1,2,3)$. The power set of this set would be: $[(\emptyset), (1), (2), (3), (1,2), (1,3), (2,3), (1,2,3)]$, that is, a set formed by all the subsets that can be formed with 1,2,3.

human beings; the class of human beings, of apes, of rodents, etc. in the more general class of mammals; the class of mammals and that of birds, reptiles, etc. in that of vertebrates; that of vertebrates, insects, etc. in the class of animals; animals and plants in the class of living beings. If we follow this logical procedure we shall never come to consider one class as identical with another, nor any individual as identical with another. *The principle of generalisation operates in the realm of the discrete, that is, of things that can be distinguished from one another.* And this is the realm of so-called simply bivalent and Aristotelian logic.

If, instead, we arrive at the formation of classes of ever-increasing width by use of the principle of symmetry, the situation so obtained is entirely different. It is true, we can in this case too form a more general class which comprises men and woman, and another still more general one, the class of mammals; from this we may go on to the class of vertebrates, of animals and of living beings. But the great difference between this procedure and that followed if we simply apply the principle of generalisation is, as we have seen, that the classes are formed by the complete identification of any individual with all and any of the others and with the whole class. The repeated application of this procedure leads – by this new logical process – to wide classes, *only in each case the increasingly inclusive quality applies equally correctly to the individual and to the class.* One can immediately see that from the logical point of view the similarity is only very superficial, for *we are in this case applying an entirely different logical procedure: that in which individual and class extend together in width or in increasingly inclusive capacity. This amounts, as we have seen before, to the destruction of logic.*

The 'logic of symmetry' is, therefore, a hybrid which expresses a new thing: logic- anti-logic or anaclitic logic. It is the translation – or the expression – in logical terms, of a psychological being which is outside logic. We might say that the observation of the way in which the unconscious treats individuals, that is, the observation of a psychological reality, has led us to the formulation of this anaclitic logic. We have, therefore, the right to speak of a psychological-logical view of the reality of the unconscious. Similarly, simply bivalent logic can be said to be the expression in logical terms of another psychological way of approaching reality. Put in more general figurative terms, when logic pretends to do entirely without psychology, and to raise itself above psychology, it performs an act of self-deceit. There are at least two logics in man: anaclitic logic, which is a hybrid product, and another logic which can be described as simply bivalent or Aristotelian. Their combination may be called, as I have proposed, bi-logic.

There is a further fact that must be recognised. The psychological experiences which lead to the distinction between these two logics are in themselves on an equal footing and have an equal right to

Combinaison d'aristotélien et anaclitique

exist. If anything, the unconscious experiences, being the most numerous ones and, perhaps, those which have greater weight in the life of man, might be more important. But when it comes to translating these experiences in terms of logic, the situation is reversed. For it is utterly impossible for human beings to express in words anything connected with the unconscious or symmetrical experience without borrowing from the logic corresponding to the conscious or asymmetrical experience. Owing to this peculiarity of our mental structure, our symmetrical being is always imperfectly expressed. The concept 'symmetrical logic' already leans on bivalent logic: it is anaclitical. We come here, once more, to Freud's original conception of the unconscious as the true psychical reality, in itself *unknown* to us. Unknown it may be, but it is nonetheless most intensely experienced. Perhaps the study of emotion, as presented in Part VI, may contribute to conveying something of this unfathomable being.

The principle of symmetry as a 'homogenising' agent. Viewed in the above light, the principle of symmetry appears not just as a generalising principle, but as a principle which creates or generates homogeneity; for its application results in all the properties of the class as a whole being conferred on any particular element of it. Any element is, therefore, identical to any other, so that, whatever element we choose, we find in it everything that corresponds to the others: that is, an implicit homogeneous 'presence' of the whole class in each individual. This is what I mean by this heading.

2. Discussion of an obvious objection: the principle of symmetry predicts everything and, hence, it predicts nothing

It has become very obvious that if only the principle of symmetry is applied, the predictive power of a given conception falls down to zero, because in this case, anything may become anything and everything else. We arrive at a colossal confusion: anything has an equal claim, as an alternative, to anything else. We have also seen, in passing, that if only symmetrical relations are available no conscious life is possible.

Considerations of this type may lead to the impression that the principle of symmetry is so general that it is utterly useless for the understanding of mental reality, precisely because it permits no prediction of any kind by permitting any prediction whatsoever. We must try to see how these reflections may be fitted into the whole, so that we can decide whether the principle of symmetry should be discarded or not.

The first thing that we must consider is that the principle may in itself be of no predictive value and yet correspond to what is actually observed, without being a tautology. We have already broached this

question on several occasions in this book but it still deserves further reflection. It is hoped that what follows may help to clear things up.

Consider a classic example of psycho-analysis – the phallic or the breast symbols. It is a well-known fact that any object which in any way resembles the form of the penis or its function may come to represent the penis. The same can be said of the breast and of any of the basic objects of psychological importance in human life. To take the case of the breast, for the unconscious a breast may be

– any actual human or animal breast
– any rounded object
– any soft object
– any warm object
– any object that can be put into the mouth
– any object that can furnish physical nourishment
– any situation that can furnish physical nourishment
– any object that can furnish psychological nourishment
– any person that can furnish, offer or promise psychological nourishment
– any situation that can furnish psychological nourishment
– any of the above combined in any of all the possible forms
– all the above together
– the protective earth
– the protective universe

and, according to the circumstances, an infinite number of other possibilities.

As can be seen, the breast, conceived as just expressed, is what the logicians call an open class, that is, a class which can be increased by addition of new elements. A moment's reflection will show that all the classes dealt with by the unconscious are open classes. This fact is of logico-mathematical importance because some, but not all, logicians consider that the concept of infinite can only be applied to open classes. Lombardo-Radice (1967, p. 56), in contrast, considers the class of natural numbers both infinite and closed:

> The natural (or real, etc.) numbers 'are those which are there'; they are infinite totalities, but they are not susceptible of 'growth' by 'creation' of 'new elements'. It is a question here – we might say – of 'closed' and 'static' infinities.

The result is that the breast is an infinite set, with an infinite number of elements. *Whenever the human mind becomes, so to speak, 'breast-oriented', anything, including the total individual to whom such a thing is seen as happening, becomes the breast or, better, 'breastness'.*[1]

[1] I say better, because in this type of situation what counts is not the individual but the class or the propositional function defining it.

In these circumstances (i.e. being 'breast-oriented') it is out of the question that something may be included in the list just mentioned and have at the same time the possibility of either being or not being a breast for the unconscious. We are confronted here by a situation which is unique in nature because it is found only in man: when we desire, anything which even remotely resembles in any way what we desire, becomes the whole class desired. The formulation proposed in this book in terms of infinite sets and the principle of symmetry is only another way of expressing what is current coin in psycho-analysis; the various breast-symbols just enumerated are a matter of everyday analytical experience. It seems unjustified and useless to try to deny these observations and (as some philosophers of science, who are probably little conversant with the practice of psycho-analysis, have tended to do) to level criticisms against psycho-analysis on the ground that it does not conform to the principles of the philosophy of science. It would be more fruitful, I think, to try to ascertain whether in such a case new principles would have to be developed, since the situation is unique, because the facts observed are unique: the symbol does not occur directly in inanimate matter, whereas it is part of the essence of man.

I would like to comment briefly on the objection that might be raised – that I am trying to save the formulation presented here by linking its fate to that of psycho-analysis. As just remarked, the breast symbols mentioned are part of everyday analytic work. We can see them as an expression of the principle of symmetry, according to which anything which has a breast-shape or a breast-function *is* a breast; we can also see the totality of symbols as an infinite set and, according to the principle of symmetry, see each of these concrete elements as an infinite set. But one may ignore these formulations and restrict oneself simply to speaking of breast-symbols. In this case the objection that anything may become a breast-symbol, and that, therefore, it would be impossible to predict what would and what would not be such a symbol, could still be made. So, the case presented here is linked to the psycho-analytical view of the mind by the very nature of things. Both either stand together or fall together.

We shall now try to get a more comprehensive view of the problem and its implications and possible solutions.

3. The principle of symmetry as a generalising principle and asymmetry as a restraining condition

In natural science the formulation of a law or a theory is simply a way of gathering together and expressing in a simple manner a variety of apparently disconnected facts. Once this is achieved it becomes possible to predict that given certain circumstances certain things will happen and others will not happen. Happening, as far as is

known, is something linked to space-time.

In the cases we have been studying we have postulated some circumstances or conditions which are entirely different from those usually known in the field of natural sciences; we have postulated aspects of man which, though connected in some way with space-time, are in other ways outside it. No wonder, then, that we will have to develop new ways of studying such manifestations. It is probably here that we may find that the prediction of what *will* and what *will not* happen falls entirely to the ground because we find ourselves immersed in the consideration of infinite sets. Yet, if we remember that the manifestations which have led us to use the concept of infinite set as a description (or explanation) are always linked to spatio-temporal phenomena, we shall find that our postulations will account in a satisfactory way (granted all the limitations of a developing knowledge) *for what we see*, even though we may not be able *to foresee* what a patient will *necessarily* do or say in certain given circumstances. This is strikingly evident, for instance, in the case of schizophrenic manifestations. With the help of the principle of symmetry we can *understand*, for instance, the logic of a given schizophrenic utterance or behaviour *which has already taken place*, even if we are utterly unable to predict what a schizophrenic will say or do in certain given circumstances. Thus, it becomes possible to understand, for example, why a certain schizophrenic mentioned by Bumke, consulted a dentist after he was bitten by a dog, or why another patient, mentioned by Storch, cut his finger in order to show people, as he said, that 'there was a place wanting' (Storch, 1924, p. 3). In neither case would we have been able to foresee such actions but in both cases such actions become understandable, whereas they were utterly incomprehensible before the application of the principle of symmetry.

Now one asks: is this understanding of certain phenomena to be rejected because it does not lead to predicting them? It seems to me that to do so is entirely unwarranted and it is more the expression of a scientific prejudice than that of the application of sound scientific principles. Perhaps in this application of infinite sets the best we can aim at is understanding. The whole thing requires a great deal of further study, with an open mind. In the meantime we must be careful not to be the victims of hasty conclusions or prejudice.

Psychological manifestations in man may be viewed as the interaction between the principle of symmetry and the asymmetrical way of being. The principle of symmetry would, from this point of view, be a generalising principle, whereas asymmetrical relations would introduce the particularising or restraining conditions peculiar to the individual case. Man could never escape from being immersed in the infinite sets and (according to the principle of symmetry) be himself a set of infinite sets. At the same time he would be subject to all the particularising conditions of his own spatio-temporality and

his individuality. So far as he is spatio-temporal and material, man is subject to the scientific laws of the physical sciences, which always entail the use of asymmetrical relations. On the other hand, we have already seen that the concept of instinct entails ample use of asymmetrical relations. So, as a material being and as a biological being, man is 'asymmetrical', if I may be allowed to employ the expression. In his mental manifestations, instead, he has both asymmetrical and symmetrical aspects. The asymmetrical aspects of man – physical, biological and mental – would provide the restraining conditions which permit, up to a certain point, prediction of his behaviour. The symmetrical mental aspects, instead, represent the generalising principle which give him a unique position in nature. It is from the interaction, *unique in nature*, between these two contrasting and interacting sets of conditions that his true structure can be understood. If we wished to express all this in terms of rigorous principles we would have to develop new aspects in the philosophy and methodology of science which, so far, would only apply to man.

It is along these lines, I believe, that we may find a way of approaching the solution to the various difficult problems that confront us in our studies. We need not be dismayed at the difficulties encountered.

I do not know whether the following reflections are the result of my ignorance of physics, but I will mention them for what they are worth. If a force is applied to a body, this latter starts to move and if there is no opposing force this movement is uniformly accelerated. Theoretically the speed will, in due course, become infinite. In practice, this never happens, because there is always a force which opposes the first force; furthermore, theoretically, the speed would become infinite after an infinite length of time has elapsed from the beginning of the movement, and such a condition is never fulfilled. It seems to me that here there is a similarity with the principle of symmetry, which tends to an infinite, all-inclusive set. This similarity should not however, make us disregard the obvious differences between both cases. Anyway, the generalising action of the principle of symmetry is always limited by the action of asymmetrical relations.

4. Sociability and individuality

The symmetrical mode of being is the basic root of sociability, for what is, at an asymmetrical level, felt as a co-operation between individuals, or a sharing together or being together, is, instead, at a symmetrical level, a real unity in which individuals are not separate or distinguishable from one another. In this sense, the symmetrical mode of being is the unifying aspect of man, whereas asymmetrical being is the dividing aspect. The true foundation of man's nature is the synthesis between both. These two aspects complement each other like the blind and the lame of the fable.

5. The notion of conflict seen in the light of the polarity symmetrical-asymmetrical

The notion of intra-psychic conflict, which is so central in the analytical conception, can be seen under a new light if looked at from the vantage point of the bipolarity symmetrical-asymmetrical. There have been some important intuitions about this in the history of psycho-analysis, which have always remained rather obscure. The effect of psycho-analytic therapy has been attributed, though never in a completely clear way, to the fact of 'making the unconscious conscious'. The assumption underlying such an assertion is that the sole fact of something being unconscious is already a source of pathology. But it has never been very clear how and why this should be so. If instead of formulating the problem in terms of consciousness and the unconscious, we look at it in terms of the relationship (and contrast) between symmetrical and asymmetrical, which is at the root of the bi-polarity conscious-unconscious, it seems that much can be gained in the understanding of the question.

In as much as we are symmetrical beings we are not independent from others because we are a unity with others. For asymmetrical being, in contrast, this absence of individual limits is inconceivable. Consequently, whenever such an absence becomes omnipresent and, therefore, imperative, this is felt by our asymmetrical aspect as a loss of our identity as individuals; it is also felt as a danger of annihilation. Such a contrast between both modes of being would constitute the deepest source of conflict. This assertion may at first sight appear completely gratuitous. But if we consider actual cases of neuroses or psychoses we may become aware that such a view is justified. We might take any case at random in order to try to see whether the above assertions hold good. For instance, little Hans's phobia of horses – leaving details aside – had to do with the fact that the horses had assumed, for him, the dangerousness which he saw in his father and which he had repressed. Underlying this displacement – and, indeed, any displacement, as we saw in Chapter 3 – there was the formation of a general class (horses, fathers, etc.) and the identification of the individual with the class, in conformity with the principle of symmetry. If horses were just horses, as they are if looked upon from a purely asymmetrical vantage point, there would be no possibility of a phobia of horses.[1] In short, the phobia of horses is, if seen from this angle, a fear resulting from an 'irruption of symmetry' into a concrete object, the horse, which then becomes invested with characteristics which, asymmetrically speaking, it does not have.

But we can go further than that. The fear itself, as felt by Hans,

[1] If one wished to go further than Freud's actual analysis of the case and think of the danger of the horse as a projection of little Hans's own cannibalistic impulses towards the breast, the argument put forward here would still hold good.

even assuming that a horse is a father symbol (or the symbol of a biting breast) was definitely out of proportion to the actual danger which might have come from the horse, the father and the breast. The danger is felt, deep down, as infinite, in conformity with the nature of emotion, which tends to consider its object as an infinite set. There is here a further 'irruption of symmetry', which magnifies actual dangers in a completely fantastic way.

In the end we find that at the root of little Hans's neurosis there is this strange and mysterious interaction between the all-expanding tendency of the principle of symmetry and the limiting tendency of asymmetry, whereby very concrete entities become invested with the power of infinite sets. Though there is still much to be understood about this question, I believe it is fair to maintain that to see the problem of neurosis from this point of view opens up interesting possibilities of understanding. This would be an approach to the question of mental pathology from the point of view of the structure of the relationship between symmetrical and asymmetrical or unconscious-conscious modes of being. *In such an approach the dynamics would be the consequence of the contrast between the structures: they would inevitably result as a consequence of the coexistence of both modes in a psychical manifestation.*

It can easily be shown that what holds for the case of little Hans also holds for any case of neurosis and also of psychosis, though in this latter type of case some aspects peculiar to it would have to be considered, always within the same general framework as proposed here.

Put in general terms, the contrast between the aspect of man which is one being with all the other beings, and the other aspect, which is separate and independent from the others, lies at the root of mental pathology. In biological terms we might speak of the contrast between the tendency to be a syncitium and the tendency to be a cell. In this sense it is interesting to consider that the concept of community and of social organism, represents the meeting point of both aspects, because from a certain angle this concept entails that of the individuals forming the group and from another it points to the fundamental unity of all human beings. Perhaps this is the basis of the fundamental importance of the view of man as a social being: the meeting point of (asymmetrical) individuality and all-inclusive symmetry.

6. Being, happening and consciousness

I should like to return once more, if only briefly, to this fundamental and obscure question. For our (human) consciousness '*to be*' amounts to '*to happen*'. Yet we have learnt to know about being with no happening. What is this motionless being in us? We cannot *understand* it, because understanding is an (asymmetrical) happening.

Do we 'live it'? The difficulty is that life is also asymmetrical: its concept presupposes happening. The only answer seems to be that *we are (a) being.* To *be* a being is most 'obscure' because 'light', whether physical or symbolical (namely 'the light of the intellect') belongs to the realm of happening. We, therefore, say: we in some obscure sense *are.* For, in a sense, we cannot define being any better than by saying that it has the property of being (here we see an example of the circularity we shall discuss in the next chapter); or, to put it in the infinitive, it belongs to the realm of "to be". So to be a being or 'to be: "to be" ' is the most we can, so far, say about it. One remains, frustrated. But, perhaps, when we are, we experience what to be is. But this would have to be 'an experience which is not a happening'.

28. *An Alternative Formulation of the Bipolarity Symmetrical - Asymmetrical (Unconscious - Conscious)*

Foreword

In this chapter I shall try to develop a formulation which is an alternative to that employed throughout this book, but which easily permits the possibility of covering the same ground as is covered by the formulation so far employed. As will be seen, it will be easy for the reader to convert one formulation into the other. The advantages of both alternatives will be discussed, in order to see the advantages of employing one or the other according to the circumstances and to the aim in view.

1. Some reflections on logic. Symmetrical being as seen from the outside and from the inside-outside

An indispensable explanation. In order to understand better the nature of symmetrical being and its relation to asymmetrical being it becomes necessary to take into account some further logical considerations. This is the purpose of this section. These considerations must be completed by the addition of those in Section 5 of this chapter. It will be seen that at times the study of a given subject is interrupted and left incomplete, to be taken up again in that section. An attentive reader will realise that when this is done it is because some aspects can be better understood after one has become acquainted with the subjects of Sections 3 and 4. The arguments discussed are so dependent upon one another that an all-round view will only be obtained after the whole chapter has been carefully considered.

At this point I feel I must confess a feeling of embarrassment for embarking on the discussion of a subject in which I am not an expert. I do it, with a painful awareness of my limitations, because it seems necessary for a proper perspective of our subject: Considering that the ideas put forward in this book represent, in some way, a new approach, one cannot expect logic to have ready precisely the reasoning required for our purposes, even though the basic ideas may be implicit in the current treatises. I had no alternative left, therefore, to embarking in search of the proper angle of approach required; this search has led, as will be seen, to a unitary view of

man, in which the roots of rational logic are, after all, not so distant from the roots of the unconscious.

The definition of relation requires the concept of asymmetrical relation. This study started with the expression of the characteristics of the system unconscious in terms of symbolic logic. It was possible to show, with the help of the principles of generalisation and symmetry, that all the characteristics of the system unconscious or id conformed to a certain logic. If asymmetrical relations within a class or set are treated as though they were symmetrical this results in any individual's becoming identical to the whole class, or to any other individual. It is from this expression of the principle of symmetry, which can be seen in so many manifestations, that one can start to get a further understanding of the characteristics of symmetrical being.

The description of the above psychical behaviour, done in terms of symmetrical relations, is an external logical description, as seen from an asymmetrical vantage point. If one wished to see things from the inside of this behaviour, it would be out of the question to employ the concepts of symmetrical and asymmetrical, among other reasons because such a distinction already implies asymmetrical relations. What I mean is that the concept of relation itself, its definition, requires the concept of asymmetrical relation: xRy, meaning that x has the relation R to y, implies that in this relation x comes *first* or *before* y or is placed to the *left* of y. Whereas yRx means that the relation starts from y or that y is *first* or to the left of x. The point to be made is that if x comes *first* or *before* or is to the *left* of y, then y comes *second* or *after* or is to the *right* of x. This is already an asymmetrical relation. So *the definition* of relation implies the concept of asymmetrical relation. In short, relation is defined as an *ordered pair*, and the concept of order implies asymmetrical relations. This, of course, does not mean that there cannot be symmetrical relations. It is a question of levels of thinking. The general definition of relation, which implies the concept of asymmetrical relations, is at a higher level than that of the various types of relations themselves. So, if we wish to speak of symmetrical relations we must necessarily perform two steps: first to distinguish between a relation and its converse, which is done in terms of referents and relata; and then to establish that the relation holding between referents and relata is the same as that holding between relata and referents.

It will be seen that here we are confronted by a most significant and apparently paradoxical logical fact: the definition of the concept of relation requires the concept of asymmetrical relation and this, in its turn, presupposes the more general concept of relation, of which it is only a particular variety. So, in order to define the first we employ the second and in order to define the second we employ the

first . . . and so on till infinity. Here there is a circularity from which there seems to be no logical way out in terms of present conceptions. So far as I can see this circularity is not like paradoxes of the type of the liar ('I am lying now') or of that of the catalogue (to make a catalogue which only contains all catalogues which do not include themselves: if it does not include itself, then it does not contain all the catalogues which do not include themselves; and if it does include itself, then it contains a catalogue which should not be in it). It does not seem to be possible to solve this problem with the help of the theory of types (principle of the vicious circle) or of the theory of the levels of language, as applied a moment ago in order to clarify the relation existing between the concept of symmetrical relation and that of relation (which, in its turn, presupposes that of asymmetrical relation). It would seem, rather, that the circularity in question is the expression (or should one say the revelation?) of a starting-point (or should one say zone?) of logic. This seems to be *the triad of something, something else and relation.* We must now consider this question in detail, and in order to do so we shall successively examine and clarify a series of closely interconnected questions.

The relation between the concept of (asymmetrical) relation and those of contiguity (space) and succession (time). To describe the ordination required in the definition of the concept of relation we have employed the ordered pairs 'before-after', 'first-second', 'left-right'; one may add, with Carnap (1958, p. 119) 'direction–inverse direction'. The last two pairs obviously refer to the concept of space (contiguity); the same can be said of other expressions employed in connection with or related to this subject, such as '*linear* order', '*ascending* magnitude' of the natural numbers (Carnap, loc. cit., p. 122). As for the pair 'before-after', it expresses the concept of succession (time). On the other hand, relations are represented by arrow diagrams and matrices, both of which are spatial representations. Something similar can be said of 'first', 'second', etc.: either we describe them as a succession in which one *comes* after the other, or we represent them as a list, in which one is in the first, second, etc. *place*, irrespective of whether this is represented from left to right or from above to below.

The question arises, therefore, whether it is possible to *formulate* the concept of relation (hence, the concept of asymmetrical relation) without any *reference* whatsoever, direct or indirect, to the concepts of space and time (in order to avoid the further question of the relation of time to space I shall, in these considerations, consider both together). So far as I can see, the answer is definitely negative. Perhaps it is possible to conceive an asymmetrical relation without any such reference; it may be, for instance, that one can conceive the series of the natural numbers independently of such concepts. The

fact remains, however, that, so far as I am aware, no one has formulated such a concept without making use of the concepts of space and time. On the one hand, one may think that from such concepts it is possible to make the big jump to a more abstract concept of a class which has contiguity and succession as subclasses; on the other hand, one cannot help asking: is this jump really possible? Is not the concept of relation the expression or manifestation of the 'distinguishability' of things from one another, or of the divisibility of the world, and are not these concepts at base and necessarily – at least *for man* – the same thing as the concept of space-time? (The only sure thing which, in fact, I seem to know is that man is unable to arrive at the larger class without starting from the space and time subclasses, and without having these subclasses ever-present as a background of his formulations.) If this were the case, then the answer would be clear: the concept of relation – which requires the concept of asymmetrical relation – would be exactly the same as that of space-time. In the meantime, until this question is answered, we have to content ourselves with a less radical assertion, from which, however, there is no escape: *no logic can actually be built without the concept of space-time.*

Is this a logical or a psychological assertion? I do not know. Perhaps it is an assertion which refers to the zone where logic and psychology meet. It may even be that the question just asked is meaningless. Without entering into details, it seems that the arguments against so-called psychologism, like those propounded by Husserl, even if they were justified, may not be useful for our purposes, because it is illusory to attempt any discourse, logical or otherwise, while pretending that we are not part of the world, of nature: it is, in fact, too pretentious an attitude for our possibilities.

Perhaps the whole question needs reformulating and the arguments for and against need to be seen in a new perspective. The point which seems pertinent here, for the problem we are considering, is that whatever thing objective truth is, the only objective truths we can discover are those which the structure of our nature enables us to discover. Even Husserl might have agreed with this statement; perhaps he meant exactly the same thing when he wrote (1949, p. 51):

> In fact, the only thing that the partisans of psychologism succeed in proving is that psychology is *co-participant* in the process of establishing the foundations of logic . . .

If this applied to our case, my statement would mean that, in relation to the fact that *we are spatio-temporal beings, we are unable to develop a logic in which the concepts of space and time do not participate in some way.*

Some significant notions required. Use is made throughout this chapter of certain basic notions about logic which it seems advisable to make explicit. I shall do so with the help of certain quotations and comments.

First of all, as Carnap remarks (loc. cit., p. 1), a system of symbolic logic

> is not a theory (i.e. a system of assertions about objects), but a *language* (i.e. a system of signs and of rules for their use). We will so construct this symbolic language that into it can be translated the sentences of any given theory about any objects whatever, provided only that some signs of the language have received determinate interpretations such that the signs serve to designate the basic concepts of the theory in question . . . Strictly speaking, what we construct is not a language but a schema or skeleton of a language: out of this schema we can produce at need a proper language. . .

It is also necessary to distinguish between several territories or provinces:

> In the investigation of languages, either historical natural ones or artificial ones, the language which is the object of study is called the *object language* . . . The language we use in speaking *about* the object language is called the *metalanguage*. In this book, the English language . . . serves as metalanguage.
>
> . . . The entire theory of an object language is called the *semiotic* of that language; this semiotic is formulated in the metalanguage. Within the semiotic of a language, three regions may be distinguished . . . an investigation which refers explicitly to the speaker of the language – no matter what other factors are drawn in or not – falls in the region of *pragmatics*. If the investigation ignores the speaker, but concentrates on the expressions of the language and their designata, then the investigation belongs to the province of *semantics*. Finally, an investigation which . . . attends strictly to the expressions and their forms (the ways expressions are constructed out of signs in determinate order) is said to be a formal or syntactical investigation and is counted as belonging to the province of (logical) *syntax*. (Carnap, loc. cit., p. 78-9)

After the delimitation of these provinces, it is important to note that in the construction of syntactical rules logic employs symbols – usually consisting of letters, such as *a*, *b*, *c*, etc., to designate individual constants: *x*, *y*, etc. for individual variables, *p*, *q*, *r*, etc. for propositions, *P*, *Q*, *R*, etc. for predicates or functions, etc. – and that

> so long as our considerations are purely logical, we shall not trouble ourselves as to what special domain of individuals our language might be applied, and what particular individuals of that domain might be designated by '*a*', '*b*', etc. It is only when we move away from pure logic . . . that we speak of the *interpretation* of the separate individual constants and predicates. (Carnap, loc. cit., p. 4, my italics)

Furthermore, when dealing with these symbols, logic frequently does not consider the internal structure of the things they represent. This is clearly and explicitly said by Hilbert and Ackermann (1950, p. 3) in reference to propositions or sentences:

> In the sentential calculus we are not concerned with the inner logical structure of sentences, such as is exhibited, say, in the relation between subject and predicate, but consider the sentences as wholes in their logical combination with other sentences.

The same idea is taken up and expressed in an eloquent manner by Quine (1955, p. 22):

> A truth function of letters '*p*', '*q*', etc., is strictly speaking not a statement, of course, since the letters themselves are not actual statements but mere dummies in place of which any desired statement may be imagined. Hereafter the letters '*p*', '*q*', etc., and all truth functions of them will be called *schemata*, . . Schemata are logical diagrams of statements; the letters '*p*', '*q*', etc., by supplanting the component clauses of a statement, serve to blot out all the internal matter which is not germane to the broad outward structures with which our logical study is concerned.

The concepts expressed in the five preceding quotations will be taken for granted in all that follows. There are, however, some further points which must be made in order to avoid misunderstanding about this subject. Quine's comparison with the dummies is very illuminating. Dummies *stand for* statements, *represent* statements, which may be varied at will according to the territory in which symbolic logic is applied. The point to note, for our purposes, is that the whole world outside 'pure' symbolic logic, that is, the world in which the logic can be used through an interpretation (that is, the whole domain of human thinking), is permanently represented inside logic through these dummies. On the other hand, *without the dummies, no symbolic logic could be built, because they are an essential part of its structure; and also are the representatives of the outside world.* Without the possibility of their interpretation syntax would be meaningless and serve no purpose, not even to itself: it would be a useless scheme. We may go further and add that in such a case it would probably not even have been possible to construct this skeleton language. The (implicit) confirmation of this last assertion is found in every textbook of symbolic logic under the form of the numerous examples brought forward to illustrate the schemata.

The assertions just made seem meaningful for a perspective of man, as seen in terms of the relationship between the two modes; this perspective will gradually unfold, as I hope, throughout this chapter.

The second point to be made, which seems equally or more important for our study, is that if we stop to reflect about what the dummies or symbols stand for, we find, as both Quine and Hilbert

and Ackermann seem to imply. that *there is a general structure which applies to all statements for which the symbols stand.* Put in other words, the symbols of syntax represent not only *possibilities* of interpretation but also are an *actual* structure. As it applies to all and any concrete statement into which logic is interpreted, it must be concluded that this general structure belongs to the province of pure logic *as well* as to that of semantics. At this point the separation between both provinces becomes artificial: the structure in question is the representative of the outside world in the realm of syntax. We need not discuss this any further. We may only keep in mind that, whichever of the various notions of logic expressed in symbols is considered in terms of interpretation into whatever territory, one always and invariably finds that statements can be split into triads of something, something else and their respective relation, as we shall soon see. Their study will furnish us with a good vantage point for the consideration of both modes.

Before proceeding I must say that I started with the desire to get a deeper view of both modes and, without wanting to be, found myself immersed in these problems. It would seem that if the ideas put forward here were pursued to their ultimate consequences some insights would ensue, which would greatly approximate logic to psychology and psycho-analysis and also would possibly influence some aspects of the modern approach to logic.

Statements may be many for each symbol; in other words, the logical symbol itself, even when it represents a constant, is a variable. For instance '*a*' may stand for the moon, for Charles Smith, etc., that is, for an indefinite number of different constants. The same thing holds when the symbol stands for a variable (*x*, *y*, etc.), a proposition or a function. Each single statement of this second level, in its turn, stands for something which is in itself outside the realm of logic or of thinking, even if it may be an object of logic or thinking. We may call this something with the name of 'object', 'property', 'state of affairs', 'being', 'event', 'being in itself', 'value', 'relation', etc., according to (*a*) what the nature of this something is, (*b*) what the nature of our approach to it is. As it is not necessary for our purpose to enter into the very difficult problems of what the world is, of whether being does exist or not, of the world conceived as being, as formed of matter, spirit or both; or of only events; or of relations – we may leave this question aside. The important thing to keep in mind is that logic inevitably and intrinsically leads from symbols to statements and from statements to *something* which at least at first sight, appears entirely outside thinking or logic: *the reality outside logic is always present even in the 'purest' core of logical syntax.* Logicians always 'illustrate' their formulations with examples.

The neglect of these reflections may lead to a distortion of my meaning.

Linguistics, thinking, logic and the designata (:the world). If we consider a language as a set of phrases of finite length then the concept of grammatical sequence, which makes up the phrases of a language, does not coincide with the concept of having a meaning, as can be shown in the fact that there may be phrases which are grammatically correct and are, nevertheless, nonsensical or meaningless (Chomsky, 1957, Chapter 2). On the other hand, the schema or skeleton of a language which symbolic logic is, always generates, when interpreted, phrases which do have a meaning. We need not however, stop to consider in detail the question of the meaning of meaning, for we might run the risk of unnecessarily bogging down in a marsh of problems.[1] We may content ourselves with saying that logic deals with schemata of statements which, when interpreted, become actual statements. These statements refer, naturally, to some aspect of the world (physics, biology, astronomy, etc.). When logic deals with this aspect (I am speaking here of the interpretation, that is, of semantics), it deals with it *only* in so far as this aspect can be contained in statements. We are not justified in thinking that this is the only thing that the aspect or thing in question is composed of, that it can be reduced to only statements. Much can be said in favour of the opinion that in some cases there is more to it than just pure statements. We need not commit ourselves, however, in one way or another. What we must have clear is that logic (correspondingly, thinking) deals only and exclusively with statements, and when we think we necessarily leave outside that something which is the object of the statements, whatever that something is. We shall see, however, that this something, the designatum, will, in one way or another, force its presence upon us.

The point I wish to make here is that thinking or logic 'catches' in its net something of the nature of that something outside; it catches the aspect which can be expressed in statements, and that aspect is part of the world itself and in this sense logic is also. This does not exclude the possibility that there may be other aspects of the world – of the designatum – which cannot be expressed or 'understood' in terms of logic. Logic (semantics) describes only one part of the world, the part that lends itself to description, and it is possible that there are other aspects. If such were the case, as it seems to be, we would find ourselves confronted by a most meaningful fact: human thinking tends irresistibly to try to understand and to describe that aspect of the designatum which defies understanding. This is the old problem of the relation between Logos and what lies outside Logos. One possibility is that symmetrical being is in itself alien to Logos and that this latter describes the former with the help of the infinite sets. Another possibility is that, after all, symmetrical being is not, in its nature, so different from Logos itself. It would be,

[1] See Ogden and Richards (1956) and Russell (1949, Chapters 1 and 10).

however, a 'super-condensed', *multidimensional Logos*[1] just as mass seems to be formed of energy: 'condensed' energy.

The triad of something, something else and relation. Drawing inspiration from von Wright, in all that follows I shall employ the term 'something' in a very general way, to mean any single thing or entity which can be marked out from other things or entities, at any of the three levels already referred to (syntax, semantics and the designatum). It is obvious, however, that the last level can only be considered here in so far as is expressed in statements, that is, in terms of the second level.

When there is a second 'something' to consider and this is not clearly determined or delimited, in order to distinguish it from the first I shall call it 'something else'. As in what follows both terms will recur frequently I shall at times employ the abbreviations *S* and *SE* to designate them. Finally, it is to be kept in mind that whenever the syntactical and the semantical levels can be considered as having the same general characteristics, I shall not make an explicit distinction between them; for example, there will be times when I shall give an example in terms of statements (semantics) which, the reader will see, applies equally to syntactical schemes. In that case this will be taken for granted.

Now, it appears evident that no logic, no universe of discourse of whatever order, not even that of the first order or universal class of the first order can possibly be or be developed if previous to it or contemporary to it a distinction is not made between something and something else, that is, the distinction between two somethings. Logic is developed in terms of schemes which stand for statements, which themselves are expressed in sentences (see, for instance, Strawson, 1952, Chapter 1, Section 1). Sentences may at times be conceived as being, in some way, 'uni-something', as, for instance, when they are expressed in one letter symbols; but statements can never be uni-something, because their very nature precludes this possibility: they necessarily affirm something of something. *Logic, therefore, can begin only if it has more than one something as the material for its discourse.* To become more fully aware of this assertion, let us consider *S*, just *S* and nothing else. We immediately realise that *S*, which as a designatum may be a very real thing, can have no *logical* existence (syntactical or semantic) as itself alone, unless we explain what *S* is or stands for or what its relation is to *SE*: in all these cases we need one or more *SE* and the affirmation or negation of some connection between *S* and *SE*. All this may appear so evident as to be trivial. It is, in fact, in no way trivial, and starting from it one can arrive at meaningful insights which definitely are not immediately obvious, and which, furthermore, give us a new insight regarding the relationship between the two modes of being in man.

[1] See Part IX.

In order to clarify still more the truth of the above we may for a moment doubt it and take from the universe of discourse of the first order or universal class of the first order a statement or a scheme, such as '*a* is identical to itself', and say that in this case we have only one *S*, i.e. *a*. Such an assertion is clearly an error, for though it is true that the *designatum* of *a* is only one, its *representation* in terms of logic is not one but two: one in the position of referent and the other in that of relatum in the relation of identity. There is, therefore, an *S* and an *SE* which in this case differ from one another only in the position or place they occupy in the relation of identity: first and second respectively. Note that in this case we are deliberately ignoring the nature of the designatum, i.e. we are only making a syntactical assertion; if we were to make a semantic assertion we would have to introduce a number of other somethings with which to define or identify the designatum. It must also be left clear that in this case the referent and the relatum have no preference over one another. There is, therefore, no privilege of the relation over its converse; we may start from one or the other and the result is the same: a sort of principle of relativity, of lack of a privileged system.

We could put all the above in other words and say that *logic requires the realm of the discrete, deals with the realm of the discrete and is part of the realm of the discrete, that is, of things which are distinguishable from one another and separate from one another.*[1] This is, as we shall see, a most important characteristic, which is at the same time puzzling and, to a certain extent, deceiving because, as we shall also see, in the end no logic is conceivable without *all* the parts of a postulated world, that is, without the whole world, only this world is seen by logic as divided into parts. The reader must wait until he has seen the whole chapter in order to grasp the full meaning of this paragraph.

One might think that the example of the universal class of first order is not a good one and that what holds true in its case may not hold equally true in other, more simple cases. We have found in it a triad composed of *S*, *SE* and a relation: the relation of identity. As possibly instead of the relation of identity we may find other relations, we may employ the symbol *R* to designate any relation of whatever type. An examination of the question leads to the

[1] After I wrote this, as a result of much reflection, it suddenly occurred to me that the influence of Bergson has been stored in my unconscious for many years and was expressing itself in my thinking. In 1906 he wrote (Bergson, 1934, p. 161): '*Si l'on envisage dans l'intelligence ce qu'ils renferment de connaissance innée, on trouve que cette connaissance innée porte dans le premier cas sur des* choses *et dans le second cas sur des* rapports.... *L'intelligence ne se répresente clairement que le discontinu* [p. 168]....*Notre intelligence ne se répresente clairement que l'immobilité* [p. 169].'

It will easily be seen how much I am saying the same basic thing. It seems, however, worth doing because the context in which I am viewing this question (i.e. the formalisation of logic) is quite different and it enables us to see perspectives which were not made explicit by Bergson. I believe that, were it not for him, I should not have succeeded in expressing the results of my psycho-analytical experience in the terms I am using now.

conclusion that *any and every logical discourse is formed at least of triads constituted by* S, SE *and* R. I say at least in order not to exclude the possibility that it may be formed of groups of more than three constituents (three-, four-, five- . . . *n*-positional relations). It must also be noted that, owing to the very ample definition we have given of *S*, when we speak of *R* we are only designating a variety of *S* to which we ascribe certain characteristics, which lead us to single them out by means of the letter *R*. On the other hand *R* may be an *S* or *SE* of another triad; this would happen, for instance, when we study the relation between, say, transitive relations and the general concept of relation. In this case we may say that *S* (i.e. transitive relation) has the relation of being included in *SE* (i.e. the general concept of relation).

To assert that in every logical assertion there is *S*, *SE* and *R* may at first sight seem to go against the teaching of logical treatises in vogue now, for these start with propositional calculus, and to form a proposition or sentence there must be only two kinds of signs, the individual constants and the predicates; on the other hand a one-place predicate designates a property or class whereas relations are two-, three- . . . *n*-place predicates. Furthermore, propositions, classes or properties, and relations are considered to be

> hierarchically related. This is seen from a consideration of logical constants. All the constants of the Logic of Propositions occur among the constants of the Logic of Properties, and all the constants of the Logic of Properties among the constants of the Logic of Relations. But some constants of the Logic of Properties, e.g. 'all' and 'some' do not belong to the Logic of Propositions, and some constants of the Logic of Relations, e.g. 'converse', do not belong to the Logic of Properties. (Von Wright, 1967, p. 6)

My assertion does not intend to deny this hierarchy but only to point out that even this hierarchy starts from the triad or from many triads. Put in another way, *in order to start from the more simple structure of propositions, and from there proceed towards classes and relations, logic must close its eyes to the structure of propositions themselves.* This is clearly expressed, though not in these words, in the quotation above of Hilbert and Ackermann, where they say that 'in the sentential calculus we are not concerned with the inner logical structures of sentences' and that they consider the sentences as wholes. If instead of doing this, we do concern ourselves with this structure, then we find that *thé triad is the minimum beginning of any logical structure*, as we shall now try to show. I may add that the consideration of this state of affairs opens up a perspective which enables us to see the relation between the symmetrical and asymmetrical modes (Section 5 of this chapter) and which places logic in a new relation to the unconscious or symmetrical mode of being, which cannot be discovered unless we

study logical structures.[1] This is what we now shall proceed to do, starting with syntax and from there proceeding to semantics.

An analysis of (logical) syntax in terms of the triad. We may, first of all, consider the constants of the logic of propositions, which are usually called the connectives and which serve to form compound sentences from more simple ones. These are the negation (not-p: in symbols $\sim p$), the disjunction or alternation on logical sum (p or q: in symbols $p \vee q$), the conjunction or logical product (p and q: in symbols symbols $p.q$), the implication or conditional (p implies q: in symbols $p \supset q$) and the biconditional or equivalent (p is equivalent to q: in symbols $p \equiv q$). Now, it can easily be seen that *every one of these five basic connectives expresses a relation or implies a relation or is a relation.* For reasons which will in due course become obvious I shall postpone the discussion of the negation and the disjunction to Section 5 of this chapter. There it will be seen that both these connectives are the expression of relations, and even that they imply not only one but more than one relation. Now, as shown in any textbook, the conjunction, the conditional and the biconditional can all be derived from the first two or are simply expressions of them.[2] This proves my assertion. Put in other words, *no propositional calculus can be developed without the concept of relation.* As on the other hand propositional calculus deals with the combination of sentences with other sentences, it follows that *no propositional calculus can be developed without the concept of something and something else.*

We may now consider the constants of the logic of properties or classes, such as some and all. It is obvious that the concept of 'all' cannot exist without the corresponding concept of 'some' and vice versa. 'Some' is defined in terms of the concept of a whole made of at least two parts, in which case some is 'one or the other'; similar considerations apply when the whole is made of more than two parts, in which case 'some' may be constituted by more than one part. The point to be made is that 'some' is always conceived as part of all, that is, *is conceived at least in terms of one relation*, the relation part-whole. As in the case of a whole composed of only two elements 'some' means 'one or the other'; in this case we must add another relation, that of 'or', understood in its disjunctive meaning: '*if* this, *then not* this other'.

[1] The reader will now realise that when I said, above, that one cannot expect logic to have ready the considerations required for our purpose, I meant exactly what I am discussing here.

[2] For those who are not familiar with this derivation, conjunction or logical product is defined in the following way: 'it is not the case that not-p or not-q' which written in symbols runs as follows: $\sim(\sim p \vee \sim q)$. Implication or conditional is defined as 'not p or q' (in symbols: $\sim(p \vee q)$. Equivalence is defined as 'p implies q and q implies p' (in symbols: $(p \supset q).\ (q \supset p)$. As can be seen, the definitions of all three only employ negation and the logical sum.

Just as the concept of 'some' requires that of 'all', this latter requires the first. In other words, the concept of 'all' is defined in terms of a relation.

Another constant mentioned by von Wright is 'somebody', to which apply the same considerations as apply to 'some' and 'all'.

Finally, there is the word 'is' (correspondingly: 'are'), which is also considered a constant by von Wright. It would seem that this word differs from all other logical constants, and that, *in itself* it does not point to a relation but to something which underlies all relations, the designatum, which may be (as we have seen) various things: object, property, state of affairs, relation, event, etc. Some may prefer to give a common name to all these varieties of designata: being. If the word is understood exactly in this sense, with no pretences of anything further, we can say that without being no logic can exist, but being (the designatum) seems to be outside logic, at the base of logic. Of course, we can also submit *the concept* of being to analysis, and when we do so we cannot avoid employing logical concepts and, in such a case, we shall find that everything that has already been said also applies in this case. But this is not the same thing as being, which, itself, seems completely outside logic, and makes its appearance in logic only through its being *represented* in terms of the trinity of something, something else and relation. One might add that all the 'compactness' and 'weight' and 'solidity' of being – if I may employ these words in order to convey the impression one may have that being has a basic 'substantiality' of its own – becomes ethereal when translated into or represented in logic. Perhaps one could say that in order to be able to appear in the field of logic, being must lose some of its dimensions. What remains, however, is still something pertaining to being.

We conclude that *propositional calculus, which works with connectives, necessarily works with the triad*: *S* is the first proposition, *SE* the second and *R* the connective. It now remains to be seen whether so-called simpler sentences do not have this structure. Simpler sentences are described as sentence-completions of predicates (Carnap, loc. cit., p. 7). Examination of such sentences immediately reveals that the concept of 'simpler' does *not* in this case have a beginning in some sentence or proposition which is the most simple of all, for each sentence can itself be considered in terms of, or analysed into other sentences, so that the process never ends. As soon as we submit *any* sentence to analysis we find that it dissolves into or gives way to further triads, and that each one of these triads is submitted to the same fate. When we speak of *actual* sentences and not of schemata, however, we are already in the realm of semantics. We, therefore, postpone for a moment the study of this question until we complete our examination of syntax.

Having examined the structure of the propositional calculus we now turn our attention to the classes. The notion of property or class

itself cannot be conceived except in terms of relations. It is not necessary here to discuss the distinction between class and set; in any case the following considerations about the notion of set apply equally to that of class:[1]

> ... the concept of *set* is born from the most elementary procedure of abstraction, which has a primary character, not derivable from more simple processes: it is the procedure consisting of mentally gathering ('identifying') several objects individually distinguished from one another, keeping their individuality and their reciprocal distinction also after the mental gathering has been accomplished.
>
> If we decompose such an abstracting procedure in its various moments, we get a notion of *set*, a notion of *element* ('object', 'individual') a *relation of belonging* (of an element to a set). (Lombardo-Radice, 1967, p. 10)

This quotation, so it appears to me, makes an implicit use of the concept of the triad as the starting-point of all logic. If we consider the relation of belonging, we immediately realise that, like any relation, it requires *S* and *SE*, which in this case are the element and the set. Each of these, in its turn, requires the other and the relation. What holds for the set holds in exactly the same way for the notion of class understood as meaning classes which are sets. *We conclude, therefore, that the logic of properties or classes, just like the logic of propositions, starts from the notions of* S, SE *and* R.

It is evident that the same applies to the logic of relations. We must conclude, therefore, that *the starting point of logic is the triad.* As the relation is an element of the triad, if we remember that the concept of relation is indissolubly linked to that of space, we also necessarily conclude that *space is at the base of logic*, however strange this conclusion may appear. This must be understood, however, in the same sense as already discussed, i.e. the door is still left open to a distinction between the existential necessity of thinking with the help of the concept of space and a more metaphysical possibility that this may not be an essential necessity.

We now must consider for a moment the hierarchy usually respected in logic, as illustrated in the quotation of von Wright. When logicians consider propositions or classes they simply choose to ignore their internal structure – made in terms of triads of *S*, *SE* and *R* – in order to study certain characteristics which are specific to them and which distinguish each of them from the other components of the hierarchy. One cannot help wondering, however, whether such a procedure has, after all, been so useful. Perhaps it would be possible to develop a more meaningful structure of logic if the triad were made the starting-point of it, not implicitly (as has in fact been done) but explicitly.

[1] Note that here, and in all this chapter, I am using the word class in the sense defined in Chapter 2, sub-section 14, and am not considering the relation between set and class in a more general mathematical sense (as in Lombardo-Radice, 1967, pp. 55-9).

From (logical) syntax to semantics. The concept of individual. So far we have considered syntax. In it the constants stand for individuals; *a*, for instance, may stand for the moon, for John Smith, etc. So long as we remain in this realm, *a* or any other symbol is, in itself, a fairly self-contained whole. We may accurately refer to it as something. When we descend to semantics and say that *a* is John Smith, we have to *identify* an individual, to use Strawson's expression (1959, Chapter 1). This identification may be done in a fairly summary way if the person for whom we are identifying it has a knowledge of it. If, instead, we wish to make an exhaustive identification, we may say that John Smith is an Englishman, that is, that he belongs to the class of Englishmen; that he is thirty years old, i.e. that he belongs to the class formed by the intersection of the class of thirty year old men and the class of Englishmen; that he is blond, that is, that he is an element of the intersection of the class of blond men and the previous class; that he was born in London, i.e. that he belongs to the intersection of the class of those born in London with the class resulting from the previous intersections; that he is a Ph.D., i.e. that he belongs to the class resulting from the intersection between the class of Ph.D. and the class formed by the intersection of all the previous classes. If we continue identifying him we finally arrive at a class formed by the intersection of a certain number of classes and which contains only one element, who is precisely *the* John Smith we are talking about. *In other words, an individual is the element of a one-element class formed by the intersection of a certain number of classes.*

If we now examine the process followed we immediately become aware that each step of this process is simply the establishment of a relation between something and something else: the relation of intersection between one class and another. The individual, on the other hand, has the relation of belonging to or being an element of the class resulting from this intersection. In the end we conclude that, viewed from this angle, an individual may be described in logical terms as a unique expression resulting from the combination or co-presence of a certain number of triads, each of which is formed by two classes and one relation. As, on the other hand, we have seen that classes are themselves describable in terms of triads, we conclude that *any individual is describable in terms of the intersection of a number of triads.*

It can easily be seen that exactly the same thing may be applied to a proposition in which something is affirmed of an individual, that is, when a predicate is ascribed to a given individual. If, for instance, we say that the moon is white, we are only affirming that it belongs to the class of white objects: a relation of inclusion or belonging; and the same holds for every possible case.

There seems to be a unique exception to the description in terms of the triad, that is, when we affirm of something that it *exists* or *is*.

'The moon is' or 'the moon exists' does not seem to predicate anything, at least apparently. But if we turn our attention to establishing what 'to be' or 'to exist' means, then we are back in the realm of the triads, as can easily be confirmed. According to the *Shorter Oxford Dictionary* 'be' means: 'to have place in the realm of fact, to exist'. 'Exist' means: 'to be, to have objective being'. It is obvious that these definitions are made in terms of other words. Though *in itself* being *can* be conceived as being outside the realm of the triad, hence outside space and time, as soon as it becomes the object of a semantic description it enters this realm. We might reverse the situation and say that it is only when being 'yields' relations or is expressed in terms of relations, hence of triads, that it can be viewed in logical or thinking terms. In other words, logic decomposes or dissolves being into triads, and each triad into further triads. In the end, what remains is a series of relations and a series of 'spots of beings': somethings and somethings else.

Some philosophers have said that *there is a logical aspect to being*, a *Sosein*: this aspect itself is but an *aspect* of being.[1]

A closer look at the triad. If we consider the propositional function of the universal class – '*x* is identical to itself' – we immediately become aware that the only difference between the referent and the relatum is the position they occupy in the relation: one comes first and the other afterwards. Put in other words, something and something else are, in this case (i.e. at the level of syntax) identified in terms of their *position* in the relation; we know that so far as their semantic meaning is concerned they are one and the same thing. On the other hand, *so far as they are considered in terms of the relation* (because we are at this moment excluding the semantic aspect) one cannot but affirm that neither can exist without the other: neither the concept of referent nor that of relatum has any meaning without the other because each of them is defined in terms of the other. *In this case, therefore, something and something else logically (syntactically) create each other.* Moreover, in this 'act' of logical 'co-creation' one cannot affirm that either one has a preference of any kind over the other; a form of principle of relativity, of lack of privileged systems, reigns here without any limitation.

Parenthetically, the assertion of the relation of identity at the level of syntax makes a reference to the fact that this identity also refers to other levels, those of semantics and of the designatum; for, if this were not so, the assertion of identity could not be made, considering, as we have just seen, that at the pure syntactical level the referent and the relatum are *not* the same thing. This is another indication that one cannot isolate syntax from the rest of the world. I do not succeed in convincing myself that to describe syntax as *only* a

[1] See Hessen (1950, vol. 3, first part) and Matte Blanco (1954, Chapter 2).

schema of language expresses the whole truth; for the other levels cannot be excluded from this schema, as is shown in this example and in what we have already seen before.

If we now turn our attention to the relation itself, we also realise that this concept cannot be without the concepts of *S* and *SE*; without referent and relatum there is no relation, and without the concepts of referent and relatum there is no concept of relation. The whole situation is, therefore, as follows: *S* cannot be if there is no *SE* and no *R*; the corresponding assertion holds for *SE*; and *R* cannot be if there is no *S* and *SE*. In other words, *at the level of syntax,* S, SE *and* R *logically create one another, so far as the relation of identity is concerned; all three must either be 'given' together or not be at all.*

Reflection shows that, surprising as it may be, the same assertion can be applied equally correctly to any other case of (syntactical) triad. We have already seen that the logic of propositions, that of classes or properties and (naturally) that of relations, is built in terms of triads of *S, SE* and *R*. Now, if we remain at the level of pure logical syntax, what we see is the connection between two symbols. We have seen that all connectives are or express relations. The same things hold, therefore, for every development which starts from the connectives. As for the referent and relatum of the relations expressed in them, these are just symbols which stand for schemes or incomplete statements which become actual statements only when interpreted. Syntactically each one is defined in terms of the other and of the relation. Take, for instance, the proposition '*a* implies *b*': *a* is a symbol which may stand for many things and which, therefore, at the level of syntax, is defined *only* in terms of *b* and of the relation of implication; *a* is that thing which implies *b*. The same thing holds for *b*, which is defined as that which is implied by *a*. The relation of implication, in its turn, cannot be conceived – as a relation – without both *a* and *b*. As a relation *of implication*, however, it can be further split into components: it means 'not-*a* or *b*', i.e. a combination of both not-defined concepts of Russell and Whitehead.

Therefore, the situation may be summarised in the following way: *at the level of syntax any assertion is composed of* S, SE *and* R, *which logically 'create' one another in the sense that none of the three can be conceived without the other.* The particular relation which is expressed in the assertion can, in its turn, be defined in terms of other relations. If one considers that the not-defined concepts with which one chooses to start the propositional calculus may themselves be defined in terms of other not-defined concepts and vice versa, one must conclude that, so far as the concept of relation is concerned, *there is not one fixed starting-point of logic but rather a zone of mutually interdependent concepts*, which themselves can be resolved in terms of triads. For instance, if not-*p* is defined in terms of *p* incompatible with *q* (Sheffer's not-defined

concept) then we may say that *S* is not-*p*, *SE* is *p*/*p* and the relation is the relation of identity. In this case the triad is: ~*p*=*p*/*p*.

So, at the level of syntax we have triads and only triads and the components of the triad *logically* create one another.[1] Each relation can be resolved into a triad and the same can be said, at this level, of *S* and *SE* when these are susceptible of being split into other syntactical components. Because if at the level of syntax *S* is susceptible of being split into such components, it will have to be split in terms of the connectives, hence in terms of triads.

It is evident that, at least from a certain point of view, any member of the triad is more simple than the triad itself. Yet no one of them can be conceived or described without the other two or, perhaps, without the triad. This fact may be expressed by saying that the simple is defined in terms of the complex, or that logic starts from the complex to arrive at the simple. On the other hand it is equally true to say that we could not conceive the triad – as its very name shows – if we did not have the idea of its elements. So, *we define the simple in terms of the complex and the complex in terms of the simple. The triad of* S, SE *and* R *is, therefore, another example of the basic circularity existing at the starting zone of logic.*[2] In the following sections of this chapter we shall see how our study has led us to conceive the symmetrical mode as a totality. We are now beginning to become aware that, whether one likes it or not, logic cannot be if in some way it does not reflect the totality of the world, the same world with which the symmetrical mode establishes a 'contact' which is entirely different from that which logic establishes with it. The trouble is that thinking-logic is analytical, divides things into parts and feels ill at ease when confronted by an unanalysed whole (we may even say that logic knows the whole only through its parts, and that when we are in direct contact with an unanalysed whole, we are so through our symmetrical mode and not through logic). Logic-thinking seems to be condemned by its own nature to build its structure by the method of starting from the simple in order to arrive at the complex. The world, however, does not seem to abide by such rules, as is shown in the circularities we are coming across. We may then say that logic has such paradoxical

[1] One cannot but be struck by the parallel between the above assertions and the dogma of the Holy Trinity as is usually described to laymen. In the triad I have described the concept of relation as being, in some way, different from the other two, though neither previous nor posterior to them. So is, I believe, the Holy Spirit. As for the other two members of the Trinity, remember the words of Jesus: 'Ego et Pater unum sumus' (John. 10,30). The conclusion one may draw is that, whatever else the concept of the Holy Trinity may mean, it does seem to reflect the starting-point of thinking and of logic.

I am aware that Hegel has discussed the concept of the Holy Trinity in terms of the concepts of thesis, antithesis and synthesis. It seems legitimate, at this stage, to leave the study of the relation between the ideas I am discussing and Hegel's conception for another occasion.

[2] We have already seen something similar regarding the concept of relation.

(or antinomical?) bases *because* it can only see the world through dividing it, whereas the world is *not only* divisible and formed by small 'bricks' but *also is* a totality which thinking-logic is unable to grasp in itself; it only gets what might be called a caricature of it through its humble work of analysis and subsequent synthesis made with parts, a work which, however *respectable and necessary*, can only reflect an aspect of the world and not the total real nature of it.

I believe the above considerations suffice to show that my assertions are true. If we now consider semantics, we find exactly the same situation. The best way to show this is to examine a particular example. We may, for instance, choose an individual. We have seen that an individual can be defined in logical terms as the intersection of classes. So we may shift the problem to the class or to the property. As for propositions in which something is predicated of a constant (such as 'the moon is white'), the individual constant (moon) is the expression of a number of classes and the same can be said of any predicate. 'The moon is white', for instance, means that the moon is an element of the class of white objects or has the property of being white. So, in the end, if we succeed in showing that classes or properties are, *at the level of semantics*, also defined *always* in terms of triads, we will have shown that the triad is also the stuff with which we conceive the reality outside syntax.

In order to research along these lines I shall, therefore, choose a one-place predicate. The one-place predicate 'book' designates the property of being a book, just as the one-place predicate 'white' designates the property of being white. We shall concentrate on the *intension* of the predicate, i.e. on the property, and we need not worry about its *extension*, that is, the class of individuals having the property in question, and this for various reasons, among which because we have already seen that the concept of class is the expression of a triad. The procedure which I shall follow is to choose from the *Shorter Oxford Dictionary* the definition which seems more appropriate for our analysis; for if we were to consider all the definitions given for each word we would have to conduct several parallel lines of research (in the present case, eleven) which would vary greatly and unnecessarily complicate matters. Once we have chosen one definition we shall again consult the dictionary for the meaning of the key words employed in this definition, leaving aside, for the reasons just given, some of the notions that seem less central to the concept under study. The same thing will be done with the new words yielded, and so on. If every one of the possible ramifications were followed, the study of only one word would occupy a whole book, and in the end it would involve a great deal of, if not the whole, dictionary; though it would reveal, as I believe, important perspectives, it is utterly beyond the scope of our present purpose.

I shall employ a combination of numbers and letters so that the

reader can follow my line of analysis. Their use is self-explained. I shall put these letters and numbers in parenthesis before the word or expression to which they refer.

Book: a (1) collection of (2) sheets of (3) paper or other substance, blank, (4) written or printed (5) fastened together so as to form a (6) material (7) whole.

Comment: The central idea here is that of sheets fastened together. One realises immediately that this is the expression of a symmetrical relation: each sheet is fastened to all the others and all the others are fastened to each. In order to confirm or deny this impression we consult

—(5) Fasten: 'to make fast to something else'.

—(5*a*) Fast: 'firmly or closely-knit together'.

Comment: The impression is confirmed that the central concept in the definition of the property 'book' is that of a (symmetrical) relation between certain somethings, the sheets. Here there are more than two somethings, but we may at will, divide the sheets in two groups, one fastened to the other, and these are *S* and *SE*. To discuss the implications of the multiplicity of sheets would complicate matters, but actually end in the same basic concept.

Our first research has led us to see clearly that in the concept of property or one place predicate 'book', the central idea is that of *S*, *SE* and *R*. We leave aside the relation and concentrate on *S* and *SE*; in this new case both are elements of or belong to the same class or property called

—(2) Sheet: 'a relatively thin piece of considerable breadth *of* a malleable, ductile or pliable substance' (italics in the dictionary).

Comment: As the italics show, the concept of sheet is that of a piece *of* a malleable, etc. substance. Here we see the relation between the part and the whole; *a* is part of *b* and *b* has *a* as part — an asymmetrical relation. In other words, the concept of sheet is one special subclass of parts of one special type of substance: thin and broad parts of malleable, ductile, pliable substances. In other words, the property 'sheet' is defined in terms of a relation between the part and the whole of these clearly delimited parts (thin and broad) and clearly delimited wholes (malleable . . . substances).

In this case the property has yielded one *S*, one *SE* which is different from *S*, and the relation between them: the triad once more. I think this is sufficient to *show* and *produce an intuitive conviction that my initial assertion is true in every case*, though I admit that it is not a demonstration. In order to shorten our research, we may choose, out of the words which we could study, an attribute (predicate) instead of a variable or constant, these words being intended, following Carnap, in the sense already mentioned. So, instead of studying what 'piece' or 'substance' is we may turn our attention to, for instance, 'thin' and 'malleable'.

—(2*a*) Thin: 'of small cross-section in porportion to length'.

Comment: Once more, the concept is defined in terms of a relation between cross-section and length: the cross-section is small in proportion to length, and the length is large in proportion to the cross-section – an asymmetrical relation. Again here the *relation* between *S* (cross-section) and *SE* (length): the triad.

At this point it occurs to me that somebody might object that I am deliberately choosing, out of the various meanings of words present in the dictionary, those which are favourable to my thesis. Apart from the fact that it can be seen that the meanings chosen are appropriate to explain the words we are studying, it can be verified that other meanings will lead to the same results. In some of these meanings the triad may not be so easily visible, but it can always be found.

If we continue along these lines we shall always find the triad. Each of the three members of the triad is, in its turn, described in terms of another triad. The process goes on indefinitely. For the sake of brevity I shall not continue with our example, repeating, however, that I believe that an exhaustive research would reveal unsuspected structures.

The co-creation of *S*, *SE* and *R* at the level of semantics. It is by now clear that the elements of *any and all* syntactical triads logically co-create one another. Can the same really be affirmed at the level of semantics? This is an important question which I shall now consider further.

The example just given has shown that the property 'book' is defined by a triad and that any element of the triad is, itself, resolved into further triads; and so on. Each and all of these triads refers to or points towards something outside both syntax and semantics: an attempt at *describing* the designatum, which itself belongs to the world outside logic. It might appear, therefore, that the logical co-creation of the elements of the triad cannot be affirmed in the case of semantics, because in such a case the world outside, the designatum, has a greater say in the matter: in contrast to what happens in syntax, it would seem that in this case it is the nature of the designatum that gives origin, creates the triad. If two designata are different and if we are able to get to know their real differences, then the triads with whose help we describe them will not be the same, because each description must reflect the actual nature of things outside syntax or thinking.

No doubt this reflection appears to be quite correct and to correspond to actual reality. It does not cancel, however, another consideration which appears equally correct and throws new light on the question, and which I shall now try to put forward. We saw that an individual is the element of a one-element class resulting from the intersection of a number of classes. This means that the individual is defined in terms of concepts which are general and each of which

applies to other individuals, in many cases to a potentially infinite number of individuals. On the other hand, our dictionary research on the property 'book' shows essentially the same thing: the property – any and all properties – merges in various ways into other properties, is a subclass of the class defined in terms of another property. For example, the property 'book' is a subclass of the property 'sheets', and this is a subclass of the property 'thin and wide'. We could, therefore, say that each property is the unique intersection of a certain number of properties or that each class is the unique intersection of a certain number of other classes, each of which is defined in terms of a property. In this sense the difference between individual and class could be defined by saying that an individual is a class – formed by the method just described – which contains only one element.

We can continue this process *ad infinitum*. One must add, furthermore, that in this definition there is no starting-point: we may start from any point and in this way arrive at the other points. This, in its turn does not mean that we may not fall into a circle in which one thing is defined in terms of the other; and that the circle may not be followed around for an infinite number of times, as happens in some verbal games.[1] In fact we already saw that the dictionary defines 'be' in terms of 'exist' and vice versa: a circular definition. If we contemplate this procedure we find, I believe, that ultimately properties, just as individuals, are defined, as just mentioned, in terms of intersections of properties and that these intersections ultimately lead us to the basic relations or combinations that we find in (logical) syntax. As each of these relations can be applied to an indefinite, even an infinite number of subclasses and/or elements, we cannot but conclude that such general things called properties seem to be the same as the symbols of syntax, which apply to an indefinite number of concrete cases. In other words, when from syntax we descend to semantics, we describe the external world – individual or properties – in terms of properties which resolve into further and further properties so that eventually every possible designatum which is describable in terms of such properties can be described in exactly

[1] For instance:
Avec quoi faut-il puiser l'eau?
Chère Élise, chère Élise
Avec quoi faut-il puiser l'eau?
Avec un seau, cher Eugène
Cher Eugène, avec un seau.
Mais le seau a un grand trou
Chère . . .
Et bouche-le, cher . . .
Avec quoi faut-il le boucher?
Chère . . .
Avec la paille, cher . . .
Mais la paille n'est pas coupée
Chère . . .
Et coupe-la, cher . . .
Avec quoi faut-il la couper?
Chère . . .
Avec la faux, cher . . .
Mais la faux n'est pas aiguisée
Chère . . .
Et aiguise-la, cher . . .
Avec quoi faut-il l'aiguiser?
Chère . . .
Avec la pierre, cher . . .
Mais la pierre n'est pas mouillée
Chère . . .
Et mouille-la, cher . . .
Avec quoi faut-il la mouiller?
Chère . . .
Avec de l'eau, cher . . .
Avec quoi faut-il puiser l'eau?
Chère . . .

the same terms as every other possible designatum which is also describable in terms of such properties, though, possibly, in different combinations. Put in other words, *the description of any aspect of the real world is made in terms of a sequence of properties such, that this sequence as a whole is identical to a sequence of purely syntactical symbols and reasonings.*

Once again, we fall into a circularity: *syntax takes its raw material from the world and 'purifies' it into precise concepts, symbols and rules; once this is done it goes on to describe the actual world and this description ends up in a series of syntactical symbols or reasonings. We could equally correctly start from another point of the circle and say that with the help of syntactical concepts and rules we describe the world and that this description yields, in the end, only syntactical rules and concepts. This means that the logical co-creation of* S, SE *and* R *is also valid for semantics. It also means that when thinking is applied to semantics – to the world – it does not 'touch' it, but only succeeds in 'reflecting' it in terms of its own structure, which is a reflection of syntax.* And it probably means other things as well.

Personally I find that this conclusion tends to provoke anxiety, though I must add that one learns to get used to this riddle. Science (logic) appears, from this angle, like the dog who is trying to catch its tail, or like the trustworthy father Valdecebro.[1] *The role of the unconscious – symmetrical mode – appears in this light as a necessary complement and antidote to the limitations of Logos.* Without the symmetrical mode, which does not 'reflect' the world, like Logos, but touches it or, better, immerses us in it, fuses us with the other, life would be like the tortures of Ixion, Sisiphus and Tantalus: to go around ceaselessly, to fall when we have almost reached the top, and to remain thirsty when the water is almost next to our lips.

There is one thing that must not be forgotten in our considerations. Each and all *S* and *SE* gives way to a triad, and one or all components of each triad may appear again in a successive step. On the other hand *S* and *SE* are the representants of 'external' reality – of the designatum. They are ever replaced by another *S*, another *SE* and another *R*, but at a given moment we always have only one pair of them before our eyes. 'Reality' escapes us towards the infinite, either a circular or a straight-line infinite. And yet it is always 'there'.

A brief psycho-analytical comment. Any psycho-analyst who happens to read these reflections will have realised already that the

[1] A little story that my father used to tell: 'El fidedigno Padre Valdecebro/ que en discurrir historias de animales/ se calentó el cerebro./ Del Unicornio cuenta maravillas/ y en el Ave Fénix cree a pie juntillas.' (The trustworthy Father Valdecebro/ who thinking about stories of animals/ heated up his brain./ He tells marvels of the Unicorn/ and blindly believes in the Phoenix bird.)

passage from an 'unthinkable' being – the symmetrical mode – to the triad in question completely parallels the process of growth of the child, from being one with the mother to being two with her and at the same time in a close relation to her: the triad of something, something else and relation. Logic, just as psychology, emerges from and is the reflection of biological facts, because 'one cannot jump out of one's own skin'. This fact is obvious to all psycho-analysts. Is it so to all logicians? To answer the question exhaustively we would have to examine epistemology in the light of psycho-analysis, that is, in the light of bi-logic. I am tackling this question in a separate work.

On the other hand, all psycho-analysts are conversant with the fact that many objects and situations may be symbols of the basic biological organs and situations. This fact is, so to speak, parallel to the situation we have encountered in the analysis of individuals and properties in terms of other properties. There is one thing more, however: owing to the application of the principle of symmetry, the unconscious treats all symbols of an object, not simply as elements of a class but as one and the same thing.

Further reflections on the starting zones of logic. We have considered the triad of something, something else and relation as the starting zone of all logic. From the complex one describes the simple and vice versa. We have referred to this situation by calling it the basic circularity of all logic. It is easy to see that the discourse followed in these pages and which has led us to the triad in question, has been made in terms of, not simply one something, one something else and one relation, but in terms of many triads; the preceding pages are a witness to this assertion. One then asks: *could* this discourse, i.e. logic, have started from only one triad and from this triad gone on to construct further relations, further somethings and something elses? I find it very difficult, if not impossible, to answer this question. The first thing that comes to mind is that it would have been *existentially impossible* to have done this, because I would not have succeeded in making my meaning clear. But, perhaps, this existential necessity of having at our disposal a greater number of Ss, *SE*s and *R*s in order to make oneself understood does not necessarily exclude the possibility that, once the basic conclusion is reached by a complex way, it is possible to see it in more simple terms, i.e. in terms of one triad. I doubt that this is possible and I suspect that even the distinction between existential impossibility and logical possibility just hinted at is in fact not permissible here and is only due to a misunderstanding. One can, in a first approximation, realise that the relations I have referred to when we were studying the triad, may not necessarily be the *only* primitive ones or first ones. There are other relations which may 'have equal rights' to those I have mentioned.

What is certain is that in fact any sentence or proposition, even if it is expressed in terms of one triad, actually entails a myriad of triads with their respective relations.

At this point it seems advisable to quote Whitehead and Russell (1950, p. xv) from a passage which seems pertinent to our subject:

> Our system begins with 'atomic propositions'. We accept these as a datum . . .
>
> Atomic propositions may be defined negatively as propositions containing no parts that are propositions, and not containing the notions 'all' or 'some'. Thus 'this is red', 'this is earlier than that', are atomic propositions.
>
> . . . Given all true atomic propositions, together with the fact that they are all, every other true proposition can theoretically be deduced by logical methods. That is to say, the apparatus of crude fact required in proofs can all be condensed into the true atomic propositions together with the fact that every true atomic proposition is one of the following: (here the list should follow). If used, this method would presumably involve an infinite enumeration, since it seems natural to suppose that the number of true atomic propositions is infinite, though this should not be regarded as certain. In practice, generality is not obtained by the method of complete enumeration, because this method requires more knowledge than we possess.

We have seen that all propositions can be seen in terms of triads, and this also applies to atomic propositions, including those mentioned in this quotation.

We may suppose that if a certain number n of triads is given from the start, there is the possibility of developing a certain type of logic which may be sufficient, if applied, to understand a certain amount or proportion of the world. If the number of initial basic triads is greater than n, the possibilities of understanding increase, and this may go on until n becomes infinite. Man would be somewhere in the scale. One may conceive *the possibility* of other beings higher up in this scale.

It would be most interesting to construct systems with a given, limited number of triads at disposal and to study their different possibilities of understanding reality, according to the number of initial triads available. The problem may be extremely complex and offer possibilities which are not immediately foreseeable.

We may leave the problem at this point, and the task of solving it to logicians. What we were interested in establishing was the difference between the two modes of being, and it is to this question that we shall now return. However, in Section 5 of this chapter it will be seen that this laborious detour has not been useless, for it will enable us to establish more clearly the relationship between the two modes of being. And I believe (though I may be alone in doing so) that both logic and the view of psycho-analysis presented in this book may, through these reflections, be seen in a much closer relationship than might at first sight appear. Both will, I believe, be the better for this.

Symmetrical being as seen from the outside and from the inside-out-

side. The attribution of the establishment of symmetrical relations to what we have called the symmetrical mode of being would imply that this mode also adheres in its essence to asymmetrical relations because these are, as we have seen, at the basis of all relations. There would, on principle, be nothing against this supposition, only it does not seem to conform to actual facts. What clinical observation and the analysis of dreams suggests, instead, is a far more radical distinction between both modes of being. What we have called the symmetrical mode of being seems completely alien to the notion of asymmetrical relations, however much it may enter into the most varied associations with asymmetrical being. *The inevitable conclusion is, therefore, that it is also completely alien to the concept of symmetrical relations, for the reasons just outlined. In short it is alien to the concept of relation itself, as well as to the concept of individual, that is, to the distinction between something and something else.*

At first sight this conclusion is disconcerting and the question arises whether all the efforts made throughout this book are not, after all, completely useless. For if this mode of being which we have called symmetrical is alien to the notion of relation, whether asymmetrical or symmetrical, then our descriptions of this mode do not conform to the mode itself, and are inappropriate to it. The answer is that this would be true if we pretended to go into its essential internal nature, but the descriptions are appropriate *as an external approximation* to the intimate reality of that which we have called the symmetrical mode of being. This approximating can come constantly closer to the reality itself with the help of the concept of infinite set. We are confronted here by the notion of mathematical limit. If we form the series 1/2, 3/4, 7/8, 15/16, 31/32, 63/64, 127/128 and so on up to the infinite, the limit of this series is the number one and we can get *as near to it as we wish*. The same is true of our descriptions. And in fact the reader will have noticed that it is from this angle that we have put things into focus. It seems, however, that having looked upon this reality from the outside, and become familiar with many of its appearances, the time has come to try to penetrate the exterior and look at it from the inside. The immediate question that arises is whether this is possible.

Reflection upon this matter leads to the following considerations. The intimate nature of symmetrical being is such that no description is ever appropriate to it. We return here, once again, to Freud's conception of the unconscious as the true psychical reality completely unknown to us and so imperfectly revealed to us. (We must remember at this point that the concept of symmetrical being is a logical way of expressing Freud's concept of the unconscious.) What we are actually facing is the impossibility of reducing symmetrical being to language, owing to the intrinsic disparity between them. The concept of knowing, of 'seeing', already

presupposes happening and is, therefore, alien to symmetrical being, which knows of no happening and 'knows' nothing if the usual meaning is ascribed to the word knowing. The inevitable conclusion is that there is no way of knowing, in itself, that thing which we have called symmetrical being: it is 'unthinking' and unthinkable.

Yet, and herein lies a riddle, it cannot be said that this being is alien to knowing in the same way as, for instance, a stone is alien to knowing. Symmetrical being is something mental and as such it has a relation to (psychical) objects, to the unity subject-object, at which we have repeatedly hinted. So far as it has this relation, there is a possibility of coming nearer to it. The symbolic logic approach is a very external and impersonal way of approach, because it describes, from its own vantage point, that something (symmetrical being) with which it establishes the cold relationship that an observer establishes with that which he observes; whereas, in this case, the *relation* becomes identical to *being*: being one. But through giving us the data which point to its structure, our approach enables us to use these data in another way: that of identification. We can say that the various corollaries of the principle of symmetry, especially that of the identity between the part and the whole, furnish us with the possibility of an identification from the inside with that being which we have called symmetrical being. It is an identification from the inside and at the same time it remains outside, in the sense that it still uses language. The task is similar to that of conveying a feeling by means of words, as in poetry. What poetry does, in contrast to science, is far more than a simple description: it employs words to reproduce in the listener or reader, something which in itself is ineffable.

If we look at this ineffable reality of symmetrical being in terms of the data yielded by our descriptions, we can approach its essence if we reformulate our findings in other terms. The 'behaviour' described in terms of symbolic logic points to a reality which is homogeneous and indivisible, alien to the concept of part, which is so essential to our conscious being. Homogeneous means that whatever the aspect on which we focus, as outside observers, we always find not one aspect but the whole reality. The concept of aspect already refers to the concept of part, and this means that the reality is seen from the outside. But with the use of 'part' and 'homogeneous' we, somehow, get inside this reality which – to describe once more from the outside something of its innermost nature – is indivisible. *Homogeneous, indivisible reality or totality* is, then, an inside-outside way of mentally contacting this reality which we have described, from the position of outside observers, as symmetrical being.

Once we have reached this point it seems to us that we have made an important step forward. The terms just employed, homogeneous indivisible reality or totality, give us the *feeling* of something far

more intimate, far more *from the inside,* than the logical descriptions so far employed. It now remains to be seen whether, starting from this intuition, it is possible to make a rigorous formulation which accounts for the same facts as the symbolic logic formulation, but at the same time as seen from a vantage point which would be nearer to the reality we are trying to catch.

Such a task would entail a supplementary one: that of formulating all that has been described in terms of asymmetrical relations in terms of the same vantage point from which we are now trying to 'feel-describe' symmetrical reality.

In the next section I shall present a systematic formulation in terms of three basic principles which represent an alternative to our previous formulation in terms of the principle of symmetry and to the corresponding use of asymmetrical relations. It would appear that from the point of view of scientific rigour it is equally valuable, whereas, psychologically, it has the advantage of making us feel near our experience of the realities which arouse our passionate interest.

2. Formulation of new principles and their corollaries

After what has already been said, it seems that the best way to proceed is to formulate directly and formally this alternative conception in terms of certain principles; these are three. Once these have been given a proper formulation, their implications will be more easily seen. The reasons which have led to this formulation have already been discussed in the previous section of this chapter. On the other hand, I believe they will become clearer as the argument develops.

I. *There is a psychical mode of being in man which appears as if it were – or can be described or characterised by saying that it is – a homogeneous, indivisible totality.* Alternatively formulated:

There is a psychical aspect of man which appears as if it were a homogeneous indivisible reality or totality.

There are psychical manifestations in man which can be characterised by saying that reality is seen in them as though it were a homogeneous indivisible reality or totality.

Necessary expressions or corollaries of this principle – or of this mode of being – are the following:

Ia. *In this homogeneous, indivisible totality feeling and being are one and the same thing.*

Ib. *In this homogeneous indivisible totality, 'viewing' or 'intelligence' ('intellegere') and 'knowledge'*[1] *are necessarily without*

[1] These words are put between inverted commas, because the meaning given to them here is, as is obvious, different from their usual meaning, which implies analysis, division and parts. Considering that both here and in ordinary language such terms refer to a special type of contact with reality (the 'knowledge-contact'), I have preferred to employ the same words. It is to be understood, however, that, within a general class, we distinguish between

parts, hence direct or without intermediaries; they are identical to one another and to the homogeneous indivisible totality of the mode of being itself.

Ic. *This homogeneous, indivisible totality is also shown by the fact that it makes no distinction between self and not self. In other words, on account of its own nature, such a distinction cannot be made. Hence the self and all other persons are one and the same thing, and there are no individuals.*

Id. *This homogeneous, indivisible totality is, as such, necessarily or intrinsically alien (or is shown in that it is alien) to any notion of physical or symbolical space, physical or symbolical time and, hence, physical or symbolical movement.* It is, therefore, alien to the notion of happening, because space-time either physical or symbolical is an intrinsic component of the concept of happening.

Ie. *This homogeneous, indivisible totality is alien to the notion of death.*

The notion of death entails the notion of dismembering or dissolution, that is, of division into (different) parts. Something indivisible cannot die.

Upon reflection, it will be seen that, from some aspects, life is also conceived as a succession of happenings. So far as this is so, the homogeneous indivisible totality is also alien to the notion of life. But from another point of view it would seem that the essential unity of a living being, seen integrally and not differentially, is something that remains, so to speak, above the metabolic vicissitudes, which belong to the realm of happening. The basic core of the individual is preserved in the midst of all life changes. We all feel that we are the same person that we were, say twenty years ago, in spite of the fact that, physically, we may not have a single molecule in common with the person we then were; and psychologically we may be vastly different. Yet, the feeling of identity remains. Even in inanimate matter, whenever an idea is expressed in it, the same thing happens. A house is the same house after a thousand years, even if in the course of this time all the component parts have been replaced, if the plan (proportions, distribution, style, etc.) has been preserved. We have already touched on this difficult problem. For our purposes here, it would seem that the homogeneous indivisible totality we are

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'knowledge' and knowledge, between 'viewing' and viewing, in the sense that the words in inverted commas refer to something like a direct experience, and those without such commas to something which is achieved by considering the component parts of that which is studied.

The distinction made between viewing and knowledge refers to the fact that the accent is put on the subject who exercises the activity in the first case and on the object of the activity in the second. As for the term intelligence, it is a complex concept which, from this point of view, probably entails both aspects.

See also Chapter 21, Section 4.

trying to identify shares something in common with life and in more than one aspect is different from life.[1]

Summarising these five corollaries, we might say that for and in this mode of being

– feeling, knowing and being are the same thing
– the self is the same as not self
– movement, happening and death are unknown

I should like to stress the fact that all five corollaries described here are only various propositions which follow necessarily from the postulation of a homogeneous and indivisible mode of being.

The second principle can be formulated as follows:

II. *There is a psychical mode of being in man which can be described or characterised by saying that it treats or conceives or 'views' or 'lives' all reality (including its own reality) as though it were divisible or formed by parts.* In other words we get to know this mode of being by its expressions or manifestations: both physical and psychical reality are treated as though they were divisible into parts.

Just as we have referred to the first mode of being as a homogeneous, indivisible totality we might, correspondingly, call this mode *the dividing, heterogenic mode of being.* It is to be noted that whereas the first was called indivisible, this is not called divisible but dividing; and whereas the first was called homogeneous, this is not called heterogeneous but heterogenic. In other words, this second mode is characterised in terms of its (psychical) activity with respect to reality – either its own or external reality; whereas the first was characterised in terms of being and not of activity. The reason for this will be obvious on following the arguments closely but it deserves, perhaps, to be made explicit. Our attempts to characterise these modes, however abstract these formulations may appear to some, start and spring from clinical observation; and what this observation shows is precisely the ways the individual stands in front of reality, i.e. the type of 'contact' which the individual establishes with reality. Now, the second mode appears as 'moving' in the sphere of happening (hence of movement), that is, in the sphere where something is being done, even if this doing is of an intellectual or psychological kind. Whereas the first, by its own nature, is alien to happening. From this it follows that the description of the second in terms of what *it does* (psychically) to reality, and of the first in terms of what *it is*, is perfectly justified and even inevitable. And it must also be remembered that, as an expression of itself, the first mode of being makes no distinction between itself and external

[1] I thank my wife, Luciana Bon, for drawing my attention to this. I had only thought about death and it had not occured to me that, from one angle, the same thing could be said about life.

reality. Therefore, a description of this mode in terms of being and not of happening is the only possible description.

Expressions or corollaries of the mode of being described in the principle just formulated, are as follows:

II*a*. *The knowledge and the corresponding conscious awareness of the dividing heterogenic mode of being is formed of discrete, i.e. separated, elements.*

Applying this corollary to consciousness this means that conscious awareness, as seen from the vantage point of this mode of being, is analytical, formed by a series of different elements.

II*b*. *This mode of being views or conceives or lives reality in terms of space-time in which both space and time are divided in 'portions' which are next to each other or which follow or precede one another.*

II*c*. *Self and not self are sharply differentiated.*

II*d*. *Death belongs to the realm of the dividing heterogenic mode of being.*

II*e*. *The homogeneous indivisible totality of the first mode of being is in itself completely alien to this second mode of being and when viewed in terms of this dividing heterogenic mode it appears to have the following features:*

(1) It is a generalising principle, i.e. a principle which 'sees' everything in general, i.e. all-comprising terms: in terms which comprise all possible parts of reality.

(2) The 'parts' of the homogeneous indivisible reality, which exist only for the dividing, heterogenic mode of being, must necessarily have the same potentialities of the whole (the same cardinal number[1]). Otherwise the essential features of homogeneity-indivisibility would not hold good.

(3) Consequently and necessarily it is seen as an infinite set (the first mode of being, itself, is only one and homogeneous).

(1), (2) and (3) can be expressed alternatively by saying that, *for the dividing heterogenic mode of being the homogeneous indivisible mode of being knows only symmetrical relations.*

II*f*. *The homogeneous indivisible mode of being is itself necessarily unconscious for the dividing mode of being, because human consciousness, which works with a finite number of discrete elements, cannot hold it or contain it.*

Finally we can postulate a third principle:

III. *All human psychical manifestations are the result of the interaction, co-operation and/or any other type of relationship between both modes of being.*

This holds true for thinking, feeling and social life.

S R SE ~ produce. ——

[1] For the exact meaning of this, see Chapter 13, Section 1.

3. The characteristics of the system unconscious as seen from this conception

It can easily be shown that all the characteristics of the system unconscious follow from the formulation presented here. We shall now briefly discuss this question.

Condensation. When we describe something as being a condensation of two or more 'parts' or aspects we can say that we are viewing a given reality as something divisible into two or more components and as a homogeneous indivisible reality. Condensation is a 'divisible' way of describing a homogeneous indivisible reality in which what we see, from the 'divisible' point of view, as parts, are homogeneously impregnating the totality.

Displacement. The homogeneous indivisible reality is the whole class or set in which individual and class are one and the same thing. When we say that there has been a displacement, say, from a father to an authority, we are simply describing this indivisible reality in terms of parts or elements (father, authority).

Replacement of external by psychical reality. The same concepts apply here. Such a 'replacement' is a way of seeing two different realities (parts) at the point where there is, for the indivisible mode of being, only one homogeneous, indivisible reality.

Timelessness (and spacelessness). Time and space means division (in seconds, parts, etc.). Their absence corresponds to the homogeneous, indivisible totality.

Absence of contradiction. Contradiction entails the division into two opposite aspects. Absence of it is the expression of the homogeneous indivisible totality.

It must be recognised that this last characteristic is, perhaps, the most puzzling of the characteristics of the system unconscious, whether we consider it from the point of view of symbolic logic, of this alternative formulation or from any other point of view. It leads to things which appear strange and absurd to our thinking. Yet, we must recognise: it is *there*. I believe there is much more to be gone into on this question.

4. A comparison between the symbolic logic formulation and the new formulation

It can safely be concluded from the above remarks that the new formulation can give an account of all the facts that were expressed in terms of the symbolic logic formulation. The question now arises whether this new way of approaching psychical reality has any

advantage over the former or is only an equally valid, but no more comprehensive or more general alternative.

To try to answer this question we must consider several points. In a very general way one might say that the older formulation points to *logical structures* and, as such, it is already rather elaborate, because the concepts of symmetrical and asymmetrical relations are supposed to come after other logical concepts, such as the not-defined concepts or primitive ideas: for instance $\sim p$ (not-p) and $p \vee q$ (p or q); the concept of proposition; of propositional function and class. The concepts of symmetrical and asymmetrical relations, in their turn, make use of the concept of implication.[1]

The new formulation, instead, seems at first sight to point to more primitive psychological *experiences* which *in themselves* would be alogical, even though they may, perhaps, be described in logical terms. These experiences would be: indivisible and divisible. The pair homogeneous-heterogeneous and totality-part would only be other expressions which put into focus the same psychological experiences, seen from another angle.

If the impression that the symbolic logic formulation is made in terms of logical *structures* whereas the second is made in terms of alogical *experiences*, corresponds to actual reality, there would then be, if not necessarily an advantage in using one formulation in place of the other, or at least a clear difference between them. This might result in the possibility of different uses of each of these formulations. We must, therefore, try to establish how far this impression corresponds to actual facts.

The first thing to be considered about this point is that in both cases *we attempt to describe a reality*, and this implies the use of language, which immediately brings with it a tremendous narrowing of the reality in question. But we have no other alternative. Either we simply experience reality and do not care about describing it or we try to describe it, in which case we subordinate reality to language: we make it pass, so to speak, through the 'mesh' of language. In so doing we distort it and impoverish it.

In both cases, therefore, we employ (scientific) language and this means that implicitly we are using some form of underlying logic. But it is possible that, however unavoidable this use of language and underlying logic is, in one case we may remain nearer to the reality under study than in the other. I believe this is the merit of the new formulation. Although from a strictly logical point of view this new formulation may not be more general than the previous one, it would seem that in fact the terms in which it is expressed are a more direct (i.e. less elaborate) expression of the underlying psychical reality

[1] In fact, asymm. rel. def. $xRy \supset \sim(yRx)$: in words, asymmetrical relations are defined by saying that x is in relation R to y implies that y is not in relation R to x.

On the other hand symm. rel. def. $xRy \supset yRx$: in words, symmetrical relations are defined by saying that x is in relation R to y implies that y is in relation R to x.

under study; and, as such, the new formulation is likely to keep us in better contact with the more meaningful aspects of this reality.

Can one formulation follow from the other? This is another angle from which the question of the actual meaning of both formulations may be approached. At first sight it would appear that the new formulation can be entirely deduced from the formulation made in terms of the principle of symmetry. For if only symmetrical relations are available, space and time cannot be conceived, and the equality between the part and the whole is inevitable. This leads to the concept of a homogeneous indivisible totality, that is, to the first principle of the new formulation, as shown in all its corollaries.

The second principle and all its corollaries, in their turn, follow from the introduction of the concept of asymmetrical relations. In conclusion, the whole new conception may be made to spring from the older one.

But the reverse is equally true. For if we postulate a homogeneous indivisible totality and we wish to describe this totality in the most economical logical terms (that is, in terms which employ the minimum possible logical concepts) it seems that we would achieve this by employing the principle of symmetry. In this sense it may legitimately be said that the principle of symmetry flows – or can be built – from the postulation of a homogeneous indivisible totality. For such a postulation implicitly affirms that in this totality there can be no space-time and if we wish, as outsiders, to conceive parts in it, these parts must necessarily be identical to the whole. In short, we can deduce all the corollaries of the principle of symmetry from the first principle of the new formulation. As the principle of symmetry is not different in itself from the total of its corollaries, we conclude that the principle of symmetry follows from the first principle of the new formulation.[1]

From the second principle, in its turn, we can deduce the various uses of asymmetrical relations we have studied. *So we must conclude that each pair of principles can be deduced from the other corresponding pair.*

This situation is not new in logic. As is well known the whole structure of propositional calculus has been constructed by Whitehead and Russell from two not-defined concepts: $\sim p$ (not-p) and $p \vee q$ (p or q). Starting from these we can define, for instance $p.q$ (p and q or $\supset$ (implication), etc. But other authors have chosen to start from other not-defined concepts, from which p and $p \vee q$ can be defined. And the same thing holds in other branches of mathematics. So we would be confronted here with a similar situation. From a strictly

[1] Note that this assertion does not mean that the concept of symmetrical relation can be deduced from the first principle. I would prefer not to commit myself on this point. The principle of symmetry refers to a use, and not to the *concept* of symmetrical relation.

logical point of view, therefore, we would have no right to conclude that one formulation is previous to or more general than the other.

Two possible advantages of the new formulation. There seem to be, however, certain features of the newer formulation which represent an advantage over the former one, in terms of the principle of symmetry. The first feature is of a purely psychological nature. The formulation in terms of the pair indivisible-divisible, as already remarked, seems to stay nearer to actual psychological reality, as it is *directly experienced*, than the formulation in terms of the principle of symmetry, which is more of a logical kind. I shall give one example. My youngest son (five years old) was about to run and told me that he wanted to take off his sandals and put on his tennis shoes. He explained this desire by saying that the tennis shoes 'were quicker than the sandals'. What he obviously meant was that he could run faster (or would be quicker) in tennis shoes than in sandals. Now, this expression could be understood in terms of both the formulations we are discussing. In terms of the newer formulation one would say that the quality 'swiftness' belonged homogeneously to the reality of himself in the act of running. This reality being indivisible meant that all of him was in the shoes and all of the shoes were in him; the separation between him and his shoes is an outside way of looking at this reality. If 'seen from the inside' there is a homogeneous indivisible totality child-swift-shoe or child-shoe-swift or swift-shoe-child or swift-child-shoe or shoe-child-swift or shoe-swift-child. All these six permutations, which in 'divisible reality' are actually different from one another, from the psychological point of view, are simply various different ways of *pointing at* something which in itself is homogeneous and indivisible. In this sense, the expression 'homogeneous, indivisible reality' seems to put us, with the help of words, directly into contact with the reality of this reality.

We could describe the same thing in terms of the principle of symmetry and say that in the set composed of (the concepts) child, swift running and shoes, according to the principle of symmetry each element of the set is identical to the whole and hence to all other elements. But this logical way of describing, which, intellectually, amounts to the same as the previous formulation, seems to have less power to put us into direct contact with the reality to which we are trying to get nearer. At least this is what I, personally, feel.

The second advantage seems to be both psychological and logical. The principle of symmetry is formulated in terms of the concept of relation: symmetrical relations. But the concept of relation itself — an ordered pair — entails, as we have seen, the concept of asymmetrical relation. So when we distinguish between symmetrical and asymmetrical relations we are employing, in some way, the second concept to describe the first. One concept is formulated in

the terms of the other. Correspondingly, the discursive way employed to analyse a given 'symmetrical reality' seems a rather external approach (think of the example of my child and the tennis shoes, given above). It is, as we have discussed in various parts of this book, an attempt to describe from an asymmetrical vantage point something which *in itself* is alien to any asymmetrical relation. So we describe one mode of being in terms of the other.

When we speak of the pair indivisible-divisible reality we are also employing a contrast in which the same concept is either affirmed (divisible) or denied (indivisible). But whereas in the case of symmetrical-asymmetrical the whole *logical* construction presupposes and starts from the concept of asymmetrical, in this case, instead, the priority seems to be only a verbal one, that of divisible over its negation: indivisible. As far as the reality itself is concerned, the concept 'indivisible' seems to be at least on an equal footing with the concept 'divisible'. It seems that both realities of man are, in this conception, put one in front of the other and one is not derived from the other. In this sense *the new formulation seems to go beyond the principle of symmetry, to get nearer to the reality of man as formed by two aspects: a homogeneous, spaceless-timeless, partless reality, and a reality conceived as formed by or divided into parts.*

And this seems to be a psychological advantage. We conclude that, from the point of view of the psychological reality that both of them try to describe, the second formulation is simpler and stands in more direct relationship with this psychological reality.

(1973:) Since I wrote the preceding parts of this section in 1971, I have had, in almost two years, ample opportunity to reflect about the new formulation and to confront it with clinical reality. The result is that the advantages mentioned above have proved to be extremely useful. I am inclined to think that, on the whole, patients become easily aware (though not necessarily in 'reasoned', scientific terms) of that aspect in themselves which tends to treat everything as though it were homogeneous and indivisible. Many aspects of clinical reality which previously seemed obscure or unsatisfactorily understood, become easily comprehensible in the light of this point of view; and the techniques which can be developed to make these realities comprehensible to the patient are simple and effective, even though the patient is not expected to enter into all the underlying subtleties; this in fact is not necessary, because what we aim at is getting in touch with the reality of the deep homogeneous unconscious, and we need not worry about imparting scientific knowledge.

On the other hand, as will be discussed in the next section of this chapter, the two ways of viewing the world (as divisible and indivisible) seem to be at the very root of our nature. For it is from both branches of this dichotomy that all the basic structures of

human nature start. Logic (thinking), feeling, being, the unity of the world and the division of the world, are all either the consequence or the expression of this dichotomy. In this sense, this dichotomy is anterior to logic. The formulation of the principle of symmetry, by contrast, already starts from the side of logic, that is, *after* the dichotomy. Though it is true that it actually leads to discovering the same aspects of man as those described in the light of the formulation presented in this chapter, the fact remains that it must go back from logic to something anterior to it. Whereas the new formulation starts 'at the cross-roads'.

5. A comment on Wittgenstein, Sheffer, Whitehead and Russell, and von Wright as seen in terms of the present approach

I believe the implications of the present approach will become clearer if we consider its relationship to some concepts which stand at the foundations of modern logic.

Wittgenstein. I shall now quote and comment on three statements from the *Tractatus Logico-philosophicus* (Wittgenstein, 1969) which seem pertinent to the argument I wish to develop.

(1) '1. The world is all that is the case.' This statement is an explicit recognition that the task of all logic and philosophy starts with the world and ends with the world: it deals with a totality. Frequently this is not clear in logical treatises, in which one frequently gets the impression of an (implicit) separation between logic and the rest of the reality of the world. Some philosophers seem to be particularly contemptuous of so-called *psychologism* and they seem to imply that logic is completely independent of psychology. Such thinking seems to ignore the fact that, however true logical reasoning may be, it is always the reflection of the structure of the human mind and cannot go any further than this structure will allow. If, instead, 'the world is all that is the case', it then becomes perfectly legitimate to develop, as I have tried to do, a research which deals precisely with the intimate relationship between psycho-analysis and mathematical logic: both belong to the world.

I must say that I do not know whether Wittgenstein would have agreed with these reflections. But the opening phrase of his famous treatise seems to convey this meaning.

(2) '1.2. The world divides into facts.' As I see it, this statement about the world is *also* (and principally) *a* statement about a way of *looking at the world*. It may interpreted by saying that *we see that the world divides into facts*. As we are part of the world itself, the fact that we see it as dividing into facts must correspond, on the one hand, to something of the nature of the world itself and, on the other, to something of our own nature. In this latter sense it may be said that Wittgenstein's statement refers to the same thing as that to

which my second principle (formulated in this chapter) refers: the dividing heterogenic mode of being. To this mode of being in man there corresponds the divisibility of the world, to which Wittgenstein refers, and there is no wonder that things should be so because, after all, man is part of the world and the second mode of being is a reflection of or a 'reading within' (or *intellegere*) a form of reality of the world.

The mainstream if (perhaps) not the totality of Western philosophical and scientific thinking has remained throughout its history interested only in the divisible aspects of the world. Starting from the study of unconscious manifestations as described by Freud, reformulated in logical terms with the aid of the two principles I have proposed, this book has followed a long process of research into various psychological manifestations, as seen with the logico-mathematical concepts employed in it, and has finally arrived at the formulation of a mode of being in man which appears as a homogeneous indivisible reality for which feeling, knowing and being are the same thing; for which the self is the same as not-self; for which movement, happening and death are unknown. Even though it is true that we can discover this totality and think of it only in terms of the heterogenic dividing mode of being, it is no less true that, once clinical and other psychological observation has led us to its discovery, its presence becomes something extremely important in all our thinking about man and the world. Such a reality is intimately related to what Freud called the unconscious; but some of its traits which had remained hidden in the initial formulation can be better brought to light with the help of the conceptual instruments employed in this book.

At this point, it seems to me, we can take Wittgenstein's formulation, which has the merit of making quite explicit certain things which have been thought or intuitively felt throughout the history of occidental thinking – and complete it with a contribution which psycho-analysis can make to philosophy. We can then say:

The world is all that is the case
(and starting from this)

The world divides into facts	The world does not divide into facts (or alternatively): the world is a homogeneous indivisible totality

In other words, there would be, not one but two ways in which the world is reflected in man. This constitutes a vast programme to develop. The initial, momentous step in this conception was made when Freud discovered the strange and mysterious world of the unconscious, which contrasts so much with the world we are

consciously used to. But it must be kept in mind that, as Freud repeatedly pointed out, we have, so far, only made the first steps in this exploration. My hope is that the ideas put forward here may in some way make this task easier. Bi-logic is an attempt in this direction: it is an attempt at conjugating both alternatives.

(3) '3. A logical picture of a fact is a thought.' Such an assertion of Wittgenstein implies that thought or thinking only deals with the divided world, that is, with facts. This does not mean that thinking does not try to reunite the divided world, but when it does so, as we shall see in a moment, it succeeds only in a certain way and in a restricted sense.

We can also see the above-mentioned assertion as meaning that between a fact and its logical picture, thought, there is a correspondence such that for each element of a given set which we call a fact there is an element in another set which we call a thought. This so-called mapping is the minimum interpretation which we may give to Wittgenstein's assertion. It seems quite probable, however, that the correspondence may be bi-univocal or, if we put this in terms of mappings, that the mapping is bijective. There may also be other types of correspondence between facts and thoughts and I am not in a position to establish whether there are and, if so, what they are. I shall only mention the case in which the same facts can be interpreted in terms of two alternative theories, for example, the corpuscular and the wave theories of light. In such a case there would be two bi-univocal correspondences between fact and thought. It would seem that the tendency in science is to arrive at only one bi-univocal correspondence and when this is not achieved it is considered an imperfection of scientific theory.

We may now compare this situation, i.e. the relation between fact and thought, with the relation between fact and the symmetrical or homogeneous indivisible mode of being. Let us take a given concrete fact, for instance, the father called John Smith, of such and such a place, age, etc. The *thought* corresponding to this fact has, it seems, a bi-univocal correspondence with the fact itself, whereas at the symmetrical level John Smith is taken, not as an individual fact but as the class of fathers, which contains an infinite number of elements. In other words, at the symmetrical or homogeneous level, which knows no individuals, the correspondence (as seen with asymmetrical or 'dividing' eyes) is infinitivocal. It seems that this is a useful way of seeing the contrast between the two modes of being or between the logical and alogical modes.

A comment on Sheffer's only not-defined concept of the propositional calculus. Reflection shows that $p/\grave{q} - p$ is incompatible with $q -$ which is Sheffer's only not-defined concept of the propositional calculus, is not simple but, on the contrary, implies several concepts, i.e.:

(*a*) the concept of *p*
(*b*) the concept of identity and not-identity (both of which are relations)
(*c*) the concept of *q* as something not identical to *p* (also a relation)
(*d*) the concept of the relation of incompatibility
(*e*) the concept of relation, which is more general than (*b*), (*c*) and (*d*)

The terms *p* and *q* symbolise variables, hence each of them may represent *any* proposition. Each proposition or group of them is the expression of a thought or group of thoughts. As, on the other hand, thoughts are the logical pictures of facts, we may conclude that the set of all the facts of the world, which is identical to the world, may be pictured by the set of all the values of the variable *p*. In other words, in Sheffer's not-defined concept, the expression 'the world is all that is the case' is implied. Sheffer implicitly presupposes the totality of the world, from which we may choose any proposition *p*; successively, out of all the values of the variable *p*, we may choose any one of them – we may call it *q* – which is incompatible with a given *p*, and in this way arrive at *p*/*q*. All the values of *p* constitute the world, but it is a world which is already divided into facts. The introduction of *q* accentuates this division because *q* represents something which must be not-identical to some *p*. But the introduction of the concept of relation between the facts of this, already so much divided world or doubly divided world (into the values of *p* and *q*), represents a way of making the facts come together, because any relation establishes a link between two things; and this is also shown by the consideration that if these two things had no relation whatsoever between themselves they would be as alien from one another as if they belonged, not to one but to two worlds which had nothing to do with one another. So the concept of relation constitutes an attempt at reuniting the facts of the world which is divided into facts. To be more precise, it is the concept of something, something else and relation, and not the not-defined concepts of the propositional calculus, that constitutes the starting-point of all logic, in the meaning so far given to logic. Anterior to these concepts, however, there is the world, as already considered, that is, as the ground of logic.[1]

The relation chosen, out of various possible ones, that of incompatibility, is, as a *relation*, a way of uniting (relating) *p* and *q*, but as a relation of *incompatibility* it tends to keep *p* apart from *q*; in other words, the same thing both unites and separates, just as the concept of *p* implies at the same time the totality of the world and the division of this totality into facts.

[1] See also Section 1 of this chapter, and Chapter 25, Section 3.

From the point of view of simply bivalent logic there is nothing to be objected or contradictory (*a*) in that each value of *p* and *q* implies the division of the world, and the totality of such values implies the whole world, or (*b*) in establishing the relation of incompatibility between two propositions. But if one considers the emotional aspects of the man who reasons, it is impossible not to see in (*a*) two opposite tendencies: to divide the world and to keep it together. This must be felt at the unconscious level as love and aggression. On the other hand, (*b*) implies, in its first aspect (establishing relations), an act of reparation for the aggression which resulted in division; and in the choice of the relation (that of incompatibility), an expression of aggression. Furthermore, when one considers that these two pairs of opposites (i.e. the pair visible in (*a*) and that visible in (*b*)) are all implicit in the not-defined concept '*p* is incompatible with *q*', one cannot avoid concluding that the first step in the construction of a logic free of contradiction, as simply bivalent logic is, has at its base an abundance of symmetry. Actually this is shown in the fact that two pairs of opposites are all expressed in one single concept, so that the same concept implies going at the same time in the two opposite senses of two different directions (sense and direction are used in the same class of meaning as in physics): it implies going twice in the sense of separation and twice in the sense of union. *Deep down*, both elements of each pair of both senses, and also both pairs, come to be the same, which is in contradiction with the law of contradiction or, better said, outside it. Whereas *in the surface* of this reality, that is, at the level of bivalent logic, at the level of *p*/*q*, the contrary happens: the nature of man in terms of the symmetrical or homogeneous indivisible mode of being is (at this level) 'forgotten', blotted out, in order to cultivate its 'vocation' of fidelity to the principle of contradiction, though this latter must be understood in the restricted version usually employed and not in the generalised version proposed in Chapter 3. This 'vocation' does not mean that there will not be in the 'dividing' simply bivalent logic a tendency to unite the world again, a form of nostalgia for the homogeneous indivisible totality: the concept of relation, which deep down is at the base of all bivalent logic, is a witness to this tendency. But the means employed by bivalent logic to unite that which it has separated, are not appropriate. They contain the possibility of reconstructing the whole, but this is a possibility only if viewed as a mathematical limit, something to which one comes always nearer but which is reached at the *end* of an infinite (i.e. *endless*) series. Confronted with this situation of ever striving towards the unity and never reaching it, one is reminded of the nursery rhyme:

> Humpty Dumpty sat on a wall
> Humpty Dumpty had a great fall
> And all the King's horses and all the King's men
> Couldn't put Humpty Dumpty together again.

The oval world, the egg, the germ of everything, 'all that is the case', was 'divided into facts' by the big fall caused by the push given it by bivalent logic. And now bivalent logic finds itself in the same plight as that of the King's horses and men: it does not succeed in reconstructing the world.

The principle of contradiction and *p*/*q*. When one reflects about Sheffer's not-defined concept one asks oneself whether it is true that the principle of contradiction can be *proved* from this concept, or whether it is actually more accurate to say that the principle of contradiction is *presupposed* in the concept. Perhaps logicians would say that both alternatives are really the same thing. From the psycho-analytical point of view, as seen in the logico-mathematical terms presented here, the absence of negation, which leads to the absence of the law of contradiction as it is usually understood in logic (remember here the comparison with spaces of different dimensions), seems to be one of the more striking differences in the *appearances* of the two modes of being; and for this reason, if one could logically say that Sheffer's not-defined concept presupposes the law of contradiction, this would be a more satisfactory expression for the purpose of showing the differences between the two modes of beings. Logicians will decide.

A final summary comment on Sheffer. The not-defined concept '*p* is incompatible with *q*' implies:

—the totality of the world
—the divisibility and division of the world
—the 'relationability' of the things into which the world has been divided

These three things taken together seem to suggest the existence of an (unsuccessful) tendency to return to the indivisible world. If, in order to remain exclusively in the realm of logic, we leave aside the notion of tendency, then we may say that it looks as though, whatever part we take of the world, the homogeneous indivisible reality makes itself present. In the course of the book we have seen this as a *psychological* reality. Here we seem to have discovered the same thing as a manifestation of the *logical* reality.

A short comment on Whitehead and Russell's not-defined concepts. The fact that these not-defined concepts can be derived from Sheffer's, and vice versa, permits us to conclude that the considerations already made can also be applied, *mutatis mutandis*, to them. I should, however, like to make some additional comments.

The first not-defined concept of Whitehead and Russell, not-*p* (in symbols: ~*p*), presupposes *p*, and the relation of incompatibility between *p* and itself: *p*/*p*, if defined in the terms of Sheffer,

Therefore, not-p presupposes the concept of relation. As for the second not-defined concept, p or q (in symbols: $p \vee q$), it also presupposes two relations: either p or q is true and the other is false or both are true. We could put this in the following way: (*a*) p stand to q in the relation of having a different truth value; (*b*) p stands to q in the relation of having the same truth value (both true).

We have seen that Sheffer's concept also presupposes the concept of relation. When, furthermore, we reflect that all propositional functions (which define classes) are ultimately defined in terms of relations (take, for instance, the example given by Whitehead and Russell when they define propositional functions: 'x is hurt'. This surely means that the xs are in the position of the relata in the relation of hurting), we then conclude that the *concept of relation, together (as we have seen) with that of something and something else, is at the basis of logic.* As this is not a simple concept, we find that the 'basic unit' of logic is not the simplest. It is interesting to note that something similar can be said of the imagination of space: the only space which we can *imagine* is three-dimensional space, as a moment's reflection will show. When we imagine a line, this line has width and thickness and if we 'thin it down' to have only one dimension we can no longer (imagine) it.

This consideration helps us to understand why the differentiation between the two modes of being is made in terms of relations. The choice of the asymmetrical-symmetrical pair becomes understandable when we reflect that the concept of relation itself entails the use of the concept of asymmetrical relation, because it is defined in terms of the concept of *order* (referents and relata) which entails the concept of asymmetrical relation: the symmetrical-asymmetrical pair is, in this sense, unique (see also Section 1 of this chapter).

On reflection about this, one comes to see that the world is 'given' as a totality and one may begin to describe it starting from either one or another not-defined concept, but whichever we chose, the totality is present in it. *In short, the undivided totality comes before the division into facts of this totality. I believe we can go further and say that the homogeneous indivisible totality is the basic thing.* Perhaps this is saying the same thing as Freud said when he affirmed that the unconscious is the true psychic reality.

The principle or law of contradiction, asymmetrical relations and spatio-temporality. We have just seen that the concept of relation is at the foundation of logic. We also saw that the concept of relation itself implies the concept of asymmetrical relation. The concepts of space and time, on the other hand, presuppose the concept of asymmetrical relations and vice versa.

These facts put together enable us to complete what we already considered in Section 1 of this chapter, and also see an aspect of the law of contradiction which seems to be of great interest. When in

logic it is said, 'it is not the case that *p* and not-*p*', however carefully the idea in question may be expressed in the words just mentioned, it actually implies the use of two asymmetrical relations which are so parallel to the concepts of space and time that we may conclude that the principle of contradiction implies the use of such concepts. To make this explicit we can formulate this principle in other words which clearly show its relationship to these concepts. Such a formulation, which, like everybody else, I have implied in the various discussions about this principle throughout the book, might run as follows: '*p* and not-*p* cannot be simultaneously with regard to the *same thing*'. By thing we mean anything which may be called *p*, be it a statement or proposition or a part of a proposition (which is also a proposition). Now, the expression 'simultaneously' brings out with great clarity something which is more euphemistically implied[1] in other expressions, such as in 'it is not the case that *p* and not-*p*'. 'And' makes a reference to simultaneity, in order to negate it in the remainder of the phrase and this implies that *p* may 'come' 'before' or 'after' not-*p* but not simultaneously. This implies asymmetrical relations, and if one wishes to insist that these do not refer to time, one must at least recognise that they can be put in bi-univocal correspondence with the concept of time.

Similarly, *p* and not-*p* *must* refer exactly to the very same thing or to the very same aspect of the same thing, otherwise it would be possible for both to be given together without violating the law of contradiction. Now, 'the very same thing' and 'some other things' can obviously be put in bi-univocal correspondence with points in a line, precisely because both sets imply asymmetrical relations.

The inevitable conclusion, therefore, is that it is intrinsically impossible to conceive the law of contradiction as not susceptible of being put in bi-univocal correspondence with space-time. *We may express this briefly by saying that the notion of the law of contradiction cannot be formulated without making reference to the spatio-temporal notion.*

When we consider all this, the proposal which I made in Chapter 3, of a new interpretation of the principle of contradiction in terms of spaces of various dimensions and of differences in the dimensions of spaces, can be seen in a perspective which is quite in keeping with the principles of modern logic.

Von Wright.[2] The following reflections must be considered in

[1] I am grateful to Anthony MacLean for helping me to bring this fact from a dim to a full awareness. I must add that the part of Section 1 which deals with this question was written after the present sub-section.

[2] I wish to acknowledge my gratitude to Professor A. Carsetti, of the Institute of Philosophy at the University of Rome, for having called my attention to the work of this author and for having made the following remarks about what I have written in this sub-section: 'The most recent logical researches – in particular those developed starting

conjunction with what precedes in this section, especially with regard to Wittgenstein and Sheffer.

Von Wright (von Wright, 1967) has discovered some 'important truth(s) about relations'. The first of these truths is 'reflected' (to employ his expression) in what he calls the *Criterion of Compatibility*. He formulates this truth in the following way (loc. cit., p. 51):

> *If something has to everything a certain relation, then everything has to something the converse of this relation.*

The second important truth is reflected, according to von Wright, in what he calls the *Criterion of Constitutability*, and is formulated by him in the following words (loc. cit., p. 57):

> *Something has to something a certain relation, if, and only if, something has to something the converse of this relation.*

The following comments seem pertinent. To begin with, I should like to point out that the first of the important truths formulated by von Wright refers to the relation of something to everything. In other words *the world* is implicit in his assertion. Exactly the same can be said of the second truth, for 'something' can be, in each particular case, *anything*, and the totality of the somethings (anythings) also constitutes the world. In other words we find, once more, the inevitability of the fundamental being, previous to all facts, clearly expressed in the eloquent dictum of Wittgenstein: *Die Welt is alles, was der Fall ist.* The interesting thing, for our formulation, is that as we have seen in the case of Wittgenstein, Sheffer, and Whitehead and Russell, we may here in a very natural way, contemplate the contrast between the world of logic (asymmetrical world) and the world of the unconscious or homogeneous indivisible totality (symmetrical world): the world *first* and *then* the two modes of *being* the world, *not* the two modes of being *in* the world.

Secondly, both these truths express and make precisions about what, in my comment on Sheffer, I have called the 'relationability' of the things into which the world has been divided. In this sense

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from von Wright's formulations (cf. the studies of Hintikka) – proceed towards the characterisation, on the one hand, of the concept of "surface logical information"; and, on the other hand, of the concept of "depth logical information". The passage from the first to the second type takes place through a process of analysis by means of an "expansion" of logical generalisations. Through this expansion there results an increasing growth of the individuals who are considered in all their reciprocal interactions. There is, correspondingly, a growth of the number of relations dealt with. Depth information is the limit towards which the surface information contents converge when we succeed in clarifying – step by step and by means of the above mentioned process of expansion – all their hidden implications.'

As can be seen by anybody who has followed the arguments of this book, the parallel with the translating function, as developed throughout the book, and whose limit is the infinite set, is striking.

they suggest, as does Sheffer's not-defined concept of the propositional calculus, the (unsuccessful) tendency to return to one indivisible world. If, here again, we exclude the notion of tendency in order to remain exclusively in the realm of logic, we may say that behind both truths formulated by von Wright it is possible to detect the underlying presence of the homogeneous indivisible totality. The important thing added in these truths is that a given something cannot have a certain relation to another something if this another something has not the converse of that relation to that given something. The fundamental unity of all the pieces of the world ('everything') is revealed in the statement that no relation can exist without its converse. If I may employ a comparison, von Wright's formulation is like a law of universal gravitation in the field of logic: *a* is attracted to *b* means that *b* is attracted to *a*. If we put this in terms of Humpty Dumpty's case we may say that every time we find a piece of the broken egg which has a relation to another piece, then this second piece has the converse of the relation to the first: where a piece has, say, a convexity or a sharp protruding edge, the corresponding piece, whose relation to it we are considering, has a concavity or a receding edge, so that both pieces fit in exactly with one another. From the pair of a certain relation and its converse we can go on to consider another pair, and another, and another, and in this way come to reconstitute the egg – the world. But it will be an egg – a world – which is cracked. And the fissures of this cracked world would be the pairs of relations and their respective converses: they would at the same time show the lines of rupture where the indivisible totality was broken and where it was immediately reconstituted but in an entirely new way, i.e. in terms of the asymmetrical mode, by the 'cement' of the relations with their respective converses.

In short, it would seem that the same considerations that apply, in general, to Sheffer's and Whitehead and Russell's not-defined concepts, also apply here. There is a difference, however: von Wright's remarks refer *directly* to a study of relations and not of the not-defined concepts which, as we have seen, imply the concept of relation. It seems that for this reason they may furnish an interesting opportunity to establish, once more, the difference between anaclitic logic or symmetrical logic (alternatively expressed: the homogeneous indivisible totality) and the logical world so far studied by logic throughout its history. We may see these differences in a clearer way if we reformulate the principle of symmetry, taking into consideration von Wright's studies. If we did this in terms of the first of the truths mentioned the principle of symmetry would run as follows:

If something has to everything a certain relation, then the converse of the relation that everything has to something is always identical to the relation.

We may also put it in the following words:

If something has to everything a certain relation, then everything has to something the same relation.

As for the reformulation of the principle of symmetry in terms of the second truth, it would run as follows:

Something has to something else a certain relation, if, and only if, something else has to something the same relation.

It can easily be seen that the reformulation of the principle of symmetry in terms of von Wright's findings leads to an entirely different world. We may describe it either as a dissolution of all logic or as the fusion of all individuals into only one individual, which then is no longer an individual in the 'normal' logical meaning of the word. In other words, exactly as we have already seen, as soon as we formulate the principle of symmetry, and this is a logical formulation, a dissolution of all logic results and leads to the homogeneous indivisible totality. What is interesting and most significant is, however, that even the most rigorous formulation of logical principles – and von Wright's seems to be the most exacting or demanding and the 'most to the point' of all such formulations – inevitably reveals the homogeneous indivisible totality underlying all logic. The difference between both cases lies in that the principle of symmetry starts from a logical formulation and leads directly into the underlying reality, whereas logic chooses (implicitly) to ignore this underlying reality.

This is definitely an unsatisfactory situation. One can suspect that logic could be built upon a basis which did not depend upon such a stressed repression of reality. Logic could, after all, be less avoiding (less defensive), i.e. less obsessive in the formulation of its very foundations! And I ask logicians to forgive me for my impertinence.

PART EIGHT

A Retrospective Look and a General Perspective

29. *The Meaning and Potentialities of the Approach Put Forward in this Book*

Foreword

After the detailed study made throughout the book, and especially after the general formulation presented in Part VII, it now seems advisable to stop for a moment and have a retrospective look at all the ground covered. In this way we may ensure that certain very general perspectives are not lost but, on the contrary, stand out as basic guidelines. This is the purpose of the present chapter. My intention is not that of making a summary of the ideas which have been put forward; the aim is, rather, to help the reader to establish clearly in his mind some of the characteristics of this conception, which, I feel, enables us to widen our perspective and to deepen our understanding of certain basic questions regarding the nature of the mind; and also to formulate new problems. I shall attempt to do this under several headings.

1. The view of emotion put forward here, in the light of clinical and everyday experience

Introduction. The purpose of this section is to discuss some points which seem useful in understanding the meaning, potentialities and interrelations of the ideas developed about this subject, as well as their application in clinical and everyday life.

The usually unseen background of emotion. Whatever example of emotion one chooses to examine in the light of the analysis made in Chapter 21, one discovers that there always is a generalisation, maximisation and irradiation which are not warranted in terms of bivalent logic, but are understandable in terms of symmetrical logic. Behind the concrete object, emotion always sees (if described in terms of bivalent logic) an *infinite number* of other objects endowed with the maximum degree of the characteristics which define the class: an *infinite degree*. When the habit of making a study along these lines is well developed, one's 'understanding' of emotional processes is greatly increased and the clearness reached is far greater and of a different nature from that obtained through the various views of emotion now in vogue.

This is a first step. It must be added that repeated exercise in the

analysis of concrete cases, leads to familiarity with the fact that infinite sets are ever present in human psychical life. This, in its turn, is followed by a still deeper insight: the omnipresence of that surprising way of treating the world as a homogeneous indivisible totality.

Thorough assimilation of the notions presented in this book and their verification in many concrete cases is sufficient to reach that stage. It entails a certain amount of work, but the harvest it offers, of enlarging our view of man, is worth the trouble.

Mental pathology in the light of the interaction between the two logics. Exactly the same thing can be said of pathological manifestations. One can see them as emotions or as the unconscious applied 'in the wrong place', as disturbing 'symmetrisations' of psychical reality. This holds at various levels of (psychogenic) mental pathology. An obsessive who is taking extreme precautions to prevent disorder or dirt in his room, is actually defending himself from the feeling that a small localised disorder or a little circumscribed dirt is actually a world in a state of complete disorder, chaos and destruction (i.e. generalisation . . . etc.: the infinite set). Something similar applies to paranoid interpretations and to so many others.

2. Thinking (intellect) and feeling (emotion)

The age-old discussion about the existence in man of two aspects of his nature, Logos and something outside or beyond it, takes on a new significance in the light of the studies presented here. It may seem bold and pretentious but it is true to say that these points of view open unforeseen possibilities of development and offer the possibility of a comprehensive view of Logos and 'beyond-Logos' or 'outside-Logos'. I must give the reasons why I think this is so. It seems convenient for this purpose to consider several different points.

A very brief historical reference.[1] From the time of the Greeks occidental thinking has tried to delve into the subject of the basic constituents of psychical manifestations. The terms employed and the shades of meanings conveyed are innumerable. I have deliberately chosen the expression 'psychical manifestations' which is very general and leaves space for things which are outside time; for not everything mental is a process or an event, otherwise there would not be the timeless unconscious. Throughout history many terms and concepts have been employed to designate this subject: psyche, soul,

[1] I wish to acknowledge my indebtedness to the late Professor Spearman's historical study (1937), from which I have drawn, directly or indirectly, much of the information about the historical perspective of this question. His impressive erudition, breadth of vision, sharply critical eye, irony and wit have been very helpful to me.

anima, animus, spirit, consciousness, experience, mind, self, ego, etc., and the corresponding adjectives (psychical, spiritual, mental, etc.) are various words which refer to approximately the same territory, though the limits and the shades of meaning intended vary greatly from one writer to another. Some have considered it indispensable to start from a substantial entity or substance called by the names just mentioned; others have preferred to develop, to take Spearman's expression, a 'psychology without a soul', in which case one observes the tendency to use adjectives rather than nouns. As this author points out, it is also possible not to be too rigorous about initial definitions because the general ideas may be derived from general impressions suggested by observation.

However great the variety of opinion on these basic questions has been, the fact remains that

> this dawning science of the psyche or mind . . . forthwith proceeded to analyse it into its constituent parts. And the first great achievement in this direction – dominating all early psychological literature, and, if less explicit, still extremely potent to this day – has been what we may broadly call the doctrine of 'faculties'. (Spearman, 1937, vol. 1, pp. 106-7)

Here again we come across innumerable terms: 'power', 'principle', 'element', 'thing', 'parts', 'forms', '*potentiae*', '*virtutes*', '*vires*', '*aptitudines*', 'capacities', 'abilities', 'properties', etc. And when it comes to define, name or classify these powers or faculties or capacities, we find ourselves, once more, confronted by a great number of variations. The interrelations between these various characteristics of mental manifestations have been viewed, in their turn, either as close or separate, intertwining, combining, interacting, as remaining within the unity of the mind or soul, etc.

It is almost impossible to have a complete knowledge of all that has been written on the subject. It seems quite possible, therefore, and I would even say probable, that important and fruitful ideas, which if taken seriously could have a determinant influence upon our fundamental conceptions, may lie forgotten in the musty pages of a book. It may even be that the book in question is not musty and forgotten, but well-read, and its author well-known, but that his ideas have not been considered as they should, either because they have been presented in an unsatisfactory or unclear manner or because they were put forward when the time was not yet ripe for them; or for whatever other reason.

There are certain very general lines, however, which have resisted the impact of the centuries and of repeated and most varied criticisms. To put it in Spearman's words (1937, vol. 2, p. 287):

> Apart from all such passing waves, the general tide of psychology seems to have arrived at conceiving the principle of mind, the 'psyche', as an Individual who Feels, Knows, and Acts; who does so in a manner more or less well adapted to three intricately combining and often conflicting

tasks; those of preserving Himself, his Family and his Society.

And so, after two thousand years of study, we might seem to come to a Mind which – save for the larger credit allowed to evolution – is disconcertingly similar to what it was originally supposed to be by common sense.

However, this result is not so stricken with poverty as it at first sight appears to be. *The asserted lack of progress applies solely to the general outline* of the adult human mental constitution. With respect to this bare outline, indeed, *we do seem to have to admit that already pre-historic common sense had gone far: so far as to leave scant room for further progress.*

But this bare outline is not everything. Indeed, the entire constitution of the mind is only one side of the subject-matter of psychology. There still remains to take into account its other side, that of *function.* And this, at any rate, claims to have made a tremendous advance; nothing less than that of showing how the mental processes are governed by *laws.* (My italics, except for the last two words)

The general outline of mental constitution to which Spearman refers is, as seen, the distinction between feeling, knowing (which is dependent upon, or related to, thinking) and acting. Now, an attentive reader will have realised that the ideas put forward in this book, even though they remain within the outline of the mind transmitted from time immemorial (provided it is understood in a very general way), open the way for a meaningful progress in the *conception* of this general outline. Indeed, they furnish the basic requirements for this progress and are the first steps along the course to be followed. This progress and opening towards a greater understanding is the result of Freud's discoveries and of their reformulation in terms which open up wide perspectives. Without Freud's discoveries none of this could have been done. It must also be added that Freud seems to have intuitively grasped some aspects of the formulation presented in this book. This may be deduced from some illuminating passing remarks here and there; but he did not express it openly and systematically.

I shall examine the question under different headings.

The reformulation of the antithesis thinking (knowing) – feeling. Consequences of it. Thinking-knowing has been, broadly speaking, put in contrast with feeling as two completely different psychical manifestations. According to the points of view developed in this book such a way of viewing things is, to say the least, misleading. There clearly is thinking in emotion; though this had been affirmed before, it had never been affirmed with precision and along the lines followed in Part VI. *Thinking is a constituent part of emotion or feeling.* The classical distinction between both can, therefore, no longer be maintained in such a sharp way. From the logical point of view the difference does not and cannot lie in the assertion that on the one hand thinking consists, as it does, of the establishment of relations, and that emotion or feeling on the other hand is alien to

that process. *Thinking is the expression of the asymmetrical mode and its course is essentially that of any asymmetrical (logical) procedure; while emotion is an expression of the mixture – in different proportions, according to the case – of the asymmetrical and symmetrical modes.*

On the other hand, if on logical grounds the difference between thinking and feeling must be established on the terms on which we have established it, on energetical grounds it is obvious that emotion has some characteristics which permit us to consider it as a form of that vague but nonetheless, so far, indispensable notion called mental energy. Freud postulated the important concept that 'thinking is an experimental action carried out with small amounts of energy, in the same way as a general shifts small figures about on a map before setting his large bodies of troops in motion' (Freud, 1933, p. 89; see also Freud, 1905*a*, p. 192; 1911*a*, p. 221). Though his all-round formulation of this question is to a certain extent ambiguous, in the sense that at times one is not sure whether he is making or not a distinction between physical and mental energy – and probably it is better that it should be so, considering our ignorance about the question – we can, anyway, regard both thinking and feeling as energetic processes. Since we know so little about what energy is, and much less about what a 'quantity' of energy is, it is obvious that from this point of view we cannot at present expect to establish a clear distinction between thinking and feeling. The fact still remains that both seem to be describable as manifestations of some form of energy.

So, in the end we find that psycho-analysis, from the energetic point of view, has blurred the distinction made between thinking and feeling, without offering a better alternative to this distinction, which it still continues to use. On the other hand the studies presented in this book have shown that there is thinking in feeling, even though this is of a peculiar kind. The question arises, therefore, whether, after all, this aspect of the general outline of mental constitution (to take Spearman's expression) has been demolished and it has not been replaced by anything better. The answer seems to be that as a phenomenological-presentational notion, the differentiation between thinking and feeling still continues to be useful, but that neither of them can claim to be simple *elements* or constituents of the mind: they are 'combinations' of elements. In the case of feeling or emotion this should be clearly visible to anyone who has read this book carefully; it is less clear in the case of thinking but is, nevertheless, most probably so (the concept of the quantum of intellect-emotion proposed in Chapter 25 opens the way for a reformulation of thinking). *The antithesis between thinking and feeling has in this way been shifted on to the antithesis between the symmetrical and asymmetrical modes. This is no mere change of words, but far more than that: it is the differentiation between two*

different basic constituents in the mind, one which conforms to the rules of bivalent logic and another which does not. Pursuing our study along this line we have arrived at the contrast between a homogeneous indivisible reality and an heterogeneous dividing one.

It is obvious that Freud clearly conceived the unconscious in a way which corresponded to the symmetrical mode or homogeneous indivisible totality. It is equally obvious that he discovered its laws. But the fact that he did not formulate his discovery in terms of sharply delimited concepts blurred the issues. Much of what he says about the unconscious shows that the unconscious *also* follows – in some aspects and to a certain extent – the laws of logic (as we shall soon see in greater detail). Were we to suppress all that Freud has written about these aspects, much of his discoveries would be lost. This ambiguity can only be resolved if a sharp distinction is made between two basic constituents. Neither emotion nor the unconscious is one of the basic constituents – the symmetrical mode – though both are heavily loaded with it. In contrast, the presentation made here puts the problem in its proper perspective.

As I see it, this is a quite definite progress in the knowledge about the constitution or general outline of mind. It is at the same time a conclusion and a starting-point of a view of mental manifestations, which permits new ways of studying them.

3. A conclusion which is also a starting-point: the reformulation of the antithesis conscious-unconscious

We now continue with the same subject, but seen from another angle. When we study the unconscious in the light of the notions put forward in this book we soon realise, as already discussed at length, that the differentiation between two fundamental modes of being in man cannot be made simply in terms of their relations to consciousness, as has been done even by Freud himself, in spite of the fact that it was he who discovered the differences between these two modes of being, which he called by various names, such as 'thought-constructing agencies', 'form(s) of existence', 'rational and irrational psychical processes', 'consciousness and the unconscious'. Although, as I repeat, Freud discovered the differences and formulated them to the point of conveying to the reader the possibility of reaching a full awareness of their nature, the fact that he formulated them in the way he did, prevented him and subsequent thinkers from arriving at a macular vision of some of the question's fundamental traits. The antithesis between consciousness and the unconscious (or id) is not satisfactory because it points, not to an essential trait of the unconscious, but only to a characteristic of human consciousness; in other words, the distinction is made in terms of one of the two modes. It is known that human macular consciousness cannot

'contain' or grasp more than a few relations at a given time.[1] If we start from the *fact* of human consciousness, we can develop a *concept* of consciousness which is more general than that observed in humans. We then realise that it is perfectly possible to conceive various types of consciousness according to the number of relations that can be grasped. We may start from the extreme where there would be zero relations, and this would correspond to absence of consciousness. We may conceive that the number increases like the series of numbers; so we can conceive the possibility of simultaneously grasping an infinite number of relations. The fact that we do not observe such a consciousness is irrelevant to our argument; what, instead, is of the greatest interest is that such a consciousness could contain the unconscious: *for a consciousness which can grasp an infinite number of relations the unconscious would be conscious.* In particular, it is interesting to consider that psycho-analytic therapy, if viewed from a certain angle, aims at *imitating* the state of affairs existing in such a (conceivable) type of consciousness; it aims at increasing understanding, which amounts to increasing the number of relations *available* to consciousness. However, by this means one does not succeed in increasing the number of relations that can be grasped at a given moment: only those of a certain period of time. In other words, analytic therapy avails itself of the procedure of trying to replace a certain quantity given simultaneously (or atemporally?) by a certain quantity given in succession.

We shall now interrupt this trend of thought, but not without regret, for there is much to be obtained from it.

If, instead, we start from the characteristics of the system unconscious as described by Freud, and we reformulate them in logical terms, then we can differentiate both modes of being in a simpler and more precise way. It is true that, here also, the delimitation of the symmetrical mode is done in terms of the asymmetrical mode, of Logos. It cannot, so far, be done otherwise. But this delimitation is of a more general kind than that made in terms of consciousness, because this latter is only one concrete aspect, in man, of a mode of being which comprises or refers to, not only (to) that aspect of man but also (to) some aspects of the world itself.

If and when this reformulation is done, the question of the relationship to consciousness, the antithesis conscious-unconscious, no longer occupies the first plane but simply becomes a consequence of the structure of consciousness, and not an intrinsic and essential trait of that which is called the unconscious. The accent is, therefore, shifted, and the term unconscious becomes a peripheral way of referring to this mode. One can also see that the description in terms

[1] The question of precisely how many it can actually contain should be the subject of an interesting study. I do not know whether or not it has been done.

of the principle of symmetry or of the homogeneous indivisible totality, even if made in terms of the other mode of being, delineates a mode of being which is totally alien to the first mode. Whereas this is not the case with the word unconscious, which, itself, does not tell us the essential traits of this mode.

There is yet another consequence that follows from this reformulation, one which solves some ambiguities of the Freudian conception of the unconscious. If we study carefully all that Freud has written on the subject we find that, as it is presented, the unconscious is endowed with conflicting characteristics. To take one example at random, the child makes a clear unconscious distinction between life and death. If there were no such distinction Freud could not speak of (the psychological manifestations of) a death instinct. On the other hand, Freud has also said that the system unconscious has no idea of time; it cannot, therefore, have any idea of death, because such a notion requires that of time. Melanie Klein (1957, p. 22) maintains that her view differs from Freud's on the question of the role of the threat of annihilation by the death instinct and gives as a reason a quotation from Freud which affirms that

> the unconscious seems to contain nothing that would lend substance to the concept of annihilation of life. (Freud, 1926, p. 93)[1]

Her position is, from one angle, justified because Freud is referring here to timelessness, but the trouble is that other passages of Freud would show that he also uses the notion of time when he refers to unconscious processes. The passages that could be quoted can be counted by the dozen. I shall content myself with just one example which is characteristic of a type of thinking familiar and dear to Freud:

> In the unconscious, cathexes can easily be completely *transferred*, *displaced* and *condensed*. Such *treatment*, however, could produce . . . (Freud, 1920, p. 34, my italics)

Now, the words in italics denote concepts which, in their Freudian meaning, entail the notion of time. (We saw that some of them can be logically reformulated without a *direct* use of space-time; see Chapter 3.)

If, having in mind the characteristics of the system unconscious (especially if reformulated in such terms as I have proposed), we review all that Freud has written about unconscious *processes* and what follows from what he has written, we find such a variety of shades of meanings that, *leaving contents apart*, we should have to

[1] In the Standard Edition (1926*a*, p. 129) this phrase reads: 'But the unconscious seems to contain nothing that could give any content to our concept of the annihilation of life.' There seems to be in this latter translation a greater emphasis on the contrast between conscious thinking and the unconscious.

conclude that there is not one but a great many types of unconscious processes formed by endless combinations of contrasting pairs. To consider only two of these groups of possible combinations:

(1) Timelessness *and* time. The Freudian death instinct contains both, and in my opinion this is the reason why it has been so much rejected, missing thereby an important intuition of Freud expressed in an imperfect way (see Matte Blanco, 1973). Timelessness *and* time are also seen in other manifestations of the unconscious.

(2) Full contradiction *and* absence of contradiction. This is most clearly visible in castration anxiety in which there are *at the same time*, and in various proportions, according to the case, the following alternatives: (*a*) '*either* I have a penis and I am a man *or* I do not have one and am a (castrated) woman'; (*b*) 'I have a penis and am a man *and* do not have it and am a woman'.

Now, each one of the innumerable examples of these types that could be given, many of which are found in Freud, can claim a full right to be considered an unconscious manifestation. Hence, the question arises of how we can define the unconscious. *Obviously the system unconscious is not all the unconscious*, yet its characteristics constitute the most important discovery of Freud.[1] In all honesty, it must be recognised that current psycho-analytical views offer no solution to this problem. If, instead, we start from the notions put forward here, we can restore order and reach a consistent conception. To do so we must shift the accent from the contrast between conscious-unconscious to that between the symmetrical and asymmetrical modes or between the homogeneous indivisible reality and the heterogeneous-dividing reality. When this is done one immediately finds that the Freudian unconscious does not coincide with symmetrical being but is a mixture of both modes, in proportions which may vary *ad infinitum* from one case to another. In this way we resolve the problem and we find ourselves, furthermore, with a very old notion, that of level, defined in a new way: in terms of the proportion of the mixture of both modes.

A great variety of phenomena become much more comprehensible if seen under this light. The shift from one antithesis to another represents a new insight into the structure of the mind, which itself opens the way to the understanding of many things, to the raising of new problems and to having a glimpse of still further and deeper views and formulations of psychical reality. I should like to mention in particular a subject which one may find, after reaching this

[1] The attempt made by some to do away with the notion of timelessness, is an expression of a very understandable and praiseworthy desire for consistency, which is shown in trying to do away with contrasting and irreconcilable views of the unconscious; it can in this sense be described as an attempt at viewing the unconscious as a highly asymmetrical affair. Indeed it can even be said that this is the general tendency of contemporary psycho-analysis. It is, however, a most devastating attempt, because it throws overboard fundamental insights: in fact the most important and revolutionary of all of Freud's discoveries.

understanding, plays an enormous role in clinical practice: the fact that many clinical manifestations are, at the level of the deep unconscious, the expression of the identity between something and the negation of this something, while at more superficial but still unconscious levels are the simultaneous expression of two opposing and conflicting tendencies. In this way the patient finds himself expressing in the same action two different levels, irreconcilable between themselves and one of which is, furthermore, composed of two incompatible tendencies which at this level coexist in a most natural way, while they in fact, by their own nature in three-dimensional space, cannot coexist at a more superficial level. If we take an example and we express it in a very schematic way, the patient finds:

—a given action means love and preservation of a given person
—the same action means hate and destruction of the same person
—as I love the person, I perform the action and preserve her
—performing this action also means that I hate the person and destroy her
—to hate and destroy her is the opposite of loving and preserving her
—*at the same time* love and hate are exactly the same thing, either in meaning or in everything else

This situation becomes, in its turn, the origin of the various possible reactions of the individual confronted with this predicament: enormous anxiety, psychosis, symptoms which resist many attempts at solution, etc. Many clinical examples could be given in which the above is clearly visible. In my opinion the so-called negative therapeutic reaction can be viewed from an entirely new and therapeutically promising angle if focused along these lines.[1]

The simultaneous expression of various contradicting levels in the same symptom or mental manifestation is only one of the many types of example which could be adduced to show the great potential of the approach presented here.

Once more it must be remarked that none of this development could have taken place if we had not had Freud's discoveries at our disposal; it must also be added that some of this formulation is implicit in Freud. If, however, the problems are not put in clear, explicit terms, many of these intuitive insights cannot be utilised and are, in fact, lost.

[1] I have succeeded in unblocking, with the help of this approach, symptoms which appeared unamenable to other approaches. I have gradually come to see that the general situation described in the concrete analysis just presented is quite frequent in human life and it is at the base of some fundamental human traits.

4. The rapprochement of the antithesis thinking-feeling and conscious-unconscious. Consequences for the structural and object-relations conceptions of the mind

The fact that the reformulation of the antitheses just mentioned has, in both cases, shifted the accent towards a third antithesis, that of symmetrical and asymmetrical, which is the same in both cases, immediately poses the question of the relationship existing between the first two. I have discussed this question in Chapter 26, though it must be added that much remains to be done in order to clarify this problem entirely. In any case, we are confronted by the fact that the notions 'feeling' or 'emotion' and 'the unconscious', as they have been conceived so far, are approximate and rather inaccurate ways of pointing to certain realities which can be described in a more precise manner by means of the concepts proposed here. Does that imply that I am suggesting that their use should be proscribed? The answer is by no means simple. Personally I should regret to see them disappear, even if I think they are imperfect terms. What I believe will happen if the ideas put forward here have any influence, is that the systematic handling of these ideas will diminish the area occupied by the words 'feeling' or 'emotion' and 'the unconscious', *in their meanings most employed at present.* Most probably a better defined place will remain for them. In the first place it seems clear that the last, unique meaning of 'unconscious' officially adopted by Freud, namely that of the property or quality of being outside consciousness, will remain. The term 'feeling', in its turn, may eventually serve to represent some well-delimited territory, and we may even hope that one day it will also be possible to find a precise meaning for 'emotion', 'affect', 'sentiment'. But it is clear that much ground that is covered by all these terms may be replaced with advantage, at least for the time being, by the new terms proposed. I say 'for the time being', because it is possible that the progress of our knowledge will lead to still more precise delimitations which may end up by replacing these new-coined expressions by other, more significant ones.

On the other hand, the need of a substantial change in the structural conception of the mind as presented in *The Ego and the Id*, and a return to the previous Freudian conception (reformulated, for instance, in the way I have proposed) has become evident throughout our study. The general outline has already been presented: (*a*) the interaction between both modes of being in an infinite number of levels, this latter word being understood in the sense in which it has been redefined; (*b*) instead of id, ego and super-ego as 'provinces' or 'regions' of the mind, the existence *at any and all of these levels* of the (same) person or self with id, ego or super-ego *functions*, all of them exercised or present in different degrees of the relationship symmetrical-asymmetrical, according to

the level. The systematic and detailed application of these two propositions can account, as I see it, for the various clinical manifestations; and it also replaces, with advantage, greater accuracy and fidelity to clinical facts, both the threefold and the object-relations concepts.

But much remains to be done about the detailed elaboration of these ideas.

5. An unexpected yet painlessly reached result: the melting of the general outline of the psyche and its recasting to comprise the unconscious

If one looks at a modern textbook of psychology one is struck by several facts, among which one may mention:

(1) The role that physiological data play in the presentation of basic themes. For example, some well-known books on experimental psychology deal with emotion almost exclusively from a purely physiological point of view.

(2) The development of statistical tools which have led to considering reality and analysing it in terms which are strikingly different from those known in 'classical' psychology. For example, the application of factor analysis to the study of physique, of temperament, of interests and attitudes, and to correlations between persons and to pathological manifestations, has succeeded in defining, to a greater or lesser extent, a variety of *concepts, dimensions* and *factors* (see, for instance, Eysenck, 1952 and 1953, and Eysenck, Arnold and Meili, 1972) such as those of persistence, primary suggestibility, oscillation, level of aspiration; or the dimensions of neuroticism, extraversion-introversion, psychoticism, etc. The study of cognitive ability, probably the most developed of all, has succeeded in isolating some well defined factors.

(3) The importance of growth and development.

(4) The increasing importance of group phenomena.

In these developments one clearly sees the understandable and justifiable tendency to study psychical phenomena as they appear; it must be kept in mind, however, that this entails studying them in their intimate psycho-physical unity and in their unity with the environment, that is, in terms of the doctrine of Spencer 'that the psyche is an organism in an environment' (Spearman, 1937, vol. 1, p. 346).

However different such contemporary methods of approach may be from those of classical psychology, and however fruitful they are, nothing can be found in them and in their conclusions which denies Spearman's assertion (quoted above) that the general outline of the '"psyche", as an Individual who Feels, Knows and Acts' remains the same. In fact, it is always possible to discover that underlying these various factors, dimensions, abilities or concepts one always finds –

in those of their aspects which correspond to the psychological aspects of the psycho-physical unity – the three basic notions mentioned in Spearman's quotation. Each of these dimensions, in its turn, can be described in terms of a cluster of words which express the same or different aspects of the same concept. It must be recognised that the attempts at doing away with the three basic notions have, so far, always failed, in spite of the pretences made by some insufficiently critical enthusiasts.

Now, in this general outline of the mind the role of the unconscious is such that we are warranted in considering it as absent. For the references to unconscious processes which have acquired citizen's rights in this outline refer only to those of such processes which conform to the laws of conscious thinking. *The greatest discovery of Freud, the characteristics of the system unconscious* (which can now be precisely studied with the two principles I have enounced), *play no role whatsoever in the structure of psychology.* On the other hand, the impact of Freud's conception upon psychological thinking has been so great that it can in all truth be said that nowadays we are confronted by two entirely different and in fact irreconcilable approaches to psychology: that of classical psychology whose legitimate successor is (in spite of the protests that this assertion may provoke) modern statistical and experimental psychology; and that of psycho-analysis. Attempts at integrating both these approaches have completely failed, for they have either failed to introduce the logic of the unconscious in psychology or (what is still more pitiful) they have tended to forget this logic in psycho-analytic studies. As I expressed it earlier on in this book,[1] we are, nowadays, witnessing a most strange phenomenon: *psycho-analysis has wandered away from itself.* And one cannot but note that so-called psycho-analytical ego-psychology, with its avoidance of the most troublesome of Freud's discoveries and its emphasis on the spatio-temporal (energetic) scheme of psycho-analysis, is an example of the throwing overboard of these precious discoveries.

The approach proposed here offers new possibilities for a real synthesis. Owing to the fact that it expresses the discoveries of psycho-analysis in terms of the logic employed in scientific thinking – and shows, in these very terms, their difference from scientific logic – it permits a close study of the differences and interrelations between both approaches. Furthermore, the fact that our research with the help of the ideas put forward here has found that in its central core emotion conforms to or is ruled by the characteristics of the unconscious, has opened the door to completely new ways of integrating both approaches. With the help of these concepts psycho-analysis comes to occupy a central place in the structure of psychology. The whole of psychology, in its turn, greatly benefits

[1] See Introduction, Section I.

from it. New, previously unforeseen perspectives open up and at the same time the unitary view of psychological science is restored.

It may be added that all this has been reached painlessly and in a quite natural way.

Once this point is reached, psychology may now devote its attention to developing its newly acquired, promising territories, which far surpass a purely physiological approach to mental manifestations; and this can be done without having to renounce the physiological aspects, which must necessarily have a place in the study of mind.

The above assertions will probably, on the one hand, arouse the protests of those who believe (and they seem to be the majority of experimental psychologists) that the only way for psychology to make reliable and respectable progress is to follow the traditional methods of formulation and research employed in the so-called natural sciences. On the other hand, it will probably also arouse protests among some psycho-analysts who adopt a self-satisfied (and superior?) attitude of simply affirming, without more ado, that psycho-analysis *is* a scientific method, and do not stop to consider all the difficulties which arise when one tries to formulate the indubitable findings of analysis in rigorous scientific terms.

Instead, the method proposed here offers the possibility of a really useful integration of these apparently disparate approaches.

6. Psycho-analysis and logic: something to be rejected or a fertile association?

I believe the answer to this question is contained throughout this book. However, as I have so frequently encountered, among established psycho-analysts, such severe and final rejection of my attempts at formulating fundamental concepts of psycho-analysis in terms of mathematical logic, I should like to make some further brief comments.

Freud, and everybody after him, formulated psycho-analysis in terms of a language; and all have aimed at making as scientific a formulation as possible. Now, ordinary language and science conform to bivalent logic; hence, logic is present in *all* psycho-analytical formulations.

It so happens that Freud made some most important discoveries which, in fact, should revolutionise science, though they have *not yet* done so: that processes in the unconscious do not conform to the laws of bivalent logic, among others, the law of contradiction; and that they are timeless. If one reflects about this and the other *characteristics of the (system) unconscious*, we soon realise that it is they that *constitute the basis upon which all clinical psycho-analysis is founded.*

Is it, then, surprising that, considering all the above, one wishes to

know more about the why, the what and the how of this lack of respect for the rules of (bivalent) logic? *To get a deeper understanding of this question means to get a deeper understanding of psycho-analysis and of man.* This is all I have tried to do. When I hear the more or less open accusation that this is not psycho-analysis, I cannot but think that such an assertion is simply nonsense; apart from the fact that, even if it were not nonsense, it would still be off the point, because what matters in this respect is not to be near or within a given discipline or another but to search for the truth. To understand psycho-analysis in any other sense is to show a practical – though not an avowed – misunderstanding and even a contempt for Freud's life-long efforts in search of the truth: it amounts to replacing the love of truth by partisanship, to making the institution come first and truth second.

I must add, however, that, in a certain way, I can understand the criticisms levelled against my efforts. If logic is conceived in the way it was shown to some of us when we were at school, no wonder that it is rejected. Some old scholastic logicians who were adept in the various forms of syllogisms and were at the same time completely alien to the methods of science, gave me the impression of self-satisfied, strange outlanders from the world. The logic *they* represented is very unpleasant to me. I suppose one could apply to their lucubrations Unamuno's famous phrase: '*la lógica, la cochina lógica*'.[1] But this is not the logic of today. After thousands of years it seems to have been reborn, a new science, full of problems, full of doubts, in a vigorous process of development which studies some of the roots of nature. Mathematical logic is discovering basic structures and is very far from being dogmatic, dry and sterile: *that* is the logic which can be associated with psycho-analysis in a fruitful co-operation which will benefit both, as I hope this book shows.

7. The clinical use of the present approach

The ideas proposed here *modify* to a certain extent some of the current points of view in psycho-analysis. To a greater extent, I believe, they *add* to our understanding of man. The reason why they add more than they modify is that the *methods* employed here had not been systematically employed before. It is not surprising, therefore, that the *findings* are also new and do not modify something, because the something was not there before. If one becomes thoroughly familiar with them, one will come to realise that they have considerably increased our understanding of patients. He will, in this way, be much nearer to the inner self of those whom he is trying to help.

Understanding is but only one of the factors which contribute to the cure. The progress in technique made in the last decades seems in

[1] Logic, dirty logic.

a much greater degree to be the result of an increased general understanding than that of a specific progress in the knowledge and use of the other factors at work in therapy. This assertion does not intend to deny the advances made in connection with some of these other factors; in particular, a greater insight on the transference and counter-transference has resulted in better therapeutic attitudes. Even there, understanding plays its role. But it is not the only thing.

The knowledge put forward here can contribute, therefore, to the progress of therapy in a way similar to that in which other advances in psycho-analytical understanding make their contributions, even if they do not refer directly to the question of the therapeutic changes in the patient. I personally can say that my therapeutic efficiency has increased as a consequence of the new insights gained. I believe the same will happen to anybody who avails himself of these insights.

I should like at this point to give a sobering warning, which applies not only to the present approach but to various others as well. Unless a study is made of the specific factors active in the cure and how to handle them, our therapeutic advances will be relatively modest, in spite of the enthusiastic claims of some analysts. One often observes in some analysts what might legitimately be called a magic attitude, consisting of the attribution of a disproportionate importance to the therapeutic role of an increased insight which does not regard specifically the therapeutic aspects. An increased knowledge is always a good thing and it paves the way for an increased power, but not necessarily in a direct way. Sometimes a long and patient additional research becomes necessary in order to apply a given discovery in therapy. This seems to be forgotten by some. In my long career as a psycho-analyst I have seen that many valuable insights have been attributed powers which they did not have. It seemed as though in such cases the analyst had the firm belief that the mention or reference to the concepts in question in terms of the material furnished by the patient would necessarily bring forth the healing process. Among such valuable concepts I may mention the castration complex, the sadico-anal phase and aggressivity, envy, the good and bad breast, *the* internal object and world, anal masturbation, the container, etc.

If my ideas are accepted, I hope they will not be invested with magical healing powers, for this will hinder progress.

Though we all know that understanding is only one element of the cure, the fact is that nobody has, so far, succeeded in establishing with great precision what the other factors at work are, and how they combine intimately with our understanding, to produce the cure. I believe that the formulations proposed here, especially about the relationship between thinking and emotion and about the translating function, may make possible a more precise approach to the question of the therapeutic action of psycho-analysis and of its improvement.

8. Asymmetrical-symmetrical and mass-energy: logic, psychoanalysis and physics

I have been struck by certain analogies between some results of my psycho-analytic studies and some physico-philosophical ways of viewing the world. As I am no physicist or philosopher I do not know how valid the reflections that follow are. I offer them for what they may be worth, hoping that if they contain some valuable idea, this may be developed with conceptual equipment better than mine.

We have repeatedly seen that the translating function 'extracts' relations from emotion or from the unconscious: it 'extracts' thought. Thinking, therefore, results from a process of unfolding of the symmetrical mode into asymmetrical relations. We saw that this can be expressed in terms of the infinite sets: the symmetrical mode can be translated in terms of an infinite number of relations. As, on the other hand, we find psychical manifestations which are infinite sets within finite limits, we may then describe the symmetrical mode as a sort of 'condensation' of an infinite number of relations. If instead of logical terms, as described, we express or represent the principle of symmetry in terms of multidimensional space, we may then say that thinking (the asymmetrical mode) is a constitutive part of the infinite-dimensional symmetrical mode: thinking corresponds to a lower-dimensional space.

Conversely, we could suppose that the 'condensation' (or putting together, as in an infinite-dimensional space) of an infinite number of relations (thoughts) would come to be the same as a symmetrical manifestation. In short, a clearly defined interchangeability between both modes.

We may compare this situation with that existing in our knowledge of the physical world. I shall now quote a passage from Einstein (1921, p. 40) which refers to the special theory of relativity:

> If a body receives an energy E°, its mass of inertia is increased by the quantity $\frac{E^{\circ}}{c^2}$; the mass of inertia of a body is not, therefore, constant, but, rather, variable together with (the variations of) its energy. The mass of inertia of a system of bodies can, therefore, be considered directly as the measure of its energy. The principle of the conservation of the mass of a system falls down with the principle of conservation of energy and is true only if the system does not suffer any variation of energy.

According to this conclusion of the theory of special relativity the mass of a system of bodies decreases if the energy of the system decreases and, theoretically, the mass of that system may totally disappear if the energy of the system is dissipated; so that the mass of inertia of a system is 'the measure of its energy'. If starting from our psychological formulation just outlined, we establish a correspondence, on the one hand between symmetrical being and mass, and, on the other, between the relations (thoughts) and energy, the

parallel seems striking. The same would hold in the relation between emotion and thinking: an interchangeability between the symmetrical and asymmetrical mode on the one hand, and, on the other, the same thing between mass and energy.

There is, however, one fundamental difference: in our formulation symmetrical being would consist of an infinite number of relations, whereas the mass of a system is finite. Perhaps we could then say that the type of relation between both modes is similar to that between mass and energy, only that in the first case the fact that the symmetrical mode is an infinite set precisely constitutes the difference between the physical and the mental world: between a finite and an infinite set. Apart from that, both would contain in themselves similar types of relations between their constituents: both would be subclasses of a more general class of relations.

We now continue our reflection. We have seen that all thinking-logic can be conceived as being formed or made of triads of *S*, *SE* and R^1 and each of the three components of the triad can itself be resolved into further triads. If we take stock of this process at a given moment we find that it has produced a certain number of relations and a certain number of *S* and *SE*s. *S* and *SE* are, in some way, the representants of the designatum, of 'the world outside'. So, we always find 'the world outside' which yields relations. Each something and each something else will, in its turn, be resolved into another *S* and *SE* and one relation. In this never-ending process the only precise thing that seems to remain is the relation, because the great number of *S* and *SE* produced in this way must give way to other *S*s and *SE*s, equally *to be defined*, and to an *R* which is *actually* defined. In other words, relations are the most precise things that remain in our analysis.

The concept of energy has been conceived as having a wave and a corpuscular structure. On the other hand, as I understand it, in the structure of present-day physics the corpuscular theory of the electron still has a place to explain certain phenomena. We then seem to realise that corpuscle and wave remain as two fundamental elements or constituents of particles, in a similar way as *S* (i.e. *S* and *SE*, which are of the same nature) and *R* remain the two basic elements of the triad. The similarity also seems striking, as waves are systems of relations and particles can be considered as parts of the world: the *S*s in which the designatum is seen. With these ideas in mind we now turn our attention to a quotation from Jeans (1930 and 1932, pp. 135-6) regarding the general theory of relativity:

> To sum up, a soap-bubble with irregularities and corrugations on its surface is perhaps the best representation, in terms of simple and familiar materials, of the new universe revealed to us by the theory of relativity. The universe is not the interior of the soap-bubble but its surface, and we

[1] See Chapter 28, Section 1.

> must always remember that, while the surface of the soap-bubble has only two dimensions, the universe-bubble has four – three dimensions of space and one of time. And the substance out of which this bubble is blown, the soap-film, is empty space welded on to empty time.

Strange as this may appear, the situation portrayed here brings us to familiar ground. Empty space welded on to empty time: obviously both *are* the 'pure' relations of space-time. We have seen that the relations of space and time are intimately related to the very concept of relation. This quotation, therefore, seems to refer essentially to the space-time concept in a pure state. We know, on the other hand, that the concept of relation cannot be conceived without the other elements of the triad: *S* and *SE*. But these latter are the representatives of the outside world. We saw that even at the semantic level *S*, *SE* and *R* co-create each other, as in syntax. *So in the end we seem to have only intellectual (syntactical) constructions.* Perhaps this is what Russell means when he says (1949, p. 289):

> In the De Broglie-Schrödinger system, matter consists of wave motions. It is not necessary to the theory to postulate anything about these wave-motions except their mathematical characteristics, but obviously, since they are to explain matter they cannot serve their purpose if they consist of motions of matter. In this system also, therefore, we are led to construct matter out of systems of events, which just happen, and do not happen 'to' matter or 'to' anything else.

At this point one wonders whether we do not have to separate two different things here. On the one hand, as we have seen, the analysis made with the help of our intellect cannot but arrive at relations. The *S* and *SE* required for the existence of the relation turn out to be the same (as we saw) at the level of syntax and at the level of semantics: the three elements of the triad logically co-create one another. *It is the nature of our instrument of knowledge – our intellect and our logic – that necessarily leads to this situation.* Everything becomes ethereal, escapes from us, so to speak, between our fingers, and *the only thing that remains is intellectual constructions.* Viewed from this angle, we seem to have every right to affirm that *the conclusions of modern physics reflect the structure of thinking and of logic; and one might even say that they could have been anticipated, in their general outline*; because if we use thinking-logic to understand nature, it is not surprising that we find in it the same elements out of which thinking-logic is made or which it can know. Just as we cannot directly perceive ultrasonic or radar waves because we are not equipped for it, so, accordingly, we cannot grasp the world except in those aspects for which we are equipped; and so far as our intellect is concerned, they are the triads. As, on the other hand, these aspects are given in a whole and as a whole (knots of triads), perhaps we could say that *man, being a part of the world*

reflects, in some way, the structure of the world. We might add that, being as he is, man cannot but see the macrocosmos only as he himself is made. The identity between the part and the whole? The introduction of bi-logic into the structure of scientific knowledge? I do not know.

But there is another mode of being in man, apart from the intellect-logic or asymmetrical mode. It is to this mode that *S* and *SE* *also* point. If *S* and *SE* are seen only in terms of the asymmetrical mode, semantic and syntax come to be identical – so far as the co-creation of *S* and *SE*. But for the symmetrical mode *S* and *SE* are quite different. First of all, they are not divisible, hence they are not two. Then they are not different from ourselves. Thirdly there is no relation. Fourthly they are *fully real*, but in quite a different manner from that in which they appear to thinking-logic: we might say that they are infinitely real (an infinite number of relations) or infinite-dimensionally real. And this results in our feeling that the world is 'compact', 'substantial', something which can be touched, something in which one is immersed.

Perhaps it is here that we find the way towards the solution of the age-old dispute between idealism and realism. *Pure intellect-logic seems to lead necessarily to idealism (objective idealism) and it is not surprising that some modern physicists have adopted it: they have followed the path of intellect to its ultimate consequences.* On the other hand, there is another aspect in us – our symmetrical mode – which convinces us of the reality of the world beyond pure relations, even if there is an infinite number of relations. *And the ironical truth is that it is through our intellect – which cannot know this aspect of the world – that we know it*: a mysterious meeting of the symmetrical and asymmetrical modes.[1]

If I have not erred in my reflections, it can be said that all the above is the result of a prolonged meditation about Freud's discoveries and of drawing the conclusions of these discoveries to their utmost consequences, where they actually lead to: unsuspected and new horizons.

[1] A careful reader may point out a contradiction in what I have just said. For if the symmetrical mode can be described in terms of an infinite number of relations and in this way be made equivalent to the asymmetrical mode, then there is nothing in it but relations, just as in the asymmetrical mode. The objection appears, therefore, completely justified, but I do not think it points to a contradiction but to an unresolved paradox. I have elsewhere said that both modes are radically different and that the infinite set is the mathematical limit with whose help we describe in asymmetrical terms the symmetrical mode. Further understanding is required of the infinite-dimensional space that the symmetrical mode may be. Perhaps this understanding will solve the question of the 'substantiality' of the world.

To look at it from another angle, I have never been able to 'understand' or 'feel' happy about the question of how God, a pure spirit, is capable of creating 'solid' matter: a piece of wood, for instance.

In summary, I am fully aware of the difficulties but I believe these should not paralyse us. I suspect that further study will point to the way of solving them. *New* difficulties will then arise, as they do in every branch of human knowledge: it is in the nature of our knowledge.

9. Towards a unified view of man and nature

In Part IX I propose a representation of the principle of symmetry in terms of multidimensional space. I am eager to see that such a representation, or bi-univocal correspondence, is verified in many detailed cases and in more technical terms, so that the perspectives can be more clearly defined.

I shall now try to give a panoramic picture of what I have in mind regarding what has been in this respect clarified by our research. I believe it can quite correctly be said that the formulation in terms of the principle of symmetry and of its corollaries has resulted in a well delimited and consistent picture of human psychological manifestations. It has helped to define with greater precision than before the distinction between conscious thinking and the unconscious, between Logos and that vast territory of man which is not Logos. From this formulation there results an abyss between the two modes. However much they intertwine between themselves, they appear as radically different, incommensurable with one another. The symmetrical mode is defined in terms of the asymmetrical mode as infinite sets: both modes only meet at the infinite.

If, as it seems, the principle actually *is* susceptible of geometrical representation, there would then be a bi-univocal correspondence between the two alternatives. In such a case, as already pointed out, thinking or Logos would be *a component* of the higher-dimensional emotion-unconscious, and this latter, in its turn, would be an infinite-dimensional Logos. All this has already become evident from our study. We await further confirmation from the detailed research just mentioned.

The old distinction between Logos and that which transcends Logos can be reformulated in a much more fruitful way, in the terms we have outlined. The basic unity of thinking and emotion seems something fundamental for the conception of man. It is already present in our formulation. I would like to see it studied in its details.

On the other hand, there is another basic unity that seems to have become evident. Logic and the unconscious, the asymmetrical and symmetrical modes, appear in a new light and in a close relation to one another, as is clearly shown in Part VII, especially in Sections 1 and 5 of Chapter 28. At first sight it would have appeared incredible that logic and psycho-analysis were so closely related and that this latter could help to illuminate the former, just as the converse is equally true. The evidence which shows these links is there. In this respect I may mention an interesting observation. When the unconscious (symmetrical mode) has to express itself in terms of the perceptual-thinking world, it, so to speak, does not complain of the inadequacy of its means of expression; it just takes advantage of the possibilities offered to it and 'calmly' behaves like a geometrician who is forced to represent an n-dimensional space in terms of n-1 or

n-2 dimensions: it repeats volumes.[1] We might express this in terms of the mind-body relationship and say that the spirit or soul united to the body is content in the corporal abode put at its disposal, and employs it cleverly: that is what we see about the behaviour of the unconscious.[2]

Psycho-analysis, science and humanism. Psycho-analysis has opened the door to the possibility of a scientific study of those territories which have traditionally been the natural habitat of humanism. The psycho-analytical studies of artistic manifestations, for instance, have brought forward important insights. It might have been object by some scientists that the methods of study employed were not those of traditional science. Naturally, this is of no importance if the studies are meaningful, as they are. If we now add the possibility of a mathematical formulation, nothing is lost of the fruitfulness of the psycho-analytic approach, and at the same time a new unity with the other sciences may be reached in a higher synthesis in which there is a mutual fertilisation of one by the other.

The introduction of the infinite, for its part, creates a stimulating possibility of synthesis between science and art, for *the infinite becomes the meeting point of both*: it is open to unforeseen possibilities, as in art, and it can be approached – humbly, because it is such a dizzying subject, full of paradoxes or antinomies – by the intellect.

Science and art can, in this way, come to be seen in a wider synthesis of both.

Towards the mastery of emotion. The fact that, with the help of the points of view put forward here, emotion can be submitted to a systematic study, will open the possibility of its mastery. Knowledge is the first step towards mastery of nature. So far emotion has been the object of art, and it expresses itself in a spontaneous way in everyday life. Considering the fundamental determinant role it plays in human life, if we succeed in understanding it and mastering it we will have obtained something of great value. The formulation in terms of relations, of infinite sets and of the translating function, may be the first step in a long process which we must take in order to reach this goal.

Emotion, as seen from this angle, as an infinite set, is a reservoir of more than atomic energy.

In short, I believe it is no exaggeration to say that the points of view put forward here offer the possibility of the unification of many aspects of subjects which touch on vital problems and interests of man.

[1] To understand this it is necessary to read Part IX.
[2] Beware not to read into this last sentence more than I have meant to put in it!

30. Summing-Up

The ideas put forward here stem directly from Freud: they are a development of his ideas. Though this may seem strange to many, the methods employed here are also Freud's methods. I need not explain this assertion with reference to the use of introspection and free association, because it is obvious. But my assertion is equally true so far as the use of logico-mathematical tools and concepts is concerned, because the whole Freudian conception is permeated with such concepts and makes use of these tools. The concepts of energy and space were taken from physics, and without them psycho-analysis, as created by Freud, is inconceivable. The concepts of logic were also employed by Freud; we see the notion of class in the Schreber case, and the law of contradiction when Freud speaks of the characteristics of the system unconscious or (to use his terms) primary process.

This is necessarily so. I do not think that the idea of developing psycho-analysis entirely separately from the other sciences ever entered Freud's mind: the contrary seems rather to have been his constant preoccupation. To build a science of the psychical which could parallel physics and which had some concepts (such as energy) analogous to it, also seems to have been his ideal. It may even be said that it was only very reluctantly that he left aside some physiological and physical concepts. The road followed from the *Project* to the *Outline* is a witness to this. And it can even be added that Freud never succeeded in freeing himself entirely from an unnecessary use of these concepts.

Some, in fact many, psycho-analysts tend nowadays to reject anything which is not 'chemically pure' psycho-analysis. For this reason they reject outright anything which contains even the slightest hint of using physiological, ethological or logico-mathematical concepts. They think that this attitude of theirs will favour the development of psycho-analysis in its purely psycho-analytical aspects and view with distrust anybody who uses these concepts; they think that he does not have enought 'faith' in psycho-analysis, and that he is trying to blemish its pristine purity. However much I may respect the achievements of some who adopt this attitude, I consider the attitude itself barbaric, based on a fundamental incomprehension of the nature of man and of knowledge, short-

sighted and sterile. It is barbaric because it pretends to lead psycho-analysis into a complete isolation, making a *tabula rasa* of all the previous psychological acquisitions of man. It is based on a fundamental incomprehension of the nature of man because man is a psycho-physical, biological being, and to pretend to study him without this in mind, is to pretend to study a man who is not man. It is based on an incomprehension of the nature of knowledge because it implicitly postulates a compartmentalisation which is entirely alien both to man and to human knowledge. Both the dreams of patients and all mathematical concepts are the products of one mind, man's mind, and they have much in common, even though much distinguishes them. The subtle workings of the mind of a psycho-analyst sitting next to the couch (how many times this reflection has occurred to me!) and the searches of mathematicians in their sheets of paper are infinitely closer to each other than they may seem at first sight. Their thoughts even have similar structures. Good psycho-analysts are, unawares, good abstract algebrists.

The view alluded to is short-sighted and sterile because, if generally followed, it will stop the development of psycho-analysis. Psycho-analysts should be, of all people, those who have a deeper understanding of man and his relations with his fellow-beings. When people hear, 'He is a psycho-analyst', they look upon him with admiration and even with some awe, as if he could discover all the innermost secrets of the human soul. How frequently this ingenuous and romantic picture is brutally contradicted by short-sighted technicians of psycho-analysis who look upon everything from their restricted point of view, which frequently is only a version of one aspect of psycho-analysis! As the saying goes, they are unable to see beyond the end of their own noses. Freud was never like this. Nor was Melanie Klein, or any of Freud's first great disciples.

To return to this book. I consider it in the tradition of Freud's thinking. The difference in *atmosphere* is simply a reflection of the difference between the atmosphere of 1900 and that of seventy years later. Some of the concepts employed here have only become familiar recently.

If I were asked which part of this book I think most significant, I would reply as follows. I believe that the ideas put forward here are meaningful if considered from the point of view of introducing order into psycho-analytical theory, which in its present form has certainly become insufficient to contain what has been found in clinical reality with the help of this same theory which has become insufficient. But I do not think this is the most meaningful contribution of this book. It is, rather, the introduction of three concepts: the principle of symmetry (1956); its interpretation in terms of infinite sets, which is put forward here; and the concept of the homogeneous indivisible totality. All three have important consequences. The first leads us to view man in his non-spatial non-temporal aspects *in a manner which*

is susceptible of precise study. Much remains to be developed in this direction. But precisely on account of those aspects the consequence is that the individual fuses with the others. A study of this may lead to a deeper understanding of the essential nature of man as a social being, and of the essential unity of all mankind, past, present and future. But in order to avoid any vagueness, all this needs to be studied with strict logico-mathematical rigour and perhaps new concepts will be needed for this.

The second feature concerns the interpretation of the principle of symmetry in terms of the infinite sets. I believe it opens up a new way of looking at an immense variety of facts. In a way, the time was ready for it. For a survey of much psychological literature, psycho-analytical or not, shows that the concept of the infinite had already made its appearance, in psycho-analysis and in psychology. Bion, Meltzer and Sartre, to mention only three names, had already pointed to it. But this appearance was a timid one and the idea was presented with insufficient conceptual tools. The present book represents, I believe, a definite step forward because it avails itself of some mathematical concepts which are so adapted to understanding clinical reality that they immediately become an intimate part of this reality. This is necessarily true, because the mind that has developed the concept of 'mathematical infinite' is the same mind that has developed the notion of 'symbol'.

With the notion of infinite in our hands many problems begin to take on a new perspective. And, furthermore, we discover in human manifestations, not one infinite, but infinite infinites: the power of the denumerable, of the continuum and perhaps still higher powers. When confronted by so many infinites I am personally overcome by a certain dizziness. I believe the use of more mathematical knowledge will enable further precise developments. We shall gradually become familiar with the infinite in us and shall be able to apply this concept with ease.

It seems that the concept of the infinite in the human mind is here to stay.

I do not know how many people will read this book. If I judge from the reception given to my ideas as they approached these territories, I think the prospects are discouraging. But, however important for me this may be, it is of little or no importance for the progress of science. Sooner or later somebody will find the same ideas, and perhaps express them better. As I said, psychological thinking has arrived at the door of the concept of the infinite and it is bound to go through it completely. I repeat: the infinite is here to stay.

As for the concepts developed in Part VII, and in particular the conception of the homogeneous indivisible totality put forward there, I believe it is too early to arrive at a global judgment about their worth. It is only very recently that I have arrived at them. I

must remark, however, that they are proving, at least to me, extremely stimulating and they are leading to a greater understanding of the nature of human manifestations. In particular, I have been able to test their clinical usefulness. It seems as though, with their help, things are seen in a new light and in a wider perspective, which is both clear and thought-provoking. All this appears promising. In particular it seems that, with their help, we may reintroduce, in a new way and as part of a larger whole, some very old intuitions of Parmenides. This may lead to a significant change in our way of knowing and looking at the world.

PART NINE

Space and Mind

EXPLANATION

The present Part is based on studies which I started in the early 1940s and which I have so far only partially published (1954). I have brought them up to date and revised them, and also made some additions. I consider them in the nature of the beginning of a promising line of development. The meaning and purpose of this Part in relation to the rest of the book has already been mentioned in the Preface and at the end of Chapter 1. It is hoped that this will become clearer as the argument develops.

31. Formulation of the Problem

1. Some general notions about space

The concept of space. We usually say that material objects are in space and material events happen in space. Some may add, with Kant, that the happenings of our mind evolve in time; when this is affirmed, it is sometimes implied, though not quite openly, that such events are not subject to the laws of space. Descartes already said that the mind or spirit was intensity and matter extension. And from very early times men have repeatedly asked themselves the question which was answered by Kant in a famous way: 'What now are Space and Time?' (Kant, 1956, p. 71). Their understanding is intimately linked to the understanding of the world.

We may start, therefore, with a very brief philosophical consideration. Led by his insatiable need of arriving at what is most primary, Kant could not avoid concluding that space and time are not properties of things but *a priori intuitions of the mind*, i.e. intuitions which are not the result of experience or of sensory stimulation. Such intuitions do not come from things but are, on the contrary, *categories of the mind, a priori forms of intuition*, and are not given beforehand in consciousness but emerge as a result of the ordaining activity which consciousness realises with the external world. They are like frames in which consciousness encloses the external world; they are, however, *subjective* frames which have nothing to do with the thing in itself. They belong to the world of *appearances*, and these appearances have something to do with *our* way of grasping external transcendent reality.

Neither modern physics nor modern philosophy seem to be satisfied with this and other of Kant's assertions about space. To begin with, from the physical point of view space seems to be intimately linked with the existence of objects. From the philosophical point of view the following concepts of Lotze seem to summarise a point of view which is more in agreement with actual reality:

> [Space] is not a pure apparition in us to which nothing corresponds in that which is real; rather, to each singular trait of our spatial intuitions there corresponds a fundament in the world of things; it is only in those of its properties which space has in our consciousness that it cannot exist in

> itself, if it is not being thought of or intuitively conceived. (Quoted by Hessen, 1950, vol. 3, p. 103)

As von Hertlings, also quoted by Hessen, says:

> The difficulties of the problem of space can be dispelled (put aside) by a theory which, in contrast to Kantian idealism, maintains the objective conditioning of spatial representation but which, on the other hand, also sees in the peculiar content of this the product of our representing activity. According to this theory space should be seen as the form or manner in which we must represent the coexistence of things; the spatial varieties must be attributed to the objective varieties in the mutual relations between coexisting things, and are proportionate to them. The laws which are deducted from the content of our spatial representation are for this reason also adequate to that which corresponds to this content as objective mode of being of things. (Hessen, 1950, vol. 3, p. 104)

The most satisfactory position seems to be, therefore, that which maintains that space (or perhaps, better, our conception of space) is the result of an activity of our mind which has a basis in the external, transcending world. *Space is a way in which the mind translates certain objective relations (i.e. relations of the external world). It is, in summary, an indication or hint of the external world which has been passed through the network of our mind: a hint of a (bi-univocal?) correspondence between something of our thinking and something of the external world.*

Both physics and philosophy seem to be in agreement on this point. In physics the Newtonian notion of absolute space, which in a certain way was related to that of Kant (though in another way it was different), has been replaced by the concept, originated by Leibnitz and expressed in physics by Einstein, of space *as a system of relations.* It must be added that space is considered to be linked to time in a four-dimensional continuum, space-time; also that even in physics there remains something of the distinction which psychologically we make between the dimension time and the spatial dimensions, for space is put on a par with spatial dimensions on conditions of being multiplied by an imaginary number $\sqrt{-1}$.

The varieties of space. Both philosphers and psychologists distinguish some varieties of space which we may briefly mention. It is said that in the child and in primitive people space begins as a concept which is intimately linked to one's own person, and the same thing is observed in some organic diseases of the nervous system in which a regression to the primitive concepts is observed. Both the child and the primitive man relate objects to parts of their body, and much of this is preserved in everyday life in the occidental languages: we speak of something being in front, behind, etc. and these dimensions are all anthropocentric. It is also known that perceptive space is a notion which is above the experience of *one* sense organ: it is an intersensory phenomenon (Stern, 1938, p. 152).

The space of the child, of the primitive man, of the organic patient, perceptual space, and that which has been called the estimation space (*Schätzungsraum*) (Hessen, 1950, vol. 3, p. 99), could all be reunited under the common name of *psychological space: this refers to the spontaneous psychological notions about external space.* One also hears in psychology the expression *internal* or *inner space*, which would be that in which our internal psychological experiences take place. It is said, for instance, that pseudo hallucinations are grasped in the internal space and are projected outwards, whereas hallucinations are perceived in external space. So far as I know, this often mentioned notion has not been developed and remains vague.

We then have *physical space.* It would be that which we employ in a less anthropocentric thinking in order to place external objects and processes:

> We see them in the visual space, we hear them in the auditory space, but we *think* them as developing in physical space. This space is not given to us in an immediate way in perception; we first learn to know its relations with the help of the physical bodies. (Hessen, 1950, vol. 3, p. 99)

Finally, there is the *mathematical space.* It is an ideal space or being, which in itself would be different from the already mentioned spaces, but which we would employ for a scientific conception of the physical world.

None of these distinctions is, as I believe, in any way essential; they only represent a scale of growing precision in the expression of certain concepts which are already implicit in the child and in primitive man. When the concepts of before, behind, to the side, are replaced by length, width and height, that is, by the three dimensions, the only thing that has been achieved is to give a more generalised expression, and one free of unnecessary impurities, to a primitive or infantile concept. Mathematical space represents *in its origin*, or may represent, a greater generalisation of so-called physical space. Einstein writes:

> There exist in nature objects which correspond, more or less accurately, to the notions of geometry and to which (notions) they alone, without any doubt, have given birth. Geometry tries to go away from this origin in order to frame as much as possible its building in the domain of logic. (Einstein, 1921, pp. 2-3)

In any case, whatever its origin, mathematical space has its own *Dasein*, of ideal being.

We shall not, therefore, take too seriously these distinctions between the various types of space, and we shall try, rather, to get a deeper understanding, in a unitary form, about what *man* thinks about space and its relations with mind.

The meaning of the geometrical representation of physical phenomena. Physicists have observed and measured so-called material phenomena and have expressed them in laws. These laws can be expressed, represented, in a four-dimensional continuum, three dimensions of space and one of time. What does this mean? Simply that the concept of a four-dimensional continuum, which is a mental abstraction corresponding to an ideal being, i.e. mathematical space or its variety geometrical space, constitutes a conceptual frame which is adequate as a representation of the phenomena of the universe. This ideal space may be considered as having its own objective *Dasein*; it is not just a creation of our mind because it is a form of being, ideal being. From this point of view it is not material reality and it is nearer to the mind than to matter.

In other words, if we ordain phenomena in terms of this conceptual frame we get a representation which, on the one hand, is an ordered one, that is, in conformity with that which our conception of this frame suggests to us that it should be; and which, on the other hand, is in conformity with our observation of these phenomena. *In this way we obtain a coincidence, a bi-univocal correspondence between external reality (as observed by us) and an ideal conception which has been grasped by our mind.*

This is the meaning of a physical theory. *What it does not mean* is that reality is *in itself* just as we have represented it only that it is capable of fitting in with such a representation (bi-univocal correspondence); this implies similarity but not identity between both.

2. The use of space in the study of mental phenomena

Old prejudices regarding space and mind. In the light of the above an ancient and deep-rooted attitude of occidental thinking, which seems to emerge from the depths of antiquity, is seen as rather strange. This attitude consists of rejecting a certain type of relation between mind and space. There is a real taboo about thinking that mind or mental phenomena may have any relation with spatial phenomena. This taboo has remained in spite of the fact that philosophical developments from Kant onwards attribute to the mind or spirit,[1] in a greater or lesser degree, a fundamental participation in the concept of space. For Kant such a concept is totally subjective, that is, it completely belongs to the mind or spirit, whereas for the position that seems more satisfactory it is, as we have seen, a *product*, an *activity* (or a *quality*?) of the mind or spirit which is suggested to this latter by material phenomena or phenomena which are transcendent to consciousness. If space has so much to do with mental

[1] It should be noted that whenever I employ the word mind or spirit I do so in a purely referential way, to designate certain well-known phenomena, and I have no intention of taking sides with any of the various concepts about it, for I do not consider it necessary for our purposes.

phenomena, if it tells us as much about mind as about the transcendent world, why so much fear in applying this notion to the study of mind itself? This fear has been widespread but if one reflects carefully it should be discarded. Let us provisionally suppose what we shall see later on in this Part, that is, that the application of the concept of space is useful in the study of psychical phenomena. Does that mean that the psychical has extension, or to be, perhaps, more precise, does that mean that the psychical is something spatial? We may forget for the moment that the term 'spatial' is vague; in any case we may say that even if the application of the concept of space is useful in the study of mental phenomena, we have as little right to say that mind is space or extension as we have to affirm that the transcending world, the material world, is spatial in the sense in which our thinking conceives space. We have already seen the relation between both concepts. And if we are right to prefer one alternative over the other, we would have to affirm that there is more relation between mind and space (which, after all is a creation of mind, a way in which mind conceives reality) than between space and matter.

Strictly speaking, however, the only thing that we would have the right to affirm in case psychical phenomena were susceptible of spatial representation, is that there is some similarity, but not necessarily an identity, between them and such a representation: a correspondence only.

The scientific knowledge of the external world owes its progress to the development of the spatial conception. Perhaps it is not hazardous to maintain that our knowledge of the physical world entered a fertile era of development the moment men decided to take seriously the spatial category (and also that of time) and began to plot their findings about the world in the conceptual frame of ideal spaces. What would be known about physics without them?

The lagging behind of our conceptions about mental phenomena would be linked to the rejection of space in their study. Here I simply wish to affirm this proposition and explain what I mean by it. Later on I shall try to show some of the immense amount of evidence which shows how difficult it is to proceed with the study of the psychical if we refuse to employ the notion of space. We may contemplate the fairly well-ordered picture given us by modern physics, with precise definitions, possibilities of prediction and even, I would venture to say, with precise and fairly well-delimited obscurities. We may compare it with the vagueness of our psychological conceptions, with the imprecision of our terms, the lack of precise conceptual frames on which to plot what we know. Let us for a moment suppose that these imprecisions were actually due to our having refused to accept the suggestions made to us by the facts

themselves and to ordain these facts in the conceptual frame of space (and also in that of time), which would have given us the possibility of comparison between mental and material phenomena and, hence, the possibility of establishing the similarities and differences between both. If all this were so we would have to recognise that the refusal of occidental thinking to relate space with the *study* of psychical phenomena would have been a great drawback. And if it was Descartes, as it seems to have been, who in modern times crystallised this refusal when he explicitly established the separation between mind or spirit and extension (in a form which now, after Kant, would seem hurried or unwarranted), then we could say, paraphrasing Nervo:[1]

> Oh, Descartes, how much you have hurt us!

Let us now see what this reality tells us.

Everyday and scientific language makes constant and inevitable use of space when referring to mental phenomena. The evidence confirming this assertion is so overwhelming that whichever way we look we shall find it. We may consider some examples. From ancient times psychical activities have been classified in three groups: thinking, emotion and conation. Whenever we consider any one of these three groups we make use of metaphor. *Without metaphor the possibility of expression of psychical phenomena practically disappears.* We must, therefore, look at it more closely.

3. The concept of metaphor

Metaphor. What is, in its essence, metaphor but the comparison with a material phenomenon, that is, a spatial phenomenon? When, for instance, we say 'a dog who barks doesn't bite' we are simply expressing that barking has in the dog a *relation* to biting which is similar to the relation which threatening has to harming in man. If we wish to use a symbolic notation and choose to designate barking, biting, threatening and doing harm with the letters *a*, *b*, *c*, and *d* respectively, we could refer to this metaphor by saying that *a* is to *b* as *c* is to *d*, provided that we did not understand such a proportion in an algebraic sense; we could not, for instance, transform it into $a\ b = b\ c$. The type of relation established here is of a more general order, of a generalisation of algebra, as is done in symbolic logic. In other words when we understand a metaphor we extract a relation between the two elements of the first member (in this case barking and biting in the dog) and apply this relation to the second member. In more general terms: *the understanding of metaphors implicitly entails the extraction of general relations from a particular example*

[1] Amado Nervo: a Mexican poet.

and the subsequent realisation that these same general relations also apply to another particular example.

Further precision with the help of symbolic logic. If we put the above in terms of concepts of symbolic logic we can say that starting from a concrete example, we discover the propositional function of the class of which this example is an element, and subsequently realise or discover that this propositional function also applies to another concrete case. In other words, we discover or 'extract' the propositional function from an element of the class and, once this step has been accomplished, we discover another element of the same class. It must be noted in this respect that in adult so-called normal thinking both elements are considered different from one another, though having in common the fact that both satisfy the same propositional function. In the unconscious, however, in emotion, and in certain pathological manifestations, this fact that both belong to the same class makes both be treated as identical: an application of the principle of symmetry. This is what is called the *literary interpretation of metaphor.* At times we even observe that both elements are fused into one; in the case mentioned, a schizophrenic might think that the man barks.

Another thing to be considered is that the classes with which metaphor deals are classes of relations, whose propositional function is defined by a more or less complex system of relations. The truth of this assertion can also be seen in the example mentioned.

The reader who is acquainted with the problem of metaphor will realise that the view of metaphor presented here enables one, with the help of the notions we have presented throughout this book, to see in a precise perspective the problem of metaphor and in this way to avoid the great amount of vagueness that is frequent in the literature on the subject. The present view consists of two aspects: first the use of a symbolic logic formulation with the help of the notions of class, element, propositional function and classes of relations. This corresponds roughly, though not exactly, to a certain current in the literature on metaphor which Hawkes (1972, p. 90) has called the *classical* view. I believe, however, that the formulation proposed here, while having much in common and referring to the same things as have been previously pointed out by many authors, is both simpler and more precise: more in the nature of a macular vision.

Secondly, my reference to the principle of symmetry, though brief, contains the essentials of another aspect of the problem. Any person who has followed this book may draw many consequences with regard to metaphor, which has already been discussed throughout the book, though in other contexts. In a sense, it can be said that the whole of this book is a study of certain aspects of man which are seen in metaphor. They are, however, not only seen in metaphor but in a variety of other manifestations (though the distance between

metaphor and these other manifestations can ultimately be reduced to zero, if seen in the terms proposed in this book. In the end this becomes a matter of convention regarding the limits of each subject). This aspect of my formulation comes nearer to what Hawkes (loc. cit., p. 90) calls the *romantic* view of metaphor. I am convinced, however, that the formulation presented here may enable us to go beyond this. It enables us to get, so to say, *inside metaphor*, to discover in it the enormously wealthy relationship between both modes of being of man, which is expressed, among many other things, also in metaphor.

For this relationship between both modes the reader is referred to all that precedes in the book. In the pages that follow I shall single out only one aspect of metaphor: that which pertains to space. Owing to the fact of its making use of a material comparison, every metaphor makes use of the concept of space and this shows that there is a natural tendency of the mind to employ the concept of space to refer to mental phenomena. This is not surprising, for, as we saw in Chapter 28, Section 1, the concept of space is essential to that of relation, hence to logic. The study of the role that space plays in metaphor, however, will enable us to go beyond a general formulation and see the various ways in which space is employed in mental activity (thinking and other manifestations).

The metaphorical references to psychical phenomena observed in everyday language. We may take at random some of the innumerable examples that could be given. For thinking processes: *transparent, sharp, obtuse, nebulous, deep, superficial, tangled, tortuous, obscure, confused* thinking. For emotional processes: *overflowing* with love, *bursting* with rage, *melting* with tenderness, *poignant* pain, a person *as cold as ice, warm, distant, cordial, attracting, rejecting.* In the case of conative processes: *iron* will, *soft, flexible, rigid* person, *pushy* person, etc.

Scientific psychology is permeated with metaphor. Here also the examples that can be adduced are innumerable and it is sufficient to have a look at the history of psychology to verify the truth of this assertion. We may take two or three examples. From ancient times, psychologists have been concerned with the question of how thoughts are *connected* or 'mix' or 'combine' in order to produce a reasoning. In this respect Spearman (1937, vol. 1, pp. 279-80) writes:

> In comparatively modern times, the simplest case of such 'mixture', namely that of only two ideas, has come to be designated as a 'judgment' (*judicium, jugement, Urteil*). Under this name, it has become one of the most familiar concepts even of common sense. But trouble begins on proceeding to details. With what sort of cement, or agglutination, shall this 'mixing' be supposed to be carried into effect? Aristotle himself

> picturesquely, but not very informatively, describes the union by citing the following passage from Empedocles: 'Many there were whose heads grew up neckless entirely, but were afterwards brought together by friendship.'

On the other hand, the concept of *structure*, so widely used in psychology, is no more than an elaboration of our concept of material space, which itself is to a great extent or entirely (as already seen) an expression or elaboration of one's sensory experience.[1]

As can be seen, metaphor abounds everywhere. On the other hand, this is not surprising if one remembers that the very concept which is at the base of psychology derives its name from a metaphor: the wind. In fact the word spirit and all other words which make reference to the soul derive from breathing or wind, *in all languages*.

Another example: psycho-analysis is *depth* psychology, and all its conceptions are expressed with the help of the spatial metaphor (for details, see Chapter 1, Section 1).

Still another: when we speak of consciousness, we refer to it as a sort of *folding into* itself, of a *reflecting* itself and other similar comparisons.

We may conclude with certainty that *our conceptions of the mind are completely permeated with the spatial comparison.*

4. Conclusions

The only reasonable attitude, therefore, is taking seriously the concept of space in the study of mental phenomena. If the concept of space slips in everywhere and we cannot avoid using it, why, then, do we not take it seriously and abandon the fruitless attitude of feeling ashamed to have to use it? For it can really be said that the attitude of many psychological studies towards the omnipresence of the spatial comparison is one of shame. One frequently hears that it is only a question of a comparison which must not be taken literally. But if this is the case, how should it be taken? This is a fundamental problem. We may very well affirm that mind is not space just as we affirm that external reality is not that which we consider space to be, but this does not relieve us from inquiring why we have the need to use this notion, in the same way as we need it in our conceptions of the physical world.

It becomes necessary to broach this problem in a rational way and see where it leads us. I believe that, far from taking us to a materialisation of the mind, it introduces us to entirely new ways of viewing things, which are promising for a scientific and even experimental study of mental phenomena. We must try to see this question in more detail.

[1] I am grateful to Professor H. Lundholm, of Duke University, for having called my attention to this.

The study of the use of space in mental phenomena reveals spatial conceptions which are different from those habitually employed in the description of material phenomena. We usually describe physical phenomena with the help of the conception of a four-dimensional continuum (three dimensions of space and one of time). For years I have been reflecting about the application of the concept of space to psychical manifestations as such; there is, in my opinion, overwhelming evidence which shows that three-dimensional space (supposing that we fix or immobilise the time variable) is insufficient to *put an order* in the understanding of psychical phenomena, just as it seems to be sufficient for the understanding of physical phenomena.[1] In order to demonstrate this evidence it becomes necessary to review some preliminary notions about the concept of space.

[1] Perhaps we should make an exception. I hear that some new phenomena of atomic physics require a space of more than four dimensions for their conceptual ordination. I believe that this does not invalidate what I have just said, for we may compare such phenomena as those which nowadays physics is able to frame in four dimensions with those which in psychology could not be so framed. As for the new physical phenomena just referred to, their relation to psychological phenomena would be a matter of further research.

32. Brief Notions about Geometrical Space[1]

Foreword

I shall content myself with a very simple sketch which is all that is needed for the understanding of what follows. I must, however, point out that unless the reader is or becomes familiar with the concepts of this section he will not be able to understand what follows afterwards.

1. Point, line, plane and volume

It is common knowledge that the point is said to have no dimensions, that the line has one dimension, the surface two and the volume three. What we call 'real space' is three-dimensional.

There are two ways of considering the problem of space, the analytical and the geometrical. In the analytical method the number is considered to be the fundamental object and its geometrical representation is only a way of *visualising* it. In the space of one dimension the number determines the point. When there are two variables, x and y, which determine a given point, we speak of a space of two dimensions. This is frequently represented in a system of co-ordinates, x and y, in which a given value of x and a given value of y determine a point. When the variables are three we speak of a space of three dimensions or volume. It is obvious that for the analytical method there is no limitation in speaking of a space of four, five . . . n dimensions, according to the number of variables. Space of three or of less than three dimensions may be visualised in a geometrical representation, but this is not the case with spaces of more than three dimensions.

2. Geometrical approach to the space of n-dimensions

Let us take a triangle, which obviously, is a space of two dimensions, a surface. Its limits are usually represented as shown in the upper drawing of Fig. 1. But it is possible to use other methods of representation. We might agree on a linear representation, which is a representation in a space of one dimension less than that of the triangle. In order to do this we only need to rotate the sides AC and

[1] The concepts presented here are taken entirely from Courant and Robbins (1941, pp. 227-34).

BC until they form one line with *AB*. In this case a triangle would be represented by the line *CABC*. Note that the point *C* (dimension zero) appears twice in this line. This representation is satisfactory provided that one remembers that in the actual triangle (surface) the point *C is* only once, that is that the two points *C* coincide.

It is also possible to separate completely the three sides, in which case the triangle would be represented by the lines *AB*, *BC* and *CA*, in which case each of the three points would appear twice in the representation, as is shown in the lower part of Fig. 1.

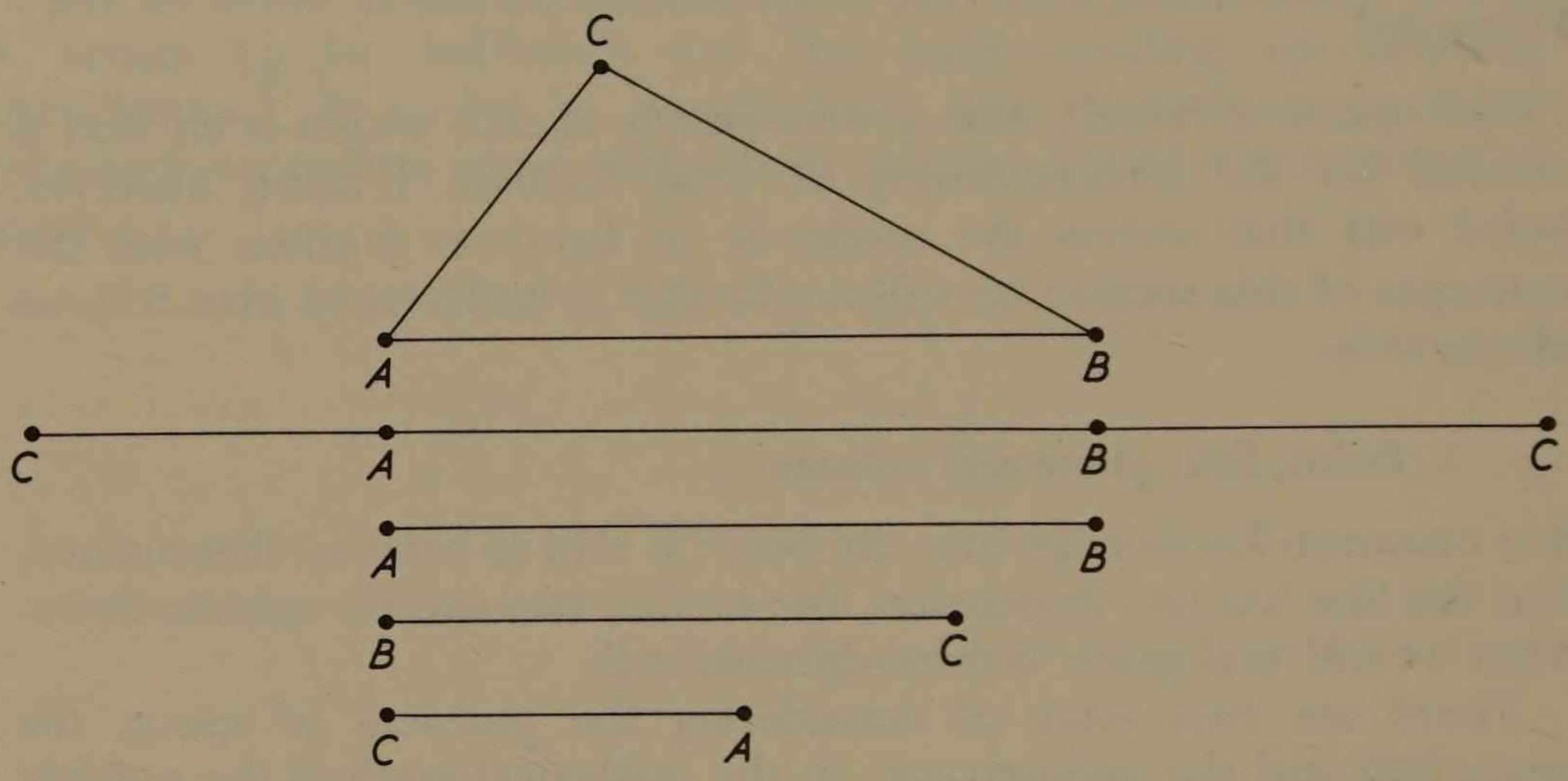


Fig. 1 (taken from Courant and Robbins, 1941, p. 231)

If we now represent a cube (three dimensions) in terms of one dimension less (surface: two dimensions), we would have the representation which appears in the right upper angle of Fig. 2. We could also separate each of the sides of the cube and then we would have the representation of the lower left corner of the same figure. As can be seen, in this case each and every line appears twice and each and every point three times. If therefore, a cube (three dimensions) is represented in a surface (two dimensions), there will be lines (one dimension) which will be repeated twice, and points (zero dimension) which will be repeated three times. We could proceed still further and represent a cube by means of lines, as is seen in the lower right corner of Fig. 2. In such a case if we were given a series of bars numbered as is done in this figure, if we put them together with the ends having the same number coinciding, we would be able to form a cube.

No space of more than three dimensions can be imagined, but if we employ this method of representation in terms of spaces which could be visualised, we will then have a graphical conception of spaces of more than three dimensions. It will then be seen that, just as the triangle has its vertices repeated and the cube its lines, *so*

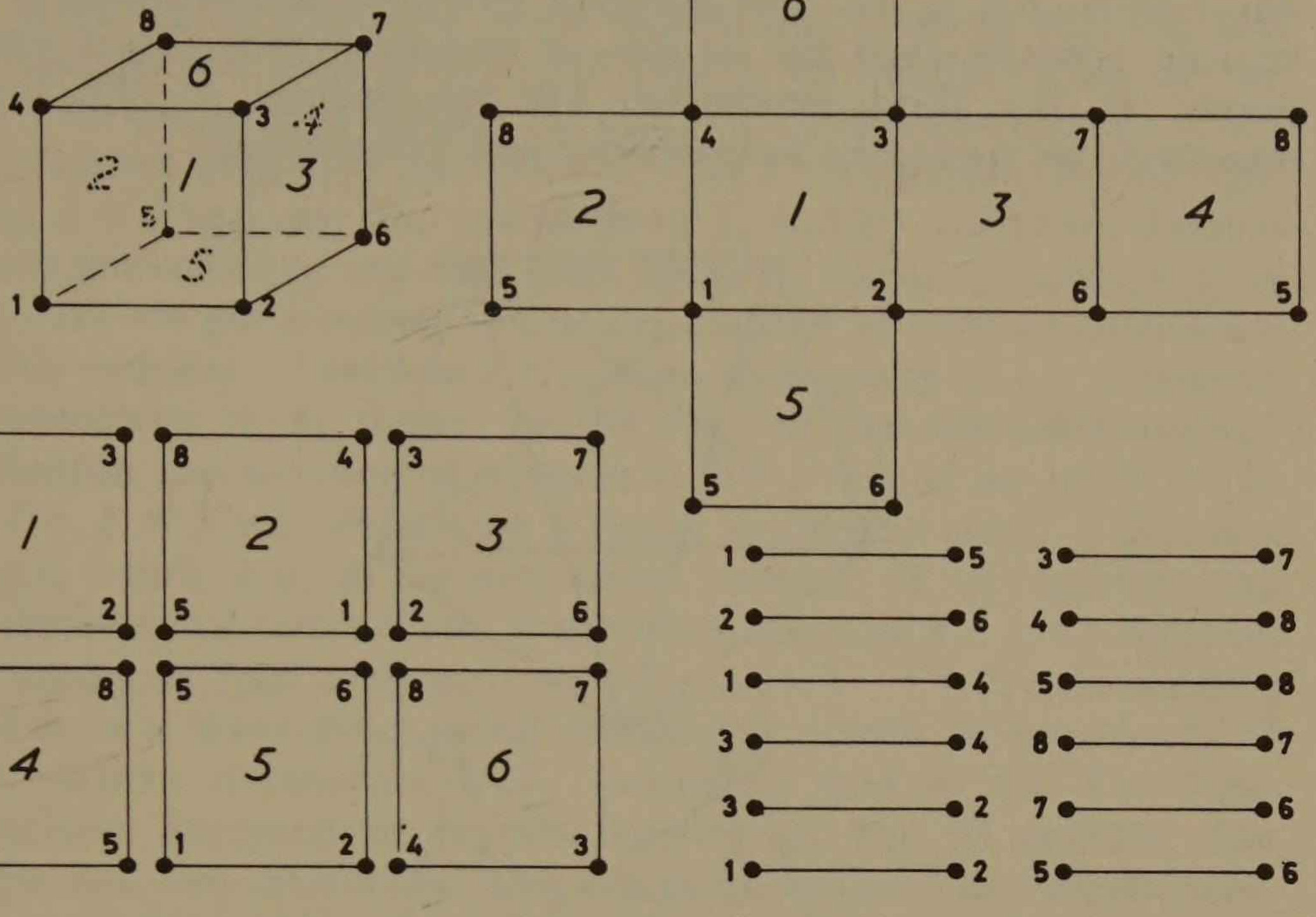


Fig. 2 (taken from Courant and Robbins, 1941, p. 232)

spaces of dimensions higher than three represented in terms of two or three dimensions will have volumes repeated. Just as any polygon (the triangle in our example) may be represented in terms of lines, if we 'invert our reasoning' (Courant and Robbins, loc. cit., p. 232) we can *define it* in terms of line; and similarly a cube (or any other polyhedron) in terms of surface (or also of lines). And so, generalising, *any* n-*dimensional space which cannot be visualised may be defined in terms of a space which can be visualised*; in this way we shall have our imagination come to our aid. In such representations we shall find *volumes which are repeated.* Conversely, if we are confronted with representation in which the 'same' volume is repeated, we may then infer that we are dealing with a space of dimensions higher than three.

There are various types of *n*-dimensional spaces. To the polygon square (bi-dimensional) there corresponds in the next higher dimension the polyhedron cube. The cube is limited (surrounded) by planes (in this case squares) just as the planes are limited by lines. If we now move on to the fourth dimension, the figure corresponding to the two just mentioned is called 'tetra-dimensional cube'. It is surrounded by eight three-dimensional cubes, each of which has a surface in common with its neighbour. *One cannot imagine such a figure, but just as we know that the plane is limited by lines and the volume by surfaces, correspondingly, the tetra-dimensional space is limited by volumes.*

To try to give an idea of graphic representation we will not consider the cube, because it is more complicated. The line is one-dimensional space. The simplest two-dimensional figure is the triangle (simpler than the square or rectangle, etc.). To it corresponds, in the third dimension, the tetrahedron. In the fourth dimension we speak of a four-dimensional 'tetrahedron'.

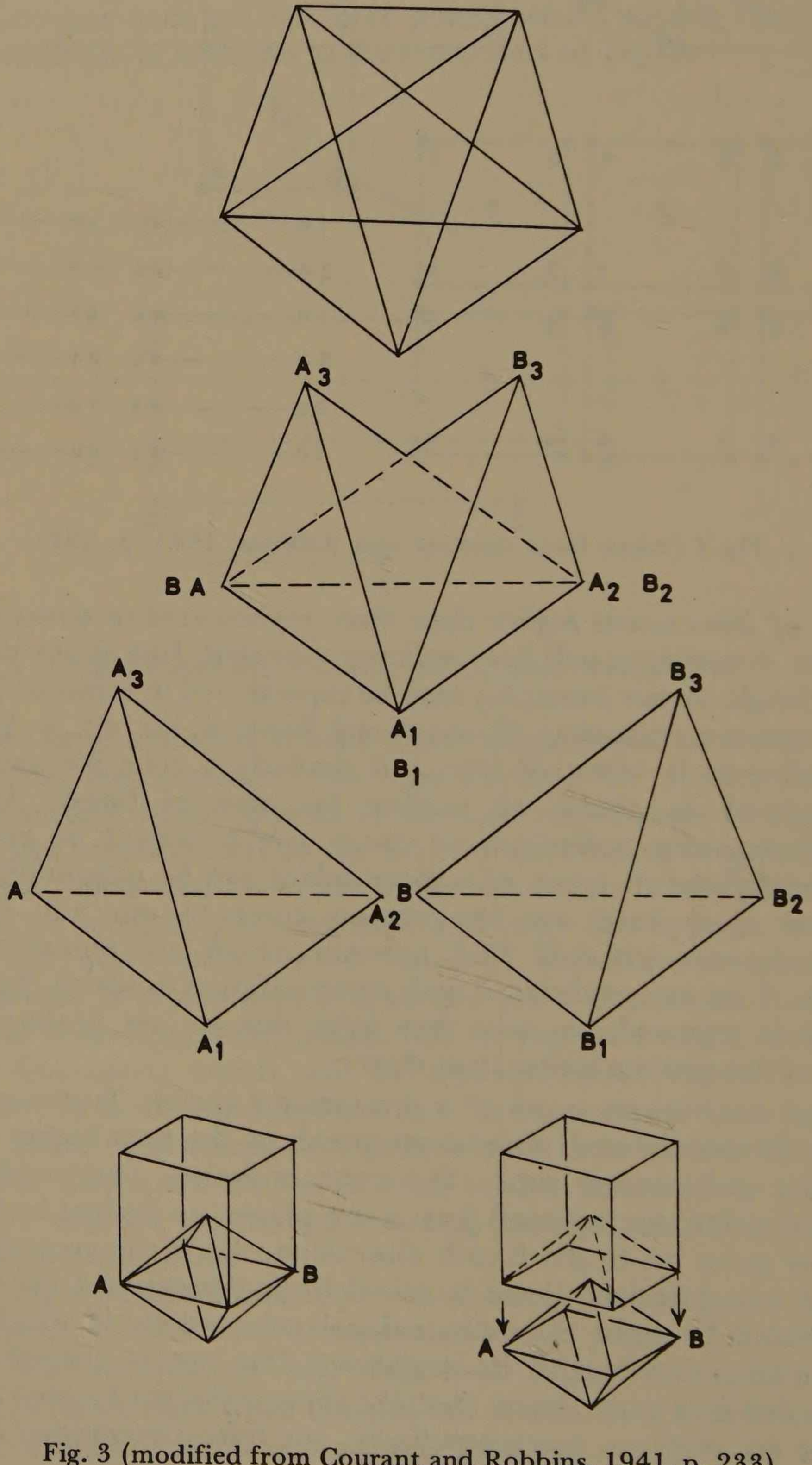


Fig. 3 (modified from Courant and Robbins, 1941, p. 233)

The line (one dimension) has two vertices or end points (zero dimension). The triangle (two dimensions) has three vertices and three sides. The tetrahedron (three dimensions) has four vertices, and four triangles (see third drawings of Fig. 3). We call the figures of this series with the generic symbol T_n, and add a subscript to indicate the dimension we may say: the line = T_1 has 1 + 1 vertices. The triangle T_2 has 2 + 1 vertices. The tetrahedron T_3 has 3 + 1 vertices. And so we may generalise to say that each figure T_n has $n + 1$ vertices, If in this figure we get a subset of a lesser number of vertices, and if we call this number of vertices $i + 1$, then each group of $i + 1$ vertices will determine a T_i figure. In the case of the three-dimensional tetrahedron the number of vertices is $3 + 1 = 4$. If we make $i = 2$, then $i + 1 = 3$ will determine a figure T_i (in this case T_2) that is a triangle, which has, as known, three vertices. If we consider the four-dimensional tetrahedron, it therefore contains $4 + 1 = 5$ vertices. Each subset of four vertices ($i + 1 = 4$: so $i = 4 - 1 = 3$) determines a T_3, that is a three-dimensional tetrahedron. Each of its subsets of three vertices determines a T_2 (triangle). And so on. The four-dimensional tetrahedron (upper drawing of Fig. 3) contains five vertices and five tetrahedra. This can be generalised to n-dimensions. By a procedure which I will not enlarge, it can be shown that an n-dimensional 'tetrahedron' contains

$$C_1^{n+1} = n + 1 \quad \text{vertices} \quad (T_0\text{'s}) \quad \text{(points)}$$

$$C_2^{n+1} = \frac{(n+1)!}{2!\,(n-1)!} \quad \text{segments} \quad (T_1\text{'s}) \quad \text{(lines)}$$

$$C_3^{n+1} = \frac{(n+1)!}{3!\,(n-2)!} \quad \text{triangles} \quad (T_2\text{'s}) \quad \text{(planes)}$$

$$C_4^{n+1} = \frac{(n+1)!}{4!\,(n-3)!} \quad \text{tetrahedra} \quad (T_3\text{'s}) \quad \text{(volumes)}$$

. . . . . .

$$C_{n+1}^{n+1} = 1 \; T_n\text{'s}$$

(Taken from Courant and Robbins, 1941, p. 234)

A 'tetra-dimensional tetrahedron' cannot be visualised by the average person, and the upper drawing of Fig. 3 has no perspective. We know, however, that five vertices determine five tetrahedrons. In order to help visualisation we may consider in the second drawing only two of them; they are the tetrahedron $A\,A_1\,A_2\,A_3$ and $B\,B_1\,B_2\,B_3$. The person who looks must make an effort to visualise them as pyramids, that is, in perspective. It will then be

noted that both have a complete surface in common, i.e. the base. The vertices A_3 and B_3 are entirely independent. If the observer exercises his imagination he will also realise that they have part of their volume in common, that part which is immediately above their base. If we now wish to represent the four-dimensional tetrahedron in a three-dimensional space we would have to 'extract' all five tetrahedrons. For the sake of simplicity, in the third drawing are represented the two tetrahedrons which were represented 'together' in the drawing immediately above. We then find that *the volume which they had in common appears twice.* In other words, when we define a four-dimensional tetrahedron in terms of volume (three dimensions), this volume appears repeated. We may now suppose that the two tetrahedrons of the third drawing are made of solid wood: they are two three-dimensional figures. Let us imagine now that we put one inside the other until we obtain the situation represented in the immediately preceding drawing. We would then come across the surprising situation that in order to obtain this *it would be necessary that the two corresponding pieces of wood would have to occupy the same space at the same time.* This is not possible in three-dimensional space. But a 'real' four-dimensional tetrahedron would succeed in making this possible, if we define it in terms of three dimensions.

In order to facilitate a more complete comprehension of this idea we may imagine that the second drawing has been made in wood. In it one polyhedron is partially immersed in the other. We decide to cut them up and put them apart. In our world we would find that if we separate one of these wood polyhedrons, the other would have a piece missing, just the piece that both had in common. But if that piece was there twice, as in a tetra-dimensional tetrahedron, we would then obtain two complete wooden tetrahedrons.

The bottom drawing of Fig. 3 may help us to understand this better. In the left-hand figure there is a cube which has a part in common with an octagon. If we cut off and separate the octagon from the cube we would have a hollow part, as is shown in the right-hand figure. But if we were representing a space of more than three dimensions in terms of three dimensions, both the cube and the octagon would remain complete. One might argue that something of this kind is also possible in three-dimensional space. I can, for instance, imagine a cross in which both the longitudinal and the transversal parts are made of fibres which intertwine at the point of intersection. It would be possible to separate one part from the other and remain with both parts complete. But in fact the quantity of material of each intersecting part would only be half of what it was when both were united. Whereas when we represent in terms of three-dimensions a space of more than three dimensions the volumes will be 'entirely' repeated.

33. Multidimensional Space, the Unconscious and Dreams

Preliminary explanation

I hope that by now it is clear that mathematical space represents a conceptual frame on which man projects and ordains his observations about the physical world. We have also seen that there exists a natural tendency to use the concept of space when referring to psychological phenomena. In the following pages I shall make a brief review of some phenomena which at first sight appear chaotic and incomprehensible to our ordinary logic and which become well ordained and understandable if they are projected onto the conceptual frame of a space of more than three dimensions. I must warn, however, that the purpose of this section is only that of showing this possibility with the help of a few examples, and not that of entering a detailed consideration of all the facts: this deserves a more complete study.

1. The problem

General considerations about multiple dimension and the characteristics of the unconscious. In his *New Introductory Lectures* Freud writes (1933, p. 74):

> Again and again I have had the impression that we have made too little theoretical use of this fact, established beyond any doubt, of the unalterability by time of the repressed. This seems to offer an approach to the most profound discoveries. Nor, unfortunately, have I myself made any progress here. . . . Instinctual cathexes seeking discharge – that, in our view, is all there is in the id. It even seems that the energy of these instinctual impulses is in a state different from that in the other regions of the mind, far more mobile and capable of discharge; otherwise the displacements and condensations would not occur which are characteristic of the id and which so completely disregard the *quality* of what is cathected – what in the ego we should call an idea. We would give much to understand more about these things!

Psycho-analysts seem to have become so used to the characteristics of the unconscious that the natural surprise that one experiences when confronted by the strange world that they outline seems to be almost forgotten. This becomes quite evident when reading the current literature; one can see interesting studies about clinical

problems, discussions about details, preoccupation with technique, but practically no *direct* approach to the fundamental problem raised by the conception of the unconscious. I do not think it is inaccurate to say that since Freud made his remarkable discoveries about the unconscious, which are to a great extent reported in *The Interpretation of Dreams*, nobody, not even Freud himself, has added anything essential to our knowledge of the subject. His paper 'The unconscious' represents a greater systematisation but does not contain important material about new facts.

A study of the fundamental properties of the unconscious, however, should occupy the first plane of our interest, because if we could understand these properties more we would be in a better position for understanding the more external functions of the ego, which disguise the unconscious with the scope of making ordinary life possible.

In the present study we shall take these characteristics for granted and from them try to proceed to other territories. Though it is far from my intention to pretend that the application of the concept of multiple dimension solves all the important questions raised by the conception of the unconscious, I wish to point out, nevertheless, that I do believe that the concept of multiple dimension brings a great deal of order in what otherwise would appear chaotic.

There are various possible approaches to the question of the possibility of finding an order in the apparent illogicality of the unconscious. For a time I played with the concept of many-valued logic (Lewis and Landford, 1959, and Rosser, 1955), but when I came across the concept of multiple dimension I felt it corresponded better to the facts.

The study of dreams is the best approach to the unconscious. In what follows I shall not make an explicit differentiation between unconscious and dreams.

Considerations of representability. Under this heading Freud discusses the ways which the dream-work employs in order to express thoughts. As this is important for what follows I shall make a short summary of his views. The principal thing to remember in this context is that the abstract expression of the dream-thought is replaced by a concrete pictorial expression which is *capable of being represented* (Freud, 1900, p. 340). In this way images may serve as symbolic (metaphoric) representations of thoughts. Freud points out that this method has the advantage of facilitating condensation, because in a well-ordained discourse we employ more abstract words, which are not so rich in associations as images.

Another important point to make is that words are frequently treated as though they were concrete things and suffer the same condensations as the ideas of things (loc. cit., pp. 295-6).

It is important to keep constantly in mind the facts just

mentioned if we wish to orient ourselves about thinking processes in dreams.

Condensation. As Freud points out, dream-thoughts are enormously compressed in comparatively few images, which represent many things. A short dream, if it were expressed in a logical discourse, would fill many pages.

This is a very striking characteristic and one which it is not easy to understand. *The study of the work of condensation produces a strong impression of interpenetration between the various thoughts which are compressed in one element of the dream.* The metaphor which immediately comes to mind to express this fact is that there is here a disturbance of the logical *contiguity* of the ordained processes of thought which we observe in ordinary life. Freud writes (loc. cit., p. 281):

> How, then, are we to picture psychical conditions during the period of sleep which precedes dreams? Are all the dream-thoughts present alongside one another? Or do they occur in sequence? Or do a number of trains of thought start out simultaneously from different centres and afterwards unite? There is no need for the present, in my opinion, to form any plastic idea of psychical conditions during the formation of dreams. It must not be forgotten, however, that we are dealing with an *unconscious* process of thought, which may easily be different from what we perceive during purposive reflection accompanied by consciousness.

In another place (loc. cit., p. 312), he writes:

> When the whole mass of these dream-thoughts is brought under the pressure of the dream-work, and its elements are turned about, broken into fragments and jammed together – almost like pack-ice – the question arises of what happens to the logical connections which have hitherto formed its framework.

2. A proposed approach

An attempt at ordaining the above in terms of multidimensional space. If we assume that we are following the natural human tendency (both conscious and unconscious) to apply the concept of space to thought-processes, then one is struck by the fact that the contiguity and well-ordered succession of wakeful life gives way to an interpenetration of the various elements of the dream, a sort of mutual getting inside one another. In terms of three-dimensional space this appears chaotic, but if we consider the question in terms of a space of dimensions higher than three, it is no longer so. We must suppose that various dream-thoughts happen *simultaneously* in the unconscious. If we represent them in terms of space, as we actually do, with the help of images, we have two alternatives.

(1) Each thought occupies a different portion of space and is contiguous to the next. This is the question that Freud puts to

himself in the last but one quotation. Such a representation, however, does not seem to conform to the facts because it seems to imply that the thought is only a part of the ego which produces it. Especially if we have various feelings at the same time it seems inadequate to say that it is one part of us which is occupied by each individual thought or feeling. Such a division in parts which are contiguous to one another, as would be implicit in a description of this type, seems utterly inadequate as a description of psychical life.

(2) The second alternative seems much more satisfactory. If we represent thoughts or feelings in terms of images, these images must show that each thought or feeling occupies the whole of the ego while being at the same time only a part of the ego. This is what in fact the dream-thought does in the work of condensation, in which exactly the same image may serve in its totality to express various thoughts. *These two requisites of 'partness' and wholeness cannot coexist if three-dimensional material images are employed for a representation. Hence the peculiar impression that dreams produce when they behave as though this were possible.*

In contrast, this representation is no problem if we are dealing with a space of more than three dimensions which is being represented in terms of three dimensions. As we saw, in such a case a volume may appear several times. Therefore, each element which represents a condensation of various others could be metaphorically compared to a volume which is present several times. In this way what appeared chaotic becomes perfectly well-ordered.

The apparently absurd way of dealing with space which we observe in dreams becomes, therefore, perfectly reasonable if we assume that *the dreamer 'sees' a multiple-dimensional world with eyes which are made to see only a three-dimensional world.*

The means of representation in dreams. Here I shall go over the material found under this title in *The Interpretation of Dreams* in order to see whether the concept of multiple dimension helps our understanding. Freud writes (loc. cit., p. 312):

> They are not infrequently *trains of thought starting out* from more than one *centre*, though having *points of contact*. Each *train of thought* is almost invariably accompanied by its contradictory counterpart, *linked* with it by antithetical association. (My italics)

Freud affirms that the dream does not have means at its disposal for representing these logical relations between the dream-thoughts and feels that the psychical material with which dreams are made must be responsible for this incapacity (loc. cit., p. 312). As can be seen in the passage just quoted (see italics), the concept of logical relation is inevitably linked in our mind with the concept of contiguity ('centre', 'points of contact', 'link', etc.). In contrast, we

may say in this respect that dreams refuse to think in terms of contiguity. Now, what must be contiguity in a three-dimensional space, does not need to be so in a space of more than three dimensions because, as already discussed, two volumes may be considered to occupy the same space simultaneously.

Freud discusses the contradiction existing between various dream-thoughts and we shall consider this question in a moment. He writes (loc. cit., p. 314):

> They reproduce *logical connection* by *simultaneity in time.* Here they are acting like the painter who, in a picture of the School of Athens or of Parnassus, represents in one group all the philosophers or all the poets. It is true that they were never in fact assembled in a single hall or on a single mountain-top; but they certainly form a group in the conceptual sense.

We see here that the same thing happens with time as with space: an abolition of succession, which is replaced by one moment 'getting inside another', in a simultaneity of various successive elements. Contiguity and succession are held in contempt by dreams and both are held in contempt in a similar way; for this reason it is interesting to note the jump that Freud makes from a spatial metaphor (logical *connection*) to a time reference (simultaneity) to describe what the dream does: here he is combining two metaphors. Temporal succession may be expressed (as, for instance, in a geometrical representation) in terms of spatial contiguity (which also shows the intimate relation between space and time). So can the logical connection be represented in the dream. When Freud speaks of logical connection being expressed in terms of simultaneity, in reality he is calling attention to the fact that contiguity is abolished in the dream, all of which shows *the contempt that the dream has for the limitation of three-dimensional space.*

Dreams represent causal relations by succession. This is a very interesting fact which is undoubtedly related to our subject and which, if studied, may become important. We shall however leave it aside for the time being.

Dreams cannot express in any way the alternative 'either-or' (loc. cit., p. 316). Here again this fact may be illuminated by the application of the multidimensional representation. If I sit on a chair, nobody else can; this is an 'either-or' proposition: my volume displaces any other volume. *But in a space of dimensions higher than three this problem does not exist.* Freud points out that it is the narrator who generally interprets in terms of 'either-or', and this seems natural, for if he is thinking only in terms of a three-dimensional space, he cannot do otherwise. He writes (loc. cit., p. 317):

> If, however, in reproducing a dream, its narrator feels inclined to make use of an 'either-or' – e.g. 'it was either a garden or a sitting-room' – what was

> present in the dream-thoughts was not an alternative but an 'and', a simple addition. An 'either-or' is mostly used to describe a dream-element that has a quality of vagueness – which, however, is capable of being resolved. In such cases the rule for interpretation is: treat the two apparent alternatives as of equal validity and link them together with an 'and'.

We must consider here a very important point. When the dream refers to something which is at the same time a garden and a sitting-room, it demands from the imagination something which the imagination may meet only with great difficulty. A method of dealing with the problem would be to compose a sitting-room-garden, which appears more or less unsatisfactory. A second method is what Freud calls the screen, and which is frequently employed with regard to persons. We may apply here his remarks about the ways that the dream has for dealing with similarity, consonance and the possession of common attributes (loc. cit., pp. 320 – 1):

> Similarity, consonance, the possession of common attributes – all these are represented in dreams by unification, which may either be present already in the material of the dream-thoughts or may be freshly constructed. The first of these possibilities may be described as 'identification' and the second as 'composition'. Identification is employed where *persons* are concerned; composition where *things* are the material of the unification. Nevertheless composition may also be applied to persons. Localities are often treated like persons.
>
> In identification, only one of the persons who are linked by a common element succeeds in being represented in the mainifest content of the dream, while the second or remaining persons seem to be suppressed in it. But this single covering figure appears in the dream in all the relations and situations which apply either to him or to the figures which he covers. In composition, where this is extended to persons, the dream-image contains features which are peculiar to one or other of the persons concerned but not common to them; so that the combination of these features leads to the appearance of a new unity, a composite figure. The actual process of composition can be carried out in various ways. On the one hand, the dream-figure may bear the name of one of the persons related to it – in which case we simply know directly, in a manner analogous to our waking knowledge, that this or that person is intended – while its visual features may belong to the other person. Or, on the other hand, the dream-image itself may be composed of visual features belonging in reality partly to the one person and partly to the other. Or again the second person's share in the dream-image may lie, not in its visual features, but in the gestures that we attribute to it, the words that we make it speak, or the situation in which we place it. In this last case the distinction between identification and the construction of a composite figure begins to lose its sharpness. But it may also happen that the formation of a composite figure of this kind is unsuccessful. If so, the scene in the dream is attributed to *one* of the persons concerned, while the other (and usually the more important one) appears as an attendant figure without any other function. The dreamer may describe the position in such a phrase as: 'My mother was there as well.' (Stekel.) An element of this kind in the dream-content may be compared to the 'determinatives' used in hieroglyphic script, which are not meant to be pronounced but serve merely to elucidate other signs.

There is still another way to express various attitudes. According to Freud every dream deals with the dreamer himself (loc. cit., p. 322). On certain occasions the ego is hidden behind various persons which appear in the dream; in this way the dreamer may play various roles at the same time. *This constitutes a splendid way for escaping from the limitations imposed by three-dimensional space.*

We may now return to the composed sitting-room-garden. As is sometimes seen, features of both may appear in a fantastic image. On other occasions, however, the dreamer sees one thing and at the same time *feels* that though that thing still remains as that which he *sees*, it also *is* something else. Thus a dreamer may appear himself in the dream and have at the same time the strong sensation of being another person who appears in the same dream. Sometimes there is an unfolding of the dreamer, who may appear twice. A patient of mine dreamt that he was camping with some people. He got up from his bed while at the same time he remained on it. Somebody fired a shot at 'the himself' who was on the bed while 'the other himself' moved, observed and was afraid of returning to the bed. Another patient dreamt that she was giving a 'vomiting party', in which each of the people present was there twice.

The dreamer ignores the category of contraries and contradictories. As Freud writes (loc. cit., p. 318):

> 'No' seems not to exist so far as dreams are concerned. They show a particular preference for combining contraries into a unity or for representing them as one and the same thing.

Most of this contradiction disappears if we move on to a world of higher dimensions, owing to the fact that things which are contradictory in terms of three dimensions are not necessarily so in terms of dimensions higher than three. In order to understand this we may establish a correspondence between contradiction and interpenetrability, i.e. represent contradiction as interpenetrability, and non-contradiction as non-interpenetrability.

Finally we arrive at a very interesting aspect of the dream, i.e. that frequently the images appear nebulous and not well delimited. If we suppose that, owing to the separation from the external world, increased consciousness of the internal world reveals phenomena which may be expressed in the comparison with spaces of more than three dimensions, *but which must be represented in terms of three dimensions*, it is not then so surprising that many things are seen as being behind others. The same is true of a photographic plate in which many photographs have been taken, one after the other: then the outline becomes blurred. I do not pretend that this may provide a complete explanation of the nebulousness of dreams; nevertheless, in many cases it may be an important factor.

The example of a dream. I shall now refer to the dream of a patient under analysis in which we see various ways of treating events related to space.

> I dreamt that little Annie Rooney was standing in front of a swamp. She was on a tiny end of land (not larger than your office carpet). She was here, her dog at her right, may have been in the water a little bit. She was looking down on the surface of the water, and said: 'Look at the bloody water.' She seemed to think it was beautiful. But the dog was looking up into the hollow of an old tree in front of her, and all that you could see up inside was the face of a bearded grey-haired man (like Morgan in *Tortilla Flat*). He didn't have very much expression except a hectic fear. I don't remember that, but it seemed that he wanted to get away, to get up further into the tree. He seemed bent, looking up, and he could crouch back a little further and hide.
>
> I was standing to her right, and the tree with the old man was to her left. I was on the land, but I didn't seem to be in the water. I saw water all in front *as though it were in a funny paper, but then it wasn't the funny paper any more. It looked real, but it wasn't.* I didn't feel, I didn't think about it, I didn't worry about that (the reality of it). *The water was around the man, but he wasn't in it, yet neither was he on the land.*
>
> The water seemed to be *blood on the surface, like oil*, but mixed with milk, but it made me mad because it wasn't a pure colour, mainly because it wasn't blood in that case.
>
> Then I got around near the old man. The entrance to the tree had moved to a position so I could see it. I saw the old man curling around like a snail. The girl and the dog couldn't see me at all: the dog could see the old man, but she couldn't. I only saw a tiny bit of him, it seemed like the horny shell of a snail. *His gray hair had turned into the shell, just a tiny bit of the shell. In other words the tree shaped as a shell. It was still a tree, but it was hollow and spiral. (The hair was distinct from the tree, but like a shell.) It didn't even seem as though he were in there any more (the old man).*
>
> I had some anxiety about the girl. At first it was because I thought the old man was going to hurt her, and she didn't see me. When he melted *away, I mean when he slid down into the tree*, he seemed to have been gone, *it seems that he'd gone out of existence. The feeling that I had that he was going to hurt her changed, and I felt as though I was going to hurt her myself* without having the slightest idea how. Evidently I woke up with an erection.
>
> I know I felt the feeling that after he disappeared I was the one who was going to hurt her. He had disappeared and he was afraid of her, he was gone. He was very much afraid of her, and he was gone.
>
> I felt so strongly . . . *I still felt like part of him or that he was part of me. I don't know how that was . . . I don't know why I said that, because I had the impression deep, very strongly that I did feel that way, but it was more as a fact than a sensation . . . As if I were he . . . or if he were both of us on the same side against something, or as if he were one part of my attitude towards something, and I were another.*
>
> I remember very strongly when I woke up that I was the same person, that *we had some way or another shared identities, but I never was inside him.* For example, I never was inside the tree, I have the memory of having the feeling, but it wasn't clear at all. [1]

[1] Italics mine.

A comment on the dream. We see here: (*a*) What he saw was real, and it was not, it was a picture and also real. (*b*) The man was neither in the water nor on the land. (*c*) It was blood like oil mixed with milk (syncretic image). (*d*) The tree was a shell, but also the hair was the shell, although the tree was distinct from the shell. Here there is a complete disregard for identities: *they fuse and separate at the same time*; they are different, and are the same. The man melted away, slid down into the tree, went out of existence. The narrator expresses some either-or attitude but does not seem satisfied; perhaps all these things 'happened' simultaneously. (*e*) He was the old man, the old man was part of him, they shared identities, but he was never in the tree.

None of this could possibly happen in a three dimensional space, but if the emotions are made to correspond to images which represent in three dimensions a space of more than three dimensions, it is perfectly possible for the patient to be the old man and yet never be inside him: it would be like an unfolding, into two, of something which in a space of more than three dimensions would really be one.

The feeling of community which pervades the dream is particularly interesting. The patient and the old man played different roles and were actually different persons, yet there existed emotions in common, which like an enveloping mantle made them all into one. *There was multiplicity, and yet there was unity.* This *unity in multiplicity* becomes clearer if we think that it is a multiplicity in terms of three dimensions and a unity in terms of higher dimensions.

More interesting still is the feeling that the old man was not on the land or in the water. This is not easy to explain, but a metaphor in terms of more than three dimensions would facilitate the understanding of what appears entirely chaotic. In a space of three dimensions if only land and water appear, a person must be in either of them, but in the representation of a space of more than three dimensions in terms of three dimensions, both can be one and the man can be in both and not in one *or* the other of them. In a way he was on the land and in another way he was in the water, but was not 'complete' in either of them. He was in the 'land-water' of a world of more than three dimensions. Similar considerations can be applied to (*a*), (*c*), (*d*) and (*e*).

3. Conclusions

As a conclusion we may say that numerous facts which at first sight appear completely chaotic become perfectly well-ordered if we apply the concept of space of more than three dimensions. The dreamer (and the unconscious) behave like a geometrician who handles a number of variables superior to three and who is forced to use in his representation a space of dimensions not higher than three.

The meaning that this may have has many possibilities. If we start from the ordination of these phenomena we may then pass on to the research of many others and to finding hitherto unsuspected relations.

34. The Paradox Part-Whole. The Unfolding Function

1. The problem

We now come to a problem which although it has never been clearly formulated has been disturbing throughout the history of psycho-analysis and psychology. When I experience an affect, this affect can be said to occupy the whole of me. By this I mean that if we take the opposite of whole in terms of three dimensions, namely part, it is inaccurate to say that an affect is a part of me. One cannot say properly that the affect is in a certain region of me; it seems, in fact, to occupy the whole of me.

Now psycho-analysis has unmistakably shown that every one of us may have various coexisting affects, and here there is a paradox: if affects are metaphorically described as each occupying the whole of the person, it seems inexplicable that there could be so many at the same time. But if described in terms of parts, the description appears inaccurate. I am referring here to the mental experience of the affect, rather than to its physiological aspects.

Topological psychology has been very much concerned with the conflicts of various tendencies, and it is usual for it to represent the person as a circle and each particular affect as a shaded zone within this circle. This representation seems inaccurate, because it does not do justice to the 'wholeness' of affect. On the other hand a shading of the whole circle with different colours does not really get away from the notion of contiguity: we must try to understand it more.

Psycho-analysis approaches this same problem from various angles. As discussed earlier on, the id, ego and super-ego can each be legitimately described as the whole of the person, but from another angle each of them is only a part. In terms of three dimensions it seems impossible to co-ordinate these equally justified claims.

Recent work on introjected objects makes the matter more urgent, because each object is, *in a way*, independent from the individual but, in a normal person, can be said to permeate the self, to have been assimilated within it. The unconscious treats objects as though they were concrete persons, but unless there is a way of co-ordinating this multiplicity within the unity, we are in danger of developing a conception of the human being which does away with his essential unity.

The metaphor in terms of space of more than three dimensions helps, I believe, to solve this paradox. If we consider the 'parts' of the self – id, ego, and super-ego – in terms of a three-dimensional space, but as being parts of a figure of more than three dimensions, then we may say that each of them occupies the whole of the three-dimensional volume of the person, and yet can be considered as being a part of an entity comparable to a space of more than three dimensions. In other words, each is the whole of the person when the problem is considered from a three-dimensional point of view, and only a part when seen from the point of view of more than three dimensions.

I believe this interpretation greatly helps in various ways.

It helps mostly when we consider problems of action. Things that may not be incompatible in higher dimensions may be so in three dimensions. I will now mention two examples which may contribute to clarify this matter.

2. A first example

A university professor under analysis complained of recent sleeplessness, a symptom which had disturbed him on various occasions. Analysis revealed the following: for the first time in his life he was supposed to teach early in the morning. The night before his first early lesson he had difficulty in sleeping, and only partially succeeded in going to sleep after taking three highballs. His associations led him to an article in a magazine which he had read some years before and which said that no human could stand more than ten days without sleeping. He had always had the fear of sleeplessness, and on one occasion, when he took a boat trip, was terrified that he might not sleep and, as the trip was going to take more than ten days, that he might die. Similar fears seized him when travelling by train.

Further associations revealed that he earnestly tried to avoid being given the early morning lesson. For many years he had succeeded in this, but this time the head of the department insisted upon it. The patient felt very rebellious against this imposition, and had strong desires not to submit to it and to defy his chief. This rebellion manifested itself in a desire to oversleep, so that in this way he should not give the required lesson. But he felt guilty about it, and reacted by being very careful not to fail to get up; and this conflict actually made him sleepless.

Further associations furnished the fact that when he was a child his mother insisted on the importance of sleep, especially before midnight, because it was supposed to be more restful. When he began to go to high-school dances and came home late, his father resented it, but his mother tried to excuse him. On the whole there was a parental pressure which required him to sleep. He strongly rebelled

against it by wanting to remain awake. Moreover, there was a great deal of curiosity about what his parents did while he was sleeping, and he was somewhat suspicious that they wanted to get him out of the way in order to indulge in sexual activities. Consequently, he wanted to remain awake to see what was going on. In more recent years, whenever his parents visited him in his home, he had difficulties in going to sleep.

Summarising, we may say that he had a desire to oversleep, the consequence of his rebellion against being expected to get up. As a super-ego reaction, there was a tendency to stay awake. But at the same time there was in him a desire to stay awake as a rebellion against the imposition to go to sleep, and also on account of the strong emotions connected with his parents' sexual activity (curiosity and anxiety). But (on this account) his super-ego expected him to go to sleep.

So there were side by side, two super-ego requirements: (*a*) that he should sleep; (*b*) that he should stay awake. Correspondingly there were two rebellious attitudes: (*a*) to stay awake; (*b*) to go to sleep. The result of this conflict was an extreme tension and restlessness with strong physiological stimulation, which finally managed to keep him entirely awake. Here we see two well-delimited super-ego commands which are incompatible if they are to be carried out at the same time. If, instead, we consider them as prohibitions against given impulses, there is no such incompatibility. In a space of three dimensions such commands 'cannot be given simultaneously'; in a space of more than three dimensions 'they can'. The same can be said of his rebellious reactions.

3. A second example

I shall now mention the case of an adolescent boy who had had several difficult experiences in childhood. Among others he was circumcised at the age of five after being overpowered by his father and the doctor. When he saw the knife and felt the cut he actually thought he had been castrated. There were a great many other events in his life which had greatly increased his fear of castration. When he reached adolescence and became physically larger than his father, he felt proud, a strong man, and wanted to join the navy. He began to be interested in girls and had some difficulties with his father about coming home late. Apparently some very deep fears were stirred up by these clashes; I shall mention here only those aspects which are essential for our present purpose. On one occasion he actually asked his father whether he could be castrated, because he thought it would be the best thing to do. His father laughed, and made some comment to the effect that it could be done. Although he was obviously joking, he was doing it in a way which revealed his own aggression, and his remarks greatly stirred the patient's anxieties.

Shortly afterwards there was another clash when he came home late from a dance. His father actually went to the dancing place and ordered him home. On the following day the patient got up and walked several miles to a dentist in the neighbourhood, and insisted that he should pull out his front tooth, giving as a reason that it had a stain. The dentist complied with this request. Following this operation the boy became completely psychotic, and at times was most violent.

I had the opportunity of closely studying him, analytically. His associations unmistakably showed that pulling the tooth was equated with castration. In this respect it was a symbolic castration to forestall the real castration that his father might perform on him. But the symbolic act became so real that the patient actually felt castrated. Among the delusions he developed while in the hospital was the idea that I had dried up his testicles, i.e. castrated him. He was also very depressed, and for hours on end pondered on the foolishness of having had a perfectly sound tooth pulled out. He spoke of the tooth as though he were in love with it, as though it were a person, and would enlarge on its beauty and strength and the admiration it provoked from girls.

But castration also meant something else. On the farm he had seen that castrated hogs grew bigger, and had made some remarks to the effect that if he were castrated he would become bigger, more masculine. *Castration would thus represent at the same time a loss of masculinity and an increase of it.*

Naturally there were other impulses at stake. Among others, pulling the tooth meant conquering his oral (biting) impulses, and in this way becoming a grown-up.

The patient at times felt satisfaction at having had his tooth pulled out because this had made him grow: he would then go over the various reasons why this action had been a good one. But there always came a moment when the other meaning, castration, came forcibly to his mind and he then went into a state of depression. He also became tense and violent. His tension was obviously the result of the impossibility of co-ordinating two opposite tendencies in terms of external reality. At some level of his unconscious there was no contradiction between being castrated and becoming more masculine. Both desires interpenetrated themselves without any difficulty. *But the activity which had syncretically expressed both could mean only one of them in physical reality, and not both, hence the enormous tension.* This tension could be said to be due to the fact that his action which was meant to satisfy both tendencies could not actually 'contain' both at the same time.

If we apply the notion of multiple dimension the case becomes very clear. In terms of more than three dimensions the action in space (volume) was meant to be twice (so that it could satisfy simultaneously the two different meanings attached to it), but just as

we cannot cut out two tetrahedra from the same piece of wood, so the action was too 'thin' to contain or express both meanings simultaneously. In this respect when the patient attempted to pour both feelings into the same action he was doing something similar to that of a man who is trying to pour water into a jug in a painting.

4. A short comment

In both cases we see contradictory affects. Each affect is 'a part' of a person and yet it also is or 'occupies' the whole person. The responsibility of two different parts occupying the whole person may be resolved in terms of the approach proposed.

The two cases described strongly suggest that an important ego-function is that of *unfolding* the multiplicity in such a way that no contradictory situation appears in activities performed or visualised in three-dimensional space. *The use made of condensation, if the individual is to remain healthy, must meet the requirement that such contradictory situations are to be avoided.*

All human beings have a great many impulses which though easily coexisting within the self are incompatible in terms of action. It is up to the ego-functions to exercise the various defense mechanisms in such a manner that each impulse receives a discharge which will not interfere with that of other impulses. Syncretism provides this to a certain extent. But I believe displacement is one of the mechanisms of choice. By dispersing various contradictory tendencies, the ego manages to avoid contradiction. But it also employs other methods, which could be described in greater detail.

35. *Mental Tension as Seen in Terms of the Present Approach*

1. General remarks

The concept of tension. Freud (1915*a*, p. 149) has pointed out that the instinctual representative proliferates and takes extreme forms of expression if it is withdrawn by repression from conscious influence:

> This deceptive strength of instinct is the result of an uninhibited development in fantasy and of the damming-up consequent on frustrated satisfaction.

This state of affairs suggests something which can easily be confirmed in daily analytical practice, namely that *the concept of tension of affect or desire is that of a relation between (at least) two factors: the intensity of the desire and the amount of satisfaction.*

If we call *i* the intensity of the affect, and *s* the amount of real satisfaction, we may say that tension is dependent (perhaps among other factors) on the quotient *i*/*s*. As to the question whether the quantities referred to are intrinsically capable of measurement, the reader is referred to Part V of this book.

Parenthetically, the importance of relations as opposed to absolute quantities seems to apply to other aspects of psychology, such as the perceptual field. In a famous experiment, Koehler placed some chickens in a pen in which the floor was divided into two halves, one painted grey, the other a darker colour. In the darker half the grains were glued to the ground, whereas in the brighter half they could easily be pecked and eaten. After the chickens learned to differentiate between the two halves they were transferred to another pen in which the grey part (where the grain was accessible) contrasted with a brighter half. The chickens searched for grain in the brighter half, which showed that they had learned to differentiate, not absolute colours, but the relations between them.[1] This may be a general law of mental functioning applying to various fields.

In what follows I shall not attempt to gain understanding regarding what might be called absolute tension (a concept which at present has no definite meaning to me), *but will consider the problem of tension from the point of view of the relation between desire and satisfaction.*

[1] See Werner (1957, pp. 216-17).

The scale of tensions. It is important to get a clear idea about the various results of an ever-increasing tension. We may start by considering a desire pressing for satisfaction, which manifests itself in a discharge affect, entailing, as is known, an orientation towards the corresponding action. Observation reveals three degrees or zones of tension. To start with, we may exclude actual satisfaction by means of the appropriate activity, because then the tension is eliminated.

(1) If action is prevented, *fantasied action* takes its place, hand in hand with the *tension affect.* The individual feels the tension and imagines the actions he wants to perform, achieving in this way a vicarious discharge. If at this moment the ideational presentation is repressed, it makes no difference because, as Freud has remarked, it will then develop in the unconscious in a luxuriant fashion. This seems to be a natural consequence of the impossibility of satisfaction in the external world. Incidentally, Bergson implied something analogous when he remarked that representation is stopped by action.[1] A second method, by means of which a desire (instinct, if put in the words of Freud) under tension discharges itself, is by *transformation into affect*, or, if one wants to avoid the implications of such expression, by the development of the corresponding affect.

So ideational presentation and affect 'grow' as tension increases. But inspection soon shows that the characteristics of each of these vary according to the amount of tension. When an instinctual desire is submitted to pressure (owing to lack of satisfaction), *an increased facility for displacement* takes place; we see numerous examples of this in obsessional neurosis. This illness is characterised (among other things) by the great facility with which ideas are connected with those corresponding to the repressed impulse or desire. A large class is formed which is defined by a very ample propositional function, so that any action which bears even a remote resemblance to those which initially would have discharged the impulse, is seized upon as a means of discharge, because it is seen as belonging to the class and subsequently in conformity with the principle of symmetry, it is treated as identical to the initial action which would have discharged the impulse; and also to the whole class.

But the obsessional neurotic has a vigilant super-ego function, which takes as much care in preventing any satisfaction as the id-function or impulse in finding it. There then develops what we might call a fight of subtleties, though this expression is only partially right. On one side of the instinctual desire there is the primitive tendency to displacement, which does not choose its means of discharge very carefully: it expresses a tendency towards action. On the side of the super-ego there is an increasing subtlety which becomes suspicious of and blocks everything that might even remotely serve as a means of discharge. And in this way the tension

[1] Bergson (1934, p. 156).

increases until it arrives at a second degree in the scale.

(2) To give a schematic presentation, we may consider aggression by fantasies of biting or defecating. A severe super-ego, by guarding jealously all discharge by action, indirectly provokes the development of fantasies. Gradually these become increasingly complicated; the biting results in a chewing into innumerable pieces, the defecating into a cataclysmic explosion. A moment comes when the *fantasies could not be accomplished in actual reality, because they are beyond the individual's possibilities*, although they still remain built around patterns of actions which are *conceivable* as *possible*. For instance, the blowing-up fantasies are no longer the expression of an angry breaking wind, though they still have something in common with it; through intensification they may become fantasies of blowing up the world, a thing which is obviously beyond *actual* but not beyond *conceivable* possibilities. And so with other unconscious primitive fantasies. In the unconscious there are cataclysmic floods and fires, overwhelming explosions, dissolutions. Even impulses corresponding to later stages of development may become greatly developed in fantasy. For example, the frustrated desire for intercourse may result in fantasies about being the masterful owner of a harem with thousands of women. In this case the fantasy still conforms to realistic patterns; it is in connection with pregenital impulses that we frequently see a greater breaking away from the limitations imposed by reality.[1] We see something of this type not only in aggressive impulses but also in libidinal ones, such as early oral impulses (which, as we know, cannot be easily separated from aggressive ones). Many expressions employed in everyday life refer to the first and the second level of the scale. For instance: 'he was bursting with rage'; 'I am fed up'; 'you are pressing me'; 'this is a tense situation'; 'the tension was relieved'; 'he exploded'; 'he relieved himself of his feelings'; 'let's have it all out'; 'a load has been taken off me'.

At this second level, the fantasy and the affect cannot be distinguished, except conceptually. The child with intensified oral desires who sees every object as something to suck, bite or swallow, cannot properly be said to have just fantasies, although, to be sure, the desires which are manifested there can easily lead to the development of fantasy. In other words, affect and ideational presentation become more intimate aspects of a whole when primitive impulses are considered. Each one is laden with the other.

(3) As tension increases, the fantasies which are still built around

[1] It must be kept in mind, however, that libidinal penetrating desires (or the corresponding desires to be penetrated), may result in very fantastic constructions. It is difficult, on the other hand, to separate the role played in these fantasies by pregenital and genital impulses. In any case, I am of the opinion that it is more the question of level, as defined earlier on, than the type of desire, which determines the intensity up to an infinite one (see Chapter 14, Section 7).

the primitive orientation of the impulse bear an increasingly distant relation to possible actions. *A moment comes when imagination has been used to the limits of its possibilities.* It is here that the new type of fantasy appears, which we shall see in the next chapter in connection with sexual intercourse, and which is well known in schizophrenia. *We witness the appearance of coexisting multiple fantasies which no longer are impossible in the material world on account of imperfect means of expression (as a fantasy of blowing up a building would be), but are intrinsically impossible because they extend beyond the limits imposed by the laws governing three-dimensional space.* Thus an individual feels that he *is* in two places at once, or that he is blowing up, melting, and solidifying, *at the same time.*

We must distinguish clearly between an intense fantasy which cannot happen in reality, but which conforms to the laws of material reality, and one which cannot happen because it does not conform to these laws. Obviously nobody can blow up the earth into millions of pieces; but it is conceivable that with atomic energy adroitly employed, such a thing might happen, even if it seems beyond human possibility. But a much humbler fantasy such as being in this room and in the next at the same time cannot ever happen, not because I do not have enough means to accomplish it, but because it violates the laws of three-dimensional space.

Imagination becomes insufficient to express such fantasies, and so the fantasy gives way to a feeling, or better, to multiple feelings *which are equated to deeds.* The individual does not so much want to do these various things, nor does he imagine that he is doing them, but he feels that he *is* in those various states. *Given enough tension, the affect becomes equivalent to the deed*, that is, it acquires the characteristic of the system unconscious of equating psychical and external reality.

These phenomena appear *consciously*, not only in schizophrenia, but also in normal individuals under certain conditions, as we shall see in the next chapter. We may say that at those particular moments there is a relative break with reality because (external) reality cannot express the intensity of inner life. But the interesting thing is that such affects, and the experiences which appear contradictory in terms of the material world, all seem to be ruled by the characteristics of the unconscious as described by Freud. Although not necessarily completely unconscious, it is clear that they belong essentially to the same reality as that of the unconscious. We realise that there are aspects in humans which do not fit in with the three-dimensional space.

2. A Few further points

The role of regression. When an impulse is denied gratification by

action, the result may be that some form of regressive activity is either actually performed or felt in fantasy. It must be pointed out, however, that we have come to realise that all stages of development are active even in the normal individual; the concept of regression, therefore, becomes a relative one, namely that of intensification of a certain stage or position as a consequence of furstration.

The role of imagination (fantasy). Imagination always seems to work in conformity with the data of sensory experience, which it elaborates. It is impossible, for example, to imagine two things occupying the same space at the same time. To furnish the ideal conditions to test this assertion, let us imagine two men of exactly the same size and identical in every detail, made of a transparent substance; and assume that this substance is of such a consistency that each man could walk into the other. If both interpenetrated (head in head, hand in hand, etc.) until they formed one, for my imagination to *see* two it would be necessary to shift them a little, so that I could distinguish two different noses, mouths, etc. *It is impossible to imagine one solid superimposed upon a solid.* At first sight one would tend to think otherwise, but further reflection will show that this is done by means of a trick in which the solid is divided into numerous particles. Each particle cannot be imagined visually as occupying the same space as any other. (This can however be mentally conceived.) Imagination always works in terms of non-interpenetrability.

Naturally, imagination can create beings which do not exist in actual reality, but such beings still conform to the requirement of non-interpenetrability. Perhaps the furthest deviation from the ordinary world is achieved by imagination with the help of syncretism. Several things may be condensed into one (the result may be a centaur, a man-lion, or a woman-octopus, etc.). All such fantasies belong to the second groups of the scale of tensions just described.

Observations on the obsessive neurosis. It is important to note that obsessive tension is intimately related to the external world. The obsessive fantasies are, generally speaking, oriented towards actions in the external world. Owing to the pressure created by the super-ego (function) barring the way to all actions, an ideal situation is produced for the study of the inner world. The obsessive becomes exceedingly alert to the slightest movements within his mind. This is shown by an amazing subtlety which sometimes seems in great disproportion to the actual intelligence of the individual. This is an example of a more general principle: *in certain circumstances increase of tension creates a favourable situation for the development of a corresponding increase of attention to the inner world* (as Bergson has remarked). This is reminiscent of a toy balloon with

painted figures, which become more visible as the balloon is inflated.

As tension mounts up the obsessive begins to 'see'[1] certain processes within himself, which he cannot explain in words. This is a situation comparable to that of an aphasic who may see an object, know what it is, but be unable to find the word, and become very impatient and tense. It is also similar to an everyday experience, when we 'have a word on the tip of the tongue'. The obsessive is sometimes the prey of indefinable tortures. He feels he must not do something but do something else, yet he does not know what exactly it is that he should do or not do. The savage, distorted morality of his super-ego pushes the ego into actions about which the (conscious) ego knows nothing. In this way a state of tension is created which can be described as a *feeling* of great compression and *at the same time* of being torn apart at infinite points within this compression. It is, to explain it further, a mixture of conflicting feelings pulling the patient in various directions. This is comparable to some situations during analysis, when the patient has a great desire to 'let out and have it all done with', but knows no action which will discharge his internal tensions.

We are at a point which is situated at the very limit between a tension which aims at being discharged in the external world (by action or fantasied action), and that of the third grade, which we will now examine in more detail.

Further reflections on the third grade of the scale of tensions. In short, in the obsessive, action becomes increasingly inadequate to discharge the inner tension. A moment comes when the individual turns completely away from the external world. *The tension is then discharged intra-psychically*. This is observed, for instance, in schizophrenics. It may be that the actions which the individual wants to perform as a consequence of tension can actually be accomplished in reality one by one, but not simultaneously. If I want to go visiting some friends I cannot go to a movie; but I can do one after the other. As simultaneous action is out of the question in such a case, and as imagination does not help, two new methods make their appearance:

(1) Replacement of action by feeling. The individual *feels* that he *is* both things at the same time, or that two or more things are *happening* to him at the same time. At this point he has shed the limitations imposed by a three-dimensional world. A particular example of this would be the same thing taking place at the same time in two different ways. In the preceding sub-section I have given the example of an obsessive who feels both compressed and torn.[2]

(2) Language. The schizophrenic creates a new language or makes

[1] Experience and awareness of the experience occur together.

[2] See also Chapter 19, where this point is discussed in greater detail.

use of ordinary language in a different sense. *Language becomes the equivalent of deed in the same manner as feeling does.* The schizophrenic experiences complicated states in which various things happen simultaneously. Here the experience is so near action that it becomes it: *being and doing become the same.* There is a new appearance, the being-doing unit, which corresponds to a characteristic of the system unconscious, that of identification of psychical and external reality. As is understandable, in such circumstances language serves very different purposes from those of ordinary life. I believe this is one of the reasons why the schizophrenic finds a world of depth in words which to us appear completely empty. A patient kept on repeating that he was an 'orcopedian'; when asked what this meant, he said that everybody in the world was an orcopedian, and seemed satisfied that he had expressed a profound truth. He was undergoing a most complex mental process which was far beyond his capacity for description. It seems as though what he intuitively 'saw' was a host of varied and complex experiences which were simply expressed through the creation of the new word, which for him contained a world and to an external observer seemed strange and empty. Had he been able to grasp these ineffable experiences in such a way as to be able to put them into ordinary language, he would have probably needed to write volumes about the meaning of this single word.

I have repeatedly seen schizophrenics who make remarks laden with meaning to them, and which to us appear to be almost transparent owing to their lack of structure.

The above leads us to the next point. When tension has increased in such a way that the individual renounces all attempts at satisfaction in the external world, an apparent *release of tension* appears. If we compare the obsessive with the schizophrenic we may at times observe in the latter what appears to us a remarkable lack of tension. At this point, in order to avoid confusion, one must be clear about exactly what is meant by what has just been affirmed. From the point of view of satisfaction in the external world, one undoubtedly observes in such cases a lack of tension, consequent to the renunciation of satisfaction; this seems to be in keeping with what we had seen: that tension was dependent on the quotient between desire and satisfaction. When this happens we are in an even better position than in the case of obsessives to study intrapsychic events, because the *intellegere* capacity is all turned inwards. It must be noted, however, that this state is frequently reached through a gradual increase in tension which passes through more or less obvious states, such as those seen in obsessives; this is the case with acute schizophrenic outbursts. It is true one does not always see such a course in the development of the symptoms of schizophrenia, but a careful psychiatric history may reveal that previous to the outburst of the illness the individual has been increasingly frustrated in the

external world, either owing to his own incapacity to find satisfaction, or to actual external difficulties, or to both. Before the schizophrenic outburst there is a certain orientation towards the search for satisfaction in the external world, with the corresponding frustration and increase of tension. The man who 'was' an orcopedian had badly wanted to be admitted as a post office employee and had failed in his examination. Following this he created a complicated delusional system in which he was 'the world's centrepiece', as he called himself, a sort of glorified, godlike, post office, who would receive radio messages in his brain, and would control all the post offices of the United States. I do not think it could be more obvious that this man had been building up tension until the breaking-point with reality finally came. When it did, he seemed serene and satisfied. I have had an opportunity of studying in detail other cases who have shown exactly the same pattern, so I feel justified in considering these types of fantasies to be the consequence of increased tension. In a woman patient whom I analysed for about a year, I was able to see on repeated occasions how external frustration immediately sent her along the road to schizophrenic thinking, which disappeared as though by magic when things went better. In this respect hers was an unusual case, but similar factors are at work in many other cases, only they are not as easily reversible.

In the case of slowly developing schizophrenia the increase of tension is more difficult to see, but I believe a careful analysis will reveal it.

To summarise, when the individual turns away from the external world there is a release of tension accompanied by new experiences. It could also be said that a new type of inner life becomes more obvious: that which is not related to the external world, but is inherent to the mind.

A final comment. It seems obvious that the experiences described in connection with the third grade of tension have placed the individual in a state of being turned away from the external world and turned towards his own internal world. In such circumstances we witness the appearance of peculiar experiences: feeling is the same as action, contradictory feelings are experienced simultaneously and the person is invaded by a great variety of simultaneous different inner experiences. It seems that here, as in the case of dreams and in the other cases we have already considered, the multiplicity of simultaneous experiences can be expressed or plotted out graphically with the help of a bi-univocal correspondence with a space of dimensions higher than three.

As already remarked, it becomes necessary to explore the relation between this representation and the description in terms of the principle of symmetry. It is certain that they have much in common;

the least that can be said is that there is a large zone of intersection between both. But it is even possible that further understanding will reveal their complete equivalence. We shall discuss this later.

36. *Pre-Orgastic Experiences and Fantasies of Sexual Intercourse*

1. Formulation of the problem

A study of the psycho-physiological events which result in orgasm clearly shows the three types of tensions I have described. As Freud has stressed in *Three Essays on the Theory of Sexuality*, the sexual play preceding intercourse constitutes a preparation in which the various pregenital aspects of sexuality are pleasurably stimulated:

> This pleasure then leads to an increase of tension, which in its turn is responsible for producing the necessary motor energy for the conclusion of the sexual act. (Freud, 1905, p. 210)

The increase of tension and of intensity may in young people reach paroxysmal heights. The pregenital stages are all stimulated, each in a varying degree according to the individual. Some people develop intense desires to bite and to put parts of the body of their partner inside their mouths, and such impulses cannot always be completely satisfied. Others may have strong anal sadistic and/or coprophilic fantasies, which in some cases may lead to perversions. There is also a colossal heightening of muscular expression. Some people indulge in violent embraces and squeezing kisses; others tremble violently, sometimes almost as in convulsion. The excitement of intercourse was once described as 'a frenzy unknown and overwhelming'. As orgasm approaches, the libidinal desire for penetration becomes more intense and, partly on its own account and partly on account of the sadistic elements, goes on to, or turns into a tendency to fuse as well as to tear apart, to pierce and get deep into the woman's body. The corresponding libidinal desire in the woman, namely to be penetrated, may also lead to a fantasy or feeling of being torn. A woman patient said that opening the legs in intercourse and submitting to penetration amounted to being quartered; she compared it to pulling off the legs of a cooked chicken.

When things go over a certain intensity it becomes rather difficult to distinguish the purely libidinal aspects from the aggressive ones. When a libidinal desire to penetrate or be penetrated is enormous, it becomes sadistic in its outward form. At this point the distinction between libido and aggression no longer has a clear meaning (in other words the *distinction* becomes the *identity* of opposites). One also

sees that *when sexual feelings are extraordinarily intense the corresponding physical actions are a most imperfect expression of their intensity: action and even fantasy is insufficient to express them.*[1] In other words, as tension mounts up, activity and fantasy become increasingly insufficient to express various desires. A penetration which brings the man *completely* inside the woman obviously cannot be achieved, and the *tendency* to fuse, expressed during intense excitement in feelings, sensations, and fantasies of intermingling of sexual organs, is most imperfectly satisfied in copulation. The variety of delicate tactile sensations that the contact of the sexual organs provides is utilised by some people to express fantasies of *confusion*, and of *fusion*, of sexual parts. Such fantasies reveal the violent libidinal attraction as well as other things. In man there may be the (unconscious) fantasy of being castrated, of surrendering his organs to the woman. As Ferenczi (1938, Chapter 4) has pointed out, the act of intercourse represents a symbolic castration, expressed in the emission of semen. The corresponding fantasies exist in the woman, namely those of appropriating the sexual organs of the man. But the fantasy of castration is not only the expression of the fear of castration, but also of the tendency to union, which leads to the disappearance of the sexes (from the biological point of view it actually results in the fusion of the two into a new being). Then there is the desire to become the other sex, and the psychological accomplishment of this desire by means of identification and projection.[2] Weiss has pointed out that in the heterosexual choice the man projects his own femininity onto the woman, and the woman her masculinity onto the man, in such a way that both satisfy their bisexual tendencies.[3] The satisfaction of bisexuality is supreme during intercourse, and it may take various forms with respect to consciousness. There may be the fantasy of union in which there is only one male-female. In the normal possessive man, there may also be conscious fantasies of masculinity coupled with unconscious identification with the woman, while in people with greater or lesser fears of asserting their masculinity this situation may be reversed: they may have conscious fantasies of being a woman while unconsciously they assert their masculinity. The corresponding situations also take place in the woman.

If we take stock of all the above we soon realise that there are various desires which are not only incapable of achieving actual satisfaction, but which are contradictory to one another and which therefore could not be discharged in the physical world simultaneously in the same person. The more we consider the facts, the more we realise that an ordered description of these various fantasies is a

[1] See also Chapter 19, Section 2.
[2] Most, if not all, of the ideas I have expressed here about the meaning of the sexual act are to be found in Ferenczi (loc. cit., especially the first four chapters).
[3] Quoted by Klein (1932, pp. 339-40).

schematisation which distorts reality in order to satisfy our need for understanding. What is really found during intercourse is a state of tension in which the characteristics of the unconscious come very clearly to consciousness: a variety of impulses which are contradictory in their aims coexist very easily. Fantasies may reveal enormous condensations; there is also a great facility for displacement. I believe we can truly say that *the characteristics of the system unconscious are also the characteristics of pre-orgastic frenzy*, and it will also be seen that they correspond to what we found in the study of emotion; in fact the state immediately preceding orgasm shows condensation *of various intense emotions.* We can see in this case, once more, that the so-called characteristics of the system unconscious put into relief the complete disparity and disproportion between feelings and the actions which in the external world serve to discharge them; and this reveals a world alien to physical reality. In fact one is warranted in going so far as to say that in *all violent instinctual discharges it is possible to observe, as in pre-intercourse frenzy, the characteristics of the system unconscious.* Here the most important aspect is that *no action and no fantasy represent a proper discharge for the feelings*, although, naturally, the physiological excitement is quenched during orgasm.

2. The multiple fantasies

To study some points in further detail I shall now transcribe some literal quotations from a study made of several young people, men and women, who have introspected about their experiences in intercourse. What is described in the following pages does not appear constantly during every act of intercourse, but occurs only when the sexual excitation is particularly intense. The subjects were in the majority not patients; they formed a selected group of young married couples, all of whom had good education (most of them with a university degree) and good capacities for introspection. I explained to each of them that I was trying to ascertain if and how contradictory tendencies took place, and whether in such circumstances the experience of space was different from that of ordinary life. I tried not to influence them.

One of them (male) writes:

> Before orgasm there is a tendency to the manifestation of contradictory impulses, as for instance to destroy, and at the same time embrace; to separate, and at the same time to fuse.
>
> These impulses never determine definite images, and so I have great difficulty in giving them names *afterwards.* I could say that there are *very many* different ones, with the predominant characteristic that to each given impulse there is a contradictory one. Mathematically it would be represented with a minus and a plus sign.
>
> At the moment of orgasm I felt something like an identification with space. When studying this primitive explanation more carefully I now see

it very clearly; for instance the following image occurs very frequently: it is astronomical space with its constellations of stars, each one of which is my own self, but not as identical beings and in an abstract manner, but as different beings, and real ones, which I would say are alive. It is like a desperate effort to give a biological value to an abstraction.

These impulses always follow one another chronologically and in the same manner; that is to say, the contradictory impulses never appear at the end, but always at the beginning. I do not know whether I have explained it clearly, but I can tell you that it is an authentic experience.

His wife felt shy about enlarging upon her experiences, and said that the only clear sensation which she had was something like being suspended in the air. As for the rest, they are inexplicable sensations.

Another woman writes:

> In intercourse this transcending of physical limits means that I am conveyed to a strange world where feelings of time, as I know them here, do not exist, where feelings of space, as I am bound in by space here, become meaningless. Time itself is stretched out, not in the sense where extension implies a conception either of beginning or end, but in the sense that I may drift along forever in a sort of time-river; drift, yet remain in the same place.
>
> As far as space-feelings are concerned, intercourse presents a paradox: a feeling of expansion into infinity, a blending into the universe about one, a melting and a fusing – yet also a feeling of infinite contraction, of an intense focusing to a minute part of space and even into a small part of one's physical self as it ordinarily is. There is another paradox in the sense of identification's loss with one's partner, and yet a realisation that I am myself, unalterable.
>
> Apart from a sense of the unreality of time and space, I have been acutely aware of form and colours – a strange, half-mad constellation of circles black and blue and red and gold, expanding, contracting, merging, converging – coming close, infinitely large, then receding to the thin point where awareness fades and they are forgotten.

A woman patient was able to tell in great detail her experiences during an intercourse which had occured a short time before a session:

> It is very difficult to describe, because no matter how many times you have had intercourse, each time it seems something new, and when it is over, the memory of it seems to escape; it isn't that you forget, it escapes you and you'll never know until you have intercourse the next time.
>
> I think that is one of the reasons why you always want to repeat intercourse; you are trying to grasp something elusive. I was aware where I was the whole time. But when it approached the climax, although I was still aware of my surroundings, I also had the sensation of being high among rolling dark blue clouds, or something similar; I wouldn't describe them as clouds exactly, but it was an impression of something like that.

(Asked about these experiences, she describes them):

> Almost a visual impression, because how would I know they were dark,

blue and round? They were billowy. I tell you something else I suddenly remember: I had the impression of being engulfed by them as the climax grew near. And then I seemed to sink into oblivion, although I was perfectly conscious all the time.

(Asked to explain about oblivion):

Before I explain it, there is something else I want to tell you. When I had all these sensations high up, I seemed to be alone. This is rather funny. I seemed to be completely alone, which is very strange because all the time I was completely aware that I was with him, and giving way to a strong impulse to dig my nails into his back. I felt very close to him. And I was alone. It is funny, I was alone and yet I was with him. When I say alone I mean the only person on earth.

(Here she was questioned about her feeling of being in two places at once):

It seemed all of me was in both places at the same time, but it didn't seem strange, it was natural. It gave me no cause for surprise.

(She spoke of an experience which she described as: 'you cease to be'. Asked to explain, she made an effort and said):

It's like going into unconsciousness.

(Was asked whether she remained fully conscious, and answered 'yes', and maintained that both coexisted. Was asked about sensations immediately after climax):

It feels as if the second body comes back into me again, and I am one. It could only be described by that expression 'coming back to earth'. I felt one and I felt two, but afterwards I didn't feel two anymore. The part of me which has escaped, has been released, as if intercourse releases something, a part of you which ordinarily you would suppress.

(It was pointed out to her that she was speaking of parts of her, whereas before she had mentioned that she herself was two different 'whole' persons):

Yes, but I suppose my reasoning tells me it's a part of me. It's a question of phraseology. When I use 'a part of me' I wasn't thinking of a bit of me, like a limb. I was using an expression. If I said the other me it wouldn't be right because it is the same me. If you see two circles, they are exactly the same size – when rolled together they become one.

(She was asked which she felt was more accurate to say: part or whole):

The whole of you on both places, because the part in the clouds was just as complete as the part in the bed.

3. Discussion of these findings

Sexual tension at the moment of appearance of the above experiences. Comments. I have said that these fantasies appeared only in young individuals and during moments of exceedingly high sexual and emotional excitement. Although in the case I have observed there were no obvious disturbances in the performance of the sexual act and no striking inhibitions which would prevent the development of the act of intercourse, it seems clear that the tension at the time was exceedingly great. It was due not so much to damming up caused by internal inhibitions, but to *a sudden and exceedingly steep increase of sexual and tender desires.* In the circumstances a *relative* emotional hyper-tension resulted, because all the pre-orgasm activities were insufficient to express and discharge such emotions. At the moment of the orgasm the sexual tension became more adequately discharged, while at the same time the almost hallucinatory expression of the fantasies reached its highest pitch. *Immediately afterwards the fantasies disappeared.*

This is as far as I can go with a fair amount of certainty. There are, however, other factors which entered the situation, but for which I have no adequate answer. Regarding the assertion just made about lack of inhibition, perhaps it would be more accurate to say that there were no inhibitions which hindered the development of those particular fantasies. But the fact that the fantasies did take place might itself be indicative of a difficulty in giving oneself entirely to one's partner. There was at least in one of the cases a certain fear of complete sexual union, which might result in the fantasy of disappearance of all limits, and this fear may have prevented the carrying out of the process in an entirely mute fashion, without the accompaniment of fantasy. In other words, it is conceivable that such fusion at the 'level of the mind' which parallels or corresponds to the corporal fusion in intercourse may happen entirely without the mediation of fantasy.[1] The fact that the fantasies did appear might be an indication that the individual, although going along the direction towards fusion, recoiled from going all the way to it, on account of some deep fear of losing his own individuality and/or other similar fears. In this case the appearance of fantasy would be the consequence of internal inhibitions, rather than of the dispropor-

[1] Note that when I speak of fusion at the 'level of the mind' I am probably referring to an exceedingly elaborated mental derivative of instinctual desire, based on the prototype of the union of the sexes. It is interesting to speculate upon the assumption that such 'union' of the mind is a very crude one: at the moment of the physical union, the 'minds' of the partners would, so to speak, send pseudopodii, which would form a common mantle. Also, of course, the comparison is not only crude but inadequate, because it is a material three-dimensional comparison. It is clear, however, that what I have described does take place in some way. Viewed from this angle, identification can be seen as a fusion with another, without, nevertheless, losing one's own personal limits. (Perhaps this is similar to the field concepts developed by Lewin; in this case there would, however, be an unconscious field.)

tion between the intensity of the desire and the satisfaction provided by the activities which could discharge it. Whether both factors are always at work, I cannot say. In both cases, however, the mechanism would be the same: an extraordinary increase of emotional tension.

As I have already discussed in previous chapters the application of the concept of multidimensional space, I shall content myself here with only some brief remarks. It is obvious that the quotations transcribed show the simultaneous existence of internal experiences which cannot be plotted in terms of a bi-univocal correspondence with parts of a three-dimensional space, for in such a case, there would be portions of space which would have to be 'there' more than once; whereas the bi-univocal correspondence with a space of more than three dimensions, made in the way already shown, would immediately solve the problem.

I shall now make a list of the expressions employed to refer to simultaneous and at times contradictory feelings or experiences:

(*a*) 'To destroy (tear apart) – to fuse (embrace).'
(*b*) 'Each impulse has a contradictory one.'
(*c*) 'Minus and plus sign.'
(*d*) 'Each constellation of stars is my own self.'
(*e*) 'Drift yet remain in the same place.'
(*f*) 'Expansion into infinity and infinite contraction.'
(*g*) 'Identification's loss with partner, and myself unalterable.'
(*h*) 'Expanding – contracting.'
(*i*) 'Coming close – infinitely large.'
(*j*) 'Still aware of my surroundings – also high among clouds.'
(*k*) 'Sink into oblivion – perfectly conscious all the time.'
(*l*) 'Seemed to be completely alone – completely aware that I was with him.'
(*m*) 'Very close to him, and I was alone.'
(*n*) 'I was alone, and yet I was with him. When I say alone I mean the only person on earth.'
(*o*) 'All of me in both places at the same time, but it didn't seem strange, it was natural.'
(*p*) 'The second body comes back to me again and I am one (after orgasm).'
(*q*) 'Intercourse releases a part of you which ordinarily you would suppress.'
(*r*) 'The whole of you on both places, because the part in the clouds was just as complete as the part in the bed.'

Further considerations. In order to facilitate matters I have made a short summary of each finding or expression, giving it a letter; even when a quotation is identical or almost identical to another I have given it a separate letter, in order to be faithful to the material and to get an idea of the frequency of certain impressions.

An attentive inspection of these quotations shows that the processes described are complex. Among other things, it is clearly not only a question of a static affair but also of movement, as is shown in quotations (*a*), (*e*), (*f*) and (*h*).

A first impression reveals at least three different types of comments. In the first place, each of the comments of (*b*), (*c*), (*k*), (*l*), (*m*) and (*n*) refers to a pair of contradictory statements which are supposed to describe simultaneous experiences. It seems that the simplest and at the same time most satisfactory way of understanding these couples is with the help of the principle of symmetry, along lines which are familiar to the reader and which, therefore, I need not enlarge upon. Then we have comments (*d*) , (*g*), (*j*), (*o*), (*p*) and (*q*). They make references to an unfolding of the self into various portions occupying differences spaces (*d*), (*o*), (*q*); to a return to the unity (*p*); to being simultaneously in two places (*j*); or to losing one's identity through fusing with the partner and at the same time remaining unalterable (*g*). It can easily be seen that all such experiences have a great deal in common with one another and that they can be comfortably understood and made to fall into order with the help of the analogy or bi-univocal correspondence with a space of more than three dimensions, as shown in Section 3. I leave the reader to undertake this task for himself. It is interesting to note that (*g*) could also be included in the first group, i.e. it is equally easily susceptible of being seen in terms of the principle of symmetry as well as in that of multidimensional space. Perhaps the same could be done with the other comments of this group. At this moment I only wish to propose the general problem and to leave the detailed research about the question of the relation between the logical and the geometrical approach for another occasion.

Finally, the third group, which refers to experiences of movement or action (*a*), (*e*), (*f*) and (*h*), seems the least understandable of all in terms of our present conceptual equipment. It would appear that such experiences suggest *movement in a space of more than three dimensions.* But what does such a movement consist of – assuming it can be conceived? I have only a very faint idea. [1]

[1] See also the end of Chapter 38.

37. Miscellanea

1. Emotion and thinking

Emotions are usually described in terms which tend to stress the lack of delimitation of their contours and the lack of precision in their 'inside'. Examples: emotional 'atmosphere', 'nebulousness'. Emotions may be compared to gases, while conceptual thinking is 'sharp', 'delimited', like a solid. It seems that these differences and contrasts could be approached from the angle we are considering here. It seems that emotion, which, as we saw, can be described in terms of infinite sets, could be put in bi-univocal correspondence with a space of infinite dimensions. By a process of unfolding, thinking would come out from emotion and could be put in bi-univocal correspondence with a space of fewer dimensions, which would have emerged or would be a component of the higher-dimensional space corresponding to emotion.

2. Body and soul

It is interesting to reflect how accurately the old saying 'the body is the mortal wrapping of the spirit' corresponds to what can be expressed in geometrical terms, in which a space of n dimensions can 'envelop' a space of $n+1$ dimensions: a cube is 'enveloped' by its delimiting planes. The saying just mentioned suggests that the spirit or soul, whatever this may be, is intuitively conceived as having a greater number of dimensions than the body or matter.

On the other hand, in geometry it is said that an n-dimensional space 'lies' entirely in a space of dimensions higher than n (see, for instance, Sommerville, 1958, p.8). The difference between this and the former assertion would consist of the fact that the cube or any other figure represents a 'portion' of three-dimensional space, whereas the second assertion may be taken in its most ample meaning, in which any one of the dimensions of a given space is of infinite size or magnitude. If we have an infinite three-dimensional space, all the planes that can be conceived in that space will lie in it, whereas if we consider a cube, which is a portion of this infinite space, it will be 'delimited' by planes which, anyway, lie in the infinite three-dimensional space. These planes may also be considered as lying in the cube, only they have a distinctive characteristic from

all the other planes lying in the same cube: they are 'the last' planes of that cube. Beyond them, that particular cube is no longer.

Further reflection on these problems will no doubt open entirely new perspectives; among other things, it will possibly permit us to define an individual human being as having an infinite number of dimensions, but whose dimensions are of finite size or magnitude; and who lies in a space of an infinite number of dimensions, each of which is of an infinite size or magnitude. This suggests a form of relation between individual and the community.

3. Mental phenomena: really or only metaphorically spatial?

Strictly speaking, if one considers the mathematical concept of multidimensional space, the question of this heading seems to be one *qui ne se pose pas*. I prefer, however, to give it still further attention because this book is (partly) addressed to psycho-analysts, who are constantly coming across the problem of space both in their clinical experience and in their theorising.

We saw that the introduction of the concept of depth in the mind could not but be taken in a metaphorical sense: a bi-univocal correspondence. The deep unconscious is not deeper than consciousness in any *real* three-dimensional spatial sense, that is, as an object of the perceptual space. We saw, on the other hand, that unless we use such a metaphor certain phenomena would be more difficult or even impossible to understand.

The question remains however, of whether it would be possible to build a psychology which completely did away with the spatial comparison. Even if the question can be answered in the affirmative, the fact will still remain that such comparisons come naturally to mind, as is evidenced not only by psychological writings but particularly by language and everyday usage. At this point we must remember that the deepest meaning of the question is that *thinking itself and logic* cannot do away with space, because this concept is essential to the concept of relation, which, in its turn is at the foundation of logic. So, all our reflections on this subject (Chapter 28) must apply here.

I have also tried to show that if we employ comparisons in terms of spaces of more than three dimensions, certain phenomena, which otherwise appear incomprehensible and in disorder, become fairly systematically organised. It is difficult to say whether such comparisons should replace all metaphors in terms of three dimensions. I am inclined to think that behind each of the latter it would be possible to find a more or less disguised state of affairs which can best be described in terms of comparison with the former. But there are cases in which, for some practical purposes, we need not complicate matters by introducing a concept which is not as easy to handle consciously or scientifically because it is less familiar,

although this does not seem to be the case for the unconscious, which seems to be quite at ease and familiar with it.

So I believe that *the minimum usefulness that multiple dimension can claim is that of being a more adequate metaphor to describe some mental phenomena.*

Metaphor simply entails the use of one example or element of a set or class characterised by a certain relation or class of relations. When we compare a given mental phenomenon to a spatial happening, we are only implying that it entails as many variables as the space has dimensions: a bi-univocal correspondence. Therefore, if the space of more than three dimensions appears more adequate for certain mental happenings, this means that these happenings entail more than three variables, and that the bi-univocal correspondence must be made in terms of this greater number of variables. This is the meaning of this use of the concept of *n*-dimensional space.

To discuss what and how many these variables are, would soon lead us into complete darkness. We can only remark that a systematic pursuit of the concept of multiple dimension seems to open wide perspectives.

Another thing to consider is the use of three-dimensional space in ordinary life. From the point of view of mathematics, three-dimensional space is just a system of co-ordinates in which three variables are at stake. When this system is represented geometrically it coincides with what in ordinary life we are accustomed to call space. If we take any solid object as perceived by our senses, it is easy to apply to it the Cartesian system of (three) co-ordinates. In this respect the concept of extension is really a method of expressing the data of sensory experience as elaborated by the average man. What relation this bears to the true nature of things is another question.

4. Further reflections on the possibility of imagining dimensions

We usually associate volume with something palpable, solid, or liquid, although we realise that the same concept can be applied to gases. In other words, in the average person's mind, three dimensions are associated with the senses of sight and touch. There seems to be a strong tendency in man to identify *real existence* with volume, that is, with something which has three dimensions. We can conceive and imagine three-dimensional objects, such as a cube of wood, of water, of air or any other gas. We also can easily conceive a bi-dimensional space, but when we try to *imagine* it (i.e. a surface), we must attach it to some sensory quality. We may then cut a piece of paper in a triangular shape and treat it as though it were a surface, although, as the paper is thick, it is actually a volume. We may even refine our concept and imagine either that the thickness of the sheet is growing smaller and smaller until it is no longer a question of volume; or that

the surface is only what we just see, the top of the sheet or of any other volume. But this surface cannot exist without the underlying volume. Whichever of the two alternatives we choose it becomes evident that unless we attribute to it some sensory quality which can appear only in connection with volume, surface vanishes from our senses, to become just a concept. *Every time we attempt to imagine the concept of surface we are really dealing with volumes.*

Exactly the same can be said regarding a line, that is, a one-dimensional space. The representation of a line on a piece of paper is really a volume, and if we make it thinner and narrower to approach the *concept* of line, it again tends to vanish from the sensory point of view; so does the point, a zero-dimensional space.

So we may conclude that *the only space that has any meaning to our senses is three-dimensional space, more precisely, three-dimensional objects.* Whenever we wish to represent or imagine any other space we automatically reduce it to three-dimensional space. Of course, it is not the same when we *think* of it conceptually or when we handle formulae related to it.

Let us imagine a cross, and let us imagine that the point which both arms have in common is there twice. Normally if I cut one arm of the cross the other will be left incomplete, but if that portion where they intersect is there twice I could separate the arms of the cross and still have them both complete. Would there, then, be a way of *imagining* a space of more than three dimensions? If we carefully try to do so and look into our imaginative process we will find that it is feverishly working *only* in terms of three-dimensional space. We already saw earlier on that we may imagine fibres going vertically and horizontally, so that when we separate the arms of the cross we extricate them from one another. But that is an entirely three-dimensional conception and would not correspond to the actual reality of a space of more than three dimensions, because there would be a lot of 'empty spaces' left in each arm of the cross. If we apply the concept of more than three dimensions to a solid, we cannot but think that it must be there at least twice, which is entirely unimaginable. The ancients handled this concept of solids, and went on dividing it further and further until they came to the atom. The atom still remained a solid, and two atoms could not occupy the same space. But modern physics has gone further and, as I understand, it is now turning out that our concept of the solid is just derived from a sensory experience, and is not an accurate reproduction of the actual reality. In other words, the sense of touch has been made to fall in line with the sense of vision; for, as we know, the 'nature' of colour is that of a vibration or wave, and the perception red, yellow, black, etc., is an entirely psychological phenomenon. We cannot say that the reality of our perception is the same as the reality of that thing which causes it: we can only affirm that there is a bi-univocal correspondence between them. Of course

when we speak of waves we must remember that, here again, we are using a sensory experience which we are refining in our theories: it is difficult to escape from imagination even in the subtlest of all reflections or theories.

From all the above we may draw some conclusions. The first is that, whatever the real nature of the world may be, we are perfectly free to investigate the variations and characteristics of the psychological experiences of the world, for instance, *perceptions* such as colour, sound, etc. The second conclusion is important for our present purposes: the geometrical concept of space, more precisely, the geometrical *representation* of our concept of space, is really an elaboration of our sensory perceptions, even if it may have other aspects as well. We may, therefore, feel comfortable about employing this concept for psychological purposes, precisely because it is built from *psychological* experience. In other words, space is more of a psychological experience and/or psychological construction than it may at times seem.

5. Concluding remarks

The notions of space employed in this study are quite rudimentary, and I have based most of their application to mental phenomena on the representation of a space of dimensions higher than three in terms of a three-dimensional space. I believe it is fair to recognise that in spite of its elementariness, this approach has furnished illuminating insights about apparently chaotic mental manifestations. To dismiss it because of its simplicity – and in this way to abandon its valuable yield – would seem ungrateful. The thing to do, it seems, is to continue along this line of research and explore its full potentialities. This will undoubtedly require a more technical use of these notions and will probably not be a simple matter.

38. Possibility of a Geometrical Representation of the Principle of Symmetry. Need for Multidimensional Space

1. The meaning of geometrical representation

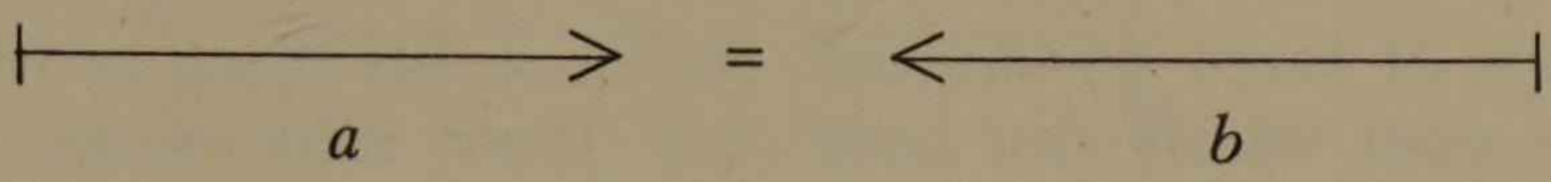
A geometrical representation of a thing or event makes use of the mathematical concept of space. If the thing itself is linked to the concept of space there is no problem because then the representation is, *in a sense*, just a reproduction or imitation of the thing. This is the case with, for instance, an architectural plan. But what further implication (meaning) is there in the geometrical representation of something which in itself has nothing to do with (real) space? The answer seems quite simple: *such a representation reproduces with the help of spatial elements the same relations that exist in the thing that is represented in accordance with a convention which is previously established and which must be maintained throughout.* Perhaps the simplest case of all is the representation of rational numbers by segments of a straight line. Take two numbers, 8 and 4 for instance. Each may be represented by a segment of a given line. If the representation is correct then the relation between these numbers, which itself is a number (the relation between 8 and 4 is 2) is reproduced between the segments: the relation between the segment corresponding to 8 and that corresponding to 4 is 2; in other words it is also *a number* and the *same* number.

The same holds for any kind of geometrical representation. We may say that between the representation and the thing represented there is a bi-univocal correspondence and that in terms of this correspondence both are equivalent.

2. Possibility of geometrical representation of the principle of symmetry (II)[1] and of its various corollaries

We can start from the simplest basis. If we wish to represent the principle of symmetry geometrically we can introduce the concept of vector and say that a given vector a will in the representation be considered as identical to another vector b of the same magnitude and direction and of opposite sense:

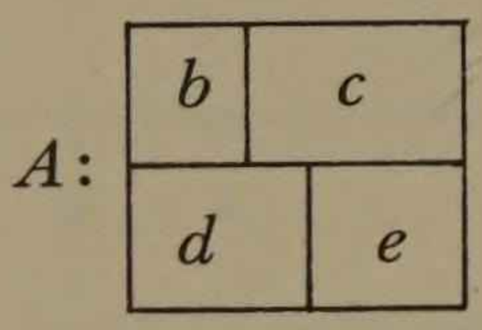
[1] See Chapter 3.



This seems a correct representation of our principle. *It contains different elements from those in it*, because the principle of symmetry does not refer to magnitude, but *the relation* between the elements of this graphic representation is identical to the relation between the elements of II. This representation, however, has not much use, as far as I can see, nor does it help to understand further the meaning of II. We may find it more interesting to try to represent some consequences of II. Let us start with what appears most striking at first sight and is perhaps the simplest to represent graphically, i.e. II_2 :[1]

$$x \text{ is a part of } y = y \text{ is a part of } x$$

If y were, for instance, a definite line, not subdivided, or a square composed of only one part, or a volume which is unitary, not divided, then any kind of these three spaces (line, plane, volume, that is, one-, two- and three-dimensional spaces) could represent adequately the equality mentioned. But this would be only a particular case of this equality, and the problem arises when we try to represent a case in which the total is composed of several *different* parts (proper parts) and when, according to our principle, each part must be identical to the total and also identical to the other parts. We may represent a total (for instance A) which is formed of several parts as a surface divided in as many portions as there are parts, each portion corresponding to each part, such as for instance in this figure:



But *in this case contiguity demands* that each part must correspond to a different portion of the surface than that corresponding to any other part. It is obvious that by this means we cannot represent our proposition.

However the geometrical procedure described in Chapter 32 may give us a solution. With its help we can have points, lines and volumes 'repeated' in a geometrical representation of spaces of more than three dimensions. With this in mind we may proceed to attempt the geometrical representation of II_2 . If we assume (*a*) that the thing which is considered a whole has a bi-univocal correspondence with a space of, say, four dimensions and that the parts correspond to

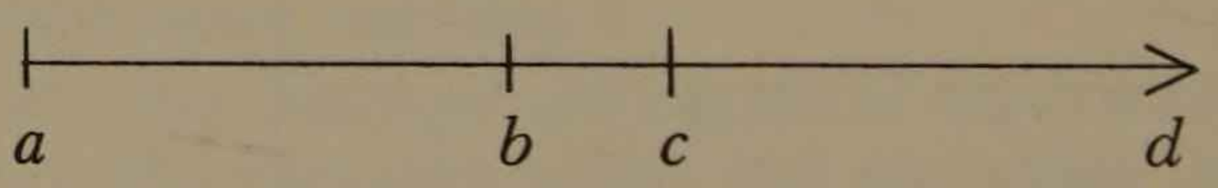
[1] See Chapter 3.

spaces of three dimensions, (*b*) that this thing or whole is 'viewed' with eyes which can only 'see' three dimensions, then, *and only when these conditions are fulfilled*, to the person who is looking, the whole and its parts all appear as occupying the same volume. If we call this volume the total, then the whole is equal to its parts and a part is equal to another part.

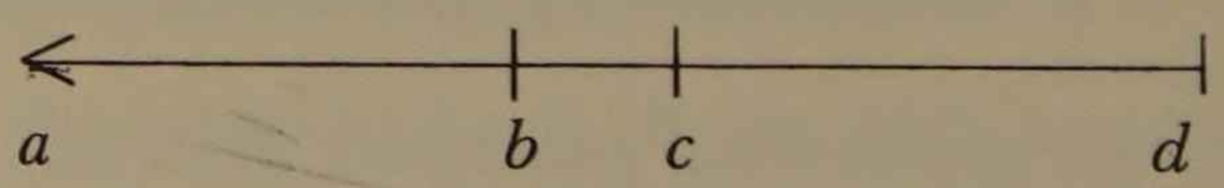
In more general terms, if the whole is conceived as having more than three dimensions and the parts as three-dimensional, and the representation is made in terms of three dimensions, then it is possible to find an adequate representation of II_2.

It is obvious that II_{2a}, which is only a particular example of II_2 can be equally well represented graphically by this means. As for II_{2c}, which regards the disappearance of contiguity, it is equally possible to apply in its case the geometrical representation just mentioned. In such a case we see that contiguity (in the sense employed in the ordinary *experience of objects* in three-dimensional space) cannot exist if our principle holds: the parts are catapulted into one another.

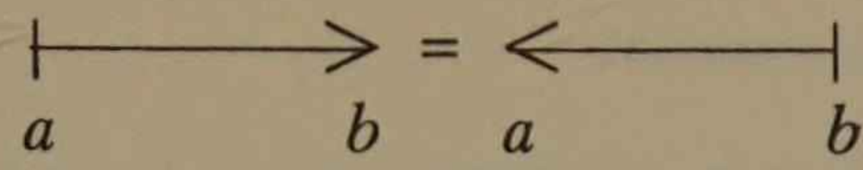
The geometrical representation of II_1 (absence of succession) is only a particular example of the representation of II_2, but deserves special attention. We may start by considering that when we assert that *y* follows after *x* we are implying the concept of time, of succession. It is well known that time has only one dimension and is therefore usually represented by a line; but this line has magnitude, direction, and sense: it is a vector. By representing time as a vector we can represent the distinction between past, present and future. Let us consider four events, *a*, *b*, *c*, *d*, in a succession from *a* to *d*. In the geometrical representation we will mark each event by one point in the time vector:



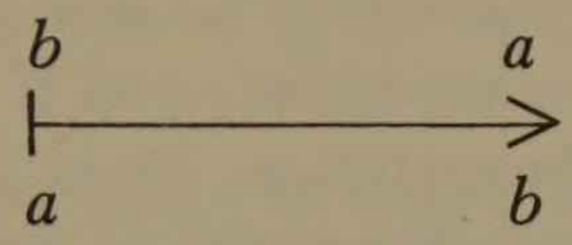
This vector represents all the time relations existing between these four events. If we now apply II_1 then the representation must be considered as being identical to the following one:



By putting these vectors in front of each other as members of an equality we are adequately representing the formulation of our principle. *But we are not representing adequately a group of events submitted to our principle. In order to do this let us consider first* only events *a* and *b*. The illustration



represents the principle, *but not the events.* More is necessary to represent these adequately. If succession is represented by a vector from left to right, then our principle demands that *a* must be both on the left and on the right of *b*. This could be represented as follows:



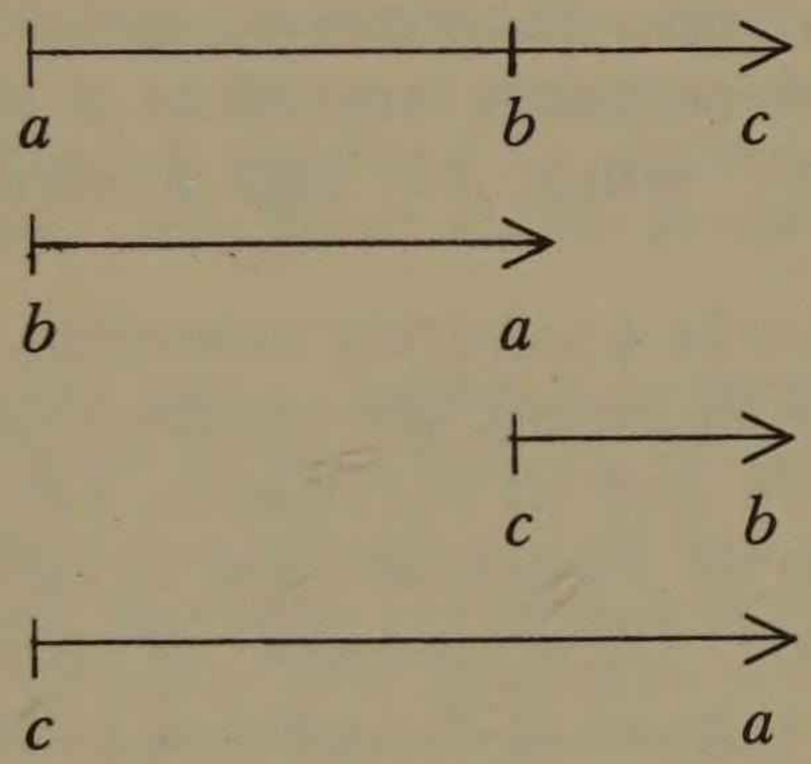
In this illustration we see that each point represents both events. If we now have three events, things become more complicated. From our principle it follows:

b follows after *a* = *a* follows after *b*
c follows after *b* = *b* follows after *c*

But if both these equalities are true then we may conclude

c follows after *a* = *a* follows after *c*

This complex situation can be represented graphically as follows:



That is, the complete representation is formed by all four vectors considered as being given together in one vector. In such a case each point must represent all three events, as seen in the drawing. If we increase the number of events we may conclude that *in a representation of a type of 'time' which conforms to our principle, each point of the vector must represent all other points of the vector, that is the whole vector. In other words, each point of the vector becomes equal to the total vector.*

This is very similar to what we have seen regarding the graphic representation of II_2: a space of *n* dimensions (in this case 1) becomes equal to a space of *n*-1 dimensions (in this case 0).

3. A short comment

This representation is of significance, it seems to me, because usually in our thinking we are dealing with material objects, one of which is the body, which belong to three-dimensional space (if, for the sake of simplification, the variable time is considered as constant). With its help we can now understand more easily an important characteristic of schizophrenic thinking, the alteration of space relations. If somebody has any experience in any way of (psychical) phenomena with more than three variables, and if he lives in a three-dimensional space and is no mathematician, he is bound to express everything in terms of his own three-dimensional vision of the world. A necessary consequence is the repetition of volume, the multiplicities which are so familiar not only in schizophrenic thinking but also in the experiences described throughout this Part.

We may conclude, therefore, that the principle of symmetry and its corollaries are susceptible of being represented geometrically if we use the concept of multidimensional space for such a purpose. If this is so, then the expression of (unconscious) mental manifestations with the help of bi-logic and that in terms of multiple dimensions, would come to coincide. In that case a formidable step forwards in the understanding of mental phenomena would have been made; and the same could be said regarding the relation between simply bivalent logic and the logic of the unconscious and of emotion. The unified view of both would certainly represent a momentous step in the understanding of the mind, of logical structures and, hence, of nature.

I must, however, make a sobering comment. Though I cannot see a flaw in these reflections about the geometrical representation of the principle of symmetry and its corollaries, I shall not be content until this line is studied in all its geometrical details, so that it can be seen that all the detailed consequences of the general formulation presented here hold as good as the general formulation.

Two more remarks seem of interest. I said in Chapter 28, Section 1, that the concept of space was inevitably linked to the basic concepts of logic. I shall now add that bivalent logic requires up to a three-dimensional space, but possibly only a one-dimensional space. Whereas the principle of symmetry and bi-logic require higher-(up to infinite-) dimensional spaces. Basically, however, both would be subclasses of a more general class. In such a case, the geometrical interpretation of the principle of contradiction proposed in Chapter 3, would be confirmed from this other angle.

The second remark refers to the geometrical representation of time presented here. This representation would suggest that, as in space, so in time there would be the possibility of conceiving not only the one-dimensional time – to which we are accustomed – but two-, three- . . . infinite-dimensional time. Perhaps this would open up the possibility of studying the concept of eternity.[1]

[1] See also the end of Chapter 36.

Appendix: Emotion, Magic, the 'Numinosum' and the Infinite. A Comment on Sartre

I should like to give special attention to these subjects because they refer, in my opinion, to something very essential about the nature of emotion. With his usual erudition, Hillman refers to the relation between emotion on the one hand, and magic, the *numinosum* and God on the other (see, for instance, his last phrases in the last quotation of Chapter 22). Perhaps it is Sartre, most of all, who has put forward some meaningful aspects of this question with the greatest clarity. He writes (Sartre, 1959):

> Emotion is a certain way of apprehending the world. (p. 50)
>
> Now we can conceive what an emotion is. It is transformation of the world. When the traced (or existing) paths become too difficult, or when we see no path, we can no longer remain in so pressing and difficult a world. All paths are blocked, yet it is necessary to act. We then try to change the world, that is, to live it as if the relations between things and their potentialities were not regulated by deterministic processes but by magic . . . This attempt . . . is, above all, the grasping of new relations and demands. (p. 56)
>
> We shall not insist upon rage . . . which is, perhaps, of all emotions, and where the *functional role* is more evident. (p. 64, my italics)
>
> Joy is a magical conduct which tends to put into act, by incantation, the possession of the object wished *as instantaneous totality.* This conduct is accompanied by the certainty that possession will take place sooner or later but it [joy] tries to anticipate this possession. (p. 65, my italics)
>
> We resort to a good synthetic form: 'to believe' in magical conducts it is necessary to *be altered.* (p. 70, my italics)
>
> Nevertheless, emotion, as such, would not be so absorbing if it apprehended from the object 'only' the exact counterpart of what emotion is 'noetically' (for example *'at this hour', under 'this light', in 'such' circumstances this man is frightening*). What is constitutive of emotion is the fact that *it takes from the object something which infinitely overflows emotion.* In reality there is a world of emotion . . . in which the relation of things to consciousness is always and exclusively magic. . . . A world, that is, individual syntheses, which maintain relations between themselves and have 'qualities' . . . *every quality is conferred on an object only through a step towards the infinite.* This grey, for instance, represents *the unity of an infinity of real and possible valuations* where some will be greenish grey, grey, seen under a certain light, black, etc. In an equal fashion, *the qualities which emotion confers on the object and to the world, are conferred(on the object and to the world) by emotion, ad aeternum.* In fact, if I suddenly

> consider an object horrible, I do not explicitly affirm that it will remain horrible for all eternity. *But the sole affirmation of the horrible as a substantial quality of the object already in itself constitutes a step towards the infinite.* (pp. 74-5, my italics)

Regarding what he calls the delicate emotions (which would correspond, I believe, to what we have called, following Rapaport, tamed emotions) he writes:

> What is sinister is total, we know it, *it* is deep, but for the moment we only have a glimpse of it . . . in spite of everything we understand something which is deeply sinister through it [i.e. through emotion]. (p. 76)

Speaking of a man suddenly seen at the window and felt as disquieting:

> He is in immediate union, beyond the glass of the window, with our body, we live and suffer his meaning . . . but at the same time he imposes himself (upon us), denies the distance and enters us. (p. 79)

> For example, it is necessary that the window as 'object which before anything must be broken', the ten metres as '*distance* which before anything must be negotiated', *should be annihilated . . . To reduce distance is also to think in terms of distance . . . Distance is no longer apprehended as distance* . . . (pp. 81-2, my italics)

Finally, he affirms:

> Consciousness can 'be in the world' in two different modes. The world can appear to it as an organised complex of utensils such that if one wishes to produce a given effect it is necessary to act upon certain given elements of the complex. In this case each utensil is referred to other utensils and to the totality of utensils . . . modify a particular utensil by means of another utensil, which itself is referred to other utensils and so on till infinity. But the world can also appear to him as a non-utensil totality, that is, modifiable without intermediaries and by great masses. In this case, the classes of the world will immediately act upon his consciousness, they are present to him 'without distance' . . . This aspect of the world is completely coherent, it is the 'magical' world. We shall give the name of emotion to a sudden fall of consciousness into the magic. Or, if one prefers to say it otherwise, there is emotion whenever the world of utensils vanishes suddenly and the magical world appears in its place. (pp. 83-4).

I have made these rather extensive quotations, first of all because it seemed to me that it was necessary, for honesty's sake, to make them. I must explain. I came to my view of emotion by entirely different ways and long before I read Sartre. When I came across his book I was surprised and, in a certain sense, disillusioned, because I felt he had anticipated me by twenty years. Then I realised that a comparison between his approach and mine would be of interest for

a better perspective of the whole question. So I shall try to make this comparison, restricting myself to those points where the similarities between his presentation and mine are most striking. This entails leaving out other aspects of his conception, which I consider of great interest, but which are outside the general scope of this book.

As can be seen from the quotations, Sartre refers to the same basic subjects as those I have broached, sometimes in similar and sometimes in different words. We must, therefore, squarely face the question of whether my presentation serves any objective purpose or not. I shall try to elucidate this point. In the passages quoted and especially in the parts in italics, Sartre makes reference to the fact that emotion transcends space and time, that it sees the object as having certain qualities in an infinitely greater magnitude and variety than it actually has them. He also says that consciousness can be in the world in two different modes. His intuitions about the question are no doubt similar to the ones put forward here. The fact that I have arrived at them independently is a personal matter, which may or may not be believed, but which is in no way important from an objective point of view: the precedence is obviously his. From an objective point of view the question one must ask is whether the ideas put forward here offer not necessarily greater but different possibilities of understanding and of development than his do. As far as I am aware both Sartre's approach to the question and mine are a mixture of intuition and analysis. Mine is presented in terms of a view of psycho-analysis formulated with the help of logico-mathematical notions. Owing to this it is susceptible of precise criticism at every point of its structure. It is also susceptible of verification, because it leads to definitions which can be verified. It is, furthermore, susceptible of great development. It permits an understanding of the place of emotion in the psycho-analytical conception of the mind, as we have already seen. It establishes the contact between psychology and other sciences, such as mathematics, which deal with the psychical as ideal objects. In so doing, use is made of mathematical knowledge, and this opens the way to a more precise and deeper understanding of the problem of the infinites in emotion, as seen with the help of this knowledge; we have considered this question in Chapter 24.

The formulation in terms of symmetrical relations, with the corresponding disappearance of space and time, has a consequence: the separation between object and subject of emotion disappears at a deep level, and is replaced by identity. This important feature does not seem to flow (or at least not so easily) from Sartre's view; though his reference to the abolition of distance actually deals with the same question, it is doubtful if it can by itself be understood in the sense developed here.

I believe, as well, that this formulation permits a much clearer approach to the understanding of the nature of the relationship

between thinking and emotion than has so far been reached by previous authors, including Sartre. The difficulty of this problem, it must be recognised, has hindered psychology for a long time.

Another feature of my conception is that it establishes links between a great variety of apparently very diverse phenomena. I might mention, for instance, that the identity between the part and the whole establishes a connection between emotion and some schizophrenic manifestations and numerous facts found in psycho-analysis, as described in Part IV. It also opens the way to an understanding of the question of the measurability of emotion, in terms of the concepts developed in Parts IV and V. It gives a new basis to the relation in man between space-time and spacelessness-timelessness. It permits one to take levels into account, and also the possibility of infinite different magnitudes of the same variable, according to the level. And the question of magic, either in emotion or not, is seen, from my point of view, as simply another aspect of a vast question. We touched on this point when we studied omni-potence.

It may be that Sartre or somebody who is quite familiar with his approach may also find the possibility of establishing numerous links between his conception of emotion and other aspects of psychology. But I believe it is fair to say that the conception developed here, while having much in common with that of Sartre, is formulated in terms of both more precise and more general concepts. In fact, I believe it is not presumptuous to say that it is possible to establish a scale of increasing generality and precision. At the first level there would be the intuitive thought-feelings of mankind well expressed by popular sayings and by the felicitous expressions of philosophers. We could include at this level expressions and thoughts such as:

Love is stronger than death
Le coeur a ses raisons . . .
We shall love each other forever
We are one being in two bodies
You wish upon a star . . . etc.

These basic human intuitions contain either in an open or in an occult way all that pertains to the basic nature of emotion. Philosophers and psychologists have drawn from this vast reservoir and have extracted many things from it, to construct their systems. The result has frequently been an impoverishment of reality, and a poor reflection of it. But some have succeeded in rising above the relatively concrete, to reach a more general perspective. Among such views Sartre's stands out. It deals with the same material with which mankind has always been concerned and which has been the subject of many scientific and philosophical studies. It succeeds in viewing things from a higher vantage point, and therefore permits Sartre to see things in both a wider and a deeper perspective. But it has the

limitation resulting from employing a conceptual equipment which in some ways is new and in others is the same as that of everyday life. Science has developed when some concepts of everyday life have been, so to speak, analysed, broken down into their components and then reconstituted. Mathematics and physics have started in this way and in this way have reached an immensely greater understanding of nature. This has obvious advantages and disadvantages. We are here considering the advantages for an understanding of nature.

The introduction of a few notions of an abstract discipline, symbolic logic, has made possible a formulation which permits greater precision and a wider and deeper perspective of the same problem. By this means some of the intuitions which in Sartre make their appearance, either hesitantly or without complete clarity, immediately become more precise and clear. We shall now consider a few instances. According to Sartre, emotion 'takes from the object something which infinitely overflows emotion'; 'every quality is conferred on an object only *through a step towards the infinite*' (my italics); 'this grey, for instance, represents the unity of an infinity of real and possible valuations'; 'the qualities . . . are conferred . . . by emotion, *ad aeternum*'. All this represents a definite step forward from the obscure intuitions contained, for instance, in popular expressions, such as those quoted above: it definitely makes things more explicit. Some comments must, however, be made. The expression *a step towards* does not go all the way required if it is to conform accurately to observation; it stops short of a complete affirmation of the infinite in emotion. When Sartre says that emotion 'takes from the object something which infinitely overflows emotion', he expresses the truth accurately if an aspect of emotion is seen as a form of consciousness; but it becomes inappropriate if it is intended to apply to the whole of emotion, for it is in the nature of emotion itself to view the object in this way: in this sense there is no 'overflowing'. On the other hand emotion cannot 'take' from the object something which the object does not have: *in this sense* it can truly be said that emotion takes nothing from the object. It is in fact the object, as well as the conscious part of emotion, that is, as it were, infinitely overflowed by the (unconscious) emotional way of looking at objects.

If we continue along the path which Sartre started to follow and go beyond, we may then say that, owing to the application, in emotion, of the principle of symmetry, there can be neither contiguity nor succession, and that the individual or element becomes identical to the class. All these formulations of Sartre are then comprehended in *one*, more general, view. Space and time disappear; the individual object becomes identical to the class to which it belongs. At the same time, as we saw in Chapter 24, we need not speak of steps towards the infinite but directly of the infinite in emotion. And we shall not speak of only one infinite. All this is

made possible by the use of the notions of class, element, symmetrical relations, etc., and that of the infinite defined as the set which has the same cardinal number as a proper part of it.

The same applies when later on Sartre makes those penetrating remarks about the disappearance of distances and the magical world. If we look from our more abstract vantage point we can formulate more clearly the nature of this mysterious disappearance. The higher the vantage point, the wider and deeper the perspectives and the stronger the connections. So we shall be able to have a glimpse of the corporal-non-corporal nature of man, seen as a spacelessness-timelessness immersed in a spatio-temporality. This view covers the same ground as that covered by Sartre when he speaks of two different ways of being in the world; however in order to see that this is linked to the presence or absence of asymmetrical relations, one needs to view the question from a higher vantage point: it amounts to going from the more particular to the more general. This contrast could be compared to the relation existing between the relativistic formulation of mechanics, and the classical or Newtonian conception. Viewed from this angle, 'being in the world' is something that can be analysed into simpler and more general notions. If symmetrical relations are the prevalent available relations, the 'being in the world' possible in such circumstances must necessarily belong to the class to which emotion belongs; whereas if one can make ample use of asymmetrical relations, the profile of the 'being in the world' will be the profile of what I have called asymmetrical being.

It is on the basis of these considerations that I believe that the ideas put forward here deserve to be considered. This is in no way intended to detract from the possibility that a development of the ideas of Sartre, which I admire, may lead to wider views and views along different lines. I have had to comment on his ideas as they were presented by him and could not stop to consider all their possibilities of development. It is an act of elementary fairness to Sartre to keep in mind that he calls his study a sketch and that in the text he insists again that it is only a sketch.

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Ignacio Matte Blanco

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