

Swann Memo  
to J.V.

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17. Dr. Gerald Feinberg, Professor of Physics at Columbia University, New York, addressed, in 1974, an international conference in Geneva upon the topic of quantum physics and parapsychology, with special consideration of the meaning of precognition (perception of future waves) to current quantum mechanical theories.



16. With regard to contemporary work in the hard sciences, Gerald Feinberg, Professor of Physics at Columbia University, addressed an international conference in (Geneva, in 1974) on quantum physics and parapsychology

18. Dr. Robert G. Jahn, Dean of Engineering and Applied Sciences at Princeton University, has recently conducted thorough investigations of both the field and history of psychical research. His conducting of remote viewing experiments at Princeton acts as replacements of the remote viewing work initiated at SRI International during the years 1973-1976. Dean Jahn has, however, published (In a Princeton Alumni World ~~RAW~~ (PAW) Special Report) a summary of theoretical Models of psychic phenomena as well as an assessment of applications and implication, attached as annex ( ) to this document.

19. Many other physicists and ~~xxx~~ scientists, such as Dr. O. Costa de Beauregard, Dr. Evan Harris Walker, etc., have also published reports concerning the implications of psychical phenomena, but whose reports, in their technicalities, are beyond the scope of this current document.

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15. An alert similar to that of Sir John Eccles has been given by  
~~xxx~~ the quantum physicists, Dr. Bernard d'Espagnat, writing in Scientific  
American (November 1979), concerning the curious relationship of mind  
and quantum mechanics. (d'Espagnat bio. materials)

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16. His article, entitled "The Quantum Theory and Reality", and  
subtitled "The doctrine that the world is made up of objects whose existence  
is independent of human consciousness turns out to be in conflict with  
quantum mechanics and with facts established by experiment. Dr. d'Espagnat's  
article is attached as annex (a), due to its length.

# The Quantum Theory and Reality

*The doctrine that the world is made up of objects whose existence is independent of human consciousness turns out to be in conflict with quantum mechanics and with facts established by experiment*

by Bernard d'Espagnat

Any successful theory in the physical sciences is expected to make accurate predictions. Given some well-defined experiment, the theory should correctly specify the outcome or should at least assign the correct probabilities to all the possible outcomes. From this point of view quantum mechanics must be judged highly successful. As the fundamental modern theory of atoms, of molecules, of elementary particles, of electromagnetic radiation and of the solid state it supplies methods for calculating the results of experiments in all these realms.

Apart from experimental confirmation, however, something more is generally demanded of a theory. It is expected not only to determine the results of an experiment but also to provide some understanding of the physical events that are presumed to underlie the observed results. In other words, the theory should not only give the position of a pointer on a dial but also explain why the pointer takes up that position. When one seeks information of this kind in the quantum theory, certain conceptual difficulties arise. For example, in quantum mechanics an elementary particle such as an electron is represented by the mathematical expression called a wave function, which often describes the electron as if it were smeared out over a large region of space.

This representation is not in conflict with experiment; on the contrary, the wave function yields an accurate estimate of the probability that the electron will be found in any given place. When the electron is actually detected, however, it is never smeared out but always has a definite position. Hence it is not entirely clear what physical interpretation should be given to the wave function or what picture of the electron one should keep in mind. Because of ambiguities such as this many physicists find it most sensible to regard quantum mechanics as merely a set of rules that prescribe the outcome of experiments. According to this view the quantum theory is concerned only with observable phe-

nomena (the observed position of the pointer) and not with any underlying physical state (the real position of the electron).

It now turns out that even this renunciation is not entirely satisfactory. Even if quantum mechanics is considered to be no more than a set of rules, it is still in conflict with a view of the world many people would consider obvious or natural. This world view is based on three assumptions, or premises that must be accepted without proof. One is realism, the doctrine that regularities in observed phenomena are caused by some physical reality whose existence is independent of human observers. The second premise holds that inductive inference is a valid mode of reasoning and can be applied freely, so that legitimate conclusions can be drawn from consistent observations. The third premise is called Einstein separability or Einstein locality, and it states that no influence of any kind can propagate faster than the speed of light. The three premises, which are often assumed to have the status of well-established truths, or even self-evident truths, form the basis of what I shall call local realis-

tic theories of nature. An argument derived from these premises leads to an explicit prediction for the results of a certain class of experiments in the physics of elementary particles. The rules of quantum mechanics can also be employed to calculate the results of these experiments. Significantly, the two predictions differ, and so either the local realistic theories or quantum mechanics must be wrong.

The experiments in question were first proposed as "thought experiments," intended for the imagination only. In the past few years, however, several versions of them have been carried out with real apparatus. Although not all the findings are consistent with one another, most of them support the predictions of quantum mechanics, and it now seems that unless some extraordinary coincidence has distorted the results the quantum-mechanical predictions will be confirmed. It follows that the local realistic theories are almost certainly in error. The three premises on which those theories are founded are essential to a common-sense interpretation of the world, and most people would give them up only with reluctance; nevertheless, it appears that at least one of them will have

**CORRELATIONS BETWEEN DISTANT EVENTS** can form the basis of conclusions about the structure of the world. Suppose a physicist sets up an experiment in which subatomic particles such as protons are fired one at a time into an instrument that can give only two possible readings, plus and minus (*a*). He finds that for some protons the reading is plus and for others it is minus, but he cannot tell whether the instrument measures some real property of the proton or merely records random fluctuations. The physicist then arranges two identical instruments with a source that emits two protons simultaneously (*b*). He observes a strict negative correlation: whenever one instrument reads plus, the other reads minus. On the basis of this correlation the physicist concludes that a real property of protons is responsible for the readings and that its value is determined before the protons leave the source. If the sample of particles measured meets certain statistical tests, he can go on to infer that every pair of protons emitted by the source consists of one proton with the property plus and one with the property minus, even if neither proton is submitted to a measurement (*c*). The conclusions are reasonable if three premises are accepted as valid: that at least some properties of the world have an existence independent of human observers, that inductive inference can be applied freely and that a measurement made with one instrument cannot influence the result of a measurement made with the other instrument. A more restrictive form of the last premise forbids such influences only if the two measurements are so nearly simultaneous that the influence would have to propagate faster than light. The premises can be identified as realism, the free use of induction and separability; the more restrictive version of the separability premise is called Einstein separability or Einstein locality. Any theory that incorporates them is called a local realistic theory.

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DRAFT MEMORANDUM OF INFORMATION

PREPARED FOR:

BY: Ingo Swann, with the advisements, guidance and help of  
Dr. Jan Ehrenwald, Dr. H. E. Puthoff and  
Mr. Martin Ebon

TOPIC: ADVANCED AND ACHIEVED SCIENTIFIC THINKERS WHO  
HAVE UPHELD THE NECESSITY OF RESEARCH INTO  
PSYCHICAL MATERIALS (1750 TO THE PRESENT)

I INTRODUCTION

1. You will recall that sometime ago you asked me to prepare a memorandum of information concerning the fact that psychical research has had both the support and participation of renowned scientists, who have, each in their time, pointed out that psychical research constituted an area of human inquiry that was of extreme importance. This memorandum was to gather together in a readable document those instances in which scientists of high standing, Nobel Prizewinners and inventors of merit and achievement undertook to help in the task of establishing the legitimacy of psychical research. This document, in its final form, was to be of such quality that a present decision maker, unfamiliar with the field that psychical research represents, might find it helpful in coming to understand the

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field which works under certain historical vagueries. This memorandum was also to bridge the gap that is indigenous to psychical research in that:

- (a) Criticism of psychical research has always been much better organized (and hence much more public) than
- (b) Achievements in the field, which tend to therefore exist in general oblivion, generally do not achieve the public familiarity that would match or annul the far-flung criticism.

2. I undertook to prepare this memorandum in a mood of enthusiasm, which, in retrospect, might be called frivolous for, indeed, in preparing this document one is almost obliged to treat problems generic to psychical research, as well as bringing these problems to the comprehension of the reader. These problems can be outlined briefly here at the outset.

- (a) Researching for and outlining which famous scientist has said what about psychical research is a mere task of data collecting, and of itself is quite easy.
- (b) But the presence of these renowned scientists in physical research is tightly woven into the dramatics and traumatic of both the pro-psychical and anti-psychical histories.
- (c) Even so, if high-quality thinkers and renowned scientists can be seen to have had interest in psychical research, just what is that research, exactly, in which they have the interest. The average person, unfamiliar with the depth and substance of actual psychical research, is most likely to have some idea of psychical research that borders on science fiction expectations of it, rather than having any exact notion. If we can see that many high-achieved scientists have turned their attention to psychical implications, we should not make the mistake of assuming that their interest corresponds to the average science-fiction concept of psychical phenomena.
- (d) Criticism of psychical research, referring specifically to destructive antagonism, has always carried tremendous political impact in science in general. This history is not easily set aside, yet the reader of this document must

be apprized to its nature and persistence if the contributions of advanced and important thinkers is to achieve anything like understanding that will be useful.

- (e) The field of general psychical research itself is problematic. The history of psychical research reveals its ambiguities to a greater degree than it establishes its profundities. Perhaps because of this, it has never fared well. It is a late arrival in the world of logic, and indeed appears to challenge that logic in many aspects, bearing qualities that are, compared to other scientifically understood phenomena, anti-logical. Therefore it has always been treated with contempt from the start, and has remained something subordinate and incidental compared to other main-line sciences. Perhaps on this account, paraphrasing Max Dessoir commenting on the field of aesthetics, and perhaps because of the obscurity in the subject itself, psychical research has never been able to claim either a sharply defined field or a reliable method.

3. In my view, the fact that Paracelsus said thus and so and centuries later Dr. Brian D. Josephson has said thus and so also is and will remain mere curiosia unless their views are placed, for the reader of this memorandum, in some juxtaposition with the over-view and problems inherent in the field of psychical research. What follows, therefore, constitutes a document that is rather more lengthy than originally entertained. I have already been informed that not everyone will agree with some of its features, but this has not dissuaded me from incorporating them, since it is easy to bear in mind that psychical research always raises hackles no matter what anyway.

## II PSYCHICAL RESEARCH AS RIVAL THEORY

1. One of the most difficult features of psychical research is that it is nearly impossible to achieve an overview of it that is familiar to any known reality that the analyst or decision maker might utilize to constructive ends. Its own obscure nature and ambiguousness might account for some of this, but not all. A great deal of the perpetuating of these obscurities and ambiguities originates in psychical research's counterpart field, termed in this document as the anti-psychic field. Surprisingly, because of its long history and powerful impact, the nature of this anti-psychic field has never been investigated. It is usual to discover that psychical research is viewed from one of two viewpoints, i.e., the internalized viewpoint characteristic of psychical researchers, or the externalized viewpoint characteristic of the anti-psychic field. It can be seen that either of these two viewpoints are limited, depending as they do on the motivations, beliefs and allegiances of the individuals involved. Psychical research has never, to my knowledge, been placed in perspective to the history of science or philosophy. Because of this, it is extremely difficult for an analyst or decision maker to grasp its overall placement vis `a vis other realities.

2. A rival theory (may also be called a complimentary theory) is an idea or body of work, the fate of which is either to be ejected from some mainline science or to eventually be incorporated into it. It has as its basic characteristic a competitive nature, in that, if it is true, it threatens the underlying concepts of the field it challenges. Rival theory may be ejected from the mainline science to which it is pertinent for quite some time. It is not unusual to find rival or complimentary theory adjacent to any given mainline science. Normally, however, it is only lack of proof or demonstration that perpetuates the status of rival

theory, and once the proof of demonstration is forthcoming, the rival theory ceases to be rival and its meaning and implications are incorporated into the mainline science.

3. This process is very clearly visible in mainline physics. Einstein's general theory of relativity, for example, was rival theory for several years before it was incorporated into mainline science. In the chart provided below, it is possible to see that the classical period of physics, characterized by material concepts, constituted mainline physics from 1750 to circa 1903. During this period, rival theories proliferated, mainly having to do with non-material physics: the wave theory of light (1801), electric waves (1886), quantum theory (1900), radioactivity (1896), and the theory of the electron (1897). These, upon proof and demonstration, eventually came to desist as rival theories, and were incorporated into mainline physics around 1910. This incorporation is known as the birth of modern physics.

4. After the <sup>7-17</sup>birth of modern physics, rival theories again hove into view: Minkowski's mathematical formulation of the theory of space and time (1908), Einstein's special theory (1905), Planck's theory (1900), and Rutherford's nuclear atomic theory (1913), again all rival theories for a time, were eventually incorporated into mainline physics during the 1910s, as quantum mechanics. After this incorporation, mainline physics, now considerably expanded from its predecessor classical physics, branches into two major mainlines, that of solid state physics, and that of energy or nuclear physics. Mainline physics therefore shows continuous incorporation of rival theory at appropriate junctures.

5. If the histories of these rival theories, especially found in biographical materials, is surveyed, each and all of these rivals was subjected to destructive antagonism at various levels of society, and especially at the hands of science in general. This treatment is not at

all unlike the treatment meted out to psychical research, with the exception that when enough fundamental premises were provided, the destructive antagonism began abatement while the incorporation process began.

6. If we turn our attention to mainline psychology, into which mainline we might have assumed discoveries in psychical research might have been incorporated, we find, to the contrary, a continuous disincorporation of those materials. The period we might call classical psychology is found underway from at least 1600 and lasts to circa 1700. Classical psychology might be defined as body-mind-soul psychology, which was admittedly probably more philosophical than experimental as we know psychology today. Yet, during this period, mind-soul processes were integral fundamentals of the early psychology period. Body-mind-soul psychology eventually found itself ejected from mainline psychology upon the advent of empirical psychology (Locke, 1632-1704), which gravitated to the precepts of mechanistic psychology, which had, earlier, itself branched off from mainline body-mind-soul psychology.

7. As interest in body-mind-soul psychology was eclipsed by the discoveries and philosophies of mechanistic and empirical psychology, non-material attributes (physical research) tended to be avoided, and the disincorporation of these attributes has continued up to the present time, at least until the birth of Jungian psychology around 1912. Relevant to this continuous disincorporation of psychical materials from mainline psychology, it is interesting to note the 1945 and 1975 encyclopedia definitions for it. The 1945 definition (Columbia encyclopedia) goes thus: Psychology is defined as the study of mind, which, although acknowledging the historical body-mind-soul problem, indicated that "psychology as it appears today should be given in terms of behavior," since, based upon this approach, "it is possible not to become entangled in the mind-body controversy which has for so long a time occupies a place

of prominence and resulted in much confusion." In the 1975 definition, we see that the mind-soul "entanglement" has been done away with: Psychology is now defined as the study of the activities of living things and their interaction with the environment. Psychologists study processes of sense perception, responses to stimuli, thinking, learning, remembering and problem solving, emotions and motivations, personality, mental disorders, and the interaction of the individual and the group.

8. Psychical research actually can be said to have begun when experimental samplings by qualified observers or researchers took place, and were forced to consider their findings outside of mainline psychology, into which non-material (or psychic) human attributes should reasonably have been incorporated, were it not for the disincorporation process that has been continuous. Paracelsus ( ) was perhaps the first to put scientific order into his experiments, showing semblance as he does to scientific methodologies of today. But certainly by 1763, experimental samplings of psychical phenomena had begun to be accumulated, recorded, observed and reported upon. Denied entrance into mainline psychology, psychical research was then forced into the rival theory category, and has existed in that slot up to the present time, accompanied as it is by all the destructive antagonism characteristic to the positionings of rival theory.

9. If psychical research is entertained as rival theory, which it is obviously, then it becomes possible to view it historically in relation to other sciences and, aside from its own inherent obscurity and ambiguities, it is possible to comprehend its treatment through its decades of development and modifications. Just what psychical research is rival to, however, remains somewhat problematical. The history illustrates that it is certainly rival to mainline psychology as that has come to be evolved. But it is also rival to, because of its non-material nature, theories of logic, rationalism and philosophical materialism. In the light of this,

it is worthy to note that the greatest detractors of psychical research are not usually found among personalities at the head of mainline science, who tend to accept the implications of empirical data, but among the so-called softer sciences, those of philosophy, sociology and scientific pseudo-philosophies, to whose adherents empirical implications are all too often only a nuisance.

10. With this vista in front of us, it therefore becomes of interest as to when and into what mainline psychical research will be incorporated or reincorporated. Or, considering that it has established its own history, if it will continue to accumulate its own mainline strengths. Tendencies of reincorporation into the Jungian branch of psychology have been sounding for quite some time; but on the other hand, it is possible to see that Jung himself was disincorporated from mainline psychology, possibly because of his interest in the ambiguous and obscure traits epitomized by psychical phenomenologies. The greatest and most important adherents of psychical phenomena, however, have come to be non-material physicists, who seem to see in the nature of psychical research certain complimentary evidence that is relatable to the problems centering in the behaviour of non-material physics. It is not out of the question, therefore, to expect that psychical research will sooner be incorporated into mainline physics long before it is acknowledged and incorporated into mainline psychology. Incorporation of psychical research implications into that mainline science portends a major scientific paradigm shift therein, and is admittedly revolutionary in character.