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Includes beginning for abstract

METAPHYSICAL FALL-OUT FROM THE NUCLEAR PREDICAMENT*

A series of nuclear prophets has produced a series of philosophically-oriented works on nuclear war.¹ The series is important for its deeper penetration into the main nuclear predicament, down to metaphysical levels; in this the series contrasts with the transient superficialities of much of the political commentary. The most widely circulated and influential text of the series is undoubtedly that of the slightest of the "prophets", Schell's The Fate of the Earth. This skillful piece of media-philosophy uncannily redeploys some of the apparently deep phenomenological themes of Anders. So, conveniently, main assumptions of Schell and Anders can often be considered together. To criticise their assumptions is not of course to belittle their work. In particular, Schell's little book, for all its political shortcomings, is having a significant and much needed effect in shifting attitudes towards nuclear arrangements. It is especially valuable for its vivid and horrifying scenarios of the aftermath of nuclear attack. Unfortunately it also exhibits, both philosophically and factually, severe defects.

Some of it is simply rubbish: to take one example, consider the claim that 'without ... a world-wide program of action for preserving the [human] species nothing else that we undertake together can make any practical or moral sense ...' (p.173, rearranged). This should certainly be rejected philosophically; for there is no separate moral issue of such overwhelming importance that all other issues become morally neutral. Moral issues remain moral issues: they don't cease to be so when compared with more important moral issues (as Schell effectively acknowledges elsewhere, e.g. p.130). And the claim should be questioned on more factual grounds. Humans form a highly resilient species, like rats a survivor species, unlikely to be entirely exterminated under presently-arranged nuclear holocausts.

The example was selected however because it leads into, indeed presupposes, two of the major defective assumptions in the work of Schell and Anders:

- S1. Nuclear war will eliminate life, human life at least, on earth (the extinction assumption); and
- S2. In the absence of humans, very many notions, not only those of morality and value, but those of time and space for example, make no sense; or, to put it into a more sympathetic philosophical form, these notions depend for their sense on an actual human context (the extravagant anthropocentric assumption).²

It is applications of S2 which give Anders' and Schell's work some of its apparent philosophical depth, and certainly induce much philosophical puzzlement through the paradoxical propositions generated. But the frequent applications of S2 depend essentially on S1.³ For without total extinction there will be humans about, to make past and future, good and evil, go on making sense!

Granted that assumption S1 is by no means ruled out as a real possibility, as the technological means appear available to make it true, to render Homo sapiens extinct;⁴ granted the prospect of large-scale nuclear war does threaten leading centres of Western civilization with obliteration. Even so S1 appears unlikely in the light of present - admittedly inadequate - information. Even in Canada, which lies on the polar route of Soviet missiles, human life should be able to continue in certain northern areas (according to Canadian medical studies). Schell's argument to S1 is extremely flimsy. It depends, for example, on an unjustified extrapolation from the Northern to the Southern Hemisphere, but for the most part it does that very North American thing, of contracting the world to North America. (All that matters, all worthwhile civilization, is in USA, or at least, to be more charitable, in North America and Europe, which will also be wiped out, i.e. its human population will be eliminated in the nuclear holocaust.) Some of the data Schell relies upon, for example the effect of nuclear explosions on the ozone layer, was significantly out of date even when he wrote. Other effects than ozone destruction, such as variations in ultraviolet radiation and temperature levels, apparently extrapolate even less well from North to South. A factually superior study of nuclear disaster produced at about the same time as Schell's, by Preddey and others, indicates that parts of the Southern Hemisphere, such as New Zealand and southern latitudes of Latin America could escape relatively unscathed from even most massive northern exchanges.

Doomsday prophets may appear to have gained new purchase through recent (if belated) scientific forecasts of a nuclear winter following upon nuclear war. But although these forecasts certainly add a new, and alarming, ecological dimension to the very damaging consequences of large-scale nuclear war, they do not sustain the extinction assumption⁵. On the available evidence, human life will continue, though no doubt with new complications and simplifications, for example, in many southern mid-latitude coastal regions outside zones of radiation fall-out. More generally, life will go on, though likely seriously and irreversibly impoverished through loss of valuable nonhuman systems and creatures. /s /1

Nuclear prophets usually see the world (though with most of it carried along) as already set, in crucial respects, on the route to nuclear catastrophe. Much of the

way taken is seen as both inevitable and irreversible. Thus both Anders and Schell insist upon the "impossibility of unlearning" the means of manufacturing nuclear bombs. It would seem that extinction, which they both foresee, would furnish a good medium for unlearning nuclear technology (something very like this emerges from van Daniken's theory of an earlier "high" technology). In virtue of S2, they would however exclude such a possibility as a case of unlearning, contending wrongly that the notion no longer made sense. But what they again want to suggest with the impossibility-of-unlearning message is the inevitability of the development and eventual use of the technology - as if having learnt the means all else was determined, and manufacture and use ceased to be a matter of choice. Certainly such views have been advanced.⁶ But they are not tenable. There are many examples of technological advances that have not been taken advantage of, and there are even cases of technological developments that have been manufactured but not marketed or used. There is not something very special about nuclear apparatus that puts it beyond the scope of such generalisations.

Both Schell and Anders do claim that there are very special things about nuclear weapons, notably that they do not allow "experiments". Even if this were true just of nuclear weapons - and it is certainly not of smaller weapons - it would not rebut the previous argument against the inevitability of nuclear weapons. And in fact Anders and (even) Schell hedge their claims about testing, and the limits to nuclear scientific work, to large-scale weapons and independent experiments which do not interfere with the observers and those outside the "laboratories". Again they have latched onto major points: in particular, we have at present no way of testing the cumulative effects of large nuclear weapons in concert, e.g. for more holistic effects, such as fireballs or firestorms, or changes in coupled atmospheric circulation and radiation fields. Short of a large-scale nuclear war, and likely enough with it, these crucial effects must remain largely untested and hypothetical in character. Nonetheless enough data can be assembled to carry through informative modellings, which point to the improbability of S1, and so undermine applications of S2.

The penetration of human chauvinism, as in S2, is not something peculiar to Schell and Anders, but is a product of Western philosophy, European philosophy especially. This chauvinism is unfortunately alive and still well, Anders' version of S2 being just one striking illustration (cf. AA p.252ff.). It has also deeply penetrated Anglo-American philosophy, and has been extended under the influence of Wittgenstein's work, where even the necessary truths of mathematics are taken to be a product of human conventions, and would vanish with humans! Such are alleged

implications of extinction: but the fact is that the truths of arithmetic are in no way dependent on the existence of humans or humanoids or of gods or giraffes. As with necessary truths and falsehoods so with contingent ones: very many propositions about the world do not depend in any way for their truth-value or content on humans or their communities.

In Schell, human chauvinism is dished up in a particularly powerful and obnoxious Kantian form. Thoughts and propositions, time and tenses, history and memories, values and morality, all depend on the life-giving presence of human beings - past or future or merely potential humans are not enough, persons that are not humans are certainly not enough. Thus, according to Schell (p.140, e.g.), '... the thought "Humanity is now extinct" is an impossible one for a rational person, because as soon as it is, we are not. In imagining any other event, we look ahead to a moment that is still within the stream of human time, ... '. The thought is however perfectly possible for humans; we can have it right now. Though we no doubt have it falsely, a later rational creature may well be able to have it truly. Schell erroneously denies that: there is no "later" 'outside the human tenses of past, present, and future ...' (p.140)⁷. Human extinction eliminates 'the creature that divides time into past, present and future': so annihilation cannot 'come to pass' (p.143). But it is simply false that the tenses are human; the tenses depend on a local time ordering (perceptible to many creatures other than humans, but not depending at all on that perceptibility for its viability) relating other times to the present, to now (also a human-independent location, evident to other creatures, and borne witness to by such sequences as the passing seasons). And annihilation may also too easily come to pass, for many humans in the North at least, as it came to pass in recent geological times that humans began to exist upon earth. Before that there was a time before there were any human beings.

Anders' argument for the demise of time, that 'what has been will no longer be even what has been', is also explicitly (and narrowly) verificationist: 'for what would the difference be between what has only been and what has never been, if there is no one to remember the things that have been' (AA p.245). There would still remain many sorts of difference; for one, the history recorded in many other organisms would be different. Temporal themes do not lack 'legitimacy because not registered [or verified] by anyone'; truth, significance, still less meaning, are not matters of human verification.

Here, as elsewhere, the human chauvinism is mixed with other distorting metaphysical assumptions of our Western heritage, in particular, verificationism and

ontological assumptions (to the effect that there are severe difficulties in talking about what does not exist)⁸. Thus, for example, Schell takes over dubious metaphysics from Freud, according to whom "it is indeed impossible to imagine our own death; and whenever we attempt to do so, we can perceive that we are in fact still present as spectators" (p.138). The second clause goes a good distance towards refuting the first. In fact there is no great difficulty in describing counterfactual situations which undermine both Freud's claims. The same goes for Schell's extensions of human chauvinism into one of its main traditional strongholds, value theory: '... the simple and basic fact [sic!] that before there can be good or evil, service or harm, lamenting or rejoicing there must be life', human life (p.171). These are no facts, but deeply entrenched philosophical dogmas (which have been exposed and criticised elsewhere), e.g. HC). 8

Naturally many things will disappear with the extinction of humans: trivially there will be no more humans (unless humans re-evolve or are recreated), and thus no more human communities, human institutions, human activities, human emotions, and so forth. But it is already going too far to suggest, as Anders does, that there will accordingly be 'no thought, no love, no struggle, no pain, no hope, no comfort, no sacrifice, no image, no song ...'. For there are, and may continue to exist, other creatures than humans with emotion, struggles, songs, Nor will the ending of all such human ventures, if it comes to pass, show that all past human ventures have been 'all in vain', meaningless, and already so to say dead. The decay of the solar system, or the heat-death of the universe even, will not show that worthwhile human activities were not worthwhile.⁹ 9

Several of the other notions and themes common to Schell and Anders derive from their shared assumptions S1 and S2. It is these that underlie the biblical notion (in Revelations) of a Second Death, redeployed by both. 'The death of mankind', under S1, is reckoned a 'second death', because by S2 and S1 remaining life is rendered meaningless and already 'seems to be dead' (AA p.244, S p.166) and is already 'overhung with death' (S p.166). Thus, too, more trivially, a person faces 'a second death', not merely one's own but in addition that greater death of the species and all future generations (S p.166, p.115). However even if nuclear extinction came to pass, the stronger notion would not be vindicated, because it depends on the fallacious inference to the meaninglessness of preceding life and on the very questionable representation of this meaninglessness as a sort of death. There is no such Second Death: creatures die just once, perhaps all at about the same time. The idea of a Second Death lacks even a solid metaphysical base.

From S1, together with the minor principle that extinction being an absolute doesn't differ in degree, comes the universality of peril theme that 'we are all exposed to peril in the same degree', which is accordingly 'disguised' and 'difficult to recognise', because there is no contrast (AE p.64; S p.150). This theme falls with S1. In any event, not all peoples are equally imperilled by the nuclear situation, the Indians of southern Patagonia being rather better placed than the Germans of northern Europe. Nor are all people equally locked into the situation or incapacitated by it; the prospects are different in different countries and places.

Nor, likewise, are all people equally responsible, a pernicious theme, which Schell (in contrast to Anders) repeatedly infiltrates. This is the Pogo theme, according to which

S3. Responsibility for the present nuclear predicament (fiasco, really) distributes onto everybody, it belongs to every human in the world.¹⁰

But there is also, mixed in, a weaker more plausible claim that gives lie to the stronger one, namely that we have some responsibility (the Nazi situation is compared). An especially blatant example of the Pogo theme¹¹ runs as follows: '... the world's political leaders ... though they now menace the earth with nuclear weapons, do so only with our permission, and even at our bidding. At least, this is true for democracies' (pp.229-30). The theme is elaborated elsewhere: '... we are the authors of that extinction. (For the populations of the superpowers this is true in a positive sense, since we pay for extinction and support the governments that pose the threat of it, while for the peoples of the non-nuclear-armed world it is true only in the negative sense that they fail try to do anything about the danger)' (p.152). But this is more of an argument indicting representative government, by revealing its insensitivity and unresponsiveness to many of the populace they allegedly govern, not to mention those affected by its activities who are not represented at all (namely foreigners). But Schell conveniently neglects all such points: '... we are potential mass killers. The moral cost of nuclear armaments is that it makes of all of us underwriters of the slaughter of hundreds of millions' (p.152). And again '[as] perpetrators ... we convey the steady message ... that life not only is not sacred but is worthless; that ... it had been judged acceptable for everyone to be killed' (p.153). Little of this is true. Those who campaign against nuclear arrangements, vote against nuclear-committed parties so far as is possible, and the like, are certainly not the authors of potential destruction, and responsibility for the nuclear situation does not simply distribute onto them. Nor does responsibility - or the unlikely opinions as to worth Schell illegitimately attributes to everyone - fall on those who have done less. Responsibility for decisions taken in "liberal democracies" even by representatives (in the unlikely

event of this happening in the case of anything as important as defence) cannot be traced back to those represented, since among many other things, a representative is only representative of a party which offers a complex and often ill-characterised package of policies, and a voter may vote for zero or more policies of this package. Only in the (uncommon) event of a clear single issue referendum, which is adopted, can responsibility, still of a qualified sort, be sheeted home, to those who voted for it, not to everyone in the community. While S3 is false, there is an important related theme that is much more plausible; namely that the present nuclear situation generates responsibilities for every socially involved person.

When moreover the Pogo assumption is disentangled from accompanying themes, part of what results is decidedly along the right lines; namely

S4. The controllers [not to be confused, in Schell's fashion, with all of us] have failed to change our pre-nuclear institutions. The sovereign system is out of step with the nuclear age, the one-earth system, etc. (the whole earth theme).

Though Schell remains relatively clear about the serious defects of the state and the frequently immoral purposes for which the state is used, unfortunately he often loses sight of this important theme (indicated pp.187-8). Yet S4 forms part of Schell's critique of the state which is, by and large, scattered and fragmentary. Schell arrives at the conclusion that the nation-state has outlasted its usefulness, and that new political institutions more 'consonant with the global reality' are required as a matter of urgency. But he evades what he admits is the major task, making out viable alternatives.¹² At most he makes some passing gestures, some pointing towards the Way Up to world political control.

Solutions to the nuclear dilemma come, if not easily, in a similar simplistic way, from the Top Down; those who can must appeal to the Top, to those who govern (cf. p.230). Schell places his hope in treaties for arms reduction and limitations, such as SALT, and in world government, through the United Nations (see p.225ff. and especially p.227, bottom paragraph). Given the record of these organisations and treaties, the negotiations and regulators, it is by now a pathetic faith. Nor is a serious need felt for further analysis of the nuclear situation, to investigate the origins of nuclear technology, to explore the roots of nuclear blindness, to consider effective changes to military-industrial organisation and ways of life.

8/ But some of the requisite deeper analysis of the nuclear situation and, more generally, of the roots of war can be found in Anderson ~~and~~ elsewhere.¹³ The roots of the nuclear predicament are not confined to the ideologically-aligned arrangements of nation-states, but penetrate also into key components of those states, their

military, their controlling classes, and their supporting bureaucracies. And both within the arrangements of states, what accounts in part for the arrangements, and in key components of the states, a conspicuous and crucial feature is the drive for power and domination (and, often, the accompanying privilege).¹⁴ Thus the push for [nuclear] superiority by the super-states, to be achieved through military-oriented science and technology, which involves and enables domination, in several interrelated forms. The main power-base is the large nation-state, where enough surplus product can be accumulated (from at home and from abroad, and bled from nature) to proceed with military and bureaucratic ambitions and to found the high-technology research and development means to ever more expendable power and energy.¹⁵

In changing the structural arrangements to eliminate the prospect of nuclear war, it is not ultimately enough just to downgrade the main power-base, the nation-state; it is also important to alter key components of the state, and, more sweepingly, to remove trouble-making patterns embedded in all these social and political arrangements, namely patterns of domination, patterns manifested not only in state political organisation, but in white-coloured relations, male-female relations, human-animal relations, human-nature relations; to remove, in short, chauvinistic relations. However not everything needs to be accomplished at once; and the cluster of damaging power and domination relations tied into war can be tackled separately. And there the problems can largely be narrowed to certain problems of states and certain key components of states.

In what analysis he does offer of the problem with states, Schell repeats the familiar false contrast of state expediency with morality, as a contrast between "raison d'etat" and the Socratic-Christian ethics. The teaching that 'the end justifies the means is the basis on which governments, in all times, have licensed themselves to commit crimes of every sort' (p.134). So 'states may do virtually anything whatever in the name of [their] survival'. Schell then argues however, that extinction nullifies end-means justification by destroying every end; but again the argument is far from sound, and depends on human chauvinism (as under S2) combined with ontological assumptions. Even if all humans were extinguished (as under S1) ends could remain, for instance for nonhumans such as animals and extraterrestrials, actual or not. The ends-means argument can however be repaired to remove such objections: instead it is claimed that extinction nullifies ends-means justification by frustrating the realisation of every relevant end - meaning by 'relevant', in this context, those ends the realisation of which the state appeals to in justification of its nuclear policies.¹⁶ A nuclear war, even without human extinction but with severe enough losses, would undoubtedly frustrate the realisation of relevant state ends.

So even from an expediency perspective, super-state policies are open to severe criticism, for example as motivationally irrational in the nuclear risks taken.

As to the part of the state and (state) sovereignty in war, Schell leaves us in no doubt. A sovereign state is virtually defined as one that enjoys the right and power to go to war in defence or pursuit of its interests (p.187). War arises from how things are; from the arrangement of political affairs via jealous nation-states (p.188). Indeed there is a two-way linkage between having sovereignty and capacity to wage war. On the one side, sovereignty is, Schell contends, necessary for people to organise for war. On the other side, without war it is impossible to preserve sovereignty. Neither of these contentions is transparently clear as it stands. The first is damaged by civil war and the like, the second by the persistence of small nonmilitary states. Now that the macro-state system is entrenched, it is however easy for conservatives (in particular) to argue from the "realities" of international life, which include self-interest, aggression, fear, hatred. It is on this basis that peace arrangements are readily dismissed as unrealistic, utopian, even (amusingly) as extremist (cf. p.185).

Schell's further theme that nuclear "war" is not war threatens, however, to undermine his case against the sovereign state; for example, his ends-means argument and the argument based on its nuclear-war making capacity. Fortunately the not-war theme needs much qualification, and starts out from an erroneous characterisation of war as 'a violent means employed by a nation to achieve an end' (p.189): but this is neither necessary nor sufficient for war. What is correct is that nuclear wars are very different from previous conventional wars (cf. WP). Schell goes on to claim that war requires an end which nuclear "war" does not have. But nuclear attacks can certainly have ends (even if large nuclear wars cannot be won in the older sense: but not all wars or games are won). It is also claimed that war depends on weakness; on one side being defeated on a decision by arms. But in nuclear "war" this doesn't happen, 'no one's strength fails until both sides have been annihilated' (p.190). But what these sorts of considerations contribute to showing is again not that nuclear wars are not wars, but that they are not wars of certain sorts, e.g., not just wars (because they fail on such criteria as reasonable prospect of success and improvement), not rational wars (in a good sense), and so on. That conventional wars have persisted into nuclear times does damage to Schell's argument that nuclear weapons have also ruined "conventional" wars, and his connected theme that the demise of war has left no means to finally settle disputes between nations, for the final court of appeal has been removed (pp.192-193). The theme depends on a pair of mistaken propositions: that concerning the demise of conventional war, and the idea

that war of some sort has to be the final "court of appeal" between nations (for there are other types of contests that could serve, and there is also the possibility of more cooperative behaviour, e.g. joint referenda). The theme also imports the social-Darwinian assumption of Clausewitz (the "logic of war" theme) that war has to proceed to the technological limit - as if war and violence were thoroughly natural activities, independent of recognised social settings (for winning, surrender, etc.), and ruleless activities. On the contrary, wars are parasitic on social organisations such as states and are governed by a range of understandings, conventions and rules. They are a social phenomenon, with a rule structure, if not a logic.

Much capital has been made not merely from "the logic of war" but from what is now called "the logic of deterrence" and the "logic of nuclear [strategic] planning". The message that is usually supposed to emerge is that the massive arrangements the world is now entangled in are perfectly logical, sound, rational. However this represents little more than a cheap semantical trick. Logic in no way justifies the present arrangements, or anything like them, or renders them reasonable. There are logics of decision (as presented, e.g., for the classical case in Jeffrey) which can be applied in strategic planning; but they do not yield specific results without desirability measures being assigned to alternative outcomes, that is without values being pumped in, extralogically. There are various ways these value assignments may be determined, to meet moral requirements or not; but in nuclear strategic planning they have invariably been settled on the basis of expediency¹⁷. For the most part, however, 'logic of' tends to be used very loosely, as a word of general commendation, to cover something like 'reasoning and rational considerations entering into the policy or strategy of'. In these terms, Schell, who like others enjoys playing with the term 'logic of', should write of 'the illogic of deterrence', for he emphasizes its unreasonableness. For instance he stresses (p.213) the disparity between the supposed rationality of threatening use of nuclear weapons and the irrationality (even from a national interest viewpoint) of actually using them should the threat fail:¹⁸ yet the success of deterrence doctrine depends on the credibility of the threat of this unjustifiable and irrational use. Indeed Schell wants to go still further and locate a contradiction in deterrence (e.g. pp.201-2); but the argument depends on an interesting confusion of contradiction with cancellation,¹⁹ along with the assumption that deterrence involves cancellation. Nuclear deterrence may well be irrational, it is immoral, but it is not inconsistent.

NOTES

* This is a revised version of 'Appendix 1. On the fate of mankind and the earth, according to Schell, and to Anders' of my monograph referred to as WP, where several points, only touched upon in this review, are further developed. References are by way of authors' names or else through obvious acronyms, given in the list of references which follows.

1. The distinguishing term is from Foley's Nuclear Prophets, where many leading anti-nuclear prophets are assessed. One well-known prophet not so considered there is Jaspers, presumably because his main work comes out in entirely the wrong direction. It gives heavy philosophical attire to the better-dead-than-red abomination. A main argument against Jaspers so presented is simple. However bad being red might become (at present it is debatably worse than living under some of the totalitarian regimes the free West props up), it still gives humans a further chance for good lives, since regimes fall or can be toppled: but total annihilation removes that all-important opportunity.

But of course Jaspers does not present his position so simply. Rather his contention is that there are circumstances where, and principles for which, a person or group of persons ought to sacrifice even their lives. Freedom is such: a life worth living is a free life. But the latter point can be granted without conceding that sacrifice is a possible means to it. While the sacrifice of one or a few lives may be a possible (if dubiously effective) way to free lives for others, certainly the sacrifice of all lives is not a possible route to free lives for all, since no human lives remain. To this extent Schell is right (on p.131) in accusing Jaspers of an each to all fallacy. Jasper's idea that "the free life that they try to save by all possible means is more than mere life or lives" breaks down when applied to all participating people. None can gain free lives by extinction of all: that is not a possible route to life even.

2. A detailed comparison of Schell and Anders' remarkably similar versions of S2 is made in Foley JS.
3. Should S2 appeal, as it may, to suitable communities of humans, S1 will require reformulation in similar terms; and the argument that follows needs minor adjustment, with appropriate groups replacing individuals.
4. Thus the Last Person argument, important in environmental ethics (as HC explains), is no longer merely hypothetical, awaiting for instance the remote death of the Sun, but assumes new urgency. It is this sort of argument that connects environmental ethics and nuclear ethics, at a deeper metaphysical level. The Bomb and Bulldozer are out of the same technological Pandora's box.

Nuclear technology is not the only route to human extinction, nor the only Pandora's box. Biological and chemical means are perhaps even more effective, and certainly can be more selective in what gets extinguished. Nuclear extinction would presumably require a different and more massive exchange than is usually assumed in nuclear war scenarios, with heavy

targeting in particular of Southern Hemisphere sites (including internationally-recognised nuclear-free zones). /ic

5. Nor do recent scientific studies claim as much. The most intrepid of these studies, Erlich and others, only contends that in certain worst-case circumstances, 'the possibility of the extinction of Homo sapiens cannot be excluded' (p.1299). The study admits that, in the scenario described, 'it seems unlikely ... Homo sapiens would be forced to extinctions immediately', and the difficulties indicated in the way of long-term human survival are exaggerated. (1)

In particular, many of the drastic effects predicted for Northern mid-latitudes are reflected in very much milder form in equivalent Southern latitudes. For example, temperatures for regions with maritime climates appear likely to vary by only a few degrees and perhaps negligibly for many agricultural purposes after 100 days (cf. Turco and others, p.1287 case 29, and p.1286). Similarly the extent of nuclear darkness and of surface ultraviolet radiation will be appreciably less in the South and perhaps minor for many crucial purposes, such as photosynthesis and human outdoor activity, after 100 days (cf. the data in Benton and Partridge).

No doubt some scientifically respectable sections of the environmental and peace movements have an interest in exaggerating the probable effects of nuclear holocaust for life on earth, much as many statesmen and strategists have an interest in minimizing them. And there is certainly substantial margin for error and for variation in conclusions drawn. For Crutzen (p.59) is right that 'analyses of the environmental effects of a global nuclear war remain ... uncertain ... because of a lack of information on various important processes [among other things] ... The environment might become extremely hostile, because of hitherto overlooked changes in the composition of the atmosphere', again among other things. Such uncertainty bodes considerable caution as rational. The way to err is clear. /T

6. Not merely by technological determinists of marxist persuasion. Hackworth, a former US general, argues by straight induction that if the US military has a weapon it will use it.
7. The appalling theme that humans create past, present and future (etc.) is repeated elsewhere, e.g. p.173.
8. For detailed refutation of these assumptions, see JB.
9. Anders is here (AA pp.244-5) relying upon a version of the argument from perserverence, criticised in detail in Routley and Griffin.
10. An interesting converse of this theme is sometimes advanced, that no one is responsible, the whole thing is out of control. The technological version of this no-responsibility theme is discussed below (fn 15). More satisfactory is the theme that nuclear arrangements are out of political control, but for reasons, in terms of vested interests in keeping nuclear things going, which enable responsibility to be distributed. The vested interests, which bear considerable responsibility, include the military

weapons industry, and research and academic communities (cf. Barnaby). Under pressures for re-election especially, politicians give in to these powerful groups, so losing control of political processes. The argument is flawed at its final stage. For many influential politicians either belong to or represent vested interests. Thus, though there is no doubt some 'lack of control', political processes tend rather to reflect vested interests than to run out of political control.

11. Another example of spreading the responsibility runs as follows: 'The self-extinction of our species is not an act that anyone describes as sane or sensible; nevertheless, it is an act that, without quite admitting it to ourselves, we plan in certain circumstances to commit' (p.185). Even for most of the planners, extinction is presumably not part of "the plan", but an unintended consequence; and most of us have little or no role in the planning, enough of us even campaign against the planning. Further 'the world ... chose the course of attempting to refashion the system of sovereignty to accommodate nuclear weapons' (p.194): the world? This connects of course with the faulty ideological argument from defence of fundamentals, e.g. for liberty, for the "free enterprise" (USA) nation, and against socialism.

12. A more detailed discussion is given in WP §8, where too the case against the state from ~~the~~ nuclear dilemma^s is elaborated.

13. Anders' explanation is elaborated in Foley; some of the themes are presented more straightforwardly in Martin. The incomplete list of items given, to be investigated in a deeper analysis of the nuclear situation, paraphrases Foley JS p.164.

14. These motivating drives form part of a larger integrated package, comprising maximisation drives for power, knowledge, control, wealth, energy, speed, satisfaction, ..., for the "newer" Enlightenment (but Faustian) virtues. Frequently there are attempts (the human failing for excessive neatness and simplicity manifested) to reduce the package to one main component, preference-satisfaction, for instance, or utility. And the type of drive is justified (especially for those who have it, but worry about it) not only as virtuous, which it is not, but also as rational, which again it is not.^{of} Rationality, the deeply entrenched myth has it, consists in maximisation,¹ a suitable mix of these virtues.

Maximisation of the objects of the drives runs, however, into limitation theorems and associated paradoxes. The maximisation of self-interest (individual or national) runs into Newcomb's paradox² and special cases^{of it} such as Prisoners Dilemma situations. The maximisation of power, as symbolised in the Christian-Islamic God, encounters the paradox of omnipotence, the parallel maximisation of knowledge, paradoxes of omniscience. There are no consistent objects which are omnipotent or omniscient. The drive for maximum consistency, often taken to be the epitome of rationality, also leads to inconsistency in the case of more important theories, such as arithmetic and set theory (by virtue of Gödel's theorem and associated limitative theorems).

15. R & D, though directed by military requirements and the arms race, also

drives the arms race. Its role is partly disguised by the myth of neutral science.

There have been attempts, not only by those committed to technological determinism, to involve technology more deeply as the main, or single, source of the nuclear fix (thus especially Mumford, in part thereby anticipating Commoner's parallel indictment of technology-choice in the ecological fix). It is technology, the mega-machine, running out of control, that has brought us to this predicament, the nuclear abyss. Sometimes this serves to exonerate states and their key components and those who control them, for they are simply caught up by this out-of-control machine; but sometimes the state itself is seen as a machine also running out of control. But technological determinism, like other varieties of stronger (nonanalytic) determinism, is false. Nuclear technology was selected and proceeded with, after a well-known political dispute involving distinguished scientists; it was deliberated, funded and promoted, while other alternatives were not.

Damaging technologies of the nuclear age were not inevitable, but deliberately chosen by certain components of the large nation-states. And much as they need not have been chosen, so they do not have to be persisted with. The fashionable inevitability/determinism themes admit not only of refutation by bringing out the many choices made in persisting with often recalcitrant technologies. They also admit of being made to look ridiculous. If the Bomb is determined, as part of human evolution, then if it functions (as it probably will, a matter also determined), it will serve as a human population control device, a matter also determined. That is, the Bomb has its fixed evolutionary place in human population regulation!

16. This reformulation was proposed by N. Griffin, who suggested that the main qualification can be inferred from Schell's context.
17. Selecting the usual game theory setting sees to this almost automatically; for it is then assumed that each player plays to maximize his or her own advantage. Thus too the presumption in Walzer, p.277, that 'the logic of deterrence' is based on eye-for-eye and tooth-for-tooth assumptions.
18. Even the irrationality of ^{(or} ~~retaliatory~~ first-strike) use has been contested, e.g. it has been wishfully thought that America will rise like a phoenix from the radioactive ashes.

There is moreover a simple solution to Schell's problem of the "missing motive" for retaliating to a large strike (p.204), namely, not a retributive one, but an ideological one: eliminate the prospect of the future dominance of the rival ideology. Such a motive has been offered ^{ed)} ~~for~~ the conjectural ^{ed)} targeting of Latin America.

19. An analogous confusion of negation with cancellation or obliteration appears in recent US "star-war" thinking, where US missiles are supposed to "negate" incoming USSR missiles.

Moral paradoxes of deterrence take a different direction. For although

involving negation, they depend upon perhaps questionable interconnexions of intensional functors. One type of paradox (considered in WP §5, where the immorality of deterrence is argued) derives from a policy of credibly threatening war without however intending to proceed to war, though credible threats [appear to] imply an intention to proceed. Another style derives from acclaimed intention to reduce the number of nuclear missiles when the persistent practice, which implies an intention, is to increase the number. This paradox is technically removed - how satisfactorily is another matter - by a distinction between longer-term aims and immediate practice, a time-honoured method of removing contradictions by conveniently discerned temporal distinctions.

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L. Wittgenstein,

Appendix 1: On the fate of mankind and the earth, according to Schell and Anders.

Nuclear prophets and prophetic rubbish. The extinction assumption. Common emerging themes of Schell and Anders. The extravagant anthropocentric assumption, and some of what is wrong with it. Second death dismissed. The universality of peril. The alleged universality of responsibility: the Pogo theme. The correct, but undeveloped, whole earth theme. Ultimately Schell offers little hope and superficiality. Nuclear war is war. The logic and illogic of deterrence.

For abstract.

METAPHYSICAL FALL-OUT FROM THE NUCLEAR PREDICAMENT*

A series of nuclear prophets has produced a series of philosophically-oriented works on nuclear war.¹ The series is important for its deeper penetration into the main nuclear predicament, down to metaphysical levels; in this the series contrasts with the transient superficialities of much of the political commentary. The most widely circulated and influential text of the series is undoubtedly that of the slightest of the "prophets", Schell's The Fate of the Earth. This skillful piece of media-philosophy uncannily redeploys some of the apparently deep phenomenological themes of Anders. So, conveniently, main assumptions of Schell and Anders can often be considered together. To criticise their assumptions is not of course to belittle their work. In particular, Schell's little book, for all its political shortcomings, is having a significant and much needed effect in shifting attitudes towards nuclear arrangements. It is especially valuable for its vivid and horrifying scenarios of the aftermath of nuclear attack. Unfortunately it also exhibits, both philosophically and factually, severe defects.

Some of it is simply rubbish: to take one example, consider the claim that 'without ... a world-wide program of action for preserving the [human] species nothing else that we undertake together can make any practical or moral sense ...' (p.173, rearranged). This should certainly be rejected philosophically; for there is no separate moral issue of such overwhelming importance that all other issues become morally neutral. Moral issues remain moral issues: they don't cease to be so when compared with more important moral issues (as Schell effectively acknowledges elsewhere, e.g. p.130). And the claim should be questioned on more factual grounds. Humans form a highly resilient species, like rats a survivor species, unlikely to be entirely exterminated under presently-arranged nuclear holocausts.

The example was selected however because it leads into, indeed presupposes, two of the major defective assumptions in the work of Schell and Anders:

- S1. Nuclear war will eliminate life, human life at least, on earth (the extinction assumption); and
- S2. In the absence of humans, very many notions, not only those of morality and value, but those of time and space for example, make no sense; or, to put it into a more sympathetic philosophical form, these notions depend for their sense on an actual human context (the extravagant anthropocentric assumption).²

It is applications of S2 which give Anders' and Schell's work some of its apparent philosophical depth, and certainly induce much philosophical puzzlement through the paradoxical propositions generated. But the frequent applications of S2 depend essentially on S1.³ For without total extinction there will be humans about, to make past and future, good and evil, go on making sense!

Granted that assumption S1 is by no means ruled out as a real possibility, as the technological means appear available to make it true, to render Homo sapiens extinct;⁴ granted the prospect of large-scale nuclear war does threaten leading centres of Western civilization with obliteration. Even so S1 appears unlikely in the light of present - admittedly inadequate - information. Even in Canada, which lies on the polar route of Soviet missiles, human life should be able to continue in certain northern areas (according to Canadian medical studies). Schell's argument to S1 is extremely flimsy. It depends, for example, on an unjustified extrapolation from the Northern to the Southern Hemisphere, but for the most part it does that very North American thing, of contracting the world to North America. (All that matters, all worthwhile civilization, is in USA, or at least, to be more charitable, in North America and Europe, which will also be wiped out, i.e. its human population will be eliminated in the nuclear holocaust.) Some of the data Schell relies upon, for example the effect of nuclear explosions on the ozone layer, was significantly out of date even when he wrote. Other effects than ozone destruction, such as variations in ultraviolet radiation and temperature levels, apparently extrapolate even less well from North to South. A factually superior study of nuclear disaster produced at about the same time as Schell's, by Preddey and others, indicates that parts of the Southern Hemisphere, such as New Zealand and southern latitudes of Latin America could escape relatively unscathed from even most massive northern exchanges.

Doomsday prophets may appear to have gained new purchase through recent (if belated) scientific forecasts of a nuclear winter following upon nuclear war. But although these forecasts certainly add a new, and alarming, ecological dimension to the very damaging consequences of large-scale nuclear war, they do not sustain the extinction assumption⁵. On the available evidence, human life will continue, though no doubt with new complications and simplifications, for example in many southern mid-latitude coastal regions outside zones of radiation fall-out. More generally, life will go on, though likely seriously and irreversibly impoverished through loss of valuable nonhuman systems and creatures.

Nuclear prophets usually see the world (though with most of it carried along) as already set, in crucial respects, on the route to nuclear catastrophe. Much of the

way taken is seen as both inevitable and irreversible. Thus both Anders and Schell insist upon the "impossibility of unlearning" the means of manufacturing nuclear bombs. It would seem that extinction, which they both foresee, would furnish a good medium for unlearning nuclear technology (something very like this emerges from van Daniken's theory of an earlier "high" technology). In virtue of S2, they would however exclude such a possibility as a case of unlearning, contending wrongly that the notion no longer made sense. But what they again want to suggest with the impossibility-of-unlearning message is the inevitability of the development and eventual use of the technology - as if having learnt the means all else was determined, and manufacture and use ceased to be a matter of choice. Certainly such views have been advanced.⁶ But they are not tenable. There are many examples of technological advances that have not been taken advantage of, and there are even cases of technological developments that have been manufactured but not marketed or used. There is not something very special about nuclear apparatus that puts it beyond the scope of such generalisations.

Both Schell and Anders do claim that there are very special things about nuclear weapons, notably that they do not allow "experiments". Even if this were true just of nuclear weapons - and it is certainly not of smaller weapons - it would not rebut the previous argument against the inevitability of nuclear weapons. And in fact Anders and (even) Schell hedge their claims about testing, and the limits to nuclear scientific work, to large-scale weapons and independent experiments which do not interfere with the observers and those outside the "laboratories". Again they have latched onto major points: in particular, we have at present no way of testing the cumulative effects of large nuclear weapons in concert, e.g. for more holistic effects, such as fireballs or firestorms, or changes in coupled atmospheric circulation and radiation fields. Short of a large-scale nuclear war, and likely enough with it, these crucial effects must remain largely untested and hypothetical in character. Nonetheless enough data can be assembled to carry through informative modellings, which point to the improbability of S1, and so undermine applications of S2.

The penetration of human chauvinism, as in S2, is not something peculiar to Schell and Anders, but is a product of Western philosophy, European philosophy especially. This chauvinism is unfortunately alive and still well, Anders' version of S2 being just one striking illustration (cf. AA p.252ff.). It has also deeply penetrated Anglo-American philosophy, and has been extended under the influence of Wittgenstein's work, where even the necessary truths of mathematics are taken to be a product of human conventions, and would vanish with humans! Such are alleged

implications of extinction: but the fact is that the truths of arithmetic are in no way dependent on the existence of humans or humanoids or of gods or giraffes. As with necessary truths and falsehoods so with contingent ones: very many propositions about the world do not depend in any way for their truth-value or content on humans or their communities.

In Schell, human chauvinism is dished up in a particularly powerful and obnoxious Kantian form. Thoughts and propositions, time and tenses, history and memories, values and morality, all depend on the life-giving presence of human beings - past or future or merely potential humans are not enough, persons that are not humans are certainly not enough. Thus, according to Schell (p.140, e.g.), '... the thought "Humanity is now extinct" is an impossible one for a rational person, because as soon as it is, we are not. In imagining any other event, we look ahead to a moment that is still within the stream of human time, ... '. The thought is however perfectly possible for humans; we can have it right now. Though we no doubt have it falsely, a later rational creature may well be able to have it truly. Schell erroneously denies that: there is no "later" 'outside the human tenses of past, present, and future ...' (p.140)⁷. Human extinction eliminates 'the creature that divides time into past, present and future': so annihilation cannot 'come to pass' (p.143). But it is simply false that the tenses are human; the tenses depend on a local time ordering (perceptible to many creatures other than humans, but not depending at all on that perceptibility for its viability) relating other times to the present, to now (also a human-independent location, evident to other creatures, and borne witness to by such sequences as the passing seasons). And annihilation may also too easily come to pass, for many humans in the North at least, as it came to pass in recent geological times that humans began to exist upon earth. Before that there was a time before there were any human beings.

Anders' argument for the demise of time, that 'what has been will no longer be even what has been', is also explicitly (and narrowly) verificationist: 'for what would the difference be between what has only been and what has never been, if there is no one to remember the things that have been' (AA p.245). There would still remain many sorts of difference; for one, the history recorded in many other organisms would be different. Temporal themes do not lack 'legitimacy because not registered [or verified] by anyone'; truth, significance, still less meaning, are not matters of human verification.

Here, as elsewhere, the human chauvinism is mixed with other distorting metaphysical assumptions of our Western heritage, in particular, verificationism and

ontological assumptions (to the effect that there are severe difficulties in talking about what does not exist)⁸. Thus, for example, Schell takes over dubious metaphysics from Freud, according to whom "it is indeed impossible to imagine our own death; and whenever we attempt to do so, we can perceive that we are in fact still present as spectators" (p.138). The second clause goes a good distance towards refuting the first. In fact there is no great difficulty in describing counterfactual situations which undermine both Freud's claims. The same goes for Schell's extensions of human chauvinism into one of its main traditional strongholds, value theory: '... the simple and basic fact [sic!] that before there can be good or evil, service or harm, lamenting or rejoicing there must be life', human life (p.171). These are no facts, but deeply entrenched philosophical dogmas (which have been exposed and criticised elsewhere, e.g. HC).

Naturally many things will disappear with the extinction of humans: trivially there will be no more humans (unless humans re-evolve or are recreated), and thus no more human communities, human institutions, human activities, human emotions, and so forth. But it is already going too far to suggest, as Anders does, that there will accordingly be 'no thought, no love, no struggle, no pain, no hope, no comfort, no sacrifice, no image, no song ...'. For there are, and may continue to exist, other creatures than humans with emotion, struggles, songs, Nor will the ending of all such human ventures, if it comes to pass, show that all past human ventures have been 'all in vain', meaningless, and already so to say dead. The decay of the solar system, or the heat-death of the universe even, will not show that worthwhile human activities were not worthwhile.⁹

Several of the other notions and themes common to Schell and Anders derive from their shared assumptions S1 and S2. It is these that underlie the biblical notion (in Revelations) of a Second Death, redeployed by both. 'The death of mankind', under S1, is reckoned a 'second death', because by S2 and S1 remaining life is rendered meaningless and already 'seems to be dead' (AA p.244, S p.166) and is already 'overhung with death' (S p.166). Thus, too, more trivially, a person faces 'a second death', not merely one's own but in addition that greater death of the species and all future generations (S p.166, p.115). However even if nuclear extinction came to pass, the stronger notion would not be vindicated, because it depends on the fallacious inference to the meaninglessness of preceding life and on the very questionable representation of this meaninglessness as a sort of death. There is no such Second Death: creatures die just once, perhaps all at about the same time. The idea of a Second Death lacks even a solid metaphysical base.

From S1, together with the minor principle that extinction being an absolute doesn't differ in degree, comes the universality of peril theme that 'we are all exposed to peril in the same degree', which is accordingly 'disguised' and 'difficult to recognise', because there is no contrast (AE p.64; S p.150). This theme falls with S1. In any event, not all peoples are equally imperilled by the nuclear situation, the Indians of southern Patagonia being rather better placed than the Germans of northern Europe. Nor are all people equally locked into the situation or incapacitated by it; the prospects are different in different countries and places.

Nor, likewise, are all people equally responsible, a pernicious theme which Schell (in contrast to Anders) repeatedly infiltrates. This is the Pogo theme, according to which

S3. Responsibility for the present nuclear predicament (fiasco, really) distributes onto everybody, it belongs to every human in the world.¹⁰

But there is also, mixed in, a weaker more plausible claim that gives lie to the stronger one, namely that we have some responsibility (the Nazi situation is compared). An especially blatant example of the Pogo theme¹¹ runs as follows: '... the world's political leaders ... though they now menace the earth with nuclear weapons, do so only with our permission, and even at our bidding. At least, this is true for democracies' (pp.229-30). The theme is elaborated elsewhere: '... we are the authors of that extinction. (For the populations of the superpowers this is true in a positive sense, since we pay for extinction and support the governments that pose the threat of it, while for the peoples of the non-nuclear-armed world it is true only in the negative sense that they fail try to do anything about the danger)' (p.152). But this is more of an argument indicting representative government, by revealing its insensitivity and unresponsiveness to many of the populace they allegedly govern, not to mention those affected by its activities who are not represented at all (namely foreigners). But Schell conveniently neglects all such points: '... we are potential mass killers. The moral cost of nuclear armaments is that it makes of all of us underwriters of the slaughter of hundreds of millions' (p.152). And again '[as] perpetrators ... we convey the steady message ... that life not only is not sacred but is worthless; that ... it had been judged acceptable for everyone to be killed' (p.153). Little of this is true. Those who campaign against nuclear arrangements, vote against nuclear-committed parties so far as is possible, and the like, are certainly not the authors of potential destruction, and responsibility for the nuclear situation does not simply distribute onto them. Nor does responsibility - or the unlikely opinions as to worth Schell illegitimately attributes to everyone - fall on those who have done less. Responsibility for decisions taken in "liberal democracies" even by representatives (in the unlikely

event of this happening in the case of anything as important as defence) cannot be traced back to those represented, since among many other things, a representative is only representative of a party which offers a complex and often ill-characterised package of policies, and a voter may vote for zero or more policies of this package. Only in the (uncommon) event of a clear single issue referendum, which is adopted, can responsibility, still of a qualified sort, be sheeted home, to those who voted for it, not to everyone in the community. While S3 is false, there is an important related theme that is much more plausible; namely that the present nuclear situation generates responsibilities for every socially involved person.

When moreover the Pogo assumption is disentangled from accompanying themes, part of what results is decidedly along the right lines; namely

S4. The controllers [not to be confused, in Schell's fashion, with all of us] have failed to change our pre-nuclear institutions. The sovereign system is out of step with the nuclear age, the one-earth system, etc. (the whole earth theme).

Though Schell remains relatively clear about the serious defects of the state and the frequently immoral purposes for which the state is used, unfortunately he often loses sight of this important theme (indicated pp.187-8). Yet S4 forms part of Schell's critique of the state which is, by and large, scattered and fragmentary. Schell arrives at the conclusion that the nation-state has outlasted its usefulness, and that new political institutions more 'consonant with the global reality' are required as a matter of urgency. But he evades what he admits is the major task, making out viable alternatives.¹² At most he makes some passing gestures, some pointing towards the Way Up to world political control.

Solutions to the nuclear dilemma come, if not easily, in a similar simplistic way, from the Top Down; those who can must appeal to the Top, to those who govern (cf. p.230). Schell places his hope in treaties for arms reduction and limitations, such as SALT, and in world government, through the United Nations (see p.225ff. and especially p.227, bottom paragraph). Given the record of these organisations and treaties, the negotiations and regulators, it is by now a pathetic faith. Nor is a serious need felt for further analysis of the nuclear situation, to investigate the origins of nuclear technology, to explore the roots of nuclear blindness, to consider effective changes to military-industrial organisation and ways of life.

But some of the requisite deeper analysis of the nuclear situation and, more generally, of the roots of war can be found in Anders and elsewhere.¹³ The roots of the nuclear predicament are not confined to the ideologically-aligned arrangements of nation-states, but penetrate also into key components of those states, their

military, their controlling classes, and their supporting bureaucracies. And both within the arrangements of states, what accounts in part for the arrangements, and in key components of the states, a conspicuous and crucial feature is the drive for power and domination (and, often, the accompanying privilege).¹⁴ Thus the push for [nuclear] superiority by the super-states, to be achieved through military-oriented science and technology, which involves and enables domination, in several interrelated forms. The main power-base is the large nation-state, where enough surplus product can be accumulated (from at home and from abroad, and bled from nature) to proceed with military and bureaucratic ambitions and to found the high-technology research and development means to ever more expendable power and energy.¹⁵

In changing the structural arrangements to eliminate the prospect of nuclear war, it is not ultimately enough just to downgrade the main power-base, the nation-state; it is also important to alter key components of the state, and, more sweepingly, to remove trouble-making patterns embedded in all these social and political arrangements, namely patterns of domination, patterns manifested not only in state political organisation, but in white-coloured relations, male-female relations, human-animal relations, human-nature relations; to remove, in short, chauvinistic relations. However not everything needs to be accomplished at once; and the cluster of damaging power and domination relations tied into war can be tackled separately. And there the problems can largely be narrowed to certain problems of states and certain key components of states.

In what analysis he does offer of the problem with states, Schell repeats the familiar false contrast of state expediency with morality, as a contrast between "raison d'etat" and the Socratic-Christian ethics. The teaching that 'the end justifies the means' is the basis on which governments, in all times, have licensed themselves to commit crimes of every sort' (p.134). So 'states may do virtually anything whatever in the name of [their] survival'. Schell then argues however, that extinction nullifies end-means justification by destroying every end; but again the argument is far from sound, and depends on human chauvinism (as under S2) combined with ontological assumptions. Even if all humans were extinguished (as under S1) ends could remain, for instance for nonhumans such as animals and extraterrestrials, actual or not. The ends-means argument can however be repaired to remove such objections: instead it is claimed that extinction nullifies ends-means justification by frustrating the realisation of every relevant end - meaning by 'relevant', in this context, those ends the realisation of which the state appeals to in justification of its nuclear policies.¹⁶ A nuclear war, even without human extinction but with severe enough losses, would undoubtedly frustrate the realisation of relevant state ends.

So even from an expediency perspective, super-state policies are open to severe criticism, for example as motivationally irrational in the nuclear risks taken.

As to the part of the state and (state) sovereignty in war, Schell leaves us in no doubt. A sovereign state is virtually defined as one that enjoys the right and power to go to war in defence or pursuit of its interests (p.187). War arises from how things are; from the arrangement of political affairs via jealous nation-states (p.188). Indeed there is a two-way linkage between having sovereignty and capacity to wage war. On the one side, sovereignty is, Schell contends, necessary for people to organise for war. On the other side, without war it is impossible to preserve sovereignty. Neither of these contentions is transparently clear as it stands. The first is damaged by civil war and the like, the second by the persistence of small nonmilitary states. Now that the macro-state system is entrenched, it is however easy for conservatives (in particular) to argue from the "realities" of international life, which include self-interest, aggression, fear, hatred. It is on this basis that peace arrangements are readily dismissed as unrealistic, utopian, even (amusingly) as extremist (cf. p.185).

Schell's further theme that nuclear "war" is not war threatens, however, to undermine his case against the sovereign state; for example, his ends-means argument and the argument based on its nuclear-war making capacity. Fortunately the not-war theme needs much qualification, and starts out from an erroneous characterisation of war as 'a violent means employed by a nation to achieve an end' (p.189): but this is neither necessary nor sufficient for war. What is correct is that nuclear wars are very different from previous conventional wars (cf. WP). Schell goes on to claim that war requires an end which nuclear "war" does not have. But nuclear attacks can certainly have ends (even if large nuclear wars cannot be won in the older sense: but not all wars or games are won). It is also claimed that war depends on weakness; on one side being defeated on a decision by arms. But in nuclear "war" this doesn't happen, 'no one's strength fails until both sides have been annihilated' (p.190). But what these sorts of considerations contribute to showing is again not that nuclear wars are not wars, but that they are not wars of certain sorts, e.g., not just wars (because they fail on such criteria as reasonable prospect of success and improvement), not rational wars (in a good sense), and so on. That conventional wars have persisted into nuclear times does damage to Schell's argument that nuclear weapons have also ruined "conventional" wars, and his connected theme that the demise of war has left no means to finally settle disputes between nations, for the final court of appeal has been removed (pp.192-193). The theme depends on a pair of mistaken propositions: that concerning the demise of conventional war, and the idea

that war of some sort has to be the final "court of appeal" between nations (for there are other types of contests that could serve, and there is also the possibility of more cooperative behaviour, e.g. joint referenda). The theme also imports the social-Darwinian assumption of Clausewitz (the "logic of war" theme) that war has to proceed to the technological limit - as if war and violence were thoroughly natural activities, independent of recognised social settings (for winning, surrender, etc.), and ruleless activities. On the contrary, wars are parasitic on social organisations such as states and are governed by a range of understandings, conventions and rules. They are a social phenomenon, with a rule structure, if not a logic.

Much capital has been made not merely from "the logic of war" but from what is now called "the logic of deterrence" and the "logic of nuclear [strategic] planning". The message that is usually supposed to emerge is that the massive arrangements the world is now entangled in are perfectly logical, sound, rational. However this represents little more than a cheap semantical trick. Logic in no way justifies the present arrangements, or anything like them, or renders them reasonable. There are logics of decision (as presented, e.g., for the classical case in Jeffrey) which can be applied in strategic planning; but they do not yield specific results without desirability measures being assigned to alternative outcomes, that is without values being pumped in, extralogically. There are various ways these value assignments may be determined, to meet moral requirements or not; but in nuclear strategic planning they have invariably been settled on the basis of expediency¹⁷. For the most part, however, 'logic of' tends to be used very loosely, as a word of general commendation, to cover something like 'reasoning and rational considerations entering into the policy or strategy of'. In these terms, Schell, who like others enjoys playing with the term 'logic of', should write of 'the illogic of deterrence', for he emphasizes its unreasonableness. For instance he stresses (p.213) the disparity between the supposed rationality of threatening use of nuclear weapons and the irrationality (even from a national interest viewpoint) of actually using them should the threat fail:¹⁸ yet the success of deterrence doctrine depends on the credibility of the threat of this unjustifiable and irrational use. Indeed Schell wants to go still further and locate a contradiction in deterrence (e.g. pp.201-2); but the argument depends on an interesting confusion of contradiction with cancellation,¹⁹ along with the assumption that deterrence involves cancellation. Nuclear deterrence may well be irrational, it is immoral, but it is not inconsistent. *

*As utilitarian argues theory modelling
will show. Hence, utilitarianism is gone
for something.*

NOTES

* This is a revised version of 'Appendix 1. On the fate of mankind and the earth, according to Schell, and to Anders' of my monograph referred to as WP, where several points, only touched upon in this review, are further developed. References are by way of authors' names or else through obvious acronyms, given in the list of references which follows.

1. The distinguishing term is from Foley's Nuclear Prophets, where many leading anti-nuclear prophets are assessed. One well-known prophet not so considered there is Jaspers, presumably because his main work comes out in entirely the wrong direction. It gives heavy philosophical attire to the better-dead-than-red abomination. A main argument against Jaspers so presented is simple. However bad being red might become (at present it is debatably worse than living under some of the totalitarian regimes the free West props up), it still gives humans a further chance for good lives, since regimes fall or can be toppled: but total annihilation removes that all-important opportunity.

But of course Jaspers does not present his position so simply. Rather his contention is that there are circumstances where, and principles for which, a person or group of persons ought to sacrifice even their lives. Freedom is such: a life worth living is a free life. But the latter point can be granted without conceding that sacrifice is a possible means to it. While the sacrifice of one or a few lives may be a possible (if dubiously effective) way to free lives for others, certainly the sacrifice of all lives is not a possible route to free lives for all, since no human lives remain. To this extent Schell is right (on p.131) in accusing Jaspers of an each to all fallacy. Jasper's idea that "the free life that they try to save by all possible means is more than mere life or lives" breaks down when applied to all participating people. None can gain free lives by extinction of all: that is not a possible route to life even.

2. A detailed comparison of Schell and Anders' remarkably similar versions of S2 is made in Foley JS.
3. Should S2 appeal, as it may, to suitable communities of humans, S1 will require reformulation in similar terms; and the argument that follows needs minor adjustment, with appropriate groups replacing individuals.
4. Thus the Last Person argument, important in environmental ethics (as HC explains), is no longer merely hypothetical, awaiting for instance the remote death of the Sun, but assumes new urgency. It is this sort of argument that connects environmental ethics and nuclear ethics, at a deeper metaphysical level. The Bomb and Bulldozer are out of the same technological Pandora's box.

Nuclear technology is not the only route to human extinction, nor the only Pandora's box. Biological and chemical means are perhaps even more effective, and certainly can be more selective in what gets extinguished. Nuclear extinction would presumably require a different and more massive exchange than is usually assumed in nuclear war scenarios, with heavy

targeting in particular of Southern Hemispheric sites (including internationally-recognised nuclear-free zones).

5. Nor do recent scientific studies claim as much. The most intrepid of these studies, Erlich and others, only contends that in certain worst-case circumstances, 'the possibility of the extinction of Homo sapiens cannot be excluded' (p.1299). The study admits that, in the scenario described, 'it seems unlikely ... Homo sapiens would be forced to extinctions immediately', and the difficulties indicated in the way of long-term human survival are exaggerated.

In particular, many of the drastic effects predicted for Northern mid-latitudes are reflected in very much milder form in equivalent Southern latitudes. For example, temperatures for regions with maritime climates appear likely to vary by only a few degrees and perhaps negligibly for many agricultural purposes after 100 days (cf. Turco and others, p.1287 case 29, and p.1286). Similarly the extent of nuclear darkness and of surface ultraviolet radiation will be appreciably less in the South and perhaps minor for many crucial purposes, such as photosynthesis and human outdoor activity, after 100 days (cf. the data in Benton and Partridge).

No doubt some scientifically respectable sections of the environmental and peace movements have an interest in exaggerating the probable effects of nuclear holocaust for life on earth, much as many statesmen and strategists have an interest in minimizing them. And there is certainly substantial margin for error and for variation in conclusions drawn. For Crutzen (p.59) is right that 'analyses of the environmental effects of a global nuclear war remain ... uncertain ... because of a lack of information on various important processes [among other things] ... The environment might become extremely hostile, because of hitherto overlooked changes in the composition of the atmosphere', again among other things. Such uncertainty bodes considerable caution as rational. The way to err is clear.

6. Not merely by technological determinists of marxist persuasion. Hackworth, a former US general, argues by straight induction that if the US military has a weapon it will use it.
7. The appalling theme that humans create past, present and future (etc.) is repeated elsewhere, e.g. p.173.
8. For detailed refutation of these assumptions, see JB.
9. Anders is here (AA pp.244-5) relying upon a version of the argument from perseverance, criticised in detail in Routley and Griffin.
10. An interesting converse of this theme is sometimes advanced, that no one is responsible, the whole thing is out of control. The technological version of this no-responsibility theme is discussed below (fn 15). More satisfactory is the theme that nuclear arrangements are out of political control, but for reasons, in terms of vested interests in keeping nuclear things going, which enable responsibility to be distributed. The vested interests, which bear considerable responsibility, include the military

weapons industry, and research and academic communities (cf. Barnaby). Under pressures for re-election especially, politicians give in to these powerful groups, so losing control of political processes. The argument is flawed at its final stage. For many influential politicians either belong to or represent vested interests. Thus, though there is no doubt some 'lack of control', political processes tend rather to reflect vested interests than to run out of political control.

11. Another example of spreading the responsibility runs as follows: 'The self-extinction of our species is not an act that anyone describes as sane or sensible; nevertheless, it is an act that, without quite admitting it to ourselves, we plan in certain circumstances to commit' (p.185). Even for most of the planners, extinction is presumably not part of "the plan", but an unintended consequence; and most of us have little or no role in the planning, enough of us even campaign against the planning. Further 'the world ... chose the course of attempting to refashion the system of sovereignty to accommodate nuclear weapons' (p.194): the world? This connects of course with the faulty ideological argument from defence of fundamentals, e.g. for liberty, for the "free enterprise" (USA) nation, and against socialism.
12. A more detailed discussion is given in WP §8, where too the case against the state from nuclear dilemmas is elaborated.
13. Anders' explanation is elaborated in Foley; some of the themes are presented more straightforwardly in Martin. The incomplete list of items given, to be investigated in a deeper analysis of the nuclear situation, paraphrases Foley JS p.164.
14. These motivating drives form part of a larger integrated package, comprising maximisation drives for power, knowledge, control, wealth, energy, speed, satisfaction, ..., for the "newer" Enlightenment (but Faustian) virtues. Frequently there are attempts (the human failing for excessive neatness and simplicity manifested) to reduce the package to one main component, preference-satisfaction, for instance, or utility. And the type of drive is justified (especially for those who have it, but worry about it) not only as virtuous, which it is not, but also as rational, which again it is not. Rationality, the deeply entrenched myth has it, consists in maximisation, of a suitable mix of these virtues.

Maximisation of the objects of the drives runs, however, into limitation theorems and associated paradoxes. The maximisation of self-interest (individual or national) runs into Newcomb's paradox and special cases of it such as Prisoners Dilemma situations. The maximisation of power, as symbolised in the Christian-Islamic God, encounters the paradox of omnipotence, the parallel maximisation of knowledge, paradoxes of omniscience. There are no consistent objects which are omnipotent or omniscient. The drive for maximum consistency, often taken to be the epitome of rationality, also leads to inconsistency in the case of more important theories, such as arithmetic and set theory (by virtue of Gödel's theorem and associated limitative theorems).

15. R & D, though directed by military requirements and the arms race, also

drives the arms race. Its role is partly disguised by the myth of neutral science.

There have been attempts, not only by those committed to technological determinism, to involve technology more deeply as the main, or single, source of the nuclear fix (thus especially Mumford, in part thereby anticipating Commoner's parallel indictment of technology-choice in the ecological fix). It is technology, the mega-machine, running out of control, that has brought us to this predicament, the nuclear abyss. Sometimes this serves to exonerate states and their key components and those who control them, for they are simply caught up by this out-of-control machine; but sometimes the state itself is seen as a machine also running out of control. But technological determinism, like other varieties of stronger (nonanalytic) determinism, is false. Nuclear technology was selected and proceeded with, after a well-known political dispute involving distinguished scientists; it was deliberated, funded and promoted, while other alternatives were not.

Damaging technologies of the nuclear age were not inevitable, but deliberately chosen by certain components of the large nation-states. And much as they need not have been chosen, so they do not have to be persisted with. The fashionable inevitability/determinism themes admit not only of refutation by bringing out the many choices made in persisting with often recalcitrant technologies. They also admit of being made to look ridiculous. If the Bomb is determined, as part of human evolution, then if it functions (as it probably will, a matter also determined), it will serve as a human population control device, a matter also determined. That is, the Bomb has its fixed evolutionary place in human population regulation!

16. This reformulation was proposed by N. Griffin, who suggested that the main qualification can be inferred from Schell's context.
17. Selecting the usual game theory setting sees to this almost automatically; for it is then assumed that each player plays to maximize his or her own advantage. Thus too the presumption in Walzer, p.277, that 'the logic of deterrence' is based on eye-for-eye and tooth-for-tooth assumptions.
18. Even the irrationality of retaliatory (or first-strike) use has been contested, e.g. it has been wishfully thought that America will rise like a phoenix from the radioactive ashes.

There is moreover a simple solution to Schell's problem of the "missing motive" for retaliating to a large strike (p.204), namely, not a retributive one, but an ideological one: eliminate the prospect of the future dominance of the rival ideology. Such a motive has been offered for the conjectured targeting of Latin America.

19. An analogous confusion of negation with cancellation or obliteration appears in recent US "star-war" thinking, where US missiles are supposed to "negate" incoming USSR missiles.

Moral paradoxes of deterrence take a different direction. For although

involving negation, they depend upon perhaps questionable interconnexions of intensional functors. One type of paradox (considered in WP §5, where the immorality of deterrence is argued) derives from a policy of credibly threatening war without however intending to proceed to war, though credible threats [appear to] imply an intention to proceed. Another style derives from acclaimed intention to reduce the number of nuclear missiles when the persistent practice, which implies an intention, is to increase the number. This paradox is technically removed - how satisfactorily is another matter - by a distinction between longer-term aims and immediate practice, a time-honoured method of removing contradictions by conveniently discerned temporal distinctions.

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