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*Liebe F. Cavalieri*

# Genetic Engineering: A Blind Plunge

THERE is a striking similarity between nuclear science and genetic engineering. Molecular biologists, like nuclear physicists before them, are euphoric over their success at deciphering another of nature's secrets. But genetic engineering is not just another scientific accomplishment. Like nuclear physics, it confers on human beings a power for which they are psychologically and morally unprepared. The physicists have already learned this, to their dismay; the biologists, not yet. Indeed, one Nobel laureate has boasted, "We can outdo evolution."

In the face of the infinite complexity of natural systems, the idea that we could improve on the design of nature is not only hubris, it is frightening. In Lewis Thomas' words, we are ignorant "most of all about the enormous, imponderable system in life in which we are embedded as working parts. We do not really understand nature at all". We know that the Earth behaves like an indivisible, delicately tuned mechanism, in which the inanimate environment is strongly conditioned by living things, and vice versa; but we have only begun to decipher the influence of each part of the whole.

For example, we recognize that certain microorganisms convert organic wastes to usable nutrients, and that this recycling process is critical in maintaining the composition of the atmosphere and other conditions favorable to human life and to the web of species that sustain us. But we cannot predict the effect on these vital microorganisms of accelerated evolution, engineered by man, coupled with the accelerated environmental changes now produced by human activities (such as the production of carbon dioxide on a vast scale from fossil fuels, the distribution of novel chemical pollutants around the earth, the large-scale clearing of forests, displacement of biological diversity by a minuscule number of cultivated species, etc.).

Nevertheless, genetic manipulation of microorganisms by recombinant DNA technology has proceeded rapidly and is now a widespread practice. More than 150 genetic engineering firms, mainly oriented toward the design of industrially useful microorganisms, have been formed in the last two years. From their laboratories, microorganisms with properties taken from higher forms of life will inevitably escape into the ecosphere; other engineered forms will eventually be released intentionally into the environment for purposes such as the solubilization of trace metals in mining operations or the digestion of oil spills. We are laying the groundwork for unforeseen evolutionary changes that may create an inhospitable environment for present species.

Certainly, we can find some assurance in nature's resiliency; life has survived environmental upheavals for millions of years. But as conditions have changed, so has the balance of life, with incompatible forms disappearing and new ones arising. The human species has evolved to fit the present ecological conditions. If there were a drastic change in the environment, some forms of life would undoubtedly adapt, but humans, with their many, exacting biological requirements, could not evolve fast enough to become compatible with the new environment.

The gene pool of the Earth, which comprises all living organisms, is a precious, irreplaceable legacy of natural evolution. It is in the truest sense a one-time occurrence and it would be naive to assume that we can manipulate it without harming ourselves. We do not have the infinite wisdom that would be required.

This is a unique moment in history. With the experience of the nuclear weapons threat to draw on, we ought now to be able to act *before* another crisis is upon us. We ought not to be blinded by the short-term promises of genetic engineering. Unlike pollution and other forms of assault on the environment, once new genetic forms have become established they cannot be "cleaned up". It is not possible to reconstruct an earlier evolutionary era.

Forty years ago, physicists discovered that energy could be unleashed from the atomic nucleus; at the same time, biologists discovered that DNA, the material of the cell nucleus, was the genetic stuff of life. These twin scientific feats, one at the core of matter, the other at the core of life, are without doubt the most momentous discoveries of the 20th century. They demand a new consciousness if human life on this planet is to continue. We have mismanaged the applications of the first discovery. Now, as the second is about to be exploited, we must not permit the biosphere, surpassing as it does our understanding, to become an experimental subject. There is only one Earth, one earthly biosphere, and we are part of it. There is no margin for error.

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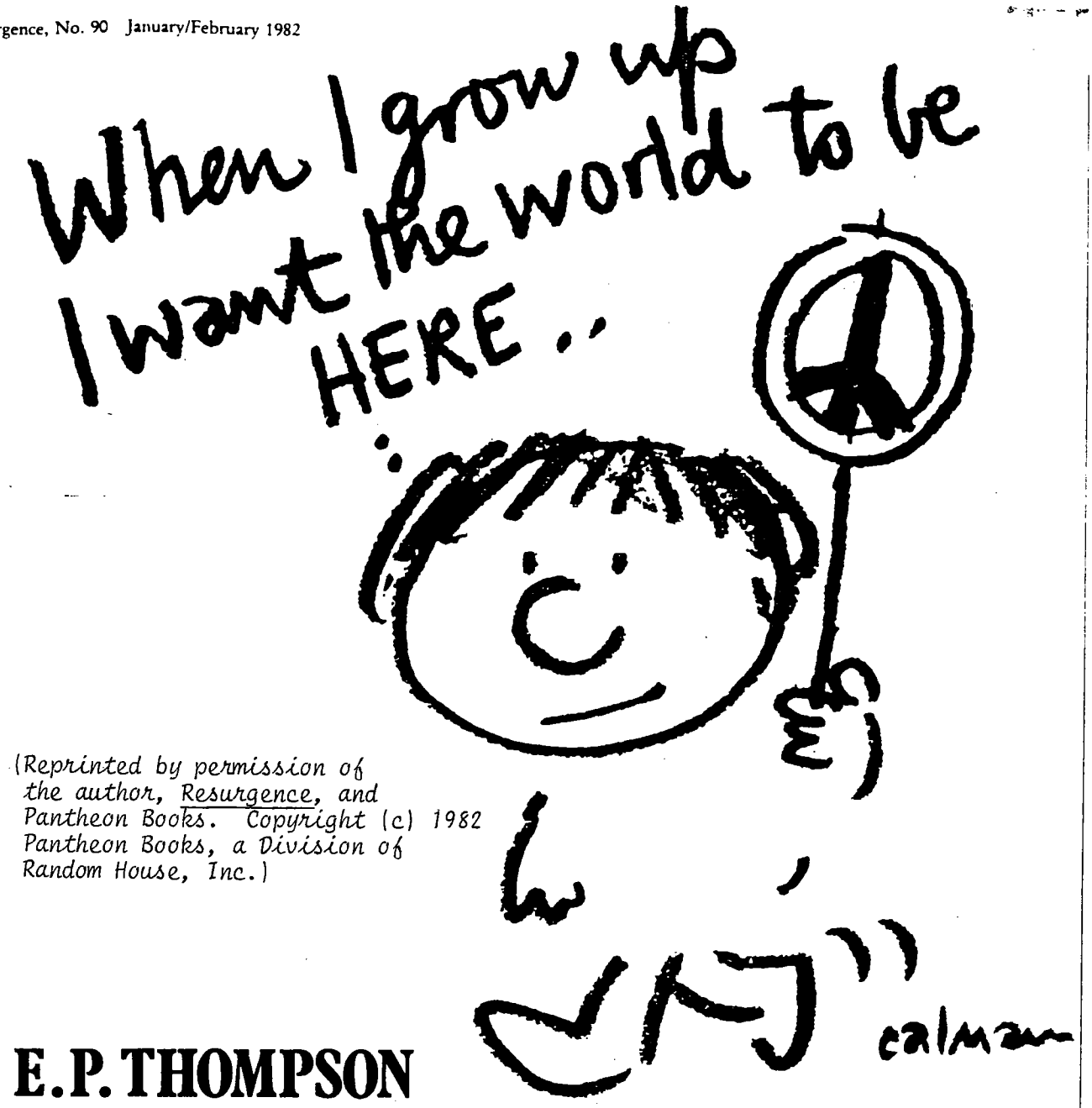




# E.P. THOMPSON
# The Deterrent Myth

**To my mind, the nuclear bomb is the most useless weapon ever invented. It can be employed to no constructive purpose. It is not even an effective defense against itself.**

*George F. Kennan*

Immoral or insane, the weapons are now here, in super-abundance. They condition our consciousness and expectations in innumerable ways. The consequences of their use defy our imagination; but at the same time, the dismantling of all this weaponry, down to the last nuclear land-mine, by the mutual agreement of both blocs, would require such a total realignment of strategy, resources, direction, ideologies, diplomacies — such an unprecedented investment in agitation, negotiation, and conversion — that this exhausts our imagination also. In confronting this threat to civilisation we are, in the end, confronting ourselves; and we turn away from the mirror, exhausted and self-defeated. We will pass the problem on, unresolved, to the next generation or the generation that follows. If any generation does.

This is, essentially, the political meaning of contemporary deterrence theory. In its pure form, that of MAD, or Mutual Assured Destruction, it proposes that war between the super-powers and their allies may be indefinitely postponed because nuclear weapons make any alternative unthinkable or unacceptable. I emphasise 'postponement'. The theory does not propose the victory of one 'side' over the other 'side', neither does it propose the resolution of those differences between the two parties which might, purportedly, bring them to war. On the contrary, by maintaining each party as in a posture of menace to the other, it fixes indefinitely the tension which makes the resolution of differences improbable. It transfixes diplomacies and ideologies into a twilight state; while postponing war it postpones also the resolutions of peace.

This would be so even if we were to succeed in reducing weaponry to a level of minimal deterrence: let us say, six delivery-systems on each side. But we are not reducing weaponry. Over the past two decades this has been steadily increasing, not only in gross destructive power — as Mr Kennan has said,

"levels of redundancy of such grotesque dimensions as to defy rational understanding" — but also in the quality and accuracy of delivery-systems. Hence the theory of deterrence now legitimates, not Mutual Assured Destruction, but Mutual Aggravated Destruction. And to the degree that menace is aggravated with each year, the resolution of differences by means short of war becomes less probable. There is no longer an even-handed postponement both of war and of peace; terminal war becomes more likely, the terminus of peace recedes from any agenda.

Is such a consequence inherent in the premises of the theory itself? On the one hand, it can be argued that this need not necessarily be so. A rigidly-enforced state of minimal deterrence, policed by some international authority, need not be subject to the law of aggravation. On the other hand, it has been argued, persuasively, that deterrence is inherently addictive, and hence must lead to aggravation. In 1979, shortly before his death, Professor Gregory Bateson, a member of the Board of Regents of the University of California, addressed his fellow Regents with the plea that the University renounce any part in the research or development of nuclear weapons. Employing analogies from biological systems as transferred to social psychology, he argued that "the short-time deterrent effect is achieved at the expense of a long-time cumulative change. The actions which today postpone disaster result in an increase in strength on *both* sides of the competitive system to ensure a greater instability and greater destruction if and when the explosion occurs. It is this fact of cumulative change from one act of threat to the next that gives the system the quality of *addiction.*"

Bateson is reminding us that we are not just dealing with weapons, in a medium of pure theory, where one threat balances and cancels out the other. These weapons operate in the medium of politics, ideology and strategy; they are perceived as menacing and are intended to be so perceived; they induce fear and they simultaneously enhance and frustrate feelings of aggression. Nor need aggravation pursue a steady linear advancement: in the vocabulary of mathematical catastrophe-theory civilisation may already be tipping over upon the overhanging cusp between fear and aggression.

This is really enough, and more than enough, about deterrence as theory. It is in truth a most pitiful, light-weight theory. It is espoused, in its pristine purity, only by a handful of monkish celibates, retired within the walls of centres of Strategic Studies. It cannot endure any intercourse with the actual world. It is at heart a very simple, and simple-minded, idea, which occurred to the first cave-men when they got hold of clubs. (It is this very simplicity which gives to it a certain populist plausibility). If I have a club that will deter him from clobbering me. The thought has gone on, through armies and empires, dreadnoughts and gas; all that a historian can say is that sometimes it has worked for a while, and sometimes it has not, but always in the end it has broken down. All that is new about it now is that the clubs of today, the technology of destruction, are so immense as to defy any rational exercise.

But it is not an *operative* theory: that is, it does not direct any nation's behaviour. It appears always as a gloss, as an ex post facto apologia, as a theoretical legitimation of actions which are taken for quite different reasons. The first atomic weapons were not developed because some theorist invented deterrence, and *then* scientists were commissioned to invent a bomb. The bombs were invented to blast the German and Japanese antagonists into submission. Thermo-nuclear weapons were not developed to deter anyone, but to demonstrate United States military superiority, and because it seemed to be a sweet new device worth developing. It was only *after* the Soviet Union also developed thermo-nuclear weapons that the theory of deterrence came into vogue, and on both sides. But if the theory had been operative, instead of cosmetic, that is where the development of such weaponry would have come to a fixed point of rest. Of course it did not.

Deterrence theory has become the ideological lubricant of the arms race. Its theories can be turned to use by the arms manufacturers or by military lobbies; or they can be brought in afterwards to justify anything. To be anything more than that, it would have to be fleshed out with some empirical substance; it would have to engage with the full historical process; and, at the end of all its worst-case predictions, it would have to envisage some way forward to an ultimate better case — to profer some little advice as to policies which might possibly advance the better and forestall the cumulative worst.

And how do deterrence theorists suppose that this race will ever end? Short of a final nuclear war, I suppose that there are these alternative scenarios. Soviet ideologists may suppose that, in the end, Western capitalism will collapse, with conjoint recession and inflation, shortage of energy resources, internal insurrection and revolt throughout the Third World. Western ideologists suppose that the Soviet economy will collapse under the burden of increasing arms allocations, with internal nationalist and dissident movements, and with insurrection or near-insurrection throughout Eastern Europe.

But these theorists need only cross the corridor and knock on the doors of their colleagues in History, Politics or Sociology, to learn that these scenarios might provide, precisely, the moment of the worst case of all. Each of these developments would bring the continent, and ultimately the world itself, into the greatest peril. Each would provide the conditions, not for the peaceful reunification of Europe, but for the rise of panic-stricken, authoritarian regimes, tempted to maintain the discipline of their peoples by recourse to military adventures. The break-down of East or West, in a situation of massive military confrontation, would tend to precipitate the resolution of war. And, indeed, already the military and political elites, both East and West, who are now sensing gathering difficulties within their own systems, are showing that they need the Cold War — they need to put not only their missiles but also their ideology and security systems into good repair — as a means of controlling internal dissent.

In doing this, these elites find deterrence theory to be of increasing service. We pass into a new, exalted stage where deterrence theory becomes the astrology of the nuclear age. It is a peculiar situation. In the case of internal ideological systems, the public normally have some experiential means of checking the ideology's veracity. Thus monetarism may appear as a superbly-logical system, but we still know what prices are in the shops, which of our neighbours are unemployed, and who has gone bankrupt. But in the case of deterrence theory, the ideologists control both the intellectual system and the information input. None of us, has ever seen an SS-20, nor can we count their numbers; none of us can check out the throw-weight or circular error probable of a Trident missile. We have no experiential means of critique whatsoever. The information itself is pre-processed within an ideological matrix (the intelligence services) and is presented with intent to prejudice.

Militarisation in the advanced world today has these contradictory features. It is distinguished by the very low visibility of some of its activities and the high visibility of others. The actual military presence, in most parts of Western although not in all parts of Eastern Europe, is very low. This is not a time, as were the Jingo days before World War I or as was Hitler's Germany in the late 1930s, of ostentatious parades, rallies, tattoos, and the ubiquitous recruiting sergeant. The actual weapons are invisible, at Grand Forks, North Dakota, or on the Kola peninsula, or at sea. The attendant communications and security operations are screened by Official

Secrecy. The militarisation of nuclear warfare is science- and capital-intensive; it does not require a huge uniformed labour force, nor does it necessitate conscription or the draft. The growing retinue of 'deterrence' is more likely to be in mufty: in manufacture, research and development; we may exchange small-talk with them in the university common-room — easy-going, civilian, decidedly-unmilitary types.

But at the same time militarisation as ideology has an increasingly sensational visibility. It is presented to us, on television, in the speeches of politicians, as the threat of the Other: the Backfire bomber, the SS-20, the hordes of Soviet tanks. It is necessary — and on both sides — to make the public's flesh creep in order to justify the expense and the manifest risks of 'our deterrents'. With the break-up of the Cominform, and the weakness and disarray of Western Communist movements, no-one is much impressed today with the story-line of the first Cold War: the threat from within. (This story-line still works, to more effect, in the East). What then must be imprinted upon the public mind is the escalating threat from without. Deterrence theory is elevated to the Chair of propaganda.

The other contradiction is this. None of these weapons — *none* of them — can ever be used, except for the final holocaust. As Mr Kennan has told us: "The nuclear bomb is the most useless weapon ever invented. It is not even an effective defense against itself." From some time around 1960, each additional weapon has been useless. They might as well not exist. The significance of these weapons is symbolic only.

I say 'symbolic only'; but as a social historian I have often offered the view that symbolism is a profoundly important component of historical process. Symbolic confrontations precede and accompany confrontations by force. The rituals of State, the public execution, the popular demonstration — all carry symbolic force; they consolidate the assured hegemony of the rulers or they demystify that hegemony and challenge it with numbers or ridicule. Symbolism is not a mere colour added to the facts of power; it is an element of societal power in its own right.

New generations of nuclear missiles are not less dangerous because they are only symbolic. They are carriers of the most barbarous symbolism in history. They spell out to our human neighbours that we are ready, at any instant, to annihilate them; and that we are perfecting the means. They spell out also the rejection of any alternative means of resolution of differences. That is why we must resist the temptation of being drawn within the premises of deterrence theory. The weapons are useless, except for the final event; they exist, today, only as symbols of human self-defeat; they must be rejected.

What should properly command our attention today is not the theory of deterrence but the social and political *consequences* of its working over two decades. From one aspect these consequences are merely absurd. Anthropologists will be familiar with the potlach — the ritual and ceremonial destruction, by primitive peoples, of their surplus food and resources. From this aspect, the nuclear arms race is nothing but a gigantic potlach. From another aspect, matters are perilous. It is not only that these weapons do actually exist; their function may be as symbols, but they remain there, on their launch-pads, instantly ready. The weapons have been consumed in no potlach, only the human resources have been consumed. And there are now new and devilish strategies which propose that they might actually, in 'limited' ways, be used.

But the greater peril does not lie here. It lies in the consequences of a course of action which has frozen diplomatic and political process and has continually postponed the making of peace. Deterrence theory proceeded by excluding as irrelevant all that was extraneous to weaponry. But no theory can prohibit economic and political process from going on. Through these two decades, frustrated aggression has fed back into the opposed societies; the barbarous symbolism of weaponry has corrupted the opposed cultures; the real and material bases of the weapons-systems — the military-industrial complexes of both sides — have enlarged and consolidated their political influence; militarism has increased its retinue of civilian retainers; the security services and security-minded ideologies have been strengthened; the Cold War has consolidated itself, not as between both parties, but as an indigenous *interest* within each one.

Deterrence theory proposed a stationary state: that of MAD. But history knows no stationary states. As deterrence presides, both parties change; they become addicted; they become uglier and more barbarous in their postures and gestures. They turn into societies whose production, ideology, and research is increasingly directed towards war. 'Deterrence' enters deeply into the structure, the economy, and the culture of both blocs. This is the reason — and not this or that advantage in weaponry, or political contingency — why nuclear war is probable within our lifetime. It is not just that we are preparing for war; we are preparing ourselves to be *the kind of societies* which go to war.

I doubt if there is any way out, although increasing numbers are searching for it. Since the weapons are useless, and function only as symbols, we could commence to behave as if they do not exist. We could then resume every possible mode of discourse — inter-personal, scholarly, diplomatic — designed to break up the unnatural opposition of the blocs, whose adversary posture lies behind the entire operation. But the melding of the blocs can never take place upon terms of the 'victory' states, but in good part *against* the states of both sides. This means that we cannot leave the work to politicians, or to the employees of states, to do on their own. There would have to be an unprecedented investment of the voluntary resources of ordinary citizens in threading a new skein of peace. In this work, scholars and intellectuals would find that they had particular duties, both because of their specialist skills and opportunities, and because of the universal humane claims of their sciences and arts. I am not inviting them to 'go into politics'. I am saying that they must go *ahead of* politics, and attempt to put European culture back together: or all politics and all culture will cease. ●

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Extracts from the paper presented at the British Association meeting at York.

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The Economist

OCTOBER 9, 1982


# Life with an Andropov

What sort of Russia do we want to be living with by the year 2000, and what can we do to bring it about? Until both halves of the Atlantic alliance face up to that big question, none of the angry little questions that Americans and west Europeans are hurling at each other in 1982 can be given a proper answer. How to end the quarrel over the Siberian gas pipeline; how far western Europe needs to rely on American nuclear weapons for its protection; how to respond to the formal execution this weekend of Poland's Solidarity: all these things have to be slotted into the broader issue of how to make the Soviet Union a more coexistable place for the twenty-first century.

For most people, a coexistable Russia means a Russia that will no longer try to impose its will on the people of other countries for either ideological reasons or nationalist ones. It makes no difference to occupied Afghans and squashed Poles whether their fate descends on them in the name of Marx or of Mother Russia. What most people have not yet grasped is that two things are happening—or rather not happening—inside Russia in 1982 which provide a rare chance to coax late-Brezhnev Russia towards post-Brezhnev coexistability.

The Soviet Union has an unsolved leadership problem wrapped up in an unsolved economic problem. Its unsolved economic problem is the fact that its long-declining growth rate has now reached a point where, allowing for the distortions of Soviet statistics, it is hovering close to zero. The usual Soviet answer to economic difficulty—to throw even more investment and even more bureaucrats at it—no longer works. A different approach is needed. Russia's unsolved leadership problem is the fact that the long dotage of 75-year-old Mr Leonid Brezhnev—given a 50-50 chance of surviving another two years, on the latest American medico-intelligence guess—has not yet thrown up a successor who can be helped by the west to recognise what that different approach will have to be.

The two main present contenders for the Brezhnev succession are Mr Yuri Andropov and Mr Konstantin Chernenko. Of this unappealing pair, the less attractive is Mr Chernenko. He appears to be Mr Brezhnev's own preference, presumably so as to carry on Mr Brezhnev's combination of immobility at home and ideological-cum-nationalist heavy-handedness abroad.

The alternative, Mr Andropov, would be no breakthrough to liberal enlightenment. This recently promoted ex-secret-policeman presided over the crushing of Russia's dissidents in the late 1970s, and probably ordered this year's closing down of the automatic telephone lines that provided a tiny earhole into Russia. Yet Mr Andropov, not being Mr Brezhnev's chosen yes-man, may be readier than Mr Chernenko to look at new ideas for rescuing the economy. He may have both the intelligence to recognise what is wrong with the present economic system, and the will to change it. Even Mr Andropov's reputation as a hard-noser in secret-police matters could, in a curious way, be a help: he is likelier to get his politburo colleagues' blessing for a policy of economic reform if they reckon he can be trusted not to let economic change spill over into political change.

Since there is no liberal internationalist on the Moscow scene, the best bet for the west is to wish the ailing Mr Brezhnev long life—because a sluggish Brezhnev means a sluggish Soviet foreign policy—and then hope he is followed by an intelligent conservative of the Andropov sort, who decides to get to grips with Russia's economy. This is where the west can help itself, and in the long run help Russia too.

**Fewer workers, more need for reform**

The core of the Soviet economic problem is revealed in one statistic. The number of new workers joining the labour force each year—about 2m until fairly recently, while the post-1945 baby-boom was still coming to working age—is dropping to an average of less than 1m in the 1980s. With fewer new workers, the only way to get the economy growing faster is a lot more output per worker. But higher productivity will not be achieved by more investment alone, because the Soviet record in getting more output out of more investment is dismal.

The only alternative is a much more flexible system of economic management—more decision-making power for managers, more incentives for industrial workers and collective farmers, more rewards for success, more penalties for failure. The time is past when the Soviet economy could be made to work by a mixture of patriotic exhortation and brute fear. The Brezhnev years have given the Soviet citizen no share in political power, but they have accustomed him to an easing of the old Stalinist terror. The "command"

economy no longer jumps to orders shouted from above. The Soviet worker has to be given reasons of self-interest for working better. He wants to consume more of what he makes.

This failing power of the whip is the west's opportunity. It is true that imports account for only a few per cent of Russia's national income. It is also true that Russia can laboriously and expensively make for itself some (but not all) of the things it now imports from the west. Nevertheless, those few per cent matter.

**The squeeze is at the margin**

When every new Soviet investment decision is a painful choice between squeezing the defence budget and squeezing the consumer, and when the consumer is getting as hard to squeeze as the generals have always been, every new subsidised import from the west provides the Soviet government with a cushion for its defence budget and an excuse to put off yet again the day when it will have to reform the way it runs the economy. A continuation of the present habits of east-west trade will make it likelier that Mr Brezhnev's successor is a Chernenko who keeps on trundling down the same old Brezhnev tramlines. A change in those habits will make it likelier that he is an Andropov who risks reform.

From now on, the west should decide to conduct its economic relationship with Russia as part of its wider political relationship with that country. This does not mean "cutting off trade with Russia". Where trade brings equal benefit to both sides, it should continue. Where it brings a one-sided benefit to Russia—which happens whenever Russia gets subsidised western exports or subsidised western credits—it should not continue. The hopeful old idea that trade of any sort is a good thing because it makes for peace was long ago proved miserably false. The two great wars of this century began between countries that traded massively with each other. The 1970s, which saw the great expansion of credits for the communist world, also saw the expansion of communist military power into Africa and the Middle East. The fallacy should not be prolonged for Russia's benefit.

The message for Mr Andropov is that peace makes for trade, not the other way round. If he accepts a policy of genuine coexistence, he will need to spend less on Russia's armed forces, and the west will trade with him on generous terms. The incentive-based reform the Soviet economy needs will then be much easier to finance. If he carries on with an Angola-Afghanistan-and-Poland sort of policy, he will not only have to keep military spending up at 13-14% of gnp (and perhaps increase it as the west counter-arms) but he will also have to make do with a stripped-down, strict-mutual-benefit-only trading relationship with the west. That would mean ordering the Soviet people to tighten their belts yet another notch, probably by a risky return to near-Stalinist methods of discipline. The chances are reasonably good that Mr Andropov will prefer to have his leadership go down in the Soviet history books as a period of revitalisation at home and peace abroad.

In a well-ordered western alliance, the allies would months ago have been earnestly debating long-term objectives like this, instead of squabbling over the Siberian pipeline and the size of the squeak to be uttered about Solidarity's suppression. Of course, the western alliance is no better ordered than a collection of free nations ever is. The Europeans accuse the Americans of jerkiness, of shifting policy to each change in the international wind. The Americans accuse the Europeans of inertness, of failing to respond to evident challenges. There is some truth in both complaints. The psychology of Europeans and Americans is different, because history has treated Europe and America in different ways and the difference has left its mark on the way they react to events. Bouncy America leaps; wary Europe waits and sees.

The aim now should be to use the shock of the Euro-American row to pull both sides into seeing their shared long-range interest and working out a shared long-range policy towards Russia. In *The Economist*'s view, it is probably too late to reverse the decision over the Siberian gas pipeline. It would have been better if most of western Europe had not chosen to make itself dependent on Russia for a worrying amount of its future energy consumption, thereby providing Russia with a large annual hard-currency income. But the planning for alternatives was not done in time; the contracts with Russia have been signed; the Americans woke up to their dislike of the idea too late. The pipeline, or at any rate its first section, will probably go ahead. The Reagan administration should accept this, and call off its sanctions on the companies helping to build the pipeline—provided the Europeans join in a sensible long-term economic policy towards Russia.

**Two-handed wall-building**

The kernel of this policy would be an agreement that, so long as Soviet foreign policy stays unsoftened, the west will do nothing that directly or indirectly strengthens the Soviet military machine or helps the Soviet government to slide out of its own hard economic choices.

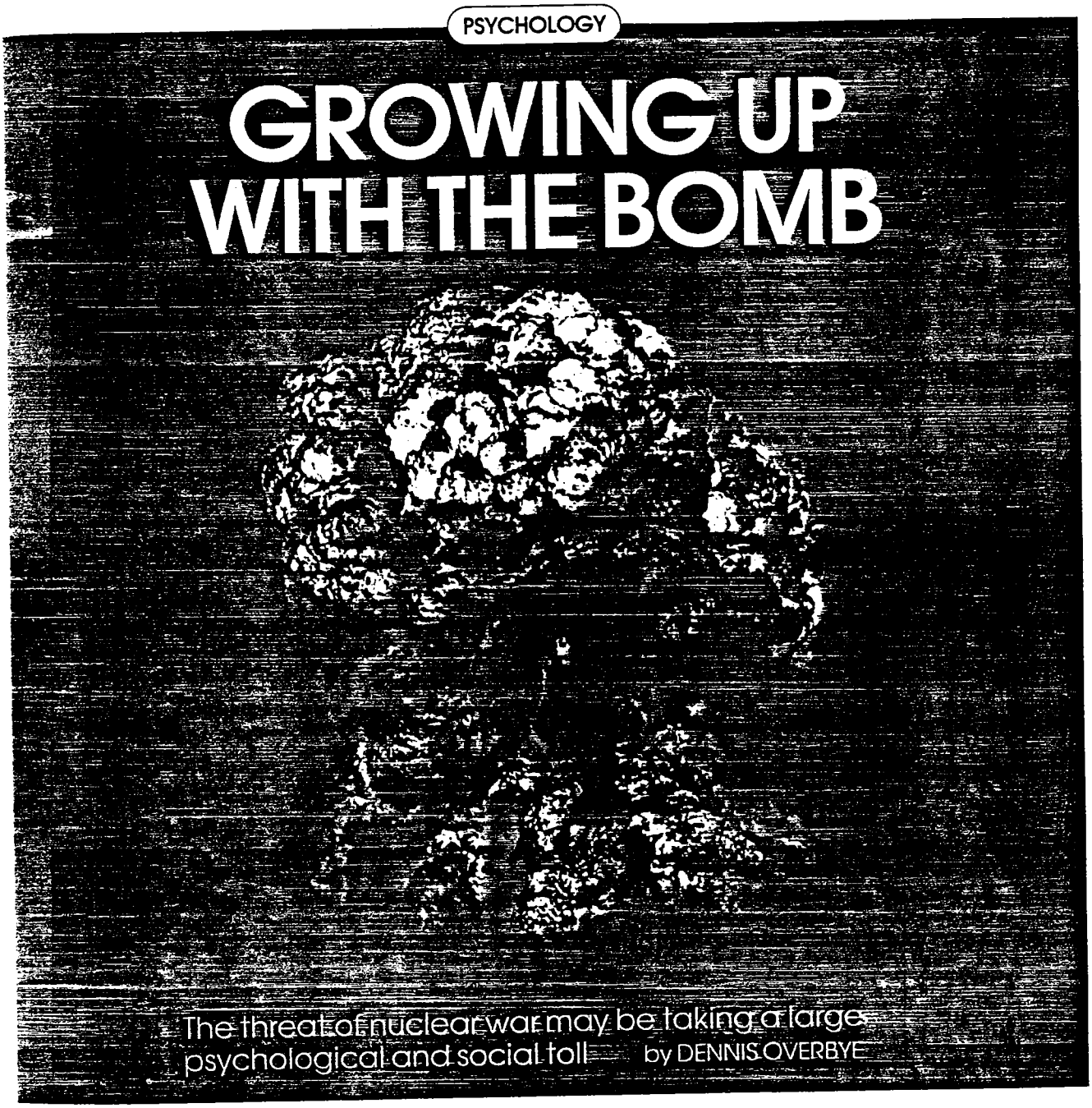
At a minimum, this means tightening the Cocom controls on high-technology exports to Russia (Cocom's present dog-eared list of forbidden exports includes things where Russia's technology long ago caught up with the west's, and omits other things the west has invented since the list was last amended) and firmly declining to subsidise any future exports to Russia, or the credits with which Russia is helped to buy them. That last item will involve inventing a lynx-eyed supervising body to discover exactly who is providing how much subsidised credit to Russia, since this has so far been cunningly concealed in murk.

This is not "economic warfare", *pace* France's Mr Claude Cheysson and others. It is economic containment. The purpose is exactly the same as the purpose of the original military containment policy devised a generation ago: to make it harder, and costlier, for Russia to contemplate a policy of imposing its will on other countries. Does any sensible defensive alliance let one hand pick holes in the wall of containment which its other hand is trying to keep intact?

(Reprinted by permission from Discover. The Newsmagazine of Science, issue of May, 1982.)

PSYCHOLOGY

# GROWING UP WITH THE BOMB



The threat of nuclear war may be taking a large psychological and social toll

by DENNIS OVERBYE

The meeting, in a Massachusetts town, droned on for hours. The topic was nuclear war, and speaker after speaker—scientists, politicians, religious leaders, and doctors—recited a litany of horrors: charred cities, corpses by the millions, disabled survivors, radioactive despair. In the back of the room, a group of adolescents became outraged. At length, a young man rose and took the microphone. With a trembling voice he addressed three hundred adults: "No one should have the right to choose whether an entire generation gets to grow up or not!"

From the streets of Europe to the temples of bomb-haunted Japan, from town meetings and college campuses in America to the councils of the Vatican, a growing number of people are expressing a fear that has been largely suppressed for years: that the nuclear arms race will end in disaster. Why, in the fourth decade of the nuclear age, all the furor now? To psychiatrists and psychologists, that is the wrong question. The right question, says Yale psychiatrist Robert Jay Lifton, who has studied the survivors of Hiroshima and other catastrophes, is "Why have we ignored the problem for so long?"

Most Americans, those born since World War II, have never known a world that was not in danger of extinction, a world in which a nuclear holocaust could not deprive them or their children of the right to grow up. Yet every day millions of people go to work or school, marry, have children, and invest in money-market funds, seemingly unconcerned that they are in the cross hairs of Soviet missiles, 30 minutes from oblivion.

Psychiatrists are beginning to discover that terror lurks beneath that façade.

JOHN MADERE

*"Ordinary death is hard enough to understand. If death is seen as grotesque, then life will be, too."*

—Robert Jay Lifton

They find it unadorned in the words of schoolchildren and in the guarded admissions of adults. That fear, they suspect, has undermined relations between adults and children, and they wonder if it has helped create a generation of cynical hedonists. The nuclear threat has pervaded culture, language, religion, and politics, and has altered the way mankind thinks of death. "It's all around us, like air, but it's poison air that attacks the lungs," says Lifton. "Everybody does some kind of psychological work fending off images of fear. None of these social changes are caused by the nuclear threat alone, but nothing is free of it." Adds Harris Peck, a psychiatrist at Albert Einstein College of Medicine, in New York City, "Nuclear war anxiety is one of the most crucial mental health issues of our time."

The fear began shortly after 8 a.m. on August 6, 1945, when an atomic bomb dropped from a B-29 through the skies of Hiroshima and transformed an ordinary day into a nightmare, killing a third of the city's quarter-million inhabitants and plunging the others into what Lifton calls "a permanent encounter with death." Many survivors of that blast wandered through the ruins, wondering if the whole world had ended. Later, they reported that as they walked past piles of corpses and disposed of the bodies of members of their families, they felt no emotion at all—a common defense mechanism among catastrophe victims that Lifton calls psychic numbing. Faced with overwhelming horror, the mind shuts down and either denies the offending images altogether or blocks the feelings associated with them.

Some numbing is inevitable in life. Few people can dwell comfortably on the fact of their own mortality; policemen, doctors, and even journalists must distance themselves from their human subjects in order to do their jobs. The almost unimaginable scale of modern nuclear war invites a similar kind of numbing. During the 1962 Cuban missile crisis, President Kennedy and Chairman Khrushchev stood eyeball to nuclear eyeball. Lifton, who had just returned from studying the Hiroshima survivors, remembers being more worried about his sick dog than about the fate of the human race. He recalls, "My mind struggled with two sets of images: one a vast but amorphous panorama of nuclear war, the other of a particular beautiful animal dying."

That psychological defense is seldom shared by children. A twelve-year-old Massachusetts girl recently told the Boston *Globe* of a bomb nightmare that was chillingly explicit. "I could feel my blood spurting all over the place. But now it's better knowing it will all be so fast. I feel scared but relieved at the same time. It's like having cancer and at least being told you have it."

Children are not generally considered to be so astute. Says Sybylle Escalona, a researcher at Albert Einstein, "Adults like to think that kids don't care about broader social issues, but the kids know." Soon after the Cuban missile crisis, she gave questionnaires to 311 schoolchildren in New Jersey and New York, asking them what they thought life would be like in ten years. "We didn't mention the bomb or war," she says, "but seventy per cent of the kids did. One said there wouldn't be a world because all the people would be dead and the world would blow up."

Escalona's findings were echoed by Milton Schwebel, a psychiatrist at Rutgers University, who also conducted a survey in the early Sixties and followed up with an intensive study of ten teenagers after the Three Mile Island accident in 1979. "We were interested in nuclear power," he says of the latter study, "but they were interested in nuclear war. They wanted to know if the world was going to blow up." Schwebel also found that the children were angry about the prospect of nuclear war. Says he, "I wasn't prepared for the rage."

Schwebel thinks that children suffer from a kind of double jeopardy. Usually, he says, "one comes to grips with death in the early years by having models of old age. Now, however, we have the possibility of imminent death long before old age. Boys and girls react slightly differently to the threat of nuclear war. Girls worry about whether they will have deformed babies, and they are usually more pessimistic than the boys about survival. The boys often speak of being on the winning side, which may be some kind of *macho* response, a consequence of the psychological need to be strong. There is a danger in being too *macho*."

The most recent and most extensive survey about the psychological impact of the bomb was made by Harvard psychiatrists John Mack and William

RICHARD WOOD

*"We've just begun to crack the conspiracy of silence around this issue. We need to know how these fears relate to normal adolescent concerns."*

—John Mack

Beardslee, as part of an American Psychiatric Association study on nuclear war. When Mack was recruited for the study, he resisted, wondering "Why now? Oh my God, that's such an awful subject." Nevertheless, he and Beardslee gave questionnaires to 1,000 elementary and high school students around the country, and intensively quizzed 100 students in two high schools near Boston. The researchers found that the youngsters were indeed disturbed about the threat of nuclear war. Responses revealed that the children felt powerless and uneasy about the future, and were angry about the arrogance of adults who might blow them up. Concludes Mack, "We've just begun to crack the conspiracy of silence around this issue. We need to know more—for example, how these fears relate to normal adolescent concerns."

Children go through several stages of concern, says Roberta Snow, a Brookline, Massachusetts, educator who has designed a course about the nuclear age and brought MIT psychiatrist Eric Chivian into classrooms to answer questions. Below age four, says Snow, they just know that the world is a dangerous place. From four to six, they ask, "Who will take care of me?" Separation from their parents is as painful to imagine as death. As they approach adolescence, children start thinking about society and wonder whether adults care enough about them to solve the problems.

Children can come through a war psychologically unscathed, as did British children who lived through the Blitz, says Escalona. But they remained healthy, she says, because they were with their parents, and the adults around them were resolute and confident. Today, she says, "we don't exactly radiate confidence in our leaders and institutions." She fears that if children view adults as unwilling or unable to solve society's problems, they may retreat into apathy and helplessness.

Mack thinks that the unpredictability of life in the nuclear age may be contributing to a "live for today" attitude. "With no sense of continuity," he says, "we may find we are raising our young people without a basis for making long-term commitments. That makes them prone to impulsiveness and immediacy in their relationships and behavior."

Is this a prescription for the "now" generation, which has grown up under the nuclear threat? David Goldman, a Manhattan psychiatrist and a professor at New York University, thinks it is no coincidence that in recent years large numbers of narcissistic people—self-absorbed, unable to love, and obsessed by grandiose ambitions—have flocked to the analyst's couch. When Martin Wangh, another Manhattan psychiatrist, surveyed 3,000 doctors, asking for clinical experiences with the bomb, he got no replies. Yet, when pressed, many doctors, students, and patients did express nuclear fears.

Only one, limited, effort has been made to gather data on the psychological impact of the bomb on adults. It was undertaken by Michael Carey, a writer who grew up next door to a Strategic Air Command base in Alaska, and has nightmarish memories of the civil defense drills and black-outs. As a research assistant to Lifton, he sought out more than forty Americans born during the 1940s and interviewed them.

"It didn't matter whether or not they claimed to think much about the bomb," says Carey. "Once you got them talking it was amazing how much they recalled." Most of them had vivid memories of drills in the 1950s in which students were taught to hide under their desks or in the school hallway. Their perception of the bomb was one of a dangerous, mysterious force, "a kind of unreality" of unlimited power. "It was just going to kill off everything." A priest interviewed by Carey remembered hearing an air raid siren and wondering if this was it, afraid that if he ran to a shelter he would make a fool of himself. "I'm not going to be the first one to run," he thought. Others in Carey's survey admitted to a perverse attraction to the power of the bomb during the 1950s and to wanting to see it go off. They looked forward to war as a break from school and even as an opportunity to lose themselves in mindless sex. One characterized nuclear war as "a giant shoot-'em-up camping trip," and then burst out laughing.

Lifton, who analyzed Carey's results, concluded that Americans are paying a debilitating price for living in the nuclear age. Carey's generation and all subsequent ones, he says, became aware of death at the same time they learned about nuclear annihilation, and have merged the two in their minds. "Ordinary death is hard enough to understand," says Lifton. "If death is seen as grotesque, then life will be, too."

He believes that the psychic numbing necessary for business-as-usual is also taking its toll in deadened feelings. "You can't shut down one area of the mind without partially closing down others near by," Lifton explains. For example, he points out, some people glorify the power of these weapons without acknowledging their effects; there are no pictures of Hiroshima alongside the replicas of atomic bombs at the National Atomic Museum in Albuquerque. Other people, he says, take refuge in wishful thinking that nuclear war can never happen, or that it can be limited.

Is there a cure for nuclear anxiety and psychic numbing? According to Harris Peck, who conducts workshops to help people deal with their nuclear anxieties and feelings of powerlessness, "It is not good to get scared and not take some sort of constructive action."

UPI

**Air raid drill in Brooklyn, 1951**

Thus, psychiatrists consider the current popular movement in favor of nuclear disarmament as healthy. Says Lifton, "The situation is both desperate and hopeful." Nuclear extinction, after all, need not be inevitable. "The truth is," he concludes, "everything depends on what we do."

In Brookline, a group of people assembled recently to discuss what they could do to oppose the arms race and nuclear war. Mack's 19-year-old son, Kenny, noticed that many in the group, unaccustomed to political meetings, seemed self-conscious and embarrassed, and he decided to comfort them. "You know," he said, "you don't have to be ashamed of working to prevent the annihilation of the human race." ◙

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# Israel and the massacre

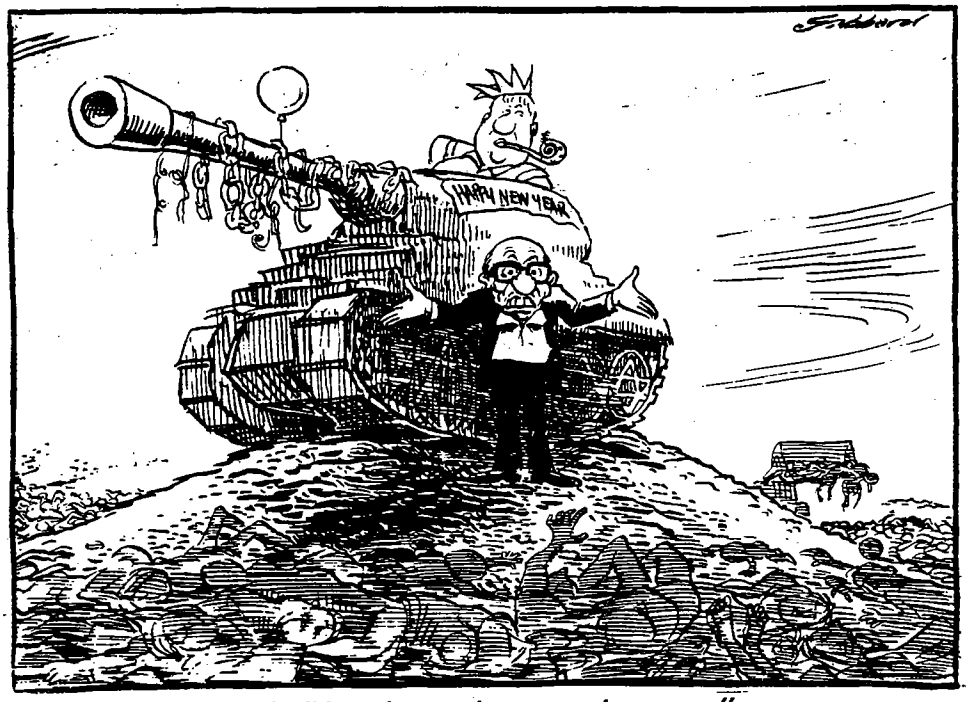
LEBANON has just seen one of the most barbarous events of our time, and the Israeli authorities, to their perpetual shame, presided over it. There are not many adequate words for what the Christian (!) militias did to the defenceless refugee families in the Sabra and Chatilla camps. The massacres of the second world war — Lidice, Warsaw, Oradour — provide a recent parallel, and one which Israelis may find poignant.

Israeli forces entered West Beirut after the assassination of Bashir Gemayel on the stated grounds that they were the only people capable of preserving order and keeping the Lebanese factions apart. Instead they allowed — directed may prove the more accurate word — the Phalangist forces, and according to some reports Haddad's, into the Palestinian camps on the pretext of "looking for weapons" or "seeking terrorists". They must have known full well what would happen, and if they did not know beforehand (which is scarcely credible in people so well informed) they learned while the massacre was going on over so many hours because their tanks were parked at the perimeter.

Of the conflicting statements coming from an unusually hesitant Israeli information machine, one tried to maintain that but for Israeli intervention at the end the casualties would have been worse. If that statement is true it is an admission that Israel could have prevented casualties much earlier. But it will be some time before much credence is attached to any official statement from Jerusalem when facts are in dispute. The massacre took place on Friday afternoon and evening. But even on Saturday afternoon the Israeli Government was saying that it had only "reports" to go on and had no first-hand information. Since Israel controls the entire area that statement is, of course, a lie.

It has yet to be shown how many senior Israeli politicians knew of the decision to set their Lebanese auxiliaries loose in the camps. Previously during this sickening campaign the Cabinet has sometimes been informed after operations had been ordered. It will be slightly better for what remains of Israel's international reputation if that is the case this time. But certain people must have known. They are guilty as accessories to a savage crime. It must now be difficult for any government to do business with the present leadership of Israel, especially while Mr Sharon, the Minister of Defence, remains.

It was, of course, Lebanese who did the slaughter in furtherance of their half-political, half-sectarian war, usurping religious titles in the process. They did not even have the excuse that their massacre was in retaliation for Bashir Gemayel's murder, since that episode had many dubious characteristics. It has still to be explained how terrorists from a group not enjoying the Phalangists' confidence could have penetrated their security. But Lebanon is far gone in civil war and the nature of the state now defies definition. Israel, on the other hand, which allowed the massacre to happen, claims to be a democracy. Democracies do not allow their leaders to behave like this. Unless the Begin Government is voted out of office for what it has permitted at Sabra and Chatilla there will be serious doubt whether Israelis have not surrendered their democracy into the hands of a fanatical elite.




*"We did not know what was going on . . ."*