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Scientific Assumptions and the Problem of Agriculture

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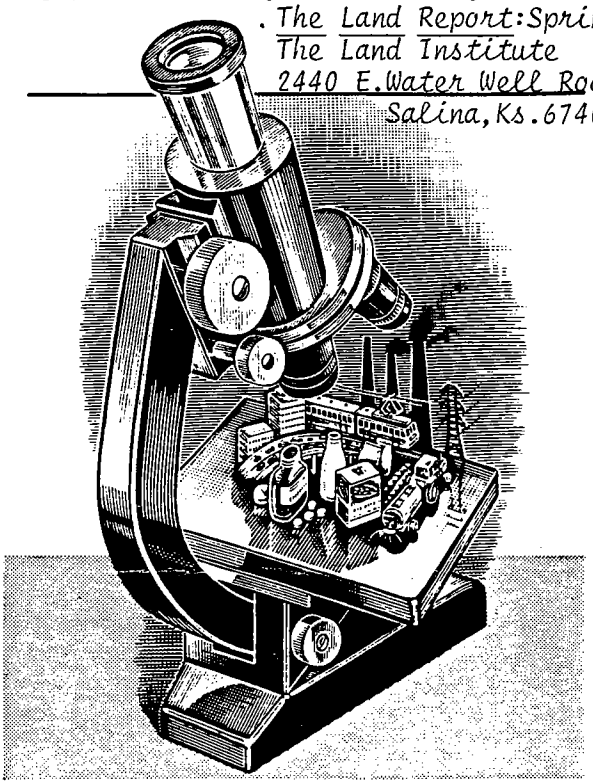

Part of the modern problem in agriculture is that our policy makers, if not the population at large, treat agriculture as an isolated part of the society - a segment in which something has gone wrong. Expensive salvage operations are designed, therefore, around the notion that agriculture is a problem that needs fixing. The phrases that come tumbling out of many of the deeply troubled and the superficial are pretty much the same. One hears statements such as these: "Pure and simple, it is strictly an economic problem." "Agriculture is in trouble." "Something needs to be done about the farm problem."

Sure, scarcely three percent of us in the U.S. are on farms. It is true that farmers are a dispersed minority and have little political clout anymore. Were they a dispersed majority the farm vote would still make a difference. Were they a concentrated minority, they could be close enough together to hammer out their differences and speak with one voice, but of course they are neither.

While most of the phrases about problems on the farm are true, at least in a limited sense, none of them suggest that problems on the farm are more the failure of culture than of economics and public policy. Economics can define the problem, but only in part. It won't provide a solution, yet nearly all of the public policy decisions are based on economic assumptions.

What I hope to offer for consideration here is that some of the problems in agriculture are mere derivatives of the problem of agriculture; which in turn is part of a systemic problem for the culture at large.

Our European pantheist forebearers saw spirits in rocks, in waterfalls, in the deer of the forest, in the bear. Pan, by definition, was everywhere. The early Christians who came into the wilds of Europe insisted that all of Nature was "nothing but." To worship rocks and streams, bears and bees was to participate in the sin of idolatry. To move one's eyes away from the earth was encouraged in another way, for even the most casual student of the stars could see there was order in heaven. On earth were uncertainties and constant problems with which to cope. The earth was an unlikely resi-→

dence for God. Because the heavens were so orderly, any decent sort of God must live there. It is not that God couldn't and didn't roam around, but heaven was, more or less, his permanent address.

Those Christians who believed in a hereafter immediately translated this as going to heaven. The earth was viewed as sort of a launch pad, a place long on material and short on spirit. With the eventual extirpation of pantheism over vast stretches of the globe, the desacralization of Nature was right on its heels. The consequence is that science and its applications as we know it today, was made possible. It is doubtful that the dissection of living animals and plants could be done by those who believe them to be Holy. Trees to a pantheist could not be viewed as just so many board feet. That which is sacred would be handled with a certain reverence.

Francis Bacon told us that knowledge was power, that the methodology of science would free us to sufficiently organize the world enough to give us a higher measure of comfort and security. More and more of us now know that comfort and security are not the solutions to the human condition, but very few people knew it then. The experiment hadn't been run.

Long before the time of Bacon, people were wanting power over nature. I don't doubt that there were some who believed that more power over nature would create the slack necessary to control their own lives. Also, as far back as the 13th century there were sporadic pockets of individuals who were breaking from the dominant circumstance in which an individual's social position determined who he or she was. This change did not culminate until the 17th and 18th centuries, but by then individuals were determining their own social relationships, leading to what was called the bourgeois revolution. The fossil fuel epoch and the "opening up" of the new world coincided with the age of enlightenment, the scientific revolution. Power over Nature, much of it fossil fuel dependent, created lots of slack.

In their thoughtful book, The Dialectical Biologist, (Harvard Univ. Press, 1985), Richard Levins and Richard Lewontin point out that the social ideology of the bourgeois society, this recent invention, is that the individual is "ontologically prior to the social." Individuals are free moving social atoms with their own intrinsic properties. Society is a collection of such individuals. In other words, society as a phenomenon is the outcome of the individual activities of individual human beings. This supports the view of Descartes, a view which became a central notion of modern science. The Cartesian view, says that the part has priority over the whole. It is not just a tool or a method of investigation; it is a commitment to how things really are. As Levins and Lewontin say, "The method is used because it is regarded as isomorphic with the actual structure of causation. The world is like the method." To say that knowledge is power, may not seem all that bad on the surface. What was not perceived, I suspect, at the time of Bacon, is that the quantity of knowledge obtained by future scientific investigators would reward them, the investigators themselves, with power. "The success of the Cartesian method and the Cartesian view of Nature," Levins and Lewontin say, "is in part the result of a historical path of least resistance. Scientists work on the problems that yield to the attack." A career will not be advanced, or should we say, power will not be achieved by an investigator if he or she has worked on a problem that is likely to lead to failure. "Brilliant careers are not built on persistent failure."

We can readily see how the path of least resistance has been employed in agricultural research. The amount of research devoted to the development of agricultural systems which will conserve soil, sponsor nitrogen fertility, manage water effectively and control insects, pathogens and weeds through biological, as opposed to industrial means, is practically nil. Such research would require us to study whole systems and would violate the Cartesian view which places priority on parts over the whole. So the question now becomes, "How do we break the stranglehold of Cartesianism?" Levins and Lewontin say that we should "look again at the concepts of part and whole."

We used to justify wholism or wholistic thinking with the simple argument that the whole is greater than the sum of its parts. Levins and Lewontin point out: "the parts acquire new properties ...(and) as the parts acquire properties by being together, they impart to the whole new properties, which are reflected in changes in the parts, and so on. Parts and wholes evolve in consequence of their relationship, and the relationship itself evolves." Like soil building.

The purpose of the argument of Levins and Lewontin is to show that this relationship between parts and wholes which is non-Cartesian, this relationship which has subject and object in constant interchange, this relationship of parts which can cause new properties to emerge in the parts themselves as the context changes, entails "properties of things that we call dialectical." That is to say, there is a thesis, an antithesis and a new synthesis or thesis. The Cartesian view believed that the world is like the Cartesian method: that method is used because it is like the "actual structure of causation." Levins and Lewontin believe the dialectical method is more like the actual structure of causation.

The authors point out how the Darwinian theory of evolution is a "quintessential product of the bourgeois intellectual revolution." Number one, it is a materialist theory, in that existing forces act on real existing objects, a rejection of the Platonic ideals. Second, evolution is a theory of change as opposed to stasis. The 19th century was devoted to the →

idea of change, and biological evolution was simply a late example. Third, Darwin's idea of adaptation of living things to the environment "is pure Cartesian." The Darwinian assumption is that organisms change in response to an alien environment. The dialectical view also accepts the first two premises of Darwin, the materialist theory and the theory of change, but rejects the third premise of Darwin that organisms are alienated objects of external forces. The dialectical view would hold that organism and environment interpenetrate so completely that both are at the same time subjects and objects of the historical process. Levins and Lewontin point out what numerous biologists and soil scientists have known for a long time, that there is an interplay between organism and environment and that both are changed due to the presence of the other. Soil scientists are probably the most aware of this for they can readily see how the living world works to help form soil. Most biologists are less sophisticated.

Civilized people know that to objectify a person is dehumanizing, not only to the person but also to the one who objectifies. Racism is a form of objectifying. Language that deals with the sexual parts of a person's body, that does not carry a sense of reverence for the whole, we call obscene. Language that calls attention to skin color or ethnic background, language that elevates those factors above the whole person, we call racist.

We understand this very well when we talk about the human body but, not when we think of nature. To talk about "the environment" as something out there is to separate the environment from us and ignore the fact that we were made from, and are maintained by, the environment.

Levins and Lewontin point out that many people will now admit that social and economic factors strongly influence science. A freshly trained plant breeder with a Ph.D. can command a starting salary one-third greater than a freshly trained ecologist with a Ph.D. Plant breeders can produce usable results faster than ecologists. Science is clearly influenced by the structure of social rewards and incentives. Look at the defense industry and its impact on science. The social and economic scene, pure and simple, influences science. But, and there is a big but, "nothing evokes as much hostility among intellectuals as the suggestion that social forces influence or even dictate either the scientific method or the facts and theories of science say Levins and Lewontin who believe "science in all its senses, is a social process that both causes and is caused by social organization." Whether one likes it or not, to be a scientist is "to be a social actor engaged in political activity." The speed of light may be the same under socialism or capitalism, but, they ask "is the cause of tuberculosis a bacillus or the capitalist exploitation of workers?" Would the death rate from cancer best be reduced "by studying oncogenes or by seizing control of the factories?" When Monsanto produces seeds bred to be resistant to a herbicide they market, "the environment" will receive an herbicide load because the crop is "protected." To deny the interpenetration of the scientific and the social is itself a political act. It allows scientists to hide behind scientific objectivity and, however unwittingly, to perpetuate elitism, dependency, exploitation, etc.

I believe, that there is a law of human ecology which, bluntly stated, is "Values dictate genotype." I think we can safely say that our major crops, for example corn, soybeans and wheat, have genes that we might call "Chicago Board of Trade genes." There are also wellhead genes and computer genes. In other words, there are ensembles of genes in our major crops that would not be there in their particular constellation were there not a Chicago Board of Trade or fossil fuel wellheads or computers. Our values arrange the molecules of heredity themselves. That's interpenetration.

Gary Nabhan, an ethnobotanist at the Desert Botanical Garden in Phoenix, Arizona, tells the story about an Indian woman in Mexico who had several ears of corn from her corn crop arranged before her as she shelled grain off each ear. Some ears were tiny nubbins. Ears that were long all had seeds of various colors. As she shelled grain from each ear to save for the next planting, Gary asked her why she saved seed from the small ears. Her reply was that corn was a gift of the Gods and to discriminate against the small in favor of the large would be to show lack of appreciation for the gift. What she was doing, of course, was maintaining genetic diversity. Values dictate genotype.

I don't think it is proper to say that the earth is an organism. An atom is an atom. A molecule is a molecule. A cell is a cell. A tissue is a tissue. An organ is an organ and an organism is an organism. Going on up the hierarchy, we can say an ecosystem is an ecosystem and the earth is the earth. I believe that those who insist on calling the earth an organism are taking a provincial view because they happen to be organisms. We don't really know what the earth is, but we do know a little about it. We know that it is very dynamic, that the inside is very hot representing the heat left over from its early days. And yet we have evidence that the very hot core of our earth is even responsible for life as we know it.

The old assumption is that the biota itself is enough to renew the earth. Even in organic agriculture we assume that we can simply plant legumes, practice a rotation and a piece of land can be renewed. This is true, but in a sense that is more limited than we used to believe. Taking a very long time frame, a more accurate larger assumption is that the biota alone cannot rejuvenate an area; there must be some non-living capital that will accommodate life. Looking at the geological time scale, the source of this capital involves large changes in the earth's surface, changes that are largely abio- →

tic: glaciers, shifts of the tectonic plates, volcanoes. We know that the Amazon once flowed toward the West, before the Andean uplift. Nutrients that were once headed one way are now headed another. In the pygmy forest, there are terraces which make up the staircase in Mendocino County of northern California, and each step represents about 100,000 years. We have evidence that the verdant growth went into decline, as nutrients became unavailable over time. What once supported lush redwood forest now supports a vegetation that appears to be greatly stressed. Yet life has been constant in this area, and if life alone were enough, living forms could bootstrap themselves to a level of greater diversity and large biomass turnover, but apparently nutrients have leached down and become non-available for plant growth.

What this illustrates is that life working alone on this earth is not enough. Reverence for life alone is incomplete. The pantheists were more right than they probably knew, for the very inner heat of our earth is essential to make the necessary geological moves that will sustain the biota as we know it. So are the gases heated by the sun we call wind. The tides controlled by the moon provide a nutrient wash on our coasts to support an abundance of life. The interpenetration of moon and earth, of sun with earth, of soil with organism are all essential for our livelihood.

One can look at the agricultural crisis as the interpenetration of part with the whole. It is not an economic crisis. As I mentioned earlier it is a crisis which can be reflected in economic terms, but the economic problems are a derivative of the cultural crisis. It is not a problem curable by economics. Yet what is happening to the farmer and the farm represents a faint foreshadow for what is to come to the culture at large. The farmer is not an atomistic unit or satellite sitting off to the side that needs fixing. Neither is the farm. Agriculture in the largest sense cannot be fixed independently. Vulnerability and helplessness begin with the fields which are subject to erosion and pollution. Next most vulnerable and helpless are the people who work those fields. Next are the suppliers of inputs, the farm machinery and fertilizer companies, and then the rural bankers. This is an inverted pyramid of vulnerability with the land on the bottom and the base widening as we move upward to include the larger society.

The ecological pyramid illustrated in the basic texts of ecology surely stands as a rough model for an alternative economic order. It has been billions of years in the making. In such an economy the producers, at the base of the pyramid, are many and the mere consumers are few, exactly as Confucious described a healthy human society tens of centuries ago. When we impose the industrial or extractive economy on the land however, the base of the pyramid representing society's wishes are at the top. The point of the pyramid is stuck into the land like a needle as the land receives all the injections necessary to meet the demands of society. Why is the pyramid inverted? Cheap oil? Human nature? The oil is about gone and never in the history of our country have we been more up against human nature than we are today. In 1776, this continent could absorb lots of bad human nature. The frontier was before us. But the land frontier came to an end. Rather than face our problems squarely we keep looking to expand our frontiers for the purpose of exploiting them as we always have. We have gone into the inner recesses of the atom and the nucleus of the cell. The exploitation of both is not at all unlike ripping open the prairies, the heart of our continent, or going into third world places like Brazil where skilled welders are paid a dollar an hour to make farm machinery for America's fields. It is all of the same stuff.

Frederick Jackson Turner developed the thesis that the American's definition of self is derived from the early frontier days. It is a devotion of that spirit that pushed us to colonize both longitude and latitude. About the time we were fresh out of longitude and latitude we funded a space program and went for altitude. But colonization is not discovery. The quintessential aspect of colonization is exploitation and violence. Astronauts headed for orbit may be given more status than a farmer protecting a hillside from erosion but a farmer who is successful in discovering ways to arrest nutrient loss on his sloping farm has made a more profound discovery than all of the colonizers of space combined. So has the farmer who is gradually weaning himself from costly input farming, who is shifting the ratio from being so much a consumer to more the producer side. These are people who comprehend the idea that the discovery of America lies before us, that so far we have only colonized it.

The Cartesian world view allows us to talk about trade-offs as though for each gain there must be a loss. On the other hand, an ecological world view based in the dialectical method will tell us that one thing done wrong can create numerous problems throughout the system. Or more positively, if something is done right, if something is done that fits, several problems are taken care of at once. Where the ecological world view is not overly-tainted by the industrial model, there is a profound awareness of the total interpenetration of parts with the whole. This is the view we need in order to understand the problem of agriculture as it interacts with the culture at large. It is the view we need to develop a sustainable agriculture.

NewOptions

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Theobald: "pieces of the design"

(Reprinted by permission of Robert Theobald)

NEW OPTIONS address: P.O.Box 19324 Washington, D.C. 20036

Robert Theobald, futurist and economist, is perhaps best known for coining the phrase "the communications era" to describe the period we're now entering. In his new book, *The Rapids of Change* (Participation Publrs, Box 2240, Wickenburg AZ 85358, $15)—his first major book in 10 years—he uses a different phrase: "the compassionate era." The difference indicates how much his thinking has deepened.

For one thing, he is much more explicit about consciousness and values. He says we need a new belief system "if we are to ensure equity and justice for all." He wants industrial societies to "commit to the values of honesty, responsibility, humility and love" which are, he says—not at all incidentally —"expressed in the world's many spiritual traditions. Wise people in all countries and traditions have understood [the necessity of these values]."

The other major change in Theobald's work is he is far more concerned with process, with how-to. It's not that he's *less* concerned with the kinds of public policy changes that he was pushing in Washington DC in the mid-1960s; it's that he's more convinced than ever that a genuine social transformation can only be brought about as a result of far-reaching changes in leadership patterns and movement styles.

Verbal Cezanne

The format of Theobald's book embodies his concern with process. It was typed on a computer (rather than professionally typeset), printed on 8½" × 11" paper and bound in a three-ring binder. The point is to make the book seem less intimidating and less "finished" so we'll be tempted to think for ourselves about it.

Another formal innovation is even more dramatic. The material is presented not in the form of a linear, logical argument, but in the form of discrete "bits" of information. One page, sometimes even one sentence or paragraph, does *not* lead logically to the next. You know the standard objections to this writing style: they were taught to you in grade school. Here is Theobald's fascinating rationale: "[Today's sociopolitical] canvas is so vast that we cannot possibly see the whole clearly. We can only look at pieces of the design and build an intuitive feel for the whole. I have therefore based my work on the [techniques] of the impressionist painters...."

There can be no question that Theobald's discrete dots and slashes of "paint" are enormously thought-provoking, both singly and together. Some examples:

- "In the past, crime and anti-social behavior was minimized because most people '[obeyed] the rules.' The approach was effective but the cost in lost creativity is no longer acceptible."
- "As we create a value-based society, bureaucracies will be replaced by non-hierarchical institutions."
- "The unwillingness of communities to face ethical dilemmas was the primary reason why power moved to the national level."
- "Bioregionalism will have to move beyond an ecological basis and mesh with governmental [and market-area] concerns."

Back of the canvas

There is a 'flip side' to Theobald's impressionistic canvas. *The Rapids of Change* is more coherent–more systemic, even–than Theobald lets on.

Consider the six-part structure of the book. First we get a chapter exploring the *depth* of our problems. Then a chapter proposing solutions ("possibilities") in many of our key issue areas, education, employment, health, etc. Then a chapter on leadership. Then a chapter on the *levels* of change, individual, family, global, etc. Then two chapters on how to induce change.

Also, consider Theobald's central metaphor, the "rapids of change." This is not mere poetry, but is Theobald's way of expressing his conviction that eight concrete trends are driving our society. Among them: the weaponry revolution, the computer revolution, the environment revolution, and the human rights revolution.

Behind the hand of this "impressionist" verbal painter, then, beats the heart of a systemic social and political thinker. An "ideologist," even, in the best sense of that word. We wish Theobald would give this side of himself freer reign, even if it means he'd have to end up making "linear," "logical" defenses of his assertions. The decentralist/globally responsible movement already has its Cezannes; what we need are some Michelangelos.

SCIENCE

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How in the World Are We?

That question is triggered by the current report, *State of the World 1986*.* The report, which does not set out to be restful reading, presents a balance sheet calculated to agitate misgivings regarding national goals, priorities, and public expenditures. Whatever one thinks of its conclusions, the report serves the public interest in a time of trillion-dollar annual budgets and even more astonishing levels of national debt.

The message of *State of the World 1986* is that global military expenditures are sapping the capacities of big and small nations to stay solvent and provide the resources needed to meet basic priorities. It reminds us that for many countries the true threats to security are not primarily military in nature but rather arise from ecological deterioration, which goes on at an accelerating rate. The authors dwell on the evidence of vanishing forests, soil depletion, falling water tables, ruined grasslands, pressures of population on food sources and economic assets, and the effects of all these interlocked problems on political options and stabilities.

On the bright side, China emerges as a model for economic development, and there is a note of optimism in evidence of receding dependence on oil by the industrialized countries. Still, there is a lot of bad news. If the report reflects the state of much of the world, as it seems to, the uses of public investment by the more fortunate national economies are overdue for reevaluation. But the search for solutions would only begin, not end, if the arms race and militarization budgets were rolled back. The open question, no less problematical than the route to disarmament, would be whether the Western democracies would willingly and generously transfer defense savings to a decade of ecological rescue efforts, and whether for their part the Soviets would do the same in the face of their own dismal domestic miseries and failures. We have found out that economists have a point when they tell us that tax resources are not fungible. Taxes levied to support high national security outlays are not easily reprogrammed or reappropriated to more altruistic purposes in like amounts, certainly not while a huge public debt sits out there or while supply-side nostrums dictate returning tax money to individuals and corporations for the sake of the stimulating consumption, investment, and employment. In its sharpest form the trade-off problem leaves the area of economics and falls squarely into that of politics. We have to wonder whether a public inured to sacrificing for nuclear and conventional deterrence could be persuaded that the national security calls for proportional sacrifice to forestall a global firestorm arising from ecological collapse and its accompanying human desperation.

The case for the "sustainable society" on the global scale has an irrefutable political and indeed moral logic. The time constants reinforce it. But the search for workable solutions does not follow straight lines any more than it does in the instance of the intricate dilemmas posed by terrorism, the rise of Islamic activism, or mutual superpower distrust. As the late Robert Lovett once noted, the foul-up factor is built into the making of choices in an open society, and it is there for very good reasons.

The state of the world deserves a lot of thinking, and the report that has provoked these reflections is profoundly disturbing. It throws perspective onto the limitations of policy planning on the very large and elongated scale. We, and not we alone, come up well short of having the available political technology to match the state of the world's problems on the eve of the third millenium. And for all the fanfare and pretentiousness, the planned economies are in no better shape, laden as they are with ideological baggage. Where the Worldwatch study points us wisely is toward much stronger and better-supported interdisciplinary monitoring of indicators that bear on the chances for progressing toward a sustainable society. This much, at least, can be agreed to.

Within AAAS itself, a new interdisciplinary program on population, resources, and the environment, supported by foundations, is moving ahead. We mean to give it the best we have; for we, too, have our eyes on the state of the world.—WILLIAM D. CAREY

*L. R. Brown *et al.*, *State of the World 1986, A Worldwatch Institute Report on Progress Toward a Sustainable Society* (Norton, New York, 1986).

The following is quoted from "The Psychology of Threats: A debate on the use of nuclear diplomacy" Nuclear Times, July/August 1986, p. 26:

> "Politics is where policymakers can express their deep psychological needs without getting locked up for being crazy."
>
> —Morton Halperin

The wrong way to reassure Mr Gorbachev

Reprinted by permission of THE MANCHESTER GUARDIAN WEEKLY
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June 8, 1986

IF President Reagan cannot carry any of the Nato governments with him in his conditional threat to abandon the Salt treaties, there is scant hope of his carrying European or Canadian public opinion. What does that mean? It means not so much another crisis in the Alliance — everyone has become used to those — but a spur to European neutralism. A familiar accusation on the American right is that Europeans look on the two nuclear giants as much of a muchness. That is almost certainly untrue at present. It will remain untrue as long as a democratic regime is being compared with a KGB-orientated regime. But it could rapidly become true, as Mr Gorbachev no doubt senses, when the comparison made is between the military postures of the two sides.

Although Salt is the immediate issue it is not the only one. There is a long history now of presidential rhetoric against the Soviet Union and most people were led to believe, at the Geneva summit last year, that the air had been cleared for a time and that regular summit meetings between the two leaders would establish the basis for something like detente. Now it is true that Soviet statements are one thing and Soviet actions another, and that none of the peace initiatives from Mr Gorbachev's Kremlin (except the perhaps convenient moratorium on nuclear tests) has yet found expression at the negotiations in Geneva. But the Geneva negotiations have become something of a side-show. What matters is the degree of public bellicosity on the part of two systems either of which could kill the earth. There has been no recent public bellicosity from the Soviet Union. There has been a lot from the United States. Richard Perle, the Assistant Secretary for Defence, talked at the weekend of flagrant and repeated Soviet violations. He would, wouldn't he? The negotiator of the second Salt treaty, Paul Warnke, said by contrast that the US decision was "mindless," because all the core provisions remained intact. Moreover, in the Strategic Defence Initiative the US is preparing for the biggest abrogation of an arms control treaty. What price a missile or two, or the phased-array radar at Krasnoyarsk, against the whole panoply of star wars?

The threatened American action would be defensible if it led to greater security. Can it do that? In theory it can if it leads to a firm agreement making deep cuts in the arsenals, something both sides claim to want. But that is becoming an oft-told tale. What is much more likely, to judge from past experience, is that the restraints will simply be lifted, from the USSR as well as the US, that missiles which now have single warheads will have several, and that the count in five years' time will be somewhat larger than the estimate of 50,000 today. The reason for that gloomy reading lies in the SDI. Congress may limit the funds. The technology, after Challenger and other recent setbacks, may look less assured than it did. But it is still the basis of the future US defence programme and as long as it remains so the Russian military are unlikely to forgo the options of saturating American defences by weight of numbers.

Thus there is little promise of arms control at the strategic level. There remains a possibility of removing intermediate weapons from Europe, and that alone would be worth a summit meeting. But if he is to go to Washington this year Mr Gorbachev must obviously be assured that he will not return empty-handed. Nothing President Reagan has done since Geneva offers him any hope of that.

The following is quoted from Lloyd Shearer's "Intelligence Report", PARADE MAGAZINE, August 24, 1986, p.19:

"I'm convinced the only way to survive nuclear roulette is to stop playing the game, to put down the gun globally, to move beyond war. If we want to avoid the world's imminent suicide, we must shift totally the way we think about war. We no longer can accept it as a means of settling disputes, as an extension of politics or as an innate ingredient in the nature of man."

—Prof. Martin Hellman
Stanford University

Vol. 135 No. 7 Week ending August 17, 1986 MANCHESTER GUARDIAN WEEKLY, August 17, 1986

The fool's errand of SDI

THE talks in Moscow this week between Soviet and American arms control specialists may well turn out to be crucial to the entire process. This is not one of the routine sessions, which are currently in recess from Geneva, and it is being held at a time of year when most of those doing the talking would expect to be otherwise engaged. The occasion is almost certainly the letter sent by President Reagan to Mr Gorbachev on July 25, parts of which have been extensively leaked but the totality of which has yet to be published. In this he is reported to have linked a deep cut in nuclear arsenals with an offer not to depart from the Anti-Ballistic Missile Treaty (ie, not to deploy his space-based Strategic Defence Initiative) for seven years. The second of these clauses looks decidedly disingenuous because the head of the SDI programme, Lieutenant-General Abrahamson, had stated a few days before Mr Reagan wrote that the system could not be deployed for at least a decade. But Washington officials have been concerned to emphasise that Mr Reagan was not making a take-it-or-leave-it proposal and was open to negotiation. If successful, the current talks will smooth the way to a Reagan-Gorbachev summit in the United States after the mid-term elections. For different reasons both sides need something on paper: Mr Gorbachev to relieve his economy, Mr Reagan to gain the historical niche he so much wants as the man who went the extra mile.

Taken literally, Mr Reagan's offer to abide by the ABM Treaty for seven years is a seven-year notice to end it, because the treaty is of unlimited duration. It is doubtless Mr Richard Perle's role at the Moscow talks to bring that point home, because he is restless under the ABM restraints. However, Mr Shultz promised the European allies last year that the US would remain within a restrictive reading of the ABM treaty (ie, it would not conduct space tests of its new equipment), and that promise is firmly on the record. Having taken advice from his own scientists, Mr Gorbachev may well have concluded that SDI is not the threat it originally appeared to be.

The first Soviet reaction, which was entirely reasonable, was that it is idle to distinguish between offensive and defensive systems because the defensive allows the offensive to be used with impunity. Mr Gorbachev may now have concluded, along with many other sceptics, that the SDI is a fantasy and will not seriously be deployed at all. To that extent he is relieved of the need to respond to it. But its fantastical properties do not render it safe. Even if only parts of the system are eventually deployed the scope for error within its vastly complicated and basically uncontrollable computer banks makes it decidedly unsafe. The war-to-peace decision is left in the hands of microchips. But, thinks Gorbachev to himself, Reagan won't be here and I shall. Star Wars *will* become negotiable.

An important decison here confronts the European governments. All were sceptical about Star Wars, many believing that it would simply usher in an arms race of a wholly new kind. Several, including Britain, swallowed those doubts when the virtually limitless budget sustaining the programme was dangled before their eyes. Money talked then in a big way. But it isn't talking very loudly now. The Senate is not going to part with billions to foreign research establishments, and the Pentagon and the US defence contractors are not going to have their commercial secrets bandied about the world. Senator Glenn's amendment providing that contracts be placed in the US unless the work cannot be done there has effectively ditched any serious European contribution to the SDI. The European governments are left looking like a millionaire's family who learn that all the money has gone to the cats' home. Perhaps now they will have the courage of their earlier convictions and decide that the SDI has sent them on a fool's errand after all.

The following is an excerpt from Congressman George Brown's PEACE REPORT *September 1986:*

Most Americans see the world as being in a state of relative peace. They note that the United States and the Soviet Union have refrained from attacking each other for 40 years, and they experience no direct threats to their lives as the result of conflict. But the world is not at peace; it is at war. At the present time, more than four million soldiers around the globe are engaged in direct combat. Some 41 conventional and guerrilla wars are underway, and these wars have caused millions of casualties to date. While we in the United States may feel fairly secure from direct attack, there exist families, communities, and entire regions of the planet that feel threatened every day by the wars that surround them.

Wars are brewing in the Middle East, the Far East, Central America and throughout Africa. Most of these conflicts are not East vs. West situations, involving battles between opposing ideologies, although this is how the Reagan Administration tends to see them. Rather, they are mostly the result of complex combinations of economic, political, territorial, religious and ethnic factors. And because these conflicts stem from such complex causes, simple solutions are bound to fail.

The infusion of additional weapons is the last thing that is needed in most of today's 41 wars. Yet, this all too often is the first remedy grasped at by many policymakers. The Reagan Administration, for example, has proposed sending about $5 billion in military aid this year to 24 nations at war.

Military aid is the easy answer. But we need to go beyond looking for easy answers, and find the right answer for each individual situation. Many of the world's conflicts could be resolved through skillful and dedicated diplomacy. Others could be remedied through economic and humanitarian aid aimed at helping address the desperate conditions that lead to revolt...

The war between the U.S.-backed Contra rebels and the Sandinista government of Nicaragua provides an example of the alternative approaches available for resolving conflicts. The Reagan Administration's "solution" is strictly a military one: more money for more weapons. Armed intervention is the answer, according to those who have argued for additional military aid to the Contras... I am convinced that the Administration's path will lead to an escalation of the war. More weapons and more soldiers will be needed. The Administration has failed to pursue the route of negotiations and of economic assistance aimed at improving the bleak economic and social conditions of the region. Therein lies a "solution" to the conflict--not through military aid.

Today's Most Violent Conflicts

Conflict	Number of Deaths	Year Began
Kampuchea Civil War	1-4,000,000	1970
Iraq-Iran War	500-800,000	1980
Afghanistan Civil War	2-300,000+	1978
East Timor Guerrilla War	100-250,000	1975
Lebanon Civil War	125,000+	1975
Philippine Guerrilla Wars	50-100,000	1972
El Salvador Civil War	50,000+	1977
China-Vietnam War	47,000+	1979
Ethiopia-Eritrea Guerrilla War	45,000+	1962
Guatemala Guerrilla War	30-45,000+	1967

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