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THE LAUCKS FOUNDATION

from time to time calls attention to published material that might contribute toward clarification or understanding of issues affecting world peace. The accompanying reprints constitute Reprint Mailing No. 95.

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The following is quoted from "Preserving Wildness" by Wendell Berry, (from Home Economics, p.142, published by North Point Press, 850 Talbot Ave., Berkeley, CA. 94706):

"In the hierarchy of power among the earth's creatures, we are at the top, and we have been growing stronger for a long time. We are now, to ourselves, incomprehensibly powerful, capable of doing more damage than floods, storms, volcanoes, and earthquakes. And so it is more important than ever that we should have cultures capable of making us into humans—creatures capable of prudence, justice, fortitude, temperance, and the other virtues. For our history reveals that, stripped of the restraints, disciplines, and ameliorations of culture, humans are not 'natural,' not 'thinking animals' or 'naked apes,' but monsters—indiscriminate and insatiable killers and destroyers."

(Reprinted by permission, from The Land Report, Spring 1988, pp. 33-34. Dana and Wes Jackson are Co-Directors of The Land Institute, 2440 E. Water Well Road, Salina, KS. 67401)

What We Should Do

Dana and Wes Jackson

The complexity and interconnectedness of world problems will increase, not diminish in the next forty years. In the last decade, U.S. society has been led astray through political and religious leadership which recommends simple solutions, based on rigid ideology, to the complex problems. In the last years of the 1980's we must develop better methods of problem solving and different patterns of behavior, which permeate the culture from the bottom up, not filter down from the top through legislation or regulations. This will require a different way of looking at the world, which should redirect educational goals and methods from pre-school through the university and influence social behavior and politics.

First, we must redefine humanity's relationship to the earth. Human cleverness expressed in the invention of technology has led us to believe that we can exist almost independently of earth's natural systems. To use the earth's non-renewable resources prudently and its renewable systems sustainably, we must understand and acknowledge our dependence upon them. Since the scientific revolution began, we have worked to separate ourselves from nature and substitute human invention for what could be done by natural systems. The astronaut Edgar Mitchell has told people who asked him what it was like to experience the moon that he did not know, for he was "too busy being operational" to experience the moon. Future generations may be too busy being operational (overcoming ozone loss, purifying polluted groundwater, coping with acid rain, etc.) to experience the earth. But if we look for the wisdom in nature and pattern our life support systems and our society upon ecological principles, a rich experience awaits us.

But all of this sounds like a generality that would promote the "common good," and William Blake warned us about working for the "common good" while avoiding the "minute particulars." We like to think that our work at The Land has been characterized by attention to those "minute particulars." Every experimental design, every pollination, every weed hoed, every seed harvested, every sentence in The Land Report, and every attempt to reply to a student question is the consequence of our acknowledgement that all of this must eventually lead to that common good--to sustainable farms and a sustainable rural life in a healthy and productive biosphere.

A limit in the earth's available resources and the entropy law impel us to change humanity's relationship with the earth. The "use-it-up, throw-it-away and go-get-more" pattern of behavior must end. Rather than teach patriotism for an economic system based upon greed and self aggrandizement, our educational system should encourage creative minds to develop new economic systems that are just and more compatible with the earth's limits and opportunities.

For the world to be a better place to live in 40 years- for the world to even survive for forty years- we will need a public philosophy which reflects the above understandings and results in responsible citizenship. We will need to mentally juggle a diversity of problems and seek solutions from various paths, while acting in specific instances on those minute particulars. We must begin to develop the reservoir of intellectual, psychological and spiritual resources which will make this possible.

The following is a quote of Father Thomas Berry, a Catholic priest and founder of the Riverdale Center for Religious Research in New York City, as told to NEW OPTIONS (See No. 47, April 25, 1988, p.1. Address: P.O. Box 19324, Washington, D.C. 20036):

"Everything must be judged primarily by the extent to which it fosters a mutually enhancing human-Earth relationship.

"Our values have been limited to human concerns. What we need is an expansion of consciousness to an awareness of our integral relationship with the total planetary order, the total order of the geological and biological system of the Earth.

"The human is as much Earth as are rocks or mountains or rivers or whatever."

MANAS
June 8, 1988
REVIEW

"ISN'T IT FUN!"

IN what seems a most unlikely place—the "Readings" section of the March *Harper's*—we found a long extract from a "sermon" delivered by Wendell Berry at the Cathedral of St. John the Divine last November. His subject was the loss of pleasure or joy people now take in their work—by no means a new topic for him. His point is that we are not happy, that if we continue as we are we are not going to be happy, and that this is because we have allowed the equations of the economists to rule our lives. His further point is that in our present situation, winners are no better off than losers since both losers and winners are both breaking the laws of life. How long, one wonders, will it take for this truth to be generally realized? We are still all parts of one another, and those who think themselves winners discover that there is no pleasure in living in a world of defeat.

In this extract Berry begins by saying:

> As thousands of small farms and small local businesses of all kinds falter and fail under the effects of adverse economic policies, or live under the threat of what we complacently call "scientific progress," the economist announces pontifically to the press that "there will be some winners and some losers"—as if that might justify and clarify everything, or anything. The sciences, one gathers, mindlessly serve economics, and the humanities defer abjectly to the sciences. All assume, apparently, that we are in the grip of economic laws, which are the laws of the universe. The newspapers quote the economists as the ultimate authorities. We read their pronouncements, knowing that the last word has been said.

One way to recognize how little pleasure there is in present-day work is to notice that there is no way to escape the atmosphere of constant "selling." Think, for example, of the mail one receives every day, much more than half of it pretending to be interested only in the recipient, and that pretense so vulgarly obvious. If you open such mail, and a lot of the time you don't, you are usually embarrassed by the coarse nature of the appeal, which is made to sound as though the people who send it really want to do you a service, when you know that this is nothing but "sales talk." If you are offered something to read—a book or a magazine subscription—the samplings given are so casually sophisticated that you can hardly understand what is said, the implication being that if you buy this reading matter you too will soon become equally sophisticated and knowledgeable. Merchandise offered is at the same level of appeal, as though the old rule of setting the level of selling for twelve-year-olds had been made a law of marketing.

Berry points to the effect of all this:

> What the ideal of competition most flagrantly and disastrously excludes is affection. The affections, John Ruskin said, are "an anomalous force, rendering every one of the ordinary political economist's calculations nugatory, while, even if he desired to introduce this new element into his estimates, he has no power of dealing with it; for the affections only become a true motive power when they ignore every other motive power and condition of political economy."
>
> I would like to attempt to talk about economy from the standpoint of affection—or, as I am going to call it, pleasure, advancing just a little beyond Ruskin's term, for pleasure is, so to speak, affection in action. There are obvious risks in approaching an economic problem in a way that is frankly emotional—to talk about, for example, the pleasures of nature and the pleasures of work. But these risks seem to me worth taking, for what I am trying to deal with is the grief that we increasingly suffer as a result of the loss of these pleasures.
>
> It is obviously necessary, at the outset, to make a distinction between pleasure that is true or legitimate, and pleasure that is not. We know that a pleasure can be as heavily debited as an economy. Some people undoubtedly thought it pleasant, for instance, to have the most onerous tasks of their economy performed by black slaves. But this proved to be a pleasure that was temporary and dangerous. It lived by an enormous indebtedness that was inescapably to be paid, not in money, but in misery, waste, and death. The pleasures of fossil-fuel combustion and nuclear "security" are, as we are now beginning to see, similarly debited to the future.

Berry is trying to get us to realize the real pleasure we get from learning to do a job well. For this we must overcome the illusion that avoiding hard work is a way to enjoyment. The happiest people in the world are those who take pride in their work and do it well. We should add that the work needs to be worth doing—an activity that is in harmony with human needs and a natural part of the ecology of the age. Yet it takes time for there to be a full realization of this ideal. As Berry puts it:

> For example, we now have in the United States many landscapes that have been defeated—temporarily or permanently—by strip mining, by clear-cutting, by poisoning, by bad farming, or by various styles of "development" that have subjugated their sites entirely to human purpose. These landscapes have been defeated for the benefit of what are assumed to be victorious landscapes: the suburban housing developments and the places of amusement (the park systems, recreational wildernesses, etc.) of the winners, so far, in the economy. But these victorious landscapes and their human inhabitants are already paying the costs of their defeat of other landscapes: in air and water pollution, overcrowding, inflated prices, and various diseases of body and mind; eventually, the cost will be paid in scarcity or want of necessary goods.

In short, our very powers are bringing home to us the unity of the world. We can no longer isolate ourselves from the far-reaching effects of what we do. We see this already in the realm of international affairs. We are in-

structed by the newspapers how the effects of our foreign policy—or the lack of it—creates problems around the world, problems which, sooner or later, have an effect on our lives.

Berry asks:

> Is it possible to look beyond this all-consuming rush of winning and losing, to the possibility of countrysides, a nation of countrysides, in which use is not synonymous with defeat? It is. But in order to do so we must consider our pleasures. Since we all know, from our own and our nation's experience, of some pleasures that are canceled by their costs, and of some that result in unredeemable losses and miseries, it is natural to wonder if there may not be such phenomena as net pleasures, pleasures that are free or without a permanent cost. We know that there are. These are the pleasures that we take in our own lives, our own wakefulness in this world, and in the company of other people and other creatures—pleasures innate in the Creation and in our own good work. And these are the pleasures that are most vulnerable to so-called economic progress.

He goes to a familiar figure for comment:

> "This curious world that we inhabit is more wonderful than convenient; more beautiful than it is useful; it is more to be admired and enjoyed than used." Henry David Thoreau said that to his graduating class in 1837.

Meanwhile—

> Our workplaces are more and more exclusively given over to production, and our dwelling places to consumption. And this accounts for the accelerating division of our country into defeated landscapes and victorious (but threatened) landscapes. . . .
>
> If I could pick any rule of industrial economics to receive a thorough re-examination, it would be the one that says that all hard physical work is "drudgery" and not worth doing. There are of course many questions surrounding this issue: What is the work? In whose interest is it done? Where and in what circumstances is it done? In whose company is it done? How long does it last? And so forth. But this issue needs to be re-examined by everybody, because it is personal. The argument, if it is that, can proceed only by personal testimony.

In raising these questions it is Berry's hope that we shall discover, more or less by accident, we enjoy doing hard work, that it makes for a satisfaction unobtainable in any other way. He is suggesting that this is normal human life and that the idea of avoiding work is a doctrine invented by salesmen who want us to believe that an abnormal life—a life without work—is something to be sought after by buying what they have to sell. The salesmen are assisted in their task by the fact that most of the work we do—the jobs that are offered to us—are indeed not worth doing and are easily seen as drudgery because doing them produces no satisfaction.

All this can be understood, and well understood, by one who has asked himself why he is here on this planet in company with other humans and in vital association with other forms of life.

Berry ends his "sermon" by relating how he took his five-year-old grand-daughter on a trip with a wagon and a team of horses to bring a load of dirt to spread on the barn floor.

> We completed our trip to the barn, smoothed it over the barn floor, and wetted it down. By the time we started back up the creek road the sun had gone over the hill and the air had turned bitter. Katie sat close to me on the wagon, and we did not say anything for a long time. I did not say anything because I was afraid that Katie was not saying anything because she was cold and tired and miserable and perhaps homesick; it was impossible to hurry much, and I was unsure how I would comfort her.
>
> But then, after a while, she said, "Wendell, isn't it fun!"

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The following is quoted from Citizen Summitry, ed. by Don Carlson and Craig Comstock. (Jeremy P. Tarcher, Inc., 1986, L.A.):

"When you meet God be ready for two questions: 'What did you do for my other children? And did you have fun?'"

—Frank Rubenfeld

Can We Convert From a Military To a Civilian Economy?

(Reprinted by permission from The Churchman's Human Quest March/April 1988, pp. 6-8)

By SEYMOUR MELMAN

"The assumption is that the U.S. is uniquely competent without limitation. But now we have learned — if we choose to learn — that the United States is, in fact, limited."

AS AMERICAN and Soviet representatives were concluding negotiations on a treaty to reduce four percent of the nuclear arsenal, the *New York Times* estimated that the United States had in its intercontinental range delivery system about eleven thousand nuclear warheads. According to the *Wall Street Journal*, we had about thirteen thousand.

There is small difference in reckoning U.S. overkill with that of the Soviet Union. The Soviets have an overkill of about fifty-two times — by another reckoning about fifty-five times. That difference is without any human or military meaning whatsoever.

Whatever secrets may be held by the U.S. Air Force, we can with high assurance believe that no one has discovered how to destroy a person or a community more than once.

The fact is that the Intermediate Nuclear Forces treaty does not touch any of these weapons within the intercontinental range. They are left intact.

After that treaty negotiation was concluded and after discussion about a possible fifty percent reduction in the intercontinental delivery system's vehicles, a chill was felt in parts of the American economy. Among the forums engaged in designing and producing intercontinental delivery vehicles, missiles, submarines, large airplanes, etc., there is a new unease as the military economy is entering into a period of shrinkage and decline. Will the contracts from the Department of Defense keep coming?

Underlying that new unease being felt for the first time in more than forty years, there are transformations needed in economic and military thinking. The stock market crash of October, 1987, was quite similar to the crash of 1929. There was a drop in value of securities that had been speculated upward far beyond justification in terms of the profits that might be earned.

But there was quite a difference between 1929 and 1987. The new condition in 1987 was that for the first time in the U.S. there was a realization that our industrial base was less than competent.

No longer are we able to supply the steel required, no longer are we able to deliver half the machine tools for production. No longer are we competent to supply a third of the automobiles. We are unable to supply hardly any of the consumer electronics that we purchase. We are unable to supply 86% of the shoes that we buy. That's a new condition in American economy.

Incompetence in production was not even whispered in 1929. The industrial system was fully competent to produce the markets' demands. Indeed, the understanding of the economic crisis of the great depression was a crisis in market demand and was dealt with accordingly.

But the present condition is really transformed. There is a market for steel, but one-third of it is being met outside the U.S. There is a market for video cassette recordings, but that market is being met by factories outside the U.S. There is a market for machine tools, but half of it is now met outside the U.S. The reason is that factories and firms in these industries and a host of others are not competent to organize production in a way that is satisfactory to American working people. Also, raw materials demand prices that are not competent in the American marketplace.

Another transformation refers to military power. Before World War II the military power of industrial United States, resting on its industrial base, could effectively be the superior military power. Its material needs were not needed to be met outside the U.S. I have raised this question with generals and admirals, asking what is military superiority. They do not know how to answer the question.

It is unanswerable because now there has been accumulated in a series of countries the destructive capacity sufficient to destroy the entire society. The attempt to use that capacity is likely to yield a reverse effect on the using society.

Nothing has ever been invented that will destroy anything more than once. It is, of course, an absurdity. The word is overkill. There are those in the military, or related thereto, who try to give reasonable grounds on which to justify the accumulation of overkill. They can only justify it in terms of more military bases or enlarging them.

That rests upon a third assumption: that the United States is indefinitely unlimited. On that assumption military organizations that are known to be useless keep going. In fact, the assumption is that the U.S. is uniquely competent without limitation. But now we have learned — if we choose to learn — that the United States is in fact limited.

Another assumption is that war means prosperity and that war solves problems or recession and depression. A public opinion analyst in Fredericksburg, Virginia, quoted a utility worker: "It's a helluva thing to say, but our economy needs a war. Defense spending should increase to make more jobs for people." This utility worker was participating in an assumption that's shared by millions of Americans, including some economists, across a spectrum from right to left.

Our understanding had been that World War II saved the United States

Dr. Melman, Professor of Industrial Engineering, Columbia University, New York, is author of several books on the economy, among them *Pentagon Capitalism*, *The Permanent War Economy*, and *Profits Without Production*. This article is taken from his keynote address during a symposium on the Future of Defense Spending, National and Economic Security, at Eckerd College, St. Petersburg, Florida, Jan. 23, 1988. He readily gave permission to publish as much as space allows in *The Churchman's Human Quest*.

from the Great Depression; that both guns and butter can be sustained on a continuing basis; that a great mistake was made by economists and others. It is true that during World War II the U.S. produced not only a niagara of military goods but there was an increase in personal consumption during that wartime period. And everybody went to work.

But not considered by our learned brethren was the fact that during the four war years it was not necessary to make major repairs or replacement of major capital goods. The roads, railroads, the power plants, the steel works, all served very well through those four years without major reconstruction. The durable capital goods could endure those years of intense use without major repair.

But we could not endure forty years of such use without repair or reconstruction. So one of the things we now suffer is a degraded condition of the infrastructure — the whole network of facilities and services that make modern production conditions possible. So our roads, railways, our postal system, our schools, our libraries, facilities for handling water supply and waste disposal are in gross disrepair. That marks a decline in the quality of life.

A sustained military production yields a decrease in the quality of life and living.

But there are limits to military power. There are limits in terms of overkill, even in modern military forces. To prevail against popular guerrilla forces, in which people are willing to sacrifice their lives and have the support of the surrounding population, has limits. The opponent, however sophisticated in equipment, is often unable to differentiate the guerrillas from ordinary people.

That's the story of the United States in Vietnam, of the Israeli Army in its occupied territory, of the British in Malaysia, the British in Ireland, repeated over and over. This includes the problems of the Soviets in Afghanistan. These limits of military power are not unique to any one society.

So I turn to transformation in the U.S. economy. Two alterations deserve central attention. First is the quantity of resources used on the military that is not properly understood. A modern military budget is not an average mix of resources. A modern military budget is a capital problem — capital meaning as in industrial enterprise, capital meaning the dollars spent for buildings, machinery and the like — the working capital along with other resources needed for the enterprise to function.

Our military budget from 1947 to 1987 has used, according to the Comptroller of the Department of Military Defense, $7,620-billion in capital type resources. Such magnitude must be compared to the national wealth, published annually by the U.S. Commerce Department. In 1962 the money value of our assets was $7,292-billion. We find the money value of the fixed reproducable U.S. wealth — the dollar-value of everything manmade in terms of fixed assets on the surface of the country, including buildings, factories, roads, waterworks, libraries, theaters and the like, is less than that of the military.

You cannot help but be struck by the observation that the quantity of capital resources used for the military over that forty-year period exceeds the money value of the total fixed assets of the U.S. About two-thirds of those major assets are candidates for major repair and replacement. So the capital assets used on military account are one and a half times the value of the capital assets requiring repair in the industrial and infrastructure plants of the U.S.

Another way of understanding the resources used for the military is from figures compiled by the United Nations. For every hundred dollars of civilian capital resources brought into being in 1983, the United States made available forty dollars, separate from that hundred, for the military. The ratio of $40 for the military to $100 for the civilian can be compared with the ratio in other countries. In the United Kingdom it was 31 to 100; in Germany 13 to 100; in Japan 3 to 100. The difference in the use of capital for the military in Germany and Japan is dramatic. A vital factor in appreciating goods in German and Japanese industries is to consider the infrastructure. It is important to recall that President Eisenhower in his farewell address called our attention to the fact that in 1951 until that day in January, 1961, every year the budget of the Department of Defense exceeded the net profits of all U.S. corporations. That ratio has continued to the present. The military use of capital resources has dominated the scene.

So the major point is transformation in the use of capital resources in the economy of the United States.

An added transformation is in the micro-economy. Once upon a time the characteristic of the micro-economy in the U.S. was profit maximizing through cost minimizing by way of improvement in efficiency. I gave considerable detail on this point in my book, *Dynamic Factors in Industrial Productivity*, published in 1956 by Oxford.

The United States' manufacturers ceased to be cost minimizing from 1975 to 1984 and had become cost maximizing. Being cost maximizers, they followed the lead of the Department of Defense in asking — and getting — governmental subsidies. The maximization subsidies is the consequence of budgets voted by Congress.

The decline in the rate of productivity growth constitutes a core alteration from a first-rate economy to one needing subsidy.

What is happening to research and development? In 1987, the federal government spent forty billion dollars for military research. Private firms spent sixty-two billion, thirty percent of which sought federal funding. The total activity in private research and development amounted to forty-four billion dollars in 1987 but their military research and development amounted to fifty-seven billion dollars. The elemental fact is that about seventy-five percent of the federal government's research and development was on military account, supplemented by private firms' research and development. By 1986, the defense industry exceeded the smokestack industries.

Military products cannot be used for ordinary civilian economic purposes. A nuclear military submarine is a technical masterpiece. But you can't live in it; you can't eat it; you can't wear it; you can't make anything with it. It cannot even hold its position in industry. Economic consequences are far-reaching.

The consequences of our irrelevant living is plain spoken. The average annual increase in the real purchasing power of wages and salaries in the U.S. was 3.1% per year during the 1950s; 2.5% in the 1960s; 0.9% in the 1970s; and 0.0% from 1980 to 1984.

For the first time in American history the prospect for the growing generation is a diminished level of living.

The industrial system of the United States is in prospect of moving into the third-rate status. Third rate means lacking the resources to repair the damage. For example, there isn't a firm in the U.S. competent enough to make a trolley car. A team of specialists abroad would be necessary to assist. This is a new condition in the U.S.A. It has to do with the decay of the infrastructure.

The failure is the lack of devotion to the care of human beings.

Our candidates for public office have failed to appreciate and to pinpoint the source of decay in U.S. economic competence. The source of that decay is the monumental accumulation of resources assigned to non-productive military activity. A factor is the failure of our schools to teach students competence in productive work, the problem of a military economy, and the necessary conversion to a civilian economy.

A proposed law in Congress — H.R. 813 — by Congressman Ted Weiss of New York, endorsed by fifty other congressmen, proposes alternative use of productivity. The plan would mean new jobs and markets for millions of Americans, involving billions of dollars in retraining managers and engineers. It would be a service to the whole country, involving the six and a half million persons whose payrolls are now military and defense-related.

The election campaign could be transformed if a single candidate ventured to understand and propose the significance of this and other such conversion bills. For the first time there would be a serious debate on the most serious issues confronting this country on the economy and military defense.

The following are quoted from Citizen Summitry. ed. by Don Carlson and Craig Comstock. (Jeremy P. Tarcher, Inc., 1986, L.A.):

"It is more difficult to organize peace than to win a war, but the fruits of victory will be lost if the peace is not well organized."

——Aristotle

"The central question is whether the wonderfully diverse and gifted assemblage of human beings on this earth really knows how to run a civilization."

——Adlai Stevenson

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Soviet Science

A broad sample of the status of Soviet science was presented on 14 February at the AAAS annual meeting in Boston. Twelve presentations by Russians dealt with fields ranging from ecology and microbiology to space science and engineering research. The symposium, arranged by Yevgeni Velikhov, Vice President of the Soviet Academy of Sciences, at the invitation of Alvin Trivelpiece, Executive Officer of the AAAS, was further evidence of a thawing in U.S.S.R.–U.S. relations.

One must have reservations about judgments formed on the basis of 20-minute talks, but some impressions follow. Soviet scientists range in quality, but there are creative, dynamic, world-class individuals among them. They have been handicapped by a lack of computer capabilities and by a paucity of good instrumentation. In the past, opportunities for individual initiatives have been few. As a result, in general, Soviet science lags behind that in the United States. The lag is not great, and in space science the Russians excel at this time.

An example of where the United States leads, although not distantly, is in biotechnology. A number of U.S. companies have produced interferons alpha, beta, and gamma, interleukin-2, and tumor necrosis factor. The Russians have also made substantial quantities of these substances and have completed clinical tests on some of them. They have made human growth hormone and growth hormones that can be used in cattle, pigs, and chickens. They have changed some of the amino acids in these hormones to enhance stability. They have engaged in animal gene engineering to obtain transgenic animals, including fish. They have introduced genes into plant cells. Through gene engineering they have created superior organisms for the synthesis of amino acids and riboflavin.

For a short time with Sputnik the Russians held leadership in space, but this was followed by nearly three decades of U.S. leadership. The world center for excitement about results of planetary exploration was the Jet Propulsion Laboratory in Pasadena. But as a result of bad judgment and bad luck in the United States, excitement is shifting to the Institute for Cosmic Research (IKI), near Moscow. While the United States enjoyed the spotlight, the Russians were not idle. They compiled 14 man-years of space flight versus 5 man-years for the United States. They also developed a reliable launch vehicle for planetary exploration and used it in extensive studies of Venus. The Vega mission to Venus and Halley's comet, launched in December 1984, involved investigators from more than a dozen countries, including some from the West. American and European journalists were present at IKI when the Vega machine encountered Halley in March 1986.

The next big scheduled solar system event is the Soviet mission to Phobos, a satellite of Mars. Two Vega missions will be launched during July 1988 to conduct extensive exploration of the planetoid. Each of the Vegas will carry about 25 different experimental packages, many of them provided by Western European countries. American scientists were invited to participate and were eager to do so, but U.S. authorities did not permit U.S. hardware to be placed aboard.

One of the Vegas will fly slowly 30 to 80 meters above the surface of Phobos. It will direct an intense laser beam at the surface to vaporize some of it. The products will be analyzed by time-of-flight mass spectrometry. In another experiment an energetic ion beam from the spacecraft will strike the surface, and mass spectra of the resultant ions will be observed. By these methods, the elemental and isotopic composition of Phobos's surface will be determined. These are but two of the experimental packages.

The Russians have developed a powerful launch vehicle capable of lifting 100-ton payloads into space. They are currently planning many space missions, including extensive exploration of Mars. In their planning, they are involving a large number of countries. They have expressed eagerness to have U.S. participation, even a partnership, in a mission to obtain a sample return. The United States is preparing to launch a number of solar system missions during the next 4 years, if the shuttle is functional, but the United States should not persist in a policy of going it alone while the Soviet Union successfully promotes international cooperation in space research and compiles an impressive record of scientific achievement.—PHILIP H. ABELSON

(Reprinted by permission from THE MANCHESTER GUARDIAN WEEKLY, Vol. 138 No. 23, June 5, 1988)

Casting first stones in Moscow

THE same events, and the same speeches, may be viewed on a sliding scale: from fervent idealism to grubby cynicism. Give Mr Ronald Reagan the benefit of the doubt, and his human rights excursions in Moscow on Monday probably land somewhere in the middle of that scale. On the one hand Mr Reagan has been pretty consistent over decades; in his simple way he wants human freedoms to burgeon beyond the Iron Curtain, and here at last is the ideal stage for homilies stuffed with Solzhenitsyn and Pushkin. On the other hand the preparations for the Moscow summit have left the President rather short of subjects to negotiate about; so rhetoric is wheeled in to fill the vacuum.

These sallies aren't helpful to Mr Gorbachev; but the question is how harmful they will be. Imagine a few reverse scenarios. The Soviet leader lands in Washington and promptly lays into the mining of Nicaragua's ports, the drug trafficking of General Noriega, the squalor of Skid Row, the manifest frailties of Mr Ed Meese, and the historical treatment of America's blacks and Indians. Would the White House take such a gambit in silent good humour? Or site Mr Gorbachev at Heathrow lecturing his best friend Margaret about the Diplock Courts and Gibraltar. Would that spoonful of bile slip happily down?

Ah but . . . the cry goes up. Such tactics would be grotesque, because they would not compare like with like. The Soviet Union, in its treatment of dissidents and persecution of would-be Jewish emigrants, remains a standing affront to those who cherish individual liberty; whilst the occasional weak spots of the West arise in a context of democracy and may therefore be accounted of smaller moment. But dwell over Mr Reagan's precise words this week: "We view human rights as fundamental, absolutely fundamental, to our relationships with the Soviet Union, *as with all nations*." The last four words are the litmus ones. They mean, if they mean anything, that American military aid and political succour to President Zia of Pakistan are on hold today after the peremptory sacking of the civilian government. They mean that the government of Guatemala is shivering in its boots this morning, waiting for Washington to lower the boom. They mean that President Botha of South Africa can expect sanctions after all and that Saddam Hossain of Iraq is in deeper trouble than he knows.

Tossing motes and beams back and forth, of course, is not particularly productive: rather like asking politicians to conduct their debates purely through selective quotation from the Bible. But the sterility of the argument tells us something about human rights as a subject for free-wheeling dissertation by visiting statespeople. Objectively, after decades of deep freeze, the Soviet Union has made great strides recently. The flow to Israel has increased. The Soviet press has begun to flex a few puny muscles. The labour camps are opening their doors. It is not a free society by any remote means; but it is a far freer, less brutal, less corrupt society than it was five years ago. It is exploring before our eyes where the trade-offs between individual freedom and a Communist society can be struck as part and parcel of *perestroika*. Perhaps the effort, with attendant strains, will prove too great. Perhaps Mr Gorbachev's attempt to create a different balance between the Soviet State and its citizens will founder utterly amid economic disappointment and political backlash. But meanwhile, surely, for all who care about human rights, it is a process to encourage with a momentum to applaud. That was where Mr Ronald Reagan tripped up. Wittingly or not, he re-ordered the priorities of the summit and kicked his host in the teeth. The human right he seemed, at root, most concerned about was the right of the Soviet people to throw out the Communist Party. Mr Gorbachev, it is to be hoped, will still be smiling on and after Thursday; but if he isn't, the formidable pack of White House advisers should pause and ask themselves which humans seeking rights were truly helped by the street theatre in Moscow last Monday.

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