
CONFERENCE REPORT

'The overriding problem is the threat posed at this moment by the U.S.S.R.'

Dr. Lowell Wood, the physicist who heads a special study group at Lawrence Livermore National Laboratory, spoke at an American Legion Press Club meeting on beam-weapons defense systems on Dec. 1, 1983. Gen. Volney Warner, former commander of the U.S. Readiness Command and head of operations and logistics for the U.S. Army, and Michael Liebig, chief of EIR's European Bureau, also spoke at the meeting, at which Dr. Wood first announced that missile-bearing Soviet submarines were off both coasts of the United States, with a range entailing that after an attack, there would be no more than three minutes for the United States to make strategic decisions. Excerpts follow from the question-and-answer session at the meeting.

Q: Beam weapons—are they feasible? Can we afford them? Can we not afford them? Can we afford not to have them?

Dr. Wood: To put the situation in perspective: the U.S., depending on exactly what you count, spends between 12 and 15 percent of its military budget, on strategic programs, all of which at the present time are strategic projects. Between now and the end of the century, if the rate of the last five years is maintained, the United States will spend about two-thirds of a trillion dollars on strategic offense. So when you ask yourself if you are for strategic defense, that's how much you will be paying for strategic *offense* through the end of the century.

Q: Over what period of time?

Dr. Wood: Between now and the end of the century, 17 years.

Q: Dr. DeLauer, head of defense research and engineering in the Pentagon, said that the cost of this system is staggering and would equal everything we are now spending for strategic weapons. . . .

Dr. Wood: With all due respect to Dr. DeLauer, who is a

very eminent defense technologist, I don't believe that it is feasible for anyone to say what level of strategic defense will cost how much. I believe that it is about as unknowable as, for instance, the cost of the Manhattan Project was when it was commenced in 1941. At that time, the Manhattan Project's budget request was for \$6,000. In the next four years, they spent two billion.

Q: Are beam weapons for real?

Dr. Wood: If you ask, "Does a beam weapon exist now that will burn down intercontinental ballistic missiles or intercontinental bombs?" the answer is most assuredly not, neither in the United States nor the Soviet Union. . . . As a specific example of what serious people have said they believe could be done, a beam-weapons system which would defend the United States, which will bust Soviet ballistic-missile attacks launched through submarines and which would likewise defend Western Europe and Japan from an SS-20 type of attack, was posed to the government as a feasible option by responsible people at the national laboratories and in the military-aerospace industry, with a five-year time from the present to initial operational capability of the system, and an eight-year time from the present to full operational capability of the system, at a total system cost of \$10 billion. . . .

My personal belief is that the shift from offense emphasis to defense emphasis is one of the best pieces of news that the human race has had in the last 40 years. . . . It is utterly a case of "you pays your money and you takes your chances," and I ask you: Do you like the current situation? Or to paraphrase the famous question, are you more secure now than you were 10 years ago? Has deterrence served well the interests of the people of this planet?

Q: I happen to believe that this is the great hope of the world, but I would like to know a little bit about the technology we're going for.

Dr. Wood: The technology underlying beam weaponry in particular, and strategic defense more generally, is much further along than nuclear technology was in 1941. To give you a specific example, I have a little cartoon [which] showed a section of a planet and a beam bouncing off an object in space going from one side of the planet to missiles which are being launched from the other side of the planet. That technology, which incidentally is, that particular technology, which is of a non-nuclear nature, consists of for instance, a powerful laser situated on the ground, in the continental United States.

A spherical mirror which was either previously emplaced in orbit or was "popped up" at the time of attack . . . directs a beam from a ground-based laser against the missiles in flight, coming from the central Asian Soviet ICBM fields. The type of lasers which would be used there have been demonstrated in subscale. There is no technical reason that anybody has come up with why they cannot be made to operate full-scale, and can be operated full-scale in a three- to five-year timeframe. The optical systems which redirect beams can orbit, have been demonstrated in environments to be fully capable of redirecting the size of beams with the precision required to do what we intend them to do to acquire targets, point beams at them, and to whatever extent is required, destroy them. That's a specific example of a strategic defense capability using a directed energy system, of a non-nuclear nature, with, incidentally, no assets deployed in space.

Q: I have been told that beam defense relies on fusion power capability. Is this so?

Dr. Wood: It is not so. Some aspects of beam defense, or of strategic defense used for beam weaponry, use thermonuclear energy, not of a full thermonuclear-energy, fusion-power-plant variety, but of the type which is known to work dreadfully well, namely that which drives hydrogen bombs.

The ground-based laser that I just referred to was run off the same thing that televisions run off: utility line power. The amounts of power and the amounts of energy which are needed to destroy intercontinental ballistic missiles, submarine-launched ballistic missiles, bombers, cruise missiles, etc., are exceedingly small. You saw pictures of what one ton of high explosive did to a reinforced multi-story concrete building in Beirut several weeks ago. The amounts of energy required to definitively destroy strategic offensive platforms like bombers or missiles are basically a few pounds of high explosive equipment. They are the amounts of energy which are drawn by the lights in your house over one hour of time, if you apply it roughly.

Q: If a hostile country were to establish a space defense, could the United States defend itself from it, or would we continue to wage some kind of war?

Liebig: Well, I would say that this unfortunately is something which one has to very concretely think about. Because I would not exclude the possibility that the Soviet Union is going to demonstrate their capability in terms of either ground-based ABM capabilities or space-based ABM capabilities—first in a demonstration phase—very early, maybe even in the next one to two years. . . . And secondly, I think one should think about why the Soviet Union did not respond to the offers made by President Reagan and Secretary Weinberger. They said, "We don't want a unilateral superiority of beam-weapons ABM capabilities, but we want that both sides in a rough equality and parity, also timewise, are developing the system, so as to make sure that a new regime of strategic balance can be established with both sides having this system."

Q: Then you're saying in reference to the beam weapon, that we could operate it in three to five years?

Dr. Wood: I'm afraid there is a misunderstanding as to what I said. I quoted very specifically a five-year period for IOC, initial operational capability, and eight years for full operational capability, for a system that could defend against attack of the U.S. by submarines, Soviet submarines, and attack of Western Europe and Japan by SS-20 type systems. These are all effectively intermediate-range ballistic missile based attacks. Five years, eight years, \$10 billion is what I said. That is a part, and a representative part, of the overall question of strategic defense. I did not address the question of bombers, of cruise missiles, or of ICBMs. . . .

Q: Is that a ground-based system?

Dr. Wood: . . . I said that it had been estimated and scoped out in detail for development using existing technology by a completely ground-based system which would be effective against intercontinental ballistic missiles, long-range ballistic missiles, or bombers, or cruise missiles. . . .

Q: Foreign ships have used Alexandria Harbor; if they left a mine there, they could wipe out Washington right now! You aren't going to have any defense against that. So 20 years from now, I feel no more safe than I do today from your magic. You just want to waste another couple of hundred billion dollars.

Dr. Wood: I'm afraid that you, and probably the public at large, does not have much of an intuition as to what 10 thousand megatons of explosive in the Soviets' strategic nuclear stockpile can do to this country. . . . Ten thousand megatons burns this country to the ground. Ten thousand megatons lays down thousands of roentgens per hour of radioactivity over every square inch in this country. Ten thousand megatons leaves nothing left alive on the surface of this country. With all due respect to Washington, and it's a beautiful city, I'm quite willing to lose the port cities of this country if you're worried about bombs in freighters, and I'm

quite willing to lose other assets of this country, if you're worried about bombs being floated in from Mexico; I'm quite willing to put up with that amount of loss, relative to the complete annihilation of the United States, not as a nation, not as a piece of geography, but as a piece of the biosphere of this planet, which can be effected *at the present time* by the Soviet Union, with its *existing* strategic missile and bomber force. With all due respect to your knowledge, sir, it seems to be slightly incomplete with respect to the ferocity of the strategic offensive capability of the Soviet Union at the present time.

Q: Then what can your program do to stop that? Exactly my point; you are taking a small part of the spectrum, and you're saying, "We can do something to what those things with nosecones are carrying through space," but you are not stopping the whole spectrum of weapons, and I mean nuclear weapons, I'm not just talking about rifles.

Dr. Wood: I certainly can't stop the suitcase bombs. . . but at the present time, that which comes over in the first hour, in those missiles, that which comes over in the first 10 hours in the bombers, leaves nothing left in the United States of America—nothing. You know, the loss of cities due to suitcase bombs is an exceedingly serious matter, but it pales completely beside what the United States faces at the present time from the Soviet Union. And the proposals that President Reagan makes address *that* ultimate problem. . . .

Q: I'd like to pose the question of what you think it would take to set up a full system, space-based. The problem is that of resources; the problem, as Mr. Liebig suggested, involves the NATO allies. . . .

Dr. Wood: The system which I suggested, which I believe could be created in eight years, is an incomplete one, a first step. It is the sort of *logical* first step I believe that one might look toward as far as providing strategic defense for this country and for its allies in Western Europe and East Asia. It is a system which, moreover, does not involve titanic sums of money. It involves something of the order of 1 percent of the amount of money which Dr. DeLauer would probably stipulate is probably going to be spent by this country between now and the end of this century on strategic *offense*. That system, as I said, was not space-based; it had no significant components in space.

It is not clear the extent to which the country would be well advised to put a defensive system, or an offensive system, or anything else that it cared much about, in space. Space assets are blamed vulnerable. But the type of system that I've sketched is one that is a reasonable thing to do for starters; it is the sort of thing which, if both countries, the U.S. and the U.S.S.R. deployed it, would roll back the super-short time scales that presently prevail. I think that a very important thing that needs to be done is to start getting time for political decision-makers to work in. It would give us the

time scales that we had 10, 12, 15 years ago, when we were merely threatened by intercontinental ballistic missiles, for political decisionmakers to count on 30 minutes to try and figure out what to do, rather than the three minutes or less that they have at the present time.

It would lead very naturally to the capability, I believe, to destroy intercontinental ballistic missiles, whether it's in early phase, mid-course, or terminal phase—destroy them so that political decisionmakers would then have eight hours of time to do something, and perhaps even use recallable attack capability that they had in the 1950s, when the threats to the two countries came from each other's bomber forces. At the present time, due to the advance of strategic offensive technology, we are stuck with a situation in which computers are going to be fighting the war; the political decision-makers will have been dead at the outset.

Q: How vulnerable are missiles on submarines?

Gen. Warner: How vulnerable they are, no man can say. But if you know where the submarine is, all the missiles on it are just obviated, neutralized, liquidated. Submarines are exceedingly delicate. If you can tell within a few miles where a submarine is located in the ocean, it is exceedingly feasible, with existing military assets, to destroy that submarine. The U.S. has a huge number of warheads, on its exceedingly small number of submarines.

If the Soviets can ever figure out how to find three dozen U.S. ballistic-missile-launching submarines—I guess there are only 32 at the moment—the so-called vulnerable leg of the U.S. triad just vanishes overnight. It has a very mystical sort of nature to it. All you have to do is know the location of these submarines, just know it, and then you target 32 missiles in that general area of the ocean. You don't have to hit at all precisely; it's not like shooting at missile silos or anything like that; submarines are creampuffs. If you ever know where they are, they're just all gone immediately.

Q: When you have a ground-based laser beam that's bounced off something in orbit, how would you be able to track the incoming missile?

Dr. Wood: Missiles in their launch phase, which goes from three to eight minutes, are as bright as a large city, in the total amount of radiant energy from their exhaust. . . in other words, they carry very large tags on them that can very readily be seen, with existing technology, from the distance of the moon, and distinguished against everything else.

Something has to monitor that missiles have been launched. That does not need to be done from space; it's very easy with existing assets to determine that the Soviet Union has launched missiles.

You throw something up in space which does not have a predetermined position so that it is not vulnerable to attack; for instance, the U.S. throws up a pop-up mirror which is looking for these Soviet missiles, the Soviets don't know

where it would pop up from or when, or where it went; so it's very difficult to attack. All that mirror has to do is find those booster plumes, those exhaust plumes. . . .

Q: I'd like to know why all the people who quake in their beds because they're afraid they're going to be incinerated by offensive weapons—why they are so against *defensive* weapons.

Liebig: I think that some of these people are genuinely terrorized, but on the other side I think that there is a well-oiled and perfectly orchestrated campaign under way from the side of the Soviets which is targeting defensive beam weapons. I do not understand why more attention is not given to the fact that day after day, the leading Soviet news media are launching assault after assault against beam weapons. You take *Pravda* one week, and you can be sure in two or three editions there is an assault against defensive weapons because they are allegedly a "first-strike" weapon. With the peace movement in Europe, with 150 million marks that are being paid every year from the East into the peace movement in the West—I think that this is a critical factor for these otherwise unexplainable reactions.

Dr. Wood: I would also suggest that there are relatively few people quaking in their beds. . . . I did notice that a *New York Times*/CBS poll, conducted four weeks after the President's speech of March 23, found that the American public cross-section which they had polled, favored the President's strategic defense proposals by a ratio of 67 to 25. . . . The *New York Times*, in the story reporting these results, seemingly somewhat grumpily remarked that this just seemed to reflect the American public's naive faith that any problem can be resolved with technology.

Q: Well, I would like to go back to the crash program. It seems to me that if President Reagan just got on television and said that this country should go on a crash program for beam weapons, the country would be behind him. And if we could organize a vocal public behind the President, don't you think we would have a shorter time frame, and within three to five years, we could be dealing with the threat of ICBMs as well?. . . . We have got to address Soviet aggressivity by that kind of public announcement that we're going to go with the beam weapons, that we are not going to be terrorized.

Dr. Wood: The program which I discussed that had the five- and eight-year time scales is not a crash program. By the very fact that we spent so little money and it took so long, relative, for instance, to the total duration of the Manhattan Project, it's clear that it did not represent the best that this country could do, if this country really were concerned; it merely represented what it was believed to be feasible for this country to do on a "business-as-usual" basis, proceeding from the present time. With respect to what might be done or could be done, or if the President were to make a rousing speech, or whatever: it's clear to just about every thoughtful person in

this country, at the present time, that the press is the most powerful single institution that exists, much more so than the executive or legislative branches of the federal government, for instance. What the press could do if it decided it wanted to proceed in this direction, is not known to me, but I suspect the results would be very striking indeed.

Q: I understand that the physics has been resolved on laser weapons, to a large degree, and that now they're down to the engineering aspects. And this week there was the announcement about the partial success in using lasers to down missiles. If we were to go into a Manhattan Project-type program—I realize that it's not possible to come up with any specific arithmetic—it obviously would shorten this entire thing. Now, if the laser weapons are knocking on the door, what about beam weapons and protons and so on—where do we stand on those?

Dr. Wood: Of the varieties of beam weapon technologies, lasers are probably the most advanced. They've been worked on for the longest periods of time, they've had the largest infusions of funds and technical personnel. The other types of beam weaponry, projectiles, microwaves, particle beams, are in substantially earlier phases of development. Whether they have to be developed as far as lasers have been to the present time in order to be militarily effective, is still being determined. Some of those types of technology appear to be potentially very potent, even in their early phases. So if you were to implement an immense crash program, which, whatever your time scale, would turn out to be the most useful in terms of avoiding an offensive move? I think that's hard to say at the present. What you really can do, with firm reliability at the moment, is set the minimum, set the floor, on how effective these systems can be. . . .

Q: Would an enemy consider space-based defense system more aggressive than a ground-based system?. . .

Gen. Warner: I guess they possibly would; the rationale would not be scientific, but if you talk to soldiers and people in the street here and in Europe, there still seems to be a general attitude that the heavens are God's locale, and that if you interfere with that, if you militarize it, it becomes a location for platforms weapons, somehow you have exceeded the rules for land-based warfare. I think that you'll get the same sort of response in some sections as you do if you talk about nerve-warfare weapons. There would be an enormous educational requirement if you decided to militarize space. . . .

Dr. Wood: I would suggest that the circumstances with respect to military systems in space have been misunderstood by the public. The public seems to be blissfully unaware of the fact that the Soviets have had an operational weapons system in space for over a decade: namely their "killer satellite" capability. I for one find it very difficult to distinguish between the telescopic sight on a rifle and the trigger on a

rifle. Both of them are actually necessary to be able to shoot down targets at distances. The Soviets have been deploying radar ocean surveillance satellites, ones that target the U.S. Navy very precisely with respect to its location. With respect to the number of ships and what kinds of ships are located on the oceans, at almost every point in time you get very precise target information, so that U.S. ships anywhere on the planet can be attacked not only by Soviet submarines and Soviet cruise missiles, but very specifically by Soviet intercontinental missiles, aimed at ocean targets rather than land targets. There are all kinds of military weapons hardware in space, in addition to the military communications capability, military reconnaissance, and so forth. Space has been thoroughly militarized already, and the Soviet Union, in just about every technology that you want to point to, took the lead.

Liebig: On the original question, I would say that the Russians will not care really in the slightest, if it's a ground-based ABM system or a pop-up or space-based system. What they worry about is that this technology will enable the United States, in a very short period of time, to close the window of vulnerability; that it will allow the United States and NATO to neutralize the possibility of a Soviet first strike.

Q: I am tremendously impressed with what I hear tonight as to their accomplishments in the technological field. We've always thought of them as being backward people, until recent years we thought of them that way—

Dr. Wood: Up until Sputnik, anyway.

Q: And in their civilian economy, they're so far behind. . . . Yet the most important impression I've had here tonight is the level of ability on the part of the scientific personnel that they have.

Gen. Warner: Well, the first answer is that when they divided their national treasure, ever since the Kennedy-Khrushchev confrontation, in their commitment to make sure that they were never put into a back-down position again, that subsequently when they divided their national treasure each year, they put a preponderant share into their defensive system, strategic and conventional, and they've been doing that for a long time.

Also, for example, if they decide to change from tote artillery to artillery that has its own motor and movement system, or if they decide to put a beam-weapons system in the sky, there is no difference between the officials and the military that run the country. . . . All they have to do is say, "Produce this system; change from this system." There is no acquisition program, there is no testing program. . . . It's only limited by the way their technology progresses, not by the bureaucracy of the system. The same hand decides that produces. For a system that can orient its national treasury toward upgrading its military, it's the optimal system. Of course there are also a lot of negatives. . . .

Dr. Wood: There are no sailboats in the Soviet Union, no mountain cabins, no Cabbage Patch dolls, no cars for the general population. There's very, very little available in buckets in the Soviet Union other than vodka—from whose sales eight percent of the state budget derives. But there are lots of people in the Soviet Union, something like 10 or 12 percent greater population than the U.S. has. The Soviet Union is willing to spend more on a military budget—a little bit more, not a great bit more, that's per capita GNP—than the Eisenhower administration spent. That's twice what the U.S. spends, and in the U.S. military budget over half of it goes into "budget checks" to individuals—pensions and direct payment to individuals, civilian and military, who are serving the U.S. military establishment.

So the fact of the matter is that when you get serious about running a military operation, the Soviets are not dumb sloths. They may not have the technical polish of their capabilities, they may not have the entrepreneurial initiatives and the individual commitments to excellence across the board that so distinguished this country in the eyes of the rest of the world; but the things that they can't develop themselves, they'll find some greedy shortsighted technological industrialist in the West to sell to them, like the ball-bearing machinery that made the guidance packages that permitted them to leapfrog—not catch up to, but leapfrog—the U.S. capability and accuracy of land-based missile forces, which they did in the case of the guidance packages for the SS-18s. We derived \$20 million worth of profit from selling them the ball-bearing machinery. They built up a missile force that wiped out the capability of the U.S. land-based missile force, as far as its deterrence capability. And we will spend something in excess of \$20 billion to make that up, and we've put ourselves at enormous risk in the process. . . .

Q: The Wirsup Report that was issued some time ago identified another feature of this problem, which is that the Soviets seem to have adopted the Henry Ford technique and applied it to the production of engineers and scientists, at a rate that's profoundly greater than the rate of production of engineers and scientists in the United States. What can we do to turn that around in the way we did in the 1950s following the Sputnik program? These new technologies and the kinds of revolutions in production they imply, would seem to mean that we've got to not only increase the number but the quality of our own educational system.

Liebig: The situation in Europe is as bad and maybe worse; and I think that in that sense there are something like cultural determinants for the course of strategy to be taken now. I think the population of the United States as well as of Western Europe, faces a tremendous challenge, and quality is not just technical and scientific. Cultural and moral challenges will have to be met in the ability to develop such a system, which may be as important as the technical side per se.

have to be met in the ability to develop such a system, which may be as important as the technical side per se.

Gen. Warner: Just one comment; I'm not sure of the practicality of it, but aside from weapons systems, budget, and so on, in my view what has not been harnessed to our problem and our future in this country is the youth of America. And it seems to me until such time as we are able to engage the 18- to 26-year-old group toward that purpose, we will not overcome the legacy of Vietnam, Watergate, Koreagate. . . . And until such time as we figure out how to extract from that age group two years of national service, where military service is just one option, in exchange for education benefits and encouragement to go into science as we were talking about—and two years of someone's life is not too much to ask for the birthright of this country—until we work that out and get the young people who are interested in the future of this country and committed to it in positions of government as opposed to on a street corner, we haven't solved anything. Putting the country and the youth of the country on that sort of a footing, would have a more significant impact on both friend and foe than anything else I think we could do.

Q: Tonight all I've heard is a discussion of these new weapons in terms of defense, but it seems to me rather clear that without a great deal of modification these same weapons that could blow up a bomb or a missile could blow up a building on the ground, or an oil refinery. We're trading a military defense system, a military system now that allows for three minutes' warning, for a military system that allows for no warning at all. And if both sides have the same system, we'll be at each other's throats with hair-triggers.

Dr. Wood: As I said, the current problem the U.S. faces in a nuclear war is what to do when it is turned into a smoldering radioactive desert, every single square inch of it, without one single thing left. . . . You can worry about beams coming down from space blowing up houses, blowing up this, that and whatever; those are indeed problems, and they're not trivial problems, but they are of a qualitatively different character, I suggest, than the threat posed at this moment by the Soviet Union.

I doubt that any superpower is going to use space-based capability, or a pop-up capability which is even more expensive if you use it on an intermittent hit-or-miss basis, to do something, to attack something of as low a value as an oil refinery. A pop-up laser system might cost you a hundred million dollars; the damage that you could do to an oil refinery while it was in orbit or while it was coasting up or coasting back down, is probably not a very large multiple of that. It just ain't a good investment. Furthermore, it might annoy the other guy, and you'd get back something more than a stiff note of protest.

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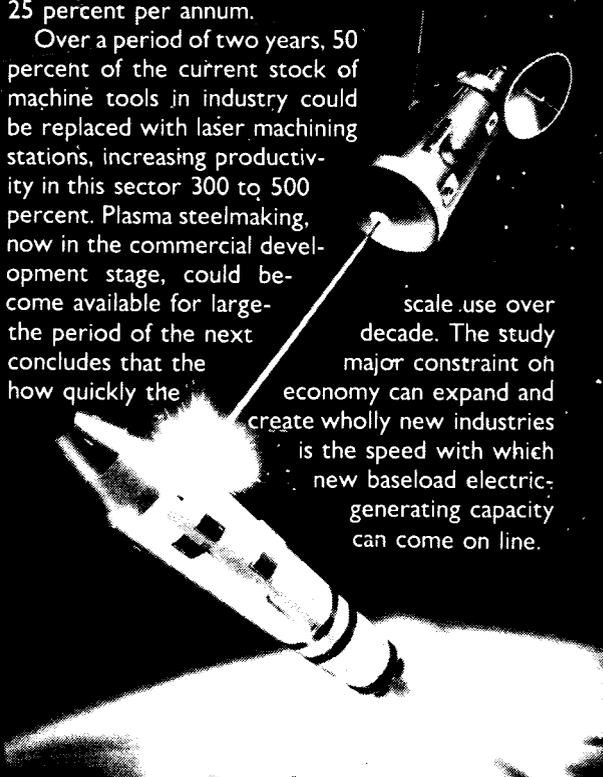
The Economic Impact of the Relativistic Beam Technology

A unique study of the impact of the new defense-related technologies—high power lasers, particle beams, and fusion—which will become available to basic industrial production as the March 23 defensive strategic doctrine proposed by President Reagan is developed. The report is a computer analysis incorporating the LaRouche-Riemann model, which examines the little-discussed revolutionary civilian economic "spinoff" effects of the new beam weapon development program.

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