

Research and Development: The aura of poverty

by Dr. Steven Bardwell

"I bring what I consider a healthy skepticism that technological advances alone can solve all problems; that technology for technology's sake is justifiable. I believe therefore, that investments in research and advanced technology for national defense should be carefully examined to assure that returns in the way of measurable increases in defense capability justify those investments." A statement by Ralph Nader? Or, perhaps, the Center for the Public Interest in the Pentagon?

Unfortunately, this was the introduction to the presentation given by the Director of the Defense Department's Defense Advanced Research Projects Agency before the committee in the House of Representatives responsible for the 1979 funding of the DoD!

The anti-technology bias, the almost total lack of

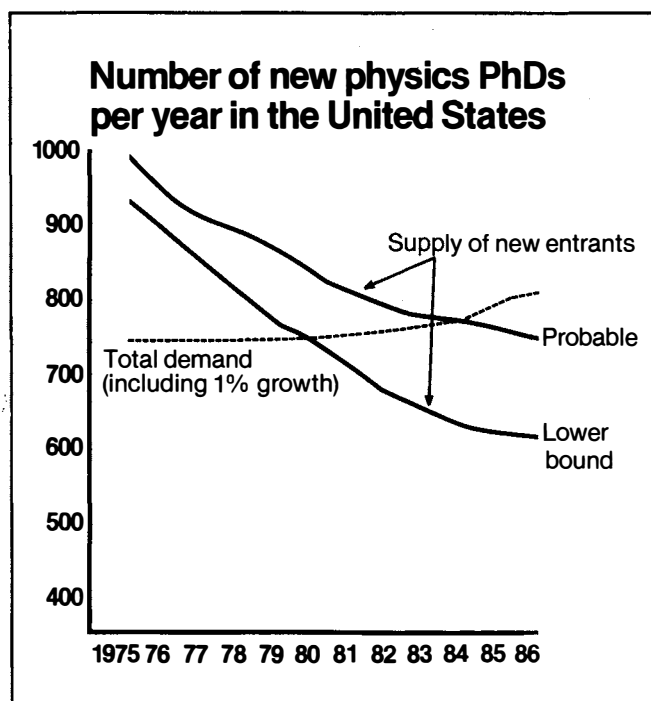
comprehension of the actual connection between advanced research and military strength reflected in the above quotation, has been the official policy and determinant of funding in the U.S. defense establishment since at least 1965. The result is military capability in this country which is severely hampered by outmoded technologies and which has *no* qualitatively advanced weapons system coming on line in the next several years. In fact, there is with one exception, no weapons system in use today whose technological base was not perfected before 1965!

The present R&D situation

The present situation in military research and development is frightening—but can only be understood in the context of the state of scientific research and advanced industrial research in the country as a whole. The underlying feature which defines the whole significance of military R&D is not primarily military; rather, it is at root a derived capability based on the society's generalized commitment (or lack of it) to discovery and implementation of the most advanced ideas in every field. It cannot exist in the military field without a broad-based civilian effort, nor can a broad-based civilian effort exist without there being "spin-offs" in military deployments. *That* is the simple fact about advanced weapons systems which has escaped our military leaders for now more than 15 years.

The Atomic Energy Act of 1954, which set up the first and most institutionalized relationship among scientists, engineers, the military, and private industry in the form of the Atomic Energy Commission, states very clearly this evaluation:

By enhancing our military effectiveness, we strengthen our efforts to deter aggression; by enlarging opportunities for peacetime development, we accelerate our own progress and strengthen the free world....



To this end the government was instructed to set up research and development programs:

We believe, rather, that teamwork between government and industry—teamwork of the type encouraged by these amendments—is the key to optimum progress, efficiency, and economy in this area of atomic endeavor.

It was less than 10 years after these words were spoken by then-President Eisenhower that the Defense Department and civilian areas of research and development began a rapid slide toward their present abysmal state.

The statistical evidence is shocking: the most telling measure of the state of military research and development is provided by the finding which is most sensitive to the maintenance of the "teamwork" between the private sector and the DoD, funding for basic research. In the ten years between 1965 and 1975, the funding from the DoD for basic research fell 50 percent (in real dollars). The funding for basic research in the Pentagon in 1975 was half what it was in 1965.

In 1976, under Secretary of Defense Brown, the Pentagon announced a goal of increasing this figure 10 percent a year above inflation. But, these growth rates have been severely underachieved, due to higher than expected inflation and higher priority given to other line items in the budget by Congress.

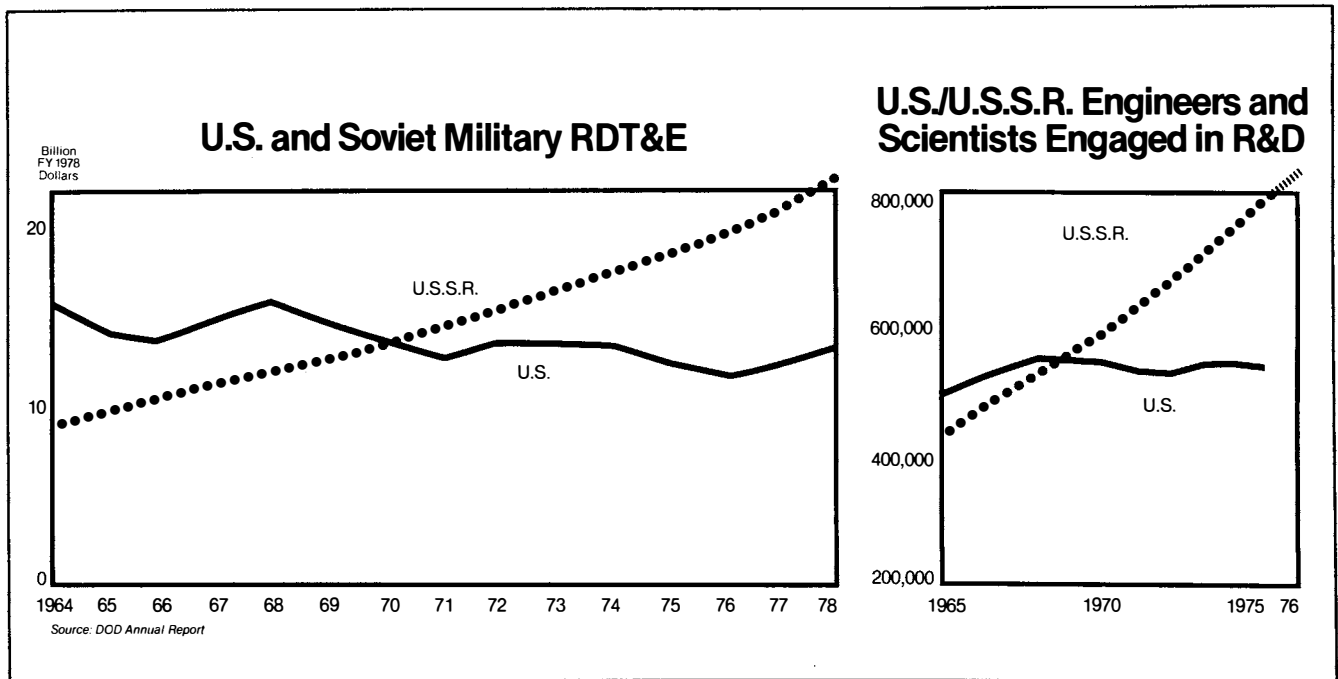
The atrocities committed against research project after research project could be recounted, but the more fundamental point is that this gutting of military R and

D occurred in tandem with the same phenomena throughout American society. The accompanying graph taken from a just completed study on the number of physicists in the U.S. shows how generalized and serious this phenomenon is. In the ten years between 1975 and 1985 the number of new PhD's in physics will fall by 30 percent and, possibly by as much as 45 percent. Similar figures exist for engineers, chemists, and mathematicians. Overall, the number of scientists and engineers has been falling in absolute terms for the last 10 years, in a period in which the number of scientists and engineers in the Soviet Union has more than doubled.

The case of the nuclear industry

The nuclear industry in the United States has, from the time of Eisenhower's speech, played a special role in leading the research and development investments of U.S. industry. Its contribution to military advances has been much more significant because of spin-off technologies (remote handling, advanced machining), materials development, and manpower training than in direct production of nuclear weapons. The health of American R and D is intimately and inseparably tied to the health of the nuclear industry.

The unfortunate state of the American industry is well known. In the past 15 years, the industry's new plant orders have decreased from 17 in 1965, a high of 35 in 1972, to a total of *zero* in 1979. The capacity for production of pressure vessels—the critical component of a



nuclear plant—decreased by 30 percent in 1979 alone. The only plant for the construction of floating nuclear plants has been closed. Recent industry studies predict that two of the top four producers of nuclear plants will have totally closed their nuclear related facilities by 1985 and a third will do so shortly afterwards.

The impact of this decimation of the most advanced of U.S. industrial capabilities may be measured in its results for manpower availability and the like. But even more mundane facts show how severe the results are.

In a speech given in the beginning of January, Harold Agnew, long-time director of the Los Alamos weapons laboratory, member of the President's Advisory Commission on Arms Control and present head of General Atomic (a large government contractor involved in nuclear research for civilian power production), stated that the U.S. is now suffering from a severe defense weakness due to the total lack of depth in its nuclear weapons production facilities. In the 1960s, he stated, there were duplicate plants for the production, machining, and assembly of nuclear weapons. Now, each of these three functions is performed at a single plant, with no backup capability at all. "Little by little," Agnew stressed, absolutely all our redundant facilities have been closed in the name of cost-effectiveness. The same anti-nuclear and anti-science policies which have destroyed the U.S. nuclear industry have their refraction in the military sphere in the shutting down of military facilities.

Next week's EIR will contain an in-depth look at the specific weapons systems that have resulted from the shrunken U.S. research and development effort, the lack of new weapons on the country's military capability, and an estimate of the Soviet advances in the areas ignored by the U.S.

References

Information for maps, charts and graphs for this section was derived from the following sources:

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Documentation

Gen. Richardson: 'Painted ourselves into a corner'

The following interview was conducted by EIR with General Robert Richardson, presently attached to the American Security Council:

Q: The Soviet Union's military deployment into Afghanistan appears to represent a shift from a war avoidance policy to a war winning policy. What are U.S. military strategic options? What are U.S. capabilities?

A: The U.S. today is like the man who painted himself into the corner, and then says, I ain't got no option except to walk across the paint. You ask why you painted yourself in the corner in the first place.

Our options are really quite limited. First of all, we haven't got the capability to sustain a military operation of a conventional attrition type anywhere, at this time, for many reasons, all of which can't be blamed on one particular process. ...

what are you going to do, light another candle? In other words you can scream and rant and rave, and say, your national security interests require that you do something. But outside of a punitive action—and I'm not sure what you buy with that—I don't know too much what you can do.

Certainly even in the strategic field you don't want to get into that kind of hassle. I don't see anyone getting into that kind of hassle for a Middle East grab, and certainly not on purpose. Even assuming the only card we had was absolute strategic superiority I still don't see anybody using it in that context, and we haven't got it!

If you assume we still had absolute strategic superiority, you still don't see this crowd or anybody else shouting in Moscow for a grab in Afghanistan, Pakistan or Iran. And we don't have it. You invite a catastrophe on your own head in return so that on both sides you almost certainly have to say the use of the only systems which are militarily effective today are almost highly unlikely because it doesn't make a lot of sense on either side.