Hanoi's ability to mount and support military operations in the South at the current level.'

"They then pointed out the reasons that they felt North Vietnam could not be hurt by bombing: It was primarily a subsistence agricultural country with little industry and a primitive but flexible transport system, and most of its weapons and supplies came from abroad.

"These factors, the scientists said, made it 'quite unlikely' that an expanded bombing campaign would 'prevent Hanoi from infiltrating men into the South at the present or a higher rate.'

" In conclusion, the Pentagon study says, the scientists addressed the assumption behind the bombing program -- that damage inflicted on a country reduces its will to continue fighting. The scientists criticized this assumption, the study says, by denying that it is possible to measure the relationship.

"'It must be concluded', the scientists said, 'that there is currently no adequate basis for predicting the levels of U.S. military effort that would be required to achieve the stated objectives -- indeed, there is no firm basis for determining if there is any feasible level of effort that would achieve these objectives.'"

The Gravel Edition of the Pentagon Papers continues (p. 120):

Having submitted a stinging condemnation of the bombing, the Study Group was under some obligation to offer constructive alternatives and this they did, seizing, not surprisingly, on the very idea McNamara had suggested—the anti-infiltration barrier. The product of their summer's work was a reasonably detailed proposal for a multisystem barrier across the DMZ and the Laotian panhandle that would make extensive use of recently innovated mines and sensors. The central portion of their recommendation follows:

> The barrier would have two somewhat different parts, one designed against foot traffic and one against vehicles. The preferred location for the anti-foot-traffic barrier is in the region along the southern edge of the DMZ to the Laotian border and then north of Tchepone to the vicinity of Muong Sen, extending about 100 by 20 kilometers. This area is virtually unpopulated, and the terrain is quite rugged, containing mostly V-shaped valleys in which the opportunity for alternate trails appears lower than it is elsewhere in the system. The location of choice for the anti-vehicle part of the system is the area, about 100 by 40 kilometers, now covered by Operation Cricket. In this area the road network tends to be more constricted than elsewhere, and there appears to be a smaller area available for new roads. An alternative location for the anti-personnel system is north of the DMZ to the Laotian border and then north along the crest of the mountains dividing Laos from North Vietnam. It is less desirable economically and militarily because of its greater length, greater distance from U.S. bases, and greater proximity to potential North Vietnamese counter-efforts.
>
> The air-supported barrier would, if necessary, be supplemented by a manned "fence" connecting the eastern end of the barrier to the sea.
>
> The construction of the air-supported barrier could be initiated using currently available or nearly available components, with some necessary modifications, and could perhaps be installed by a year or so from go-ahead. However, we anticipate that the North Vietnamese would learn to cope with a barrier built this way after some period of time which we cannot estimate, but which we fear may be short. Weapons and sensors which can make a much more effective barrier, only some of which are now under development, are not likely to be available in less than 18 months to 2 years. Even these, it must be expected, will eventually be overcome by the North Vietnamese, so that further improvements in weaponry will be necessary. Thus we envisage a dynamic "battle of the barrier," in which the barrier is repeatedly improved and strengthened by the introduction of new components, and which will hopefully permit us to keep the North Vietnamese off balance by continually posing new problems for them.
>
> This barrier is in concept not very different from what has already been suggested elsewhere; the new aspects are: the very large scale of area denial, especially mine fields kilometers deep rather than the conventional 100–200 meters; the very large numbers and persistent employment of weapons, sensors, and aircraft sorties in the barrier area; and the emphasis on rapid and carefully planned incorporation of more effective weapons and sensors into the system.
>
> The system that could be available in a year or so would, in our conception, contain [sic] the following components:
>
> —Gravel mines (both self-sterilizing for harassment and non-sterilizing for area denial).
> —Possibly, "button bomblets" developed by Picatinny Arsenal, to augment the range of the sensors against foot traffic.*
> —SADEYE/BLU-26B clusters, for attacks on area-type targets of uncertain locations.
> —Acoustic detectors, based on improvements of the "Acoustic Sonobuoys" currently under test by the Navy.
> —P-2V patrol aircraft, equipped for acoustic sensor monitoring, Gravel dispensing, vectoring strike aircraft, and infrared detection of campfires in bivouac areas.
> —Gravel Dispensing Aircraft (A-1's, or possibly C-123's)
> —Strike Aircraft
> —Photo-reconnaissance Aircraft
> —Photo Interpreters
> —(Possibly) ground teams to plant mines and sensors, gather information, and selectively harass traffic on foot trails.
>
> The anti-troop infiltration system (which would also function against supply porters) would operate as follows. There would be a constantly renewed mine field of nonsterilizing Gravel (and possibly button bomblets), distributed in patterns covering interconnected valleys and slopes (suitable for alternate trails) over the entire barrier region. The actual mined area would encompass the equivalent of a strip about 100 by 5 kilometers. There would also be a pattern of acoustic detectors to listen for mine explosions indicating an attempted penetration. The mine field is intended to deny opening of alternate routes for troop infiltrators and should be emplaced first. On the trails and bivouacs currently used, from which mines may—we tentatively assume—be cleared without great difficulty, a more dense pattern of sensors would be designed to locate groups of infiltrators. Air strikes using Gravel and SADEYES would then be called against these targets. The sensor patterns would be monitored 24 hours a day by patrol aircraft. The struck areas would be reseeded with new mines.
>
> The anti-vehicle system would consist of acoustic detectors distributed every mile or so along all truckable roads in the interdicted area, monitored 24 hours a day by patrol aircraft, with vectored strike aircraft using SADEYE to respond to signals that trucks or truck convoys are moving. The patrol aircraft would distribute self-sterilizing Gravel over parts of the road net at dusk. The self-sterilization feature is needed so that road-watching and mine-planting teams could be used in this area. Photo-reconnaissance aircraft would cover the entire area each few days to look for the development of new truckable roads, to see if the transport of supplies is being switched to porters, and to identify any other change in the infiltration system. It may also be desirable to use ground teams to plant larger anti-truck mines along the roads, as an interim measure pending the development of effective air-dropped anti-vehicle mines.

The cost of such a system (both parts) has been estimated to be about $800 million per year, of which by far the major fraction is spent for Gravel and SADEYES. The key requirements would be (all numbers are approximate because of assumptions which had to be made regarding degradation of system components in field use, and regarding the magnitude of infiltration): 20 million Gravel mines per month; possibly 25 million button bomblets per month; 10,000 SADEYE-BLU-26B clusters* per month; 1600 acoustic sensors per month (assuming presently employed batteries with 2-week life), plus 68 appropriately equipped P-2V patrol aircraft; a fleet of about 50 A-1's or 20 C-123's for Gravel dispensing (1400 A-1 sorties or 600 C-123 sorties per month); 500 strike sorties per month (F-4C equivalent); and sufficient photo-reconnaissance sorties, depending on the aircraft, to cover 2500 square miles each week, with an appropriate team of photo interpreters. Even to make this system work, there would be required experimentation and further development for foliage penetration, moisture resistance, and proper dispersion of Gravel; development of a better acoustic sensor than currently exists (especially in an attempt to eliminate the need for button bomblets); aircraft modifications; possible modifications in BLU-26B fuzing; and refinement of strike-navigation tactics.

For the future, rapid development of new mines (such as tripwire, smaller and more effectively camouflaged Gravel, and various other kinds of mines), as well as still better sensor/information processing systems will be essential.

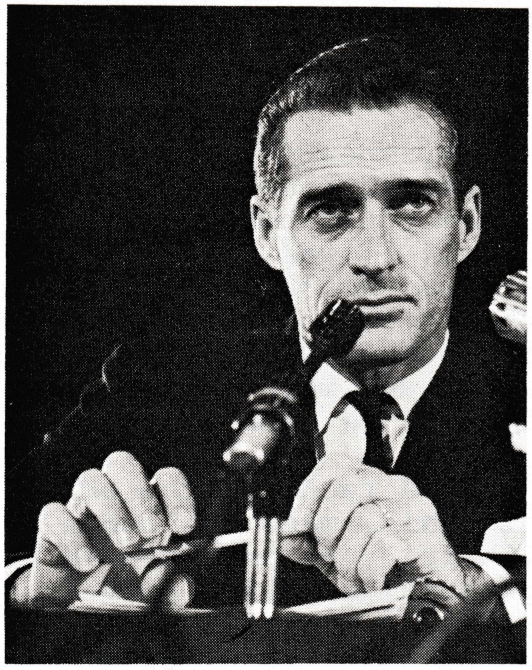
Thus, not only had this distinguished array of American technologists endorsed the barrier idea McNamara had asked them to consider, they had provided the Secretary with an attractive, well-thought-out and highly detailed proposal as a real alternative to further escalation of the ineffective air war against North Vietnam. But, true to their scientific orientations, the study group members could not conclude their work without examining the kinds of counter-measures the North Vietnamese might take to circumvent the Barrier. Thus, they reasoned:

> Assuming that surprise is not thrown away, countermeasures will of course still be found, but they may take some time to bring into operation. The most effective countermeasures we can anticipate are mine sweeping; provision of shelter against SADEYE strikes and Gravel dispersion; spoofing of sensors to deceive the system or decoy aircraft into ambushes, and in general a considerable step-up of North Vietnamese anti-aircraft capability along the road net. Counter-countermeasures must be an integral part of the system development.
>
> Apart from the tactical countermeasures against the barrier itself, one has to consider strategic alternatives available to the North Vietnamese in case the barrier is successful. Among these are: a move into the Mekong Plain; infiltration from the sea either directly to SVN or through Cambodia; and movement down the Mekong from Thakhek (held by the Pathet Lao-North Vietnamese) into Cambodia.
>
> Finally, it will be difficult for us to find out how effective the barrier is in the absence of clearly visible North Vietnamese responses, such as end runs through the Mekong plain. Because of supplies already stored in the pipeline, and because of the general shakiness of our quantitative estimates of either supply or troop infiltration, it is likely to be some time before the effect of even a wholly successful barrier becomes noticeable. A greatly stepped-up intelligence effort is called for, including continued road-watch activity in the areas of the motorable roads, and patrol and reconnaissance activity south of the anti-personnel barrier.

This, then, was the new option introduced into the Vietnam discussions in Washington at the beginning of September.

Their work completed, the Jason Group met with McNamara and McNaughton in Washington on August 30 and presented their conclusions and recommendations. McNamara was apparently strongly and favorably impressed with the work of the Summer Study because he and McNaughton flew to Massachusetts on September 6 to meet with members of the Study again for more detailed discussions. Even before going to Massachusetts, however, McNamara had asked General Wheeler to bring the proposal up with the Chiefs and to request field comment. After having asked CINCPAC for an evaluation, Wheeler sent McNamara the preliminary reactions of the Chiefs. They agreed with the Secretary's suggestion to establish a project manager (General Starbird) in DDR&E, but expressed concern that, "the very substantial funds required for the barrier system would be obtained from current Service resources thereby affecting adversely important current programs."

The conservatism of the military hierarchy was overcome by McNamara's enthusiasm. The new project, given the deliberately vague name of Defense Communications Planning Group (DCPG), was set up under the Director of Defense Research and Engineering (DDR&E).



Military r&d chief Foster:

The Director of Defense Research and Engineering since 1965 has been Dr. John S. Foster, Jr., PhD in physics from Berkeley, and director of UC Livermore Lab 1961-65. The directors of DCPG (later re-named Defense Special Projects Group) have been--

1966-68: Lt. Gen. (Army) Alfred D. Starbird; he later was put in charge of the ABM project.

1968-70: Lt. Gen. (Air Force) John D. Lavelle; he was later the commander in Indochina held responsible for "unauthorized" air raids over North Vietnam.

1970--: Maj. Gen. John R. Deane, Jr., who gave extensive testimony to the Senate hearings on the electronic battlefield.

Under DCPG the development of the electronic battlefield has been rapid. The details have been mostly secret, but we can piece together bits from such sources as Congressional hearings (particularly the Report of the Electronic Battlefield Sub-

CẤU TẠO VÀ MẬT ĐỘ SÁT THƯƠNG CỦA BOM BI HÌNH TRỤ

STRUCTURE AND DESTRUCTION POWER OF CYLINDER-SHAPED STEEL-PELLET BOMBS

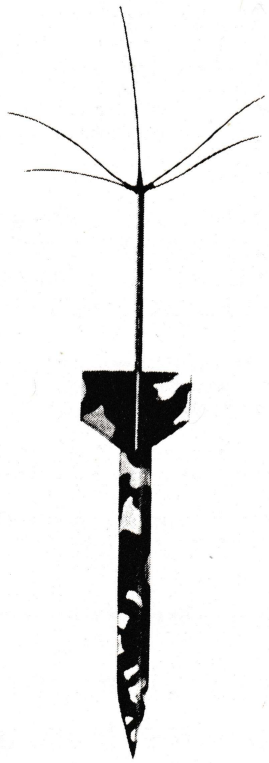
STRUCTURE, DENSITÉ ET RAYON D'ACTION DE LA BOMBE CYLINDRIQUE À BILLES

INFORMATION DISTRIBUTED BY THE NORTH VIETNAMESE (1969) DESCRIBING ONE TYPE OF CLUSTER BOMB USED BY THE U.S. THE JASON (1966) REPORT CALLED FOR INTENSIVE USE OF SUCH ANTI-PERSONNEL WEAPONS FOR "AREA DENIAL" PURPOSES.

committee of the Preparedness Investigating Subcommittee of the Committee on Armed Services, U.S. Senate, 92nd Congress first session, Government Printing Office, Washington, 1971).

Within a year and a half (late 1967), one part of the anti-infiltration scheme was in operation in much the form proposed by Jason. This was IGLOO WHITE, the air-supported anti-vehicle system extending into Laos from South Vietnam.

In the latest version of this system which has been released, acoustic and seismic sensors are strewn by F-4 jet planes. Each sensor has its own transmitter. A patrol plane (now often an unmanned "drone" YQU-22B) picks up signals from sensors over a wide area and relays them to Infiltration Surveillance Center. This is an IBM 360/50 computer installation in Nakon Phanom, Thailand, where summaries of the sensor data are prepared for planning strikes by bombers. The computer output may be presented in sophisticated forms such as oscilloscope display on a map. Computers also are involved in the choice of ordnance and allocation of targets to specific planes. Pilots ordinarily never see their targets, and indeed it is intended to replace manned bombers by unmanned drones. (Electronic Battlefield Report, p. 9; Michael Klare, War Without End, pp. 185-187; George L. Weiss, "The Air Force's Secret Electronic War", Military Aviation, 1971.) Both sensors and bombs have been provided with new camouflages, as recommended by Jason; here is a seismic detector whose antenna masquerades as a forest plant.



ADSID

THE MCNAMARA FENCE ADAPTED TO ENDLESS WARFARE

At the same time that the vision of the Jason study was being brought to reality, it was expanding and ramifying. Far from substituting for general bombardment of populations, the new weapons and the new method of automated intelligence and tactics became welcome reinforcements to everything the military was doing.

The ramifications began as early as February 1968. The NLF's general offensive at Tet had taken many towns and military posts, and the U.S. Marine stronghold at Khesanh was under sustained heavy attack. For several days there was a persistent rumor that the U.S. might be preparing to use tactical nuclear weapons. This rumor was based on a brief visit to Vietnam by a team of American civilian scientists with experience in military technology. The White House vehemently denied that it was considering any use of nuclear weapons, and the Pentagon said the scientists' trip was "to assist in the appraisal" of new non-nuclear weapons; there was speculation in Washington that the role of the group was related to the use of electronic devices to impede the infiltration of North Vietnamese into the South. (See New York Times, 2/11/68, p. 70.) Two of the people in this group of scientists were Richard Garwin and Henry Kendall, physicists in the Jason Division. The other two appear to have been technical experts from the Pentagon and the electronics industry.

The new sensors were judged a useful adjunct of ground troop operations. Hand-emplaced acoustic and seismic sensors became standard equipment for U.S. ground forces in Vietnam, according to Gen. Deane's testimony.

The once-dubious military seized on automation as the cure for the crisis of its conventional war. If the U.S. Army in Vietnam was "in a state approaching collapse" (Armed Forces Journal, 6/7/71) and the U.S. public was impatient for Nixon to proceed with troop withdrawals, then it was just the moment to turn over as much as possible of the surveillance to electronic devices and as much as possible of the shooting to remote-controlled bombers.

If, moreover, the U.S. and its allies had failed to "win hearts and minds" of the Vietnamese rural population, then weapons which made the countryside unhabitable became more acceptable. This strategy of "generating refugees" was described admirably by Professor Samuel Huntington in 1968:

"In an absentminded way the United States in Vietnam may well have stumbled upon the answer to 'wars of national liberation'. The effective response lies neither in the quest for a conventional military victory, nor in esoteric doctrines and gimmicks of counter-insurgency warfare. It is instead forced-draft urbanization and modernization which rapidly brings the country in question out of the phase in which a rural revolutionary movement can succeed." (Foreign Affairs, July, 1968, p. 655.)

Not only does the uprooting of the people from their productive resources undercut a prime motive force of revolution in underdeveloped countries, agrarian reform; but the forced concentration of millions of refugees into cities sets the stage for the development of an infant capitalist econ-

AND NOW A WORD FROM THE SPONSORS:

"WHATEVER THE OUTCOME OF THE WAR, AMERICA HAS EMBARKED ON A CAREER OF IMPERIALISM IN WORLD AFFAIRS AND IN EVERY OTHER ASPECT OF HER LIFE"
--VIRGIL JORDAN, PRESIDENT OF NATIONAL INDUSTRIAL CONFERENCE BOARD TO THE INVESTMENT BANKERS ASSOCIATION, DECEMBER, 1940

"HERE IN VENEZUELA YOU HAVE THE RIGHT TO DO WHAT YOU LIKE WITH YOUR CAPITAL. THE RIGHT IS DEARER TO ME THAN ALL THE POLITICAL RIGHTS IN THE WORLD."
--A U.S. BUSINESSMAN QUOTED IN TIME MAGAZINE, SEPTEMBER 21, 1952

"BUSINESSMEN ARE INCREASINGLY DECIDING THAT MARKETS ABROAD, NOT THOSE IN THIS COUNTRY, OFFER THE BIGGEST POTENTIAL FOR FUTURE GROWTH. THE FEELING GROWS THAT THE U.S. MARKET, WHILE HUGE, IS SATURATED."
--U.S. NEWS AND WORLD REPORT, JUNE, 1964

"YOU'RE IN A SATURATED MARKET HERE IN THE U.S., WHERE NEW PRODUCTS ARE THE ONLY ANSWER TO GROWTH. ABROAD THERE ARE MILLIONS OF PEOPLE EACH YEAR WHO REACH THE STATE IN THEIR CULTURAL, SOCIAL AND ECONOMIC DEVELOPMENT WHERE THEY BUY SOAP, TOOTHPASTE, AND OTHER THINGS WE SELL."
--OFFICIAL OF COLGATE PALMOLIVE, QUOTED IN U.S. NEWS AND WORLD REPORT, JUNE, 1964

"THE BEST THINKERS ON THE SUBJECT IN BUSINESS AND GOVERNMENT AGREE THAT MAGNIFICENT BUSINESS OPPORTUNITIES AWAIT IN VIETNAM, THAILAND, LAOS, INDONESIA, MALAYSIA AND SINGAPORE. AS THE SITUATION IN VIETNAM IMPROVES THEY EXPECT THE FLOW OF BUSINESS TO DOUBLE, TRIPLE, AND QUADRUPLE...VIETNAM IS WITHOUT A DOUBT ONE OF THE PRIME INVESTMENT POINTS FOR SOUTHEAST ASIA."
--NATION'S BUSINESS, FEBRUARY, 1968

omy, dependent, of course, on U.S. corporations.

The population of Saigon, which has swelled from 300,000 to over 3 million people, is being overwhelmed by this type of development, including CocaCola, prostitution, and inflation.

Automated warfare also has attractive domestic economic consequences. To maintain a large ground force in some foreign territory means an outflow of American capital, which is harmful to the U.S. economic position in relation to other industrialized nations. It also means unemployment for American workers. On the other hand, if the military dollar is spent for the production of equipment -- airplanes, electronics, munitions -- then the domestic economy is given a boost. (In the latter case military spending is still a profound inflationary pressure.)

Reliance on automation has come to dominate the thinking of some of the generals, not only about Vietnam, but about all future wars, as well.

In a remarkable address on October 14, 1969, then Chief of Staff Gen. W.C. Westmoreland gave the first public report on the development of the electronic battlefield. After reviewing the success of the new methods of locating an enemy "naturally elusive and cunning in his use of dense jungle for concealment" in Vietnam, and explicitly giving credit to the scientists' contributions to this success, he rhapsodized over the vistas before us:

"Comparing the past few years of progress with a forecast of the future produces one conclusion: we are on the threshold of an entirely new battlefield concept. ...

"On the battlefield of the future, enemy forces will be located, tracked and targeted almost instantaneously through the use of data links, computer assisted intelligence evaluation, and automated fire control. With first round kill probabilities approaching certainty, and with surveillance devices that can continually track the enemy, the need for large forces to fix the opposition physically will be less important...

"Today, machines and technology are permitting economy of manpower on the battlefield, as indeed they are in the factory. But the future offers more possibilities for economy. I am confident the American people expect this country to take full advantage of technology -- to welcome and applaud the developments that will replace wherever possible the man with the machine."

Notice the broadening of scope to other theaters of war in this testimony of Dr. John S. Foster, Jr. (Hearings before Senate Armed Services Committee, 5/14/69, p. 1853):

HEARINGS

BEFORE THE

COMMITTEE ON ARMED SERVICES

UNITED STATES SENATE

NINETY-FIRST CONGRESS

FIRST SESSION

ON

S. 1192, S. 2407, and S. 2546

Senator SMITH. On page 1–17 of your statement you speak of battlefield sensors that have revolutionized land combat. Do you believe these sensor barriers will be useful anywhere outside of Southeast Asia? I would be interested to know what you think about them being used in Europe.

Dr. FOSTER. Yes, I have thought about this matter a great deal, Senator Smith, and I believe these sensors are applicable to other areas. Let me just indicate very quickly the types of things that are being accomplished in Southeast Asia.

Soldiers on the ground carry these sensors to particular places on trails where they suspect that the enemy will pass. They bury them there. They then retire to some nearby observation point, protected by trenches and behind sandbags, where they wait for enemy movements. When they hear the enemy come through those sensor fields they signal to our artillery, by telephone line, and artillery rounds are fired and fall on the enemy. They can hear the enemy screaming and yelling, and they then wait for the next intrusion.

This system has been so effective, and there is more detail in the back of my statement, that there has been no case where the enemy has successfully come through a sensor field. In most instances, by the use of this technique, the enemy has been forced to abandon those approaches and use others. It is a very, very successful system, whether it is delivered by air or by foot soldiers on the ground.

With regard to Europe, the kind of things one could do there would be to utilize aircraft to seed sensors in forested areas. Immediately after that, ground commanders would know whether or not there are enemy soldiers, trucks, or tanks in these large forested areas.

He will constantly know this because the entire area would be mined with these sensors. The enemy will not be able to move tanks in Europe over large areas without making so much acoustical noise that these sensors would detect the movement. Either seismic or acoustic types of sensors can be used.

This enthusiasm for the wide application of the new concepts led to a change in plans. In 1970 Gen. Lavelle, then director of DCPG, had told Congressmen that he expected it to be closed out the following year, since its initial mission -- to prove that the instrumented battlefield was a workable system -- had been completed. However, when Gen. Deane, DCPG's new director, appeared before the Committee the following year, he told a different story. The Secretary of Defense had decided not to abolish DCPG but to give it a new mission. Under the new name of Defense Special Projects Group (DSPG), his organization was to focus on "expanding the sensor technology to provide the world-wide capability in both tactical combat applications and

installation security." Also included in Gen. Deane's request for funds from the Congress were one or more special development projects of "high priority." The details of these high-priority projects have been deleted from the public testimony. One of these special projects seems to be an unmanned aerial platform for observation and fire-control [aiming and firing of weapons] using lasers, television, and other advanced electronic means; another seems to deal with making this or some other sensor system work in some special location or environment, which is secret.

Congressman Whitten of the House Appropriations Committee was unhappy about this new mission for DSPG and questioned Gen. Deane about it (Hearings, 6/4/71):

"Last year, my recollection is that you told the Congress you were planning to phase this operation out, and Congress agreed to phasing it out. Instead you have change the name, enlarged it, and now the world is your playground. You are going to take on the world and do this around the world. Where is the support for any such expansion as this? ...

"General Deane: ... When I arrived in this organization last July, the plan was to phase it out, sir. A number of people prevailed upon Dr. Foster to reconsider that decision.

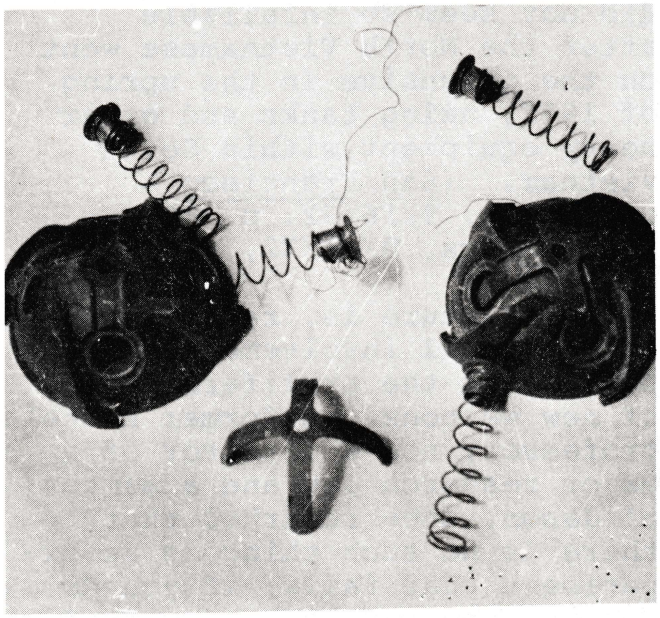
"Mr. Whitten: Do you have the names of those people? We would like to know who they are and find out if they are within their rights. I don't know if they stand in a better position than the folks who have to sign your checks. Who were they?

"General Deane: They were people who were members of the Scientific Advisory Committee of the DSPG, sir.

"Mr. Whitten: Could you give us some of their names for the record?

"General Deane: Dr. Garwin, Dr. Slichter, Dr. Caldwell, Dr. Buchsbaum, Dr. Lewis, and Mr. Deitchman."

Three of these names appear on the Jason membership list: Garwin, Caldwell, and Lewis. (Harold Lewis is the chairman of Jason.) Three names -- Garwin, Slichter, Buchsbaum -- appear on a list of PSAC members. Sy Deitchman is identified by Foster, in other testimony, as one of the originators of the idea of the instrumented battlefield. Solomon Buchsbaum is an executive for Bell Labs and a former vice-president of Sandia Corporation, a major weapons developer. Charles Slichter is a physics professor at the University of Illinois



A SPIDER MINE, DEVELOPED FOLLOWING JASON'S 1966 RECOMMENDATION.

Thus we are drawn to conclude that the clique of top-level scientific advisors were instrumental not only in initiating the electronic battlefield ideas (1966), not only in helping the implementation of the system in Vietnam (1968), but also in extending this new warfare system to a world-wide capability (1970).

The overall picture is not one of a sudden miraculous cure of a specific American military crisis. New devices have been adopted in many cases reluctantly; and they have not always worked very well; and the NLF has met ingenuity with ingenuity, as Jason foresaw, sometimes quickly nullifying a technological marvel with a homely organic countermeasure (for example, an open pail of urine left in the forest smells like a platoon of Viet Cong to a helicopter-borne "people-sniffer"). (See Jack Anderson's column of July 10, 1970; interviews with U.S. soldiers quoted by Ann Rosenberg in The Technological Warlords, 1971.) Even IGLOO WHITE did not seem so infallible after the North Vietnamese went on the offensive in the spring of 1972, using tanks and other heavy equipment within South Vietnam. (San Francisco Chronicle, 9/16/72, p. 10; Electronics, 9/11/72, p. 49.)

The picture is, rather, one of continual involvement of U.S. science in the proliferation of new weapons. A former Berkeley professor, now a director of a major research lab and a member of Jason, once remarked that there is no such thing as an experiment that fails; if you do not get the results you wanted on the first program, take what you have learned and use it as the basis for a new, larger research proposal.

The technological wing of the military-industrial complex does not necessarily win wars. We have seen that it certainly can help prolong them. Each new gadget can be used as an excuse for a new escalation -- as the laser-guided "smart bomb" (though it had seen combat use before) was presented as one of the justifications for the most recent bombing escalation in North Vietnam. (New York Times, 5/24/72)

The impressive and expensive technological arsenal does transfer the burden of the U.S. military effort from men to machines, as General Westmoreland said. The other side, which already had a near-monopoly on public support in Indochina, has also a near-monopoly on traditional military virtues; and, of course, on casualties. If a sensor can't tell the difference between soldiers and civilians, (Klare, War Without End, p. 173; Congressional Record, 3/23/71, p. s3621), the air-strike that it brings forth may still kill someone, and is sure to contribute to the destruction of the countryside.

Today Indochina, tomorrow the world! The new technology has already contributed to the capture of Che Guevara in Bolivia, and we have seen that it is considered adaptable to use in other theaters. The Army gives sensor system research "number two priority, following only the Vietnam war." (Klare, War Without End, p. 205.) Such is the key position occupied by the scientific weapon-makers.

OTHER JASON ACTIVITIES

We have concentrated on the electronic battlefield because it is an especially clear instance of Jason's intervention contributing decisively to the prolongation of the Indochina war.