

PART III

STRATEGIC INTELLIGENCE & WEAPONS DESIGN

CHAPTER IX

UNITED STATES/SOVIET WEAPON SYSTEMS

As it was pointed out in a June 1982 article in International Defense Review, it was generally thought that the military forces of the United States could compensate for numerical inferiority in relationship to the Soviet Union by the qualitative superiority of their weapon systems. It was also thought by many that the Soviets had made sudden and dramatic improvements in their weapon systems over the last decade. Particularly impressive was the appearance of the T72 tank, the MiG-23 aircraft, the SA-6 missile system and the nuclear-powered cruiser Kirov. These and other new weapon systems had caused considerable speculation and raised a number of questions about new Soviet weapons.

In an effort to answer these questions, a group of leading U.S. design engineers conducted a comparative analysis of American and Soviet design practices for tanks, aircraft and ships over the 40-year period 1940-1980. With the preliminary work having been done by the Technical Intelligence personnel, the results of this analysis were then correlated with a parallel assessment of the Soviet economy, military-procurement system and manning, maintenance and training practices.

In the defense field, weapon-system priorities, funding and resource allocations are established at an early date. This long-term planning and relative stability of Soviet defense programs, with minimal changes in goals and priorities, was another key feature of the Soviet system.

Soviet defense-industry ministries appeared to be assigned clearcut, stable, responsibilities. Within these ministries, design bureaus were assigned specific responsibility for the design of new weapon systems and the improvement of existing systems. Design bureaus did not appear to have R&D responsibilities, nor were they responsible for production. Chief designers and their relatively small, elite design teams work together for long periods -- often twenty-five years or more. This personnel continuity helps to explain the consistency of the design characteristics and the standardization seen in their weapon systems.

Contrasting with this strength, the primary weakness of the Soviet weapon-system design process is the inefficiency of the Soviet economic system. This motivates defense industries to become as vertically organized and as self-sufficient as possible in order to minimize their dependency on unreliable outside suppliers. Soviet designers are further constrained by the limited and uneven level of Soviet technology. Also, they cannot utilize new technology unless it is already in the plan. These limitations influence designers to use proven technology from established suppliers to ensure that the

plan goals can be met.

Consistent with the limitations of the economic system and industrial technology, Soviet weapon systems are generally designed to facilitate production using labor-intensive manufacturing techniques with a minimum of special tooling and exotic materials. Soviet manufacturing specifications are very functional and practical. Interestingly, since Soviet weapon systems are not designed for automated production, the initial reaction of American engineers is that they are not very "producible". However, it must be recognized that this assessment is based on their suitability for production in the United States.

Little hard statistical data on the reliability and maintainability of Soviet military equipment is available. However, an analysis of Soviet weapon systems suggests an operating and maintenance philosophy different from that of the United States. Soviet designers are obviously aware that they have a large conscript army, navy and air force without large numbers of technically proficient senior non-commissioned officers. Sophisticated maintenance and repair responsibilities are assigned to officers, who are "hands-on" engineers and not managers as in the United States, where maintenance and repair of equipment is carried out by enlisted personnel. The Soviets recognition of the limited capability of their conscripts appears to influence strongly the design of their weapon systems and their maintenance and training concepts. As a consequence, Soviet weapon-system design is consistent with limited equipment utilization in peacetime, high equipment availability during short periods between overhauls, the use of a large manpower force with limited skills, the use of depot or factory maintenance, and the repair of equipment in the field by replacement of modular elements which requires a minimal amount of special test and maintenance equipment.

American weapons are designed by engineers for other engineers, whereas Soviet weapons are developed for the combat soldier." This study found that Soviet weapon systems are usually "soldier-proof". They are designed for operators with limited skill and require little maintenance. They appear often to be designed to meet a single mission requirement and hence lack the operational flexibility of comparable American systems. The performance of Soviet systems is adequate, however, bearing in mind the requirements of Soviet doctrine and tactics. Thus, the capability of multi-purpose U.S. weapon systems should be more properly compared with the synergistic capabilities of a mix of simpler Soviet systems operationally combined to do a similar job.

The combined effect of all these factors (including the most important motivator of all, punishment for failure) is conservatively designed weapon systems in which risks are generally minimized. Hence, the development of simple, producible weapon systems that use proven technology whenever possible. In addition to a close interaction between user and designer, there seems to be a strong desire to ensure customer satisfaction. It is not without

reason that the Soviet helicopter designer Mikail Mil is reported to have regularly urged his subordinates to "make it simple, make it rugged, make it reliable, and make it work."

Given the major differences in the U.S. and Soviet weapon-system procurement environment, manning, training and maintenance concepts, and military strategy, what are the actual differences in hardware? In order to answer this question, the engineering analysis of U.S. and Soviet weapon systems was not oriented towards system effectiveness, but rather design trade-offs which are made during development. Design is, after all, a trade-off process, the laws of physics being equally applicable to capitalists and communists alike.

Although tank technology concepts have not been revolutionized like modern aviation technologies, they have changed considerably during the last few years, mainly due to temporary misconceptions derived during and immediately following the Yom Kippur War. One of the major conclusions prematurely drawn from this conflict was the impact of chemical penetrators on tanks, making their future survival on a modern battlefield questionable. These conclusions, which, due to misinterpreted battle reports, overrated the effectiveness of Soviet-built ATGW's, caused a rapid chain reaction in Western defense industries, bringing into production partly-shelved developments of AT guided missiles, which had created little interest in experts only a short time before the war. Now, as these weapons seemed vindicated in battle, a feverish race ensued, followed by massive promotion and advertising, which eventually brought the Soviet military planners -- the actual inventors of these systems -- into the game as well. The Soviets themselves had hitherto placed little value on these ATGW's; as a matter of fact, only a handful of these weapons were introduced into their motorized formations before the Yom Kippur War. Now, carried away by the general trend, the Soviets introduced ATGW's by the hundreds into their armoured units, mounting them on AFV's as well as operating them from the ground. Western technologies developed one generation after another of weapons to be fired from wheeled vehicles, tracked AFV's, helicopters and even tanks. ATGW's were envisaged as the ultimate weapon, able to stop a tank onslaught -- a weapon which, operated by the well-concealed infantryman, would, from a cost-effective viewpoint (an extremely important argument with all the Western powers) displace the combat tank from its dominant position on the modern battlefield.

It was not the first time, nor will it be the last, that the tank had been declared impotent against an antitank device. In fact, ever since its inception the tank has been under deadly attack by antitank guns, which could penetrate and kill it. Most of the tanks operational during World War II could be penetrated by antitank weapons, whether by hand-operated Bazooka-type rocket launchers, tank-busting aircraft or antitank guns firing guns of a calibre far beyond their own. The most potent antitank weapons, however, were in fact tanks themselves. This fact has remained unchanged over the years, in spite of the "doomsday prophecy" of experts forecasting the tank's demise.

The conflict between tank and antitank weapons will continue as new designs and technologies are developed that may relate to either system by either side. One aspect of the design and development of tanks is the establishment of tank test beds. In an article by Richard Ogorkiewicz it was pointed out that the nature of the threats facing tanks was changing. And at the same time, the technology of tanks was advancing. There was a growing need, therefore, to develop new tank designs to respond to the changing threats and to exploit new technological opportunities. The essentially tentative and exploratory nature of test beds also offered the advantage that new design concepts can be investigated without raising political issues or calling for major policy decisions.

In spite of these potential advantages, the construction of test beds might be questioned on the grounds that mathematical modeling now offers an alternative, and ostensibly more economical, way of exploring and evaluating new concepts. In fact, in spite of their undoubted value, computer models are not an alternative to test beds. One very simple reason for this is that computer models cannot anticipate all the practical problems which are bound to arise, to a greater or lesser extent, in any radically new design. What is more, many of the inputs into computer models are essentially and inevitably of a historical nature. In consequence, computer models can be of great value in optimising designs, but their value is severely limited when radically new design concepts are involved.

The capabilities of antitank weapons have increased in the past and have already led to several major changes in tank design. In particular, they have caused successive increases in armor protection, which has grown to the equivalent of more than 300 millimeters of steel over the fronts of hulls and turrets, or 20 times what it was when tanks were first built. However, still greater increases in armor protection are required to provide tank crews with a high degree of survivability in the face of hostile tank guns firing APFSDS projectiles with long-rod penetrators, or of antitank weapons using advanced shaped charge warheads. Such increases are possible, but not without departing from the traditional configuration of tanks. For example, frontal armor could be increased to as much as 90 millimeters of steel, or the equivalent of even more, if advanced forms of protection were used but not if tanks are to retain their traditional form with three-man turrets, which has already led to some tanks weighing as much as 62 metric tons or 68 U.S. tons.

Hands-on experience with test bed vehicles was also bound to suggest improvements and changes to any new design, which was unlikely to be perfect in its initial form, no matter how promising it might be. The consequent changes can be made relatively easily while the design was still at the test bed stage because of the test bed's flexible, experimental nature. In this way, new concepts could be refined or optimised before any decision is made to further develop them. This means that test beds can serve to advance the engineering development of new concepts as well as providing a sound basis for user judgements. Systematic programs of test bed design

and construction also make it possible to nurture, relatively economically, combat vehicle design teams. They do so by providing the necessary continuity of work and the opportunity to develop specialist experience.

None of these conditions exist when combat vehicles are developed by a series of discontinuous vehicle programs. This mode of development inevitably leads to disbanding, or at least to the running down, of design teams in between such programs. This is also the case with the intelligence effort that is needed to forecast trends in foreign weapons and also applies to the design of antitank weapons systems.

During the period that the M1 tank was entering service and the Soviets were fielding new tanks, other nations had fielded new tanks and antitank weapons. The arms race was continuing and spanned the entire spectrum of weapons from ICBM's to hand guns. It is not my purpose to discuss in detail the politics of weapons programs or the role of politics in the intelligence process, but it is important to understand them and to comment on the role of intelligence in politics and weapons procurement.

Generally, the Defense Department has taken a hard-line position on the procurement of new weapons and has based its actions on a documented or anticipated threat to national security. The Arms Control and Disarmament Agency, as well as the State Department, seem to take a less conservative view. Both agencies are dependent upon our national intelligence efforts which had been decimated after each conflict and especially during the early 1970's and were beginning to revive, however, too late to have any influence on design of weapon systems entering the army.

In the EPILOGUE to one of the many books written on the Battle of Stalingrad, the author pointed out that:

"After Stalingrad the uneasy relationship between East and West took a sharp turn for the worse from which it never fully recovered.

But hindsight is an able instructor, and although the lessons of those days may now be evident to the reader, I cannot refrain from listing a few of them here as they appear to me. One is that in dealing with the Russians there is little to be gained and much to be lost by timid joviality or pretentious good nature. The Russians do not like it; it makes them uneasy. A second is a corollary of the first. It is that there is much to be gained and little to be lost by courteous candor and hardheaded interrogation. And a third is that the Russians do not know us any better than we know them.

There are a fourth and a fifth. The fourth is that military intelligence, however sound in theory, is weak

in practice. It is supposed to operate from the ground up -- from the roots to the trunk -- from the field to higher and higher authority. Yet time and again throughout the war Stalin, Churchill, Roosevelt, Hitler, and their closest advisers imposed their intelligence thinking on those beneath them. (There were occasions when intelligence chiefs were not even advised of decisions taken or agreements reached.) At the outbreak of the war on the Russian front the British Chiefs of Staff considered the Germans capable of reaching Moscow in six weeks; the War Department in Washington thought two months. In the face of such estimates only a brave or foolhardy officer is willing to jeopardize his career by insisting upon information to the contrary. It happens in our day."

Thus far this book has been primarily concerned with a historical review of the collection and backhaul of foreign material, the reverse engineering process and its use to forecast future trends, some vague reference to the "higher level" intelligence reports and a reference to various intelligence organizations. Perhaps it is appropriate at this time to clarify how the system developed by the United States in the Post WW II era operates. In an article concerning events in Russia by Ray Gutman a very brief summary of the National Intelligence System was provided, and I quote from the article:

"To understand the meaning of such events, the United States maintains an embassy in Moscow and three groupings of analysts in Washington -- at the Central Intelligence Agency, the Pentagon and the State Department. But they had little solid information to go on so the resulting analysis was in large part educated guesswork, according to U.S. officials.

To refine the guesswork, debate is encouraged among the agencies and to some extent within each. For example, the State Department's Bureau of European Affairs manages day-to-day working relationships with the Soviets and must produce what one aide called "snap judgements" in order to formulate policy responses. Meanwhile, the Department's Bureau of Intelligence and Research looks to history and related developments to work out the long-term meaning for American policymakers. Among the agencies, the Pentagon's Defense Intelligence Agency (DIA) naturally focuses on defense-related issues. The CIA covers the entire waterfront but in meticulous detail that officials in other agencies say lessens its usefulness for policymakers.

In about a week, the system produces at least 100 different papers or messages analyzing the events, one official said. A National Intelligence Officer,

operating at the CIA but independent of it draws together the consensus of the intelligence community and passes it on to the White House National Security Council.

The meaning of events may not be known for years, but it is the NSC's job to oversee the process and bring the most solid conclusions to the President."

Given the constraints placed upon the system, it is commendable that anything gets done, either from an intelligence standpoint or from a material acquisition standpoint. It has also concentrated on U.S.-Soviet developments and to a large degree ignored other foreign developments that may be inspired by a U.S. or Soviet threat. One often repeated comment in the intelligence community is that it must be accurate and timely to be of value, and old facts are as useful as last week's newspaper. In assessing combat operations and international developments, this is quite true, but in the area of Technical Intelligence, immediate and timely information is nice but not necessary and can sometimes lead to erroneous conclusions. It is often difficult to make an assessment of current events with an eye on the future, perhaps even impossible, unless one has an extensive background in historical trends and developments. This is also true in forecasting future trends in weapons development. In a recent book written about the stock market, the formula for successful investing was given as "hindsight + current information = success." In the area of forecasting future trends in weapons, the hindsight is provided by Technical Intelligence operations and the current information comes from two sources, current intelligence collection and current technology assessment, both domestic and foreign.

In 1982, a book appeared entitled "The Soviet Estimate: U.S. Intelligence Analysis and Russian Military Strength." In a review of the book, it was pointed out that the book was a study of the efforts of U.S. intelligence forces to monitor Soviet military developments from the late 1940's to the present day. Some accounts of early U.S. intelligence collection programs against the Soviet Union were hair-raising and convey an air of desperation to collect meaningful information against a very difficult target. For the most part, "The Soviet Estimate" focused on the major intelligence battles with Washington: the bomber and missile gaps of the 1950's, the SA-5/ABM issue of the 1960's, the Backfire bomber issue of the 1970's and SALT-related topics. The discussion of these issues goes to the core of the early civilian versus military intelligence disputes. What emerged was a picture that shows the U.S. intelligence effort to be massive but disjointed. Particularly disturbing was the intelligence community's tendency over the years to lurch from alarmist overestimates to smug underestimates of the Soviet military. The author also showed how "organizational interests" can affect objective analysis. This has produced intelligence failures, but the author noted that "many of those responsible were rewarded."

During the same time frame, Andrew Cockburn wrote a book on "The Threat, Inside the Soviet War Machine." In Chapter Sixteen, on "The Consequences of Threat Inflation," Cockburn discussed these issues as well as the 1982 Israeli invasion of Lebanon. He pointed out that at various times, the Russians have pointed out that U.S. estimates of their own military strength are much exaggerated. When the Chairman of the Joint Chiefs, General Nathan F. Twining, visited the USSR with a highranking delegation in 1956, he was told by Defense Minister Zhukov that "I think you have the reports too high in estimating our strength." The remark was dismissed by the Americans as disinformation, and they returned home with the conviction, as one of them wrote later, that "there could no longer be any doubt in our minds that the Soviets were rapidly reaching the point where they could successfully challenge our technological superiority." Twenty-five years later, with the Soviets still supposedly gaining rapidly on U.S. technological superiority, "Whence the Threat to Peace" issued by the Ministry of Defense in Moscow dismissed the Pentagon's "Soviet Military Power" as deliberately distorted information about the Armed Forces of the USSR."

Both Zhukov and his successors were of course absolutely correct.

Estimates of Soviet strength have always been deliberately distorted and exaggerated. But Soviet complaints, although well justified, are disingenuous. There is abundant evidence to indicate that the Soviets themselves have deliberately fostered and encouraged the prevailing fantasies of the U.S. military.

Some instances of this program of Soviet disinformation are well known. At the 1955 air show, held at Tushino just outside Moscow, the U.S. air attache was alarmed to note the large numbers of Bison bombers circling overhead. As a result, U.S. intelligence revised its projections of Soviet bomber strength upward, and CIA director Allen W. Dulles solemnly reported later that "every indication pointed to (the Soviets) having adopted (the Bison) as a major element of their offensive strength and to an intention to produce these planes more or less as fast as they could." Thus the bomber gap was born. In fact, the Soviets had had their limited force of Bisons (the plane that Khrushchev said "did not meet our requirements") fly over the Tushino airfield and then, out of sight of the reviewing stand and the watching air attache, circle around to make another pass. In terms of effect, it was the most successful air show ever.

The deception was not revealed until the U.S. Air Force had lost interest in the bomber gap in favor of the even more threatening (and equally fictitious) missile gap. Once again, the Russians, particularly Khrushchev, went out of their way to provide evidence to fuel U.S. alarmism. In 1959, when the Soviets had no operational ICBMs, Khrushchev told a conference of journalists that Russia had "such a stock of rockets, such an amount of atomic and hydrogen

warheads, that if they attack us we could wipe our potential enemies off the face of the earth." In the same speech, he boasted that a single plant had produced "250 rockets" in a single year. These claims were entirely false.

Circling bombers and Khrushchev's bombast were not isolated incidents. The Soviet disinformation effort has been far more extensive. The skill and cunning with which Soviet intelligence chiefs had managed to infiltrate their agents into Western intelligence agencies had been extensively chronicled. Two of their most successful coups had been the insertion of Harold ("Kim") Philby and Heinz Felfe into positions near the very top of the British MI6 and the West German espionage organizations, respectively.

Although the treachery of these men had been lamented at length, one obvious consequence of their activities had not been fully explored. Since Philby and Felfe were in a position to inform the Russians about the identities of spies in Eastern Europe, the Russians could, in turn, apprehend these people and, if they were not imprisoned or executed, use them to transmit information to the West that had been tailored to reflect what the Soviets wanted the West to believe. What the NATO powers believed during the heyday of Philby (1940s and early 1950s) and Felfe (mid- and late 1950s) was that the Soviet armed forces in Eastern Europe were strong enough to pose a threat of invasion into West Germany and reports from the heavily compromised intelligence agencies helped form the basis for this assessment. Felfe was particularly important in this respect, because the West German intelligence organization run by Reinhard Gehlen for which Felfe worked was probably the most important conduit of information about Eastern Europe for the CIA. By the late 1950s, it was reportedly supplying 70 percent of all NATO operational intelligence.

To be sure, an accurate report on, for example, Soviet ammunition stocks in East Germany during the late 1950s and early 1960s -- which were too low for more than a few days fighting -- would not in any event have found much credence at NATO headquarters. Nevertheless, the Soviets would have been able to make sure that very few such threat-deflating items were allowed to leak through and to ensure that their strength continued to be over-estimated.

From the late 1950s on, the classic cloak and dagger type of espionage, in which the Gehlen organization specialized, was gradually replaced by newer and more esoteric methods of intelligence collection. However, satellites can be fooled just as human operatives can be as the bizarre story of the rubber submarine makes clear.

In the early 1970s, the photointerpreters who pore over the endless reams of satellite pictures taken from high above the USSR noted that a new ballistic-missile submarine had joined the Soviet Northern Fleet at Polyarnyi, near Murmansk. Its appearance was duly recorded for insertion in the updated assessments of enemy forces.

Not long afterward, there was a severe storm in the Barents Sea, which raised heavy seas and effectively blocked out all satellite surveillance for a number of days. When the next batch of photographs finally arrived, the analysts saw that something very curious had happened to the new submarine; it had bent in half,, which is something that real submarines made of metal do not do.

The inevitable consequences of errors in the intelligence analysis upon U.S. weapons design and procurement policies have long been pointed out by Cassandras within the Defense Department. In 1981 the journalist James Fallows drew them to the attention of a wider public in his book "National Defense." After a long interval Dr. William Perry issued a reply. Perry epitomized the high-technology force-multiplier school of thought. After building an electronics company that rose to prosperity on Pentagon contracts, he was appointed director of Defense Research and Engineering by President Carter. This was an immensely powerful position, whose incumbent has a decisive say over the kinds of weapons that the United States will buy. Perry was an unequivocal supporter of complex high technology systems of the kind that had come under withering attack in Fallow's book. Perry's riposte, which appeared in 1982 in the journal International Security, was bluntly entitled "Fallow's Fallacies."

In magisterial tones Perry explained that the policies of which he had been such a vodiferous advocate were mandated by the particular scope and shape of the Soviet threat. The root of the problem, he explained, was that the Soviets could afford to spend twice as much as the United States on buying weapons; this is because, while more than half of the Pentagon budget was committed to manpower costs (paying the wages), the Soviets need devote no more than a quarter of their defense expenditure to manpower (all those underpaid conscripts). Because of this imbalance, as Perry sees it, the United States can never afford to buy as many weapons as the Russians. That being so, the only answer is to build "quality" weapons to offset Soviet advantages in "quantity." The situation is, however, becoming more critical because the Soviets, while maintaining their rates of production, are now producing weapons that compare in complexity, cost, and performance with the most sophisticated U.S. systems. Needless to say, these new systems are providing more bang for both the buck and the ruble, or, as Perry puts it: "Performance of military significance has increased proportionally to the cost increase."

Perry's riposte to Fallows is a useful document because it throws many of the most common falsehoods and misperceptions about the Soviet threat and our proper response to it into stark relief. For example, there is simply no evidence to support Perry's claim that the Soviets can afford to spend twice as much on buying weapons as the United States because their overall manpower costs are so much lower. Even the published CIA estimates reveal that the United States spends "about one fourth" of its budget on supporting its active, rather than retired, military personnel, while the Soviets

spend 30 percent. Furthermore, since estimates of Soviet weapons spending are based on premises that are highly dubious, it is dangerous, to say the least, to base momentous policy decisions on them.

Most important, the assumption that more complicated and expensive weapons are proportionally more effective both for the Soviets and the United States is contradicted by the evidence. The new U.S. M1 tank costs three times as much as the M-60 it will replace. Since it also breaks down twice as often, the Army will have far fewer tanks available for combat than it would have if it spent the same amount of money on M-60s. The M1 will have a third less range than the M-60, carry one-third less ammunition, be more vulnerable to heat-seeking missiles attracted by the exhaust from its jet engine.

Procurement of the M1 has been justified by the threat of the Soviet T-72. But the T-72 compares unfavorably with the M-60 it has supposedly rendered obsolete. It has a third less range, breaks down 50 to 75 percent more often, has thinner armor on the sides, top, bottom, and rear, carries a third fewer rounds of ammunition, has an automatic gun loader that is highly dangerous to its users, and is easily destroyed by the M-60's cannon.

Backtracking in time to 1977, a group of concerned defense experts in the Pentagon and President Carter's transition team, dismayed at the existing testing structure, took advantage of a new-administration reorganization. They convinced then-Secretary of Defense Harold Brown that testing had to be pulled away from the influence of the R&D community in the Pentagon. Secretary Brown agreed to set up a new independent testing and evaluation office to, as he told Congress, separate "the analysis of operational test results from the personnel responsible for research and engineering, thereby providing me with completely independent evaluation." The plan called for splitting the testing in the Office of the Secretary of Defense, leaving developmental testing to the developers and operational testing to the new independent group.

The R&D community saw this attempt as a direct attack on their ability to move weapons through the system without criticism. The attempted "coup" only lasted a little over a year. The under-secretary of Defense for Research and Engineering at the time was ---- William Perry! According to Rep. Les Aspin (D-Wis.), Perry had convinced Harold Brown to limit the staff of the new OT&E organization to 8 people instead of the recommended 22 and had made it impossible for the group to obtain a formal charter that would allow them to ensure adequate operational testing. They did find that several major weapons -- the Pershing II missile, and the GBU-15 (a TV-guided missile) -- had been prematurely pushed into the production stage despite serious failures during testing. But in October 1978 the independent OT&E office asked to be disbanded (a remarkable occurrence in any bureaucracy) because of the impossibility of carrying out its functions without an appropriate staff and charter.

Congressman Aspin learned about the death of the agency after he discovered that the telephone number had been changed. He objected to the demise of the office, but to no avail. When he was interviewed directly, he referred to the OT&E defeat as "an indication of a lack of commitment to getting to the heart of the problems of military procurement."

So what is the solution to the inordinate power of R&D interests? How can we get effective and affordable weapons to the soldiers in the field during peace time?

Vice-Admiral Monroe's proposal to get testing out of Washington might work if all the operational testers were as harnosed as Monroe, if the test data were not laundered, and if decisionmakers would listen to the operational tester and make the hard decision to cancel a weapon that will not work. There are too many loopholes for the weapons promoters to slip through in Monroe's solution.

Kwai Chan, group director of the GAO's Institute for Program Evaluation, would like to see money appropriated for missions and have several types of weapons in each service compete for this mission budget. For example, we might have the mission of defeating an enemy tank, and the Air Force would compete with the Army to come up with the best solution. This could be a very productive idea if the services would cooperate and if the testing were honest.

Several sources inside the Pentagon still believed in the possibility of an independent testing agency. One of them believed such a group could be successful if given "young and tough guys" who had not been trained in the old bureaucratic system. With the Reagan administration's moves to "decentralize" DOD, however, turning over major decisionmaking to the services, it is unlikely that this is a viable option for some time. It is patently clear that more governmental studies or investigations will not solve the problem. Additional paper reforms promise to be deformed by the bureaucracy to fit its need to survive and advance careers.

How can this overzealous, money-spending developer complex be reformed? As a member of the Armed Forces, it has been very hard for me to understand why people in the bureaucracy are able to do such a basically evil thing as to send a soldier into battle with a weapon that they know will fail. Thomas Amlie, former director of the Navy Weapons Center at China Lake, who had been in the system over 20 years, shed light on the problem in a paper widely circulated in the defense community a few years ago:

"The DOD has all the symptoms of being corrupt, incompetent and incestuous, and is so to an alarming degree. This is not because of some sinister plot... Many of the players are aware that things are going badly and are unhappy because they do not have meaningful jobs where they can contribute. They are not, in the main, dishonest or incompetent, just

caught in a very bad situation... The bureaucrat soon learns that he who does nothing has a simple life and he who tries to do something gets in trouble. Even if the doer succeeds, he is seldom rewarded. All pressures are to maintain the status quo and not rock the boat because the Congress and Administration are willing to put up the money every year, independent of the results...

The basic reason for the problem is incredibly simple and will be incomprehensible to one who has not spent time in the system: there is no profit and loss sheet. Thus, there is no competition or incentive to produce. The goal of every good bureaucrat is to get an exclusive franchise on whatever it is he is doing. If nobody else is doing it, no one can measure how well or poorly he is doing it... The only requirements are to stay busy, generate paper and make no mistakes. The reader tempted to criticize this behavior is invited to first imagine himself in the situation, complete with a large mortgage and children in college." I would go one step further and ask if the children in college were taking ROTC? If they were, it would inspire better weapons.

So to make sure we deliver affordable and effective weapons to the battlefield, we must have good and independent operational testing. But in order to have this type of testing, we must dramatically change the way the Pentagon procures its weapons.

Some simple but major changes would be to set up a testing system in which the developer and promoter of the weapon must turn the weapon over to the operational testers when the development tests end. Under the current system, these tests often run concurrently, OT and DT results are often muddled together, and there is no distinct decision point to go or not to go with the weapon. Another improvement would be to fire people who cover up, lie, or attempt to promote a weapon system that is not working. This would send messages throughout the bureaucracy that successful weapons, and only successful weapons, can get people promoted. It is also essential for Congress to insist that test results be reported under oath.

One of the most effective changes would be to refuse to fund any new weapon that costs three times as much as its predecessor, to set a reasonable budget limit for each new weapon and refuse to change it, and to reward innovative people who produce inexpensive and effective weapons -- in other words, insert a profit and loss sheet in weapons procurement.

These changes would require a giant change in attitude on the part of the Pentagon, Congress, and the general public. One of the

first steps toward this change is to support honest operational testing and a stronger role for test results in the decisionmaking process. This first step is necessary to begin to weed out the generation of ineffective weapons that are still being produced, "fixed," and handed over to our soldiers.

Can we do this as a nation without another war filled with weapons failure horror stories and countless numbers of our sons unnecessarily lost?

I consider it doubtful without some basic reforms in both the officer corps and in the weapons procurement system, both of which are unlikely. Therefore, it would be prudent to institute some procedure to minimize the losses which we are likely to incur in future conflicts. The Technical Intelligence Unit's Foreign Material Training program has done an excellent job of making troop units aware of foreign weapons they may have to use but the limited nature of the operation renders the program of limited value. The program should be expanded in size and scope to include a detachment with each division size unit. They must also be supplied with Foreign Material. These teams or detachments would also provide a means of reporting on operational testing. Peacetime collection efforts, because of political restrictions would be limited in scope and would best be accomplished at a much higher level.

World attention was again focused on the Mid-East when in the summer of 1982, Syrian and Israeli forces, using the wares of their respective superpower suppliers, clashed once again in and above the fields and towns of Lebanon. It was an unequal battle. Within a few days, the Israeli air force claimed to have shot down as many as 85 Syrian MiGs, half of which were up-to-date MiG-23s, without loss to themselves. At the same time, 19 SAM-6 anti-aircraft missile batteries were also put out of action, and once again the Israelis reported no casualties. Soviet-built tanks fared no better, with several hundred being knocked out by the Israeli army, including about a dozen modern T-72s.

This carnage earned Soviet weapons their worst press since the defecting Soviet pilot, Lt. Victor Belenko's arrival in Japan with his MiG-25 in 1976. It seemed for a moment that their reputation, and by extension the specter of the Soviet threat, might have suffered an irreparable blow. The issue was a difficult one for the U.S. military chiefs to face, and they responded in three ways, according to Cockburn's book on the threat.

First, they misinterpreted the actual events of the war so as to indicate that it was the much-criticized U.S. emphasis on complex and expensive high-technology weaponry that had ensured Israel's stunning victory. United Press International reported that "Pentagon officials view Israel's aerial performance as supporting the arguments of those who advocate developing high-technology weapons as opposed to the buy-them-cheaper-and-simple school of thought." Among the contributing factors, according to Pentagon

reports quoted in the U.S. press, were E-2C Hawkeye flying radar planes, used by the Israelis to track Syrian warplanes from the moment they took off, as well as Sparrow radar-guided missiles, used to shoot the planes down at extreme range. Cockburn's comments reminded me of a saying we had in Vietnam, "American weapons are technologically superior, Russian weapons work!"

Such interpretations were a combination of mendacity and wishful thinking. Reports from Israeli military sources indicate that stories about the Hawkeye radar plane were deliberate Israeli disinformation, broadcast to cover up the Israelis' more straightforward stratagem of listening in on radio conversations between the garrulous Syrian pilots and their ground controllers. "The Hawkeye hasn't been too popular with pilots since the time four F-15s, which were relying on it to warn them of approaching Syrians, got caught by surprise and almost shot down," one source reported. Claims that the Sparrow missile had played a key role were equally untrue, since the Israeli air force fighters credit it, at best, with 15 percent of the kills. Meanwhile, it was suggested that the elimination of the T-72 tanks could be ascribed only to some sort of secret "supersmart" weapon, a notion discounted by one Israeli general questioned on the subject, who cited the twenty-year-old 105-mm. tank cannon as the nemesis of the Soviet supertanks.

The distortion of the events of a war in order to conform with Pentagon prejudices is a long-established tradition. "That's a very interesting war," said General Motti Hod, the Israeli air force commander, after reading the official Pentagon account of the 1973 war, "but it's not the war we fought."

The second element in the U.S. military's reaction to the humiliation of Soviet arms was to denigrate the performance of the Syrian pilots and soldiers, implying that things would have been very different if there had been Russians at the controls. There was more truth in this: Syrian air force pilots are selected as much for their loyalty to the regime as for their combat skills, while the Israelis are, by common agreement, the best trained and most experienced pilots in the world. On the other hand, there is little to indicate that the Russians have done that much better; the Syrian tactics that proved so disastrous were Russian tactics. A pilot from a Third World air force reported after a tour as an instructor with the Syrian air force that Syrian pilots were "really hopeless, even worse than their Soviet instructors, and they were pretty bad." An incident during the "war of attrition" between Israel and Egypt that followed the 1967 war gave bloody confirmation of the lack of quality of Soviet combat pilots. The Soviets had sent MiG-21s complete with their regular pilots to help defend Egypt against Israeli bombing raids. On July 30, 1970, the Israelis shot four of them down, an event that reportedly caused some satisfaction among Egyptian pilots, who were irked by Russian slurs on their competence.

Finally, the Pentagon took solace in the imminent appearance of

improved Soviet aircraft. It had to be conceded that the U.S. F-15s and F-16s had totally outclassed the MiG-23s, which Air Force Magazine had singled out three years before as "the aircraft (that) epitomizes the USSR's formidable aerospace strength, growing at an alarming rate." But, claimed the U.S. Air Force, the latest Soviet planes would present a far more formidable threat.

In case anyone should miss the point, a senior U.S. Air Force general summoned reporters to a breakfast briefing on August 4, 1982. The Wall Street Journal dutifully reported,

"Newly acquired intelligence data about the war in Lebanon show that American weapons and tactics as employed by Israel can easily overpower current Soviet jets and missiles, a top Air Force officer said.

However, General Wilbur L. Creech, commander of the Tactical Air Command, said other recent intelligence data show that the Soviets have developed four new fighter planes that are far more capable than any used by Syria in the War or the standard jets currently flown by the Russian air force.

General Creech asserted that if Congress reduces the new Air Force budget, the U.S. could find it tougher to cope with the latest Soviet fighters, two of which have already been deployed by the Soviet air force in small numbers."

The general's remarks and indeed the overall manner in which the Pentagon chose to portray the Lebanese war provide a perfect case study in threat inflation, which can be summed up as "the inferiority of Soviet weapons to American high technology has been vividly and undeniably demonstrated in combat. Our success shows that we have made absolutely the right decisions all along -- but don't let anyone consider that as an excuse for cutting the defense budget, because the Soviets are drawing ahead again." The only missing element was the otherwise standard observation that the technological superiority of U.S. equipment is offset by the Soviets' vast advantage in numbers.

There was, however, another and unusual aspect to the debate over the war. The humiliation of Soviet equipment had been so dramatic that the Soviets themselves felt obliged to comment. The official Soviet news agency TASS declared in an indignant dispatch that "according to numerous comments of the participants in battles, Soviet tanks, infantry combat vehicles, antitank guided missiles and artillery have demonstrated well their efficiency." In tacit concurrence with the American suggestion that the blame should be put on Arab soldiers rather than Soviet weapons, the article remarked snidely that the arms given to the Arabs "are those which

were in the hands of the Vietnamese and which defeated the American war machine."

It is very rare for the Russians to discuss the quality of their weapons in public. They can usually rely on the Americans to do it for them, but this may not be an entirely fortuitous process. Cockburn's book emphasized the difference between the Soviet armed forces as they really are and as they are portrayed by the U.S. military bureaucracy and its allies abroad. According to Cockburn the difference can be accounted for by a deliberate and continuous inflation of the threat by the American military. This resulted in the emergence of a "war economy" in the United States, with wide sections of the community directly dependent on a high rate of defense spending, as well as on an ongoing atmosphere of fear, fear of the Soviets and of universal nuclear immolation.

In his dissertation against the U.S. Military bureaucracy, and Soviet weapons, Cockburn failed to discuss the performance of the same weapons in the hands of Cuban troops in the Ogadeen War in 1978. According to published accounts, Cuban troops, conducted a Soviet text book style attack. Armored brigades conducted a double envelopment around the enemy combat elements with an air mobile assault over the top of them. All Cuban forces came together in the town of Jiggia and assaulted hospitals, supply troops, and administrative elements. In short order, the enemy force was unable to sustain themselves and the war ended. Several months after this war, I contacted the Army's Command and General Staff College to see if this would have any effect on planning for our logistical organizations. The response was disheartening as they had not even received any information on the war, let alone included it in training programs.

As a result of all intelligence collected to date, to include Technical Intelligence reports, DIA had begun publication of numerous studies on the Soviet Armed Forces. For each classified report, an unclassified version was prepared for general distribution. INSCOM also prepared a document entitled Soviet Military Operations. Work was also underway on several training manuals. OPPOSING FORCES, EUROPE was the first and was followed by OPPOSING FORCES, NORTH KOREA in 1984. These were very interesting and comprehensive documents but of limited value for training, especially in the Reserve as none of the units had access to any of the foreign equipment needed to field a realistic opposing force. TRADOC's training aid support centers did an excellent job of creating plastic replicas of most Soviet small arms and some tank models. In response to a request from TRADOC in 1981, DIA had begun publication of series of Identification handbooks. These were distributed to attaches and active forces, but again the Reserve was not included in the general distribution. The Red Thrust Detachment at Fort Hood had produced several field guides on how to organize and train an opposing force unit, but lacking Technical Intelligence support, opposing force troops, and command emphasis, they were of limited value especially in the Reserve and National Guard.

No sooner had DIA and INSCOM begun to flood the Army with unclassified manuals and studies on the Soviet military and the Opposing Forces program, ^{than} the Soviets crossed the border into Afghanistan and ~~had begun the process of re-learning how to fight in a small war.~~ *a long and bloody conflict begins* The experience in Afghanistan was combined with a long study of prior experience to modify their tactics.

Initial reports from Afghanistan were quickly summed up in numerous magazine articles. Among the first people to publicly admit to being in Afghanistan were members of the Soldier of Fortune magazine staff. ^{Then} The first of many items of hardware that was encountered was the new Soviet AK-74 assault rifle and ammunition. Samples were brought back to the United States. According to an article in S.O.F. magazine, these rounds underwent a series of tests at U.S. Intelligence labs. One series of tests was conducted at the Ballistic Research Laboratory at Aberdeen Proving Ground. These tests, conducted in a special underground range over a four day period, employed a Mann test barrel brush by Barrett John Obermyer under the sponsorship of Soldier of Fortune Magazine and the National Rifle Association.

By using a high-speed-photography technique called "spark photography," ballistics experts at the Proving Grounds were able to photograph AK-74 rounds in flight at some 40 points along a 100-yard range. Tests on chamber pressure were performed and, by downloading 5.45mm ammunition to decrease velocity, tests were conducted to determine yaw. Other tests were conducted to determine the bullet's actual range and the metals used in its manufac-

ture. From the test results, researchers would be able to devise body-armor countermeasures and other essential combat defense information. The BRL tests also revealed that the Soviets were using an unusually high percentage of arsenic to cohere the lead in the round, but researchers were not certain at that time if the high percentage of arsenic contributed to the damage caused by the bullet.

The final test results would not be available to SOF for several months, since the information from the various labs is being checked against other data and compiled into a final report. Early results, however, have startled some of the experts. Bob McCoy, the engineer from the BRL who was directing the AK-74 research, was impressed with the bullet's flight pattern after viewing the first "in-flight" photos. "When the round is fired out of a stable test barrel," he said, "there is not as much yaw [side-to-side motion] as we first expected to find."

Early firings of the round from an issue weapon indicated that the "74" maintained stable flight for the first 300 yards at velocity of 2,950 feet per second (fps). However, after 300 yards, the velocity dropped to 2,040 fps and the yaw motion began to show up on the photos. At 500 yards the fps dropped to 1,350 and the bullet became unstable. The researchers all agreed that the AK-74 is a short-range weapon and that the early rumors of its being a "superweapon" were unfounded.

Another aspect of the Soviet round which impressed McCoy was that the Russians were able to design and build effective combat ammo using low-grade metals. They've built an effective round,

but they've had to give up a lot of quality control," McCoy explained. "Thier propellent is not as good as ours and the steel penetrator [core] is only mild steel."

Suspicious that the Soviets were using a poison bullet appear to result from the wounds produced by the round. When it was fired into the gelatin block, the found did not explode as first expected, but began to tumble wildly, creating a "tear" wound rather than a "hole." Wounds would be so severe that, unless medical attention were prompt, a man could die of infection, according to McCoy.

What surprised the experts was the fact that the bullet did not explode or mushroom when it struck the gelatin. Instead, it's the combination of the bullet's long axis and borderline stability that produce the wound. It is possible, however, that if the round were to strike bone, it would explode.

What may be the most important development in the AK-74 is not the actual round but the rifling. Our weapons use a more defined land-and-groove arrangement, but the Soviets are using a sloped-typed land arrangement and a much more rapid twist (one revolution for every 7.7 inches).

"I had to grind a 55-degree bevel on the cutter to reproduce the rifling in the AK-74," said Obermyer. "The slope prevents the breaking up of steel-jacketed bullets in the barrel, reduces fouling and increases barrel life.

"A lot they [the Russians] have done to that barrel makes a lot of sense."

Bob McCoy noted after the first series of tests, "I think this

shows the Russians do have some good engineers, but the materials used and their quality all lead back to the same thing -- the Russians are still thinking in terms of quantity and not quality. All they want to do is kill their enemy, and they are prepared to expend vast amounts of cheap ammunition to do that."

I was fortunate to have been in the Washington area and obtained several of these rounds which I took back to my reserve unit where they were incorporated in a foreign weapons display. The test results from the BRL were then forwarded to the Foreign Service and Technology Center. Concerned by Soviet developments in small arms contrasted with our own lack of progress prompted Congressman James Courter of New Jersey to call for a special hearing by the House Armed Services Committee. This hearing took place on Wednesday, February 18, 1981.

The small arms topic had not been brought before the Committee for some time and extremely interesting and informative facts came to light in the course of the presentations.

Members of the panel included: Mr. Ray Thorkildson of the Office of the Under Secretary of Defense for Research and Engineering; Maj. Gen. Allen H. Light, Jr., Commander, U.S. Army Armament R & D Command; Maj. Gen. James P. Maloney, Director of Weapons Systems, Office of the Army Deputy Chief of Staff for Research, Development and Acquisition; Col. Murray G. Swindler, U.S. Army, Chairman, Joint Services Small Arms Program; and Mr. Harold E. Johnson, Senior Intelligence Research Analyst, U.S. Army Foreign Science and Technology Center. It was repeatedly emphasized during the proceedings that Soviet small arms are excellent

weapons undergoing ceaseless improvements and that, apart from our pistols and our M16 assault rifle, basic Russian types are at least equal to or outperform ours. Moscow emphasizes the use of the Kalashnikov gun mechanism for most of its small arms. This facilitates training and also assures weapon component and ammunition interchangeabilities throughout the Eastern Bloc. The Soviets have fielded their fourth rifle and fifth machine gun since the end of World War II. Upgradings of their latest versions of small arms weapons and ammunition continue. In contrast our M16 assault rifle was fielded in 1963; our M60 machine gun in 1959; and our M2 Cal. 50 heavy machine gun in 1933. The Soviet AK-74 assault rifle, which appeared in 1974, is particularly deadly when firing the hollow-nosed 5.45 mm, cartridge. The bullet is designed to "tumble upon impact and ricochet away from the entrance point making up to a 320-degree turn within 7 inches after penetration." This prompted reference to Hague Convention stipulations outlawing bullets that cause severe wounding (i.e., dum-dum). The panel was told that the new Soviet bullet warrants official protest.

The objectives and functions of the JSSAP (Joint Service Small Arms Program) were discussed. The Program, set up in 1978 by the Under Secretary of Defense for R&E, was to eliminate duplication of effort, proliferation of small arms types, and is also intended to preserve a nucleus of small arms engineering and development to counter the Soviet small arms threat. Progress has been slow, ostensibly because of inadequate financing. However, panel members were closely questioned about their apparent inability to

obtain adequate R&D funding, particularly as only small guns were involved.

Congressman Samuel S. Stratton (D-N.Y.) emphasized that the last time the House Armed Services committee had heard about any U.S. small arms problems had been 1963 and that there had been no report of Soviet superiorities until the current hearing, it was noted that no request for small arms R&D funds had been made by the Pentagon for Fiscal 1961.

The Fiscal 1982 budget provided \$4.4 million for small arms R&D but the panel felt that approximately \$10 million annually would be needed to cover its anticipated near term requirements. As much as \$8.4 million was apt to be granted for Fiscal 1982 because of the hearing.

Various opinions were then expressed about the merits of the M16 World-wide assets were about 1,394,000 of which some 40,000 were unserviceable. However, of 747,000 M14 rifles about 95 per cent were unserviceable. (The U.S. Navy relies extensively on the M14 but advocates the replacement of both M14 and M16 with a new weapon). Action was being taken to refurbish M14's as a mobilization hedge since we were short of total acquisition objectives in the event of war--though not as short as in many other areas. A new Caliber .50 MG could not be made available until 1987. A decision regarding proposed light MG production was scheduled for December 1981.

In spite of some agreement that a replacement for M16 is desirable, no member of the panel could provide an estimate as to possible cost. The M16 had undergone some 380 modifications since

originally issued and was now much improved. Mrs. Beverly B. Byron (D-Md.) objected that there had been no funding for developing a new rifle since 1971-72 when the M16 was last produced.

JSSAP had completed a study of the M16 recommending that the weapon be retained but that a cost-effective study be conducted to determine if further product improvement was desirable or affordable. JSSAP recommended further that there should be a long term combat rifle development program. Some committee members expressed distress at the "Study, study, study" approach to small arms and ammunition. Nevertheless, there were new weapon and ammunition R&D trends. An M16 with a stiffer barrel and a modified twist could utilize the new, recently agreed upon Nato second standard caliber round the Belgian 5.58 mm. SS 100, which provided extended range capability against personnel and lightly armored targets. The proposed SAW (Squad Automatic Weapon), then under test would also utilize the new NATO round. SAW, a one-man portable MG with an integral bipod, could use the M16 magazine though it would normally rely on a 200 round plastic version. Another newly developed item being examined is SLAP (Saboted, Light Armored Penetrator) which used a dense metal-core round launched at high velocity from the weapon. The advanced penetrating technology was likewise being applied to our Caliber 50 ammunition to enhance its effectiveness against lightly armored targets. Also being assessed was the feasibility of a general purpose heavy MG that will exploit penetrator technology and likewise incorporate the latest advances. A dual ammunition capability that would permit the quick swithc of a weapon from inex-

pensive AT ammunition to more costly and advanced penetrating rounds was depicted. Also under examination were flechettes (short, dart-like penetrators) with flat trajectories and short times of flight to target. There is continuing research for caseless propellants, as the elimination of brass cartridge cases would result in reduced weight and bulk for ammunition and increased individual fighting effectiveness. Apparently, West Germany had experienced some success here.

Soviet small arms are generally easier to operate and have fewer stoppages and breakages than ours. For instance, their bolt-fed 7.62-mm PKM-KG which came into service in 1971 and was captured by U.S. troops in Vietnam, was a major improvement to an earlier 1964 type and is held to be a superior weapon. According to FSTC and Infantry Center tests, over 100,000 rounds have been fired from a single such gun with negligible stoppages. In general Soviet small arms weapons are well liked when handled by U.S. infantry. Soviet development trends reflected the importance of small arms firepower in ground combat and the individual U.S. soldier must likewise be equipped with continually improved weapons that will be available in quantity, as needed. Accordingly, R&D urgencies were undeniable and means would have to be found to overcome the long lead-times normally associated with developing acceptable weapon systems to provide a small arms that outperform existing Soviet types.

The U.S. Army, Training and Doctrine Command was in the process of adopting what was considered a new tactic, which was called "Air Land Battle". One of the key aspects of this doctrine

was the effort directed against locating the enemy second echelon or follow-on forces and slowing or disrupting their arrival at the front line. Army Times newspaper pointed out, however, that despite the fashionable American preoccupation with Soviet second-echelon forces, intelligence analysts say a malignant new threat may be germinating right up there in the first echelon.

It is the Operational Maneuver Group (OMG), a division-sized Soviet formation of armor supported by heliborne forces. Injected deep into Western territory during the first day of any conflict, it would spread rapidly, attacking such vital targets as command posts, airfields and nuclear weapons sites.

The first overt mention of the OMG by name came in Polish military journals, which described the concept in some detail in 1981. This apparent confirmation of what had been increasingly suspected prompted British analyst Donnelly to publish his own lengthy analysis of the OMG in the September 1982 issue of International Defense Review.

Donnelly drew heavily on the unpublished work of an American colleague, Maj. (now Lt. Co.) John Hines, then a Defense Intelligence Agency analyst who was later assigned to the Defense Secretary's office. Hines, a Russian linguist who devours Soviet military writings by the shelf, had been a tireless preacher of the gospel that the OMG ought to be taken seriously.

In doing so, he has encountered considerable skepticism, particularly from the West Germans. The most recent debate occurred in June at an allied strategy seminar in Bonn, where West German participants suggested that the Polish writings on OMG might

merely be intended to cast doubt on the effectiveness of NATO's forward defense doctrine.

That strategy calls for the alliance to deploy the bulk of its forces as close to the inter-German boundary as possible in order to hang on to West German territory. The resultant drawback is a lack of reserves at precisely those "operational" depths of the battlefield which the OMG is designed to penetrate.

However, West German skepticism about the OMG is due to more than narrow national interest, U.S. analysts concede. For one thing, no mention of the concept has appeared in the East German military writings which Bonn mines for doctrinal intelligence. The Polish discussion of the concept may have been a security breach, since there had been no further word from that source.

Then too, the West Germans have serious doubts that the Soviets would be able to carry out an OMG operation. The reason is that it would require a degree of initiative at the division level which the Soviets had not demonstrated. The OMG has been a source of controversy on both sides of the Iron Curtain. Some West German analysts have argued that it is only an ingenious bit of disinformation. In the East, there was indirect evidence that at least some senior Soviet officers had doubts the complex concept could be made to work. Nevertheless, American experts say, Moscow appeared to be pushing ahead with refinement of OMG doctrine. Recently declassified data show division-sized Soviet OMGs were tested during maneuvers in East Germany in 1981 and 1982. Those Soviet military men who appeared to be dragging their feet have been retired.

"The recent development of Soviet operational doctrine is the most significant to occur since the changes wrought by the advent of nuclear weapons," said British analyst Chris Donnelly. "It is nothing less than a complete operational shake-up designed to produce an effective method of winning a war quickly..."

The OMG concept significantly amends the classic Soviet tactic of echeloned attack. That earlier approach was designed both to disperse Soviet forces in the face of the U.S. tactical nuclear threat and to spur their forward momentum. As the first echelon attacks, the second advances behind it at a distance sufficient to prevent a simultaneous nuclear strike against both.

When the first echelon finds or tears a gap in the Western defenses, the second echelon rolls right on through it. This sequence is followed at each higher level of command, creating penetrations of progressively greater depth and, in the process, cutting forward Western units off from their support. The tactic is expected to enable rapid rates of advance, up to 30 miles a day. The attackers could move even faster if they should use nuclear weapons.

U. S. efforts to counter this tactic have emphasized blocking the advance of the first echelon while carrying out "deep attack" against the second echelon with missiles, armed helicopters and fighter aircraft. This approach exploits the growing capability of intelligence sensors to detect activity deep in enemy territory. The aim is to inflict such attrition on the advancing second echelon that it has little combat power left by the time it is committed.

The OMG clearly was intended to throw a wild card into this game. Some analysts, such as American defense consultant Steven Canby, have even suggested that the OMG renders deep attack against the second echelon obsolete. "In the OMG method," he says, "the second echelon...is no longer the dangerous element. It is the extended first echelon that is now critical."

That is because the OMGs would come charging out of the first echelon several days before the second echelon was committed. Each first echelon combined arms or tank army, with as many as five divisions each, would release one division to infiltrate the opposing NATO front. This would take place in the first 24 hours of combat, possibly just as the attack kicked off.

First echelon armies would try to launch their OMGs through gaps in NATO defenses, preferably without a fight and on more than one route. "The low density of opposing NATO forces," says Canby, "of such that there will almost always be gaps to probe, widen and pass through."

Although their aim is thus to avoid frontal combat, the tank divisions that carry out the OMG mission will be heavily reinforced with extra artillery, helicopters, engineers and reconnaissance troops. To reduce their dependence on supply lines, they will have the newest equipment and mobile stocks of spare parts.

As the OMG plunged deep into NATO territory, it would dispatch raiding parties to overrun such "soft targets" as command posts, radar and anti-aircraft sites and airfields. "It's more like a pitchfork than a spear," says a U.S. intelligence analyst. The

targets impaled would have been assigned on the basis of intelligence collected long before the attack. Knocking them out would not require heavy use of precious ammunition, and it would pay off for the main attack.

A high priority would be given to destroying or capturing nuclear warheads and the cannon, missiles or aircraft that deliver them. Indeed, some analysts think the OMG's main reason for being is conventional destruction of NATO's nuclear arsenal before it could be used. That purpose would also be served by the OMG's disruption of the alliance's command network. The OMGs themselves should be largely invulnerable to nuclear strike because they would be so thoroughly intermingled with NATO units.

The depth to which the OMG is intended to drive is indicated by its name. "Operational" in the Soviet doctrinal lexicon is used to describe an intermediate step between the "tactical" successes achieved by divisions and the "strategic" goals of winning the war. The distinction, which many other countries fail to make in their own doctrine, proved particularly useful to the Soviet army in World War II because of the vast land distances over which it operated. As a rough rule of thumb, "operational" objectives are those which are more than 30 miles away and less than 300.

That is well within the realistic capability of the armored division that would form the OMGs, U.S. analysts note. "The average Soviet tank has about a 500-kilometer (300-mile) road range," said one. "Even if you reduce that by 30 to 50 percent, it still puts an armored division in Frankfurt before he'd need to refuel."

Students of the OMG emphasize that it should not be visualized as an isolated suicide squad ridding off in to the NATO sunset on its own. There would be a great many of them and they would be part of an integrated Warsaw Pact attack that would amount to World War II. The OMG's departure would be preceded by air and conventional missile attack against NATO airfields in an effort to gain air superiority.

This would be accompanied by an air defense effort with both interceptor aircraft and mobile missiles providing a protective "umbrella" over the Pact's own forces including those of the OMG Heliborne and parachute troops would seize bridges and other objectives along the OMG's intended path.

Coming right behind the division-sized OMGs launched by first echelon armies, would be larger corps-sized ones released a day or two later by "fronts," which are themselves made up of several armies. Then, at long last, the second-echelon armies would enter the fray.

Although U.S. intelligence had provided some clues that something like the OMG was in the planning stages, Soviet military publications carefully avoided any direct mention of the subject. They did, however, increasingly discuss a similar World War II formation called the mobile group, which massed the scarce tanks of the day into an exploitation force. These historical articles suggested that this information had contemporary relevance, a traditional Soviet approach when introducing a new doctrinal concept. Another word was starting to creep into the Army's vocabulary and that was "SPETSNAZ" the Soviet Special Forces.

James Hanson, a Senior Analyst at the Defense Intelligence Agency wrote in National Defense Magazine that Soviet planners recognize the critical importance of having an accurate and detailed picture of the enemy. Colonel M. Trushchenko, for example, states that "under modern conditions, the importance of reconnaissance continues to increase." He notes that "each unit commander is obliged always to have at his disposal complete and reliable data on the enemy ... obtained not only from higher headquarters, but through the use of his own resources."

Soviet and Warsaw Pact forces have always put a high premium on reconnaissance units, perhaps a standing reflection of the emphasis on intelligence. This emphasis probably is stronger now than ever before, particularly in view of NATO's diversifying nuclear forces--which pose a paramount obstacle to Soviet/Warsaw Pact chances for attaining their wartime goals.

Some Soviet military commentators tend to meld the tasks of reconnaissance and sabotage together. Colonel B. Samorukov, for example, states that "reconnaissance-diversionary groups" can destroy the enemy's means of nuclear attack, overcome zones of obstructions and important natural barriers, and seize key positions and communications centers. By flying to their targets in helicopters at low altitudes and using terrain masking, they can achieve surprise attacks and carry out missions assigned to them "even in conditions of strong air defense." Such forces have a "high degree of independence" and are "very extensively used" in the combat structure of field forces to carry out critical missions. Their operations will produce the greatest success

"only when they are used suddenly."

The need to have such a capability is recognized in a round-about way by examining two highly authoritative encyclopedias by the Soviet Military Publishing House (Voyenizdat). In Volume 2 of the Soviet Military Encyclopedia (1976) is a passage that discusses "Troops of Special Designation." The Soviets call this a foreign term, and describe "special units and subunits in the armed forces in an array of capitalist states, designated for reconnaissance-sabotage and terroristic activities, the organization of rebellious activity and armed attacks, the directing of psychological war, propaganda, and other subversive activity." Because this is a foreign concept and term, the passage notes special forces of the U.S., Britain, France, Japan, and Israel, but not the Soviet Union.

More recently, the Military Encyclopedia Dictionary discussed the term "special reconnaissance." This term, also "foreign," was described as a type of reconnaissance carried out with the goals of undermining the political, economic, military, and moral potential of a probable or actual enemy. Its basic tasks are the collection of information about economic and military objectives; the destruction or taking out of these objectives; the organization of sabotage and diversionary-terroristic acts; the preparation of rebellious groups and other activities. Special reconnaissance is organized by military organs and "special services," and conducted by the forces by agent reconnaissance and troops of special designation. Based on these two definitions, the novice reader is left with the impression that the U.S.S.R.

has no such forces! What, then, is the actual situation?

The Soviet Union maintains the largest body of special forces in the world. Each military district in the U.S.S.R., group of Soviet forces in the forward area, and fleet reportedly has a spetsnaz brigade. Each brigade could field about 100 teams, each of which would comprise 5 to 12 men. Each Soviet brigade then could unleash some 500 to 1,200 "silver bullets" against the enemy. Also, each Soviet army has an independent spetsnaz company. As such, several thousand spetsnaz troops are ready for action in each theater of military operations (TVD) around the U.S.S.R.

Spetsnaz forces are controlled by the GRU, the Chief Intelligence Directorate. In Moscow, the GRU's 5th (Operational Intelligence) Directorate oversees spetsnaz activities. This directorate supervises the activity of the intelligence directorates (RU's) at military district/group of forces/fleet level, carries out the posting of senior officers to those units, and issues instructions and recommendations. At this command level, spetsnaz units report to the Chief of Intelligence, who in turn reports to the Chief of Staff (see chart).

During peacetime and wartime, spetsnaz units conduct a wide variety of demanding and sensitive missions. In peacetime, they carry out training and reconnaissance activities against NATO which are geared to meet wartime intelligence needs. In order to make training as realistic as possible, they have access to facilities that are equipped with accurate full-scale models of enemy installations and weapons. Training facilities include mockups of

NATO weapons such as PERSHING and LANCE ballistic missiles as well as ground-launched cruise missiles (GLCM's). Also included are mockups of airfields, nuclear storage sites, air defense sites, and communications facilities.

In wartime, spetsnaz forces would operate far behind enemy lines for long periods of time. They would conduct reconnaissance, sabotage, and attacks on diverse military, political, and economic targets. Such wartime missions would be integral to the overall combined-arms offensive, and many would begin at the very outset of hostilities. The purpose would be to paralyze the enemy's critical assets before they could be used against the Soviet/Warsaw Pact forces.

Most spetsnaz teams would operate at what Soviet planners call the "operational" level. Accordingly, each brigade would support its own front commander and his operations within the front's area of operations, to a depth of 350 to 1,000 kilometers ahead of the forward edge of the battle area (FEBA).

Some spetsnaz operations would occur at the "strategic" level, beyond the operational scale; they would be mounted in the capital. Such operations would be under the overall control of the KGB, the dominant Soviet intelligence service, and would include efforts to intimidate and demoralize the population, create chaos and disrupt public services, and undermine national resistance.

NAVAL SPETSNAZ

The elite spetsnaz troopers have webfooted cousins. According to the U.S. Defense Department, a body of specially trained troops is also deployed in each fleet area, a brigade-sized unit

of spetsnaz forces. A naval spetsnaz brigade comprises several combat swimmer (frogman) battalions, a midget submarine group, a parachute group, a signals company, as well as headquarters and supporting units. These forces are similarly trained to conduct reconnaissance, sabotage, and assassination missions.

In wartime, these units probably would move into the target area by aircraft, submarine, or surface ships, most likely just before hostilities. Once deployed, they would go into action against targets, such as ship and submarine bases, airfields, command centers, communications facilities, ports, harbors, radar sites, and, of particular importance, nuclear weapons facilities. According to the Defense Department, "though a small force, spetsnaz has the potential to achieve results disproportionate to its size against such a critical, yet often vulnerable, target list."

Mini-submarines of the type frequently detected off the Swedish coast may belong to Soviet naval spetsnaz units. Such naval spetsnaz units have been particularly busy of late.

The payoff for the Soviet investment in spetsnaz forces could come in combat in Europe, where they would present NATO with a flexible and diverse unconventional threat. In a crisis or pre-war situation, many spetsnaz units would infiltrate a Western Europe previously made weaker by a combination of Soviet indirect warfare and active measures under the direction of the KGB and the International Department of the Communist Party. Possibly dressed in civilian clothing or in NATO uniforms while speaking English or German, spetsnaz units would perform deep reconnaissance and sabo-

tage missions, with emphasis on nuclear-related targets. In this manner, they would contribute significantly to the success of the Soviet/Warsaw combined-arms offensive sweeping across Europe.

This, of course, is hypothetical. What about the actual payoff of spetsnaz forces in peacetime? A quick examination of the record clearly indicates that these forces have been worth the relatively modest investment in them to date.

In the 1940's and 1950's, special purpose forces were used to crush resistance to Soviet domination over Eastern Europe. Particularly in August 1968, Soviet spetsnaz forces were used to ensure the success of the Soviet/Warsaw Pact invasion of Czechoslovakia. The seizure of the Prague airport as well as other vital points was carried out by spetsnaz troops acting under KGB orders. Alexander Dubcek and other liberals were arrested by spetsnaz troops and dispatched to Moscow. When viewed in retrospect, these forces were instrumental in the overall success of the invasion which crushed the "Prague Spring" liberal movement of Alexander Dubcek.

Soviet spetsnaz troops played a similarly critical role in the invasion of Afghanistan in December 1979. Working under KGB on-the-spot guidance, spetsnaz forces provided the muscle to get rid of President Hafizullah Amin. In this case, they went to President Amin's palace in Kabul during the night of December 27--when Soviet airborne troops were landing at the airfield not far away. One source claims that during a wild firefight, Amin was killed in cold blood along with at least 40 family members, friends, and staff. Other spetsnaz units had been placed