CHAPTER III

THE KOREAN WAR

In April 1945 Russian tank fleets had smashed their way into Berlin and shortly thereafter Nazi Germany surrendered and the war in Europe was over for many members of the armed forces. The U.S., however, was still at war with Japan and could now turn its attention to the Pacific. The island hopping campaign had been quite successful and plans were being made for the invasion of the Japanese home islands. A major technological advance had produced the Atomic Bomb which brought the war to a swift conclusion and ushered in the Nuclear Age. A major organizational change occurred in the American military as the Army Air Corps became the U.S. Air Force. As American industry began the process of converting to peacetime production, and the military was demobilized; intelligence operations were scaled back and Ordnance Technical Intelligence Collection operations in the field were eliminated. The OSS was disbanded and the nation attempted to return to its pre-war isolationism.

As a result of the Lend-Lease program, the Americans had supplied a considerable amount of military material to the Russians. In exchange the U.S. had been given several of their combat vehicles which were taken to Aberdeen Proving Ground. Very little effort was expended on an analysis of these tanks, however, some samples of the armor plate were cut out for study and the tanks were placed on display.

The Soviets had, in the closing days of WW II, fielded the Stalin tank, a 46 ton vehicle which appeared in 1944 to counter the 56 ton Tiger tank. The Stalin tank was designed by General Nikolia Leonidovich Dukhov who was revealed as one of the officers who later worked on developing the Soviet Atomic Bomb. In addition to the Stalin tank, work had begun on improvements to their T34 series of tanks.

The postwar technical intelligence organization reverted back to its pre-war size. The Ordnance Intelligence Unit in the Pentagon continued its work on a smaller scale, and a technical intelligence team at Aberdeen conducted extensive research into the foreign ordnance field, which was dominated by German equipment. Other than a review of the Tiger tank as well as later vehicles, it appears that very little effort was expended to integrate foreign designs into U.S. equipment, especially in the area of tanks. Considerable foreign technology was used in the development of long-range rockets and numerous German scientists were brought to the United States to develop missiles and to work on micro waves and radar, as was previously mentioned..

The Ordnance Museum did important work in the area of cataloging

Ordnance equipment. In addition to this work, a number of impressive manuscripts were published to include the reports prepared by Mr. Karl Kempf on the subject of Russian equipment. Mr. Kempf was fluent in the German language and used captured German reports to prepare in-depth studies on Russian equipment. This work became invaluable when U.S. forces encountered Soviet equipment in Korea.

Captured German officers were interviewed to determine combat methods used against the Russians and numerous classified studies were prepared. In 1947 the U.S. Army developed the Aggressor program to add some realism to training, however, because of political considerations as well as a lack of Soviet equipment, the Aggressor program was not as effective as today's OPFOR program.

As a result of experience gained during WW II, American tank designers had developed light, medium and heavy tank designs, however, only the medium tank designs would reach the production stages. Antitank weapons which were under development in the closing stages of WW II were put on the shelf and forgotten.

Against the background of WW II, various wartime alliances and the Soviet occupation of much of Eastern Europe, American foreign policy was in a state of flux. Rivalries among civilian and military agencies in Washington had hobbled the formation and implementation of foreign policy goals. The armed services fought over budgets and missions. The State Department, laboring under an archaic geographic format, had played only a marginal role throughout the long tenure of Cordell Hull and the short stormy stewardship of James Byrnes. Without a central intelligence agency, little capacity existed either to gather secret information or implement policies covertly. Finally, the lack of coordination left each agency free to bombard the president with its own recommendations, regardless of redundancy or contradictions.

Although Truman expressed little personal interest in Japan (or most other foreign policy problems, for that matter), he acknowledged a need to reorganize the foreign policy bureaucracy. Frequently shortsighted and petty in his domestic political calculus, Truman, nevertheless, understood his own limitations in the foreign sphere and selected many advisers of real stature. Generally, they came from elite corporate business, the professional military, or, in a few cases, from the career foreign service. Most had little use for the New Deal's social reforms (Harriman was an ambiguous exception), and almost none thought it desirable or even possible to sustain cooperation with the Soviet Union.

The transformation began in January 1947 when Truman replaced James F. Byrnes with Gen. George C. Marshall as secretary of state. Marshall began reorganizing the State Department along more modern lines, creating, in May, the Policy Planning Staff (PPS). This special unit, he hoped, would devise "long-term programs for the achievement of...foreign policy objectives" by transcending narrow geographic and bureaucratic lines in the department. Marshall

selected Soviet specialist George F. Kennan to head the PPS. He had come to Marshall's attention partly through the sponsorship of Navy Secretary James Forrestal, one of the earliest advocates of German-Japanese recovery. Forrestal, in turn, was also destined for promotion to a higher post.

In July, after prolonged and bitter debate, Congress passed the National Security Act of 1947. Among many provisions, it created a unified Defense Department, with Forrestal soon named as its secretary. He oversaw the national military establishment, which consisted of such semi-independent units as the JCS and the separate armed service branches, each with its own civilian secretary. Persistant rivalries among the services required a further centralization in 1949. Besides the new Defense Department, the 1947 act established a Central Intelligence Agency (CIA) and a National Security Council (NSC), both designed to coordinate policy and facilitate the president's access to vital information.

Although this reorganization left many bureaucratic problems unresolved, it augmented the power of the State and Defense departments enough for them to reclaim initiatives in the largely independent satrapy of Occupied Japan. Neither Marshall nor Forrestal stood in awe of MacArthur, an attitude they quickly transmitted to their subordinates. Just as Marshall relied on Dean Acheson and George Kennan for advice on Japan, Forrestal tapped a former colleague and vice president of Dillon, Read & Co., William H. Draper, Jr., as his under secretary of the army, a position that oversaw occupied areas. Leaving the army reserve for active service as a general in 1940. Draper stayed on in the War Department after 1945. During 1946, he played a major role in loosening economic controls and promoting business in Occupied Germany. Working individually and in tandem, Draper and Kennan sought to revise American policy in Western Europe and East Asia. Both men worked to modify social-economic reforms and to get Congress to fund substantial reconstruction programs. They considered it vital to delay peace settlements until after the German and Japanese business classes (and their political allies) were securely returned to power. These efforts brought both men into bitter disputes with some members of their own departments and, even more dramatically, with Douglas MacArthur.

In addition to the problem of reorganizing the ponderous foreign policy bureaucracy in Washington, the legacy of wartime and early postsurrender policies continued to plague the advocates of a new course for Japan. As of early 1947, several stringent Occupation policies affecting future economic activities remained in place. Although large-scale removals had not yet occurred, a major reparations program that called for the transfer of Japanese industry to China and Southeast Asia was still slated for implementation. Economic planners in SCAP and the Far Eastern Commission continued to discuss long-term arrangements for strictly limiting production levels in heavy industry. Under pressure from SCAP, the Diet had begun to consider a comprehensive plan to restructure the zaibatsu

and to prevent the formation of future monopolies. This deconcentration law came into effect by the year's end. In January 1947, SCAP shocked many American conservatives by issuing an order to purge business executives linked to military aggression or ultranationalist groups. Thus, despite the intensification of the cold war and the reorganization of the executive Branch, Occupation policy in Japan continued to reflect a liberal reformist agenda.

What MacArthur thought about this is by no means clear. Although critical of large-scale reparations (which he feared would involve outside meddling by technical experts on SCAP's turf), he vigorously defended the bulk of his staff's activities, including the economic purge, deconcentration, land reform, and demilitarization. This, however, may not have reflected any ideological commitment.

From 1945 to 1950, American policymakers worried most about the rebellions in French Indochina and the Dutch East Indies, where the Japanese occupation had fatally undermined colonial authority. Within two weeks of the Japanese surrender, Mohammed Hatta and Sukarno proclaimed the birth of an Indonesian Republic and Ho Chi Minh announced formation of a unified Democratic Republic of Vietnam (DRV). Although Indochina was one of the less prosperous colonies of Southeast Asia, its large population, pivotal location, and, above all, well-organized, Communist-led insurgency made it a particularly vexing problem for the West. In contrast, the East Indies' vast mostly untapped wealth made it a gem that the Dutch and their allies were reluctant to surrender. In contrast to the Viet Minh movement, however, Indonesian nationalism had only a small Communist element, a fact of great significance as time passed.

Immediately after the war, the United States, like the Europeans, vacillated over the claims of the Vietnamese and Indonesian nationalists. Some Officials in Washington and Paris, for example, favored negotiating a compromise settlement with Ho Chi Minh, assuming he would settle for less than full independence. The Vietnamese leader seemed interested enough to journey to France late in 1946 for what turned out to be futile talks. The French government considered only superficial concessions and refused to recognize the sovereignty of Ho's DRV over the entire colony. At most, Paris considered a partial grant of independence to the northern provinces, where the insurgents had greatest strength. The central and southern parts of the colony -- Annam and Cochin China -- were to remain French dependencies.

Before and after this episode, Ho contacted a variety of Americans to enlist their support. Some represented the OSS, which had coordinated anti-Japanese operations with the Vietminh guerrillas; others were attached to the State Department. Ho continually maintained his commitment to nationalism and expressed hope that America would furnish encouragement and support to his nation. Even those critical of his open Communist affiliations praised the charismatic revolutionary as a "symbol of nationalism

and the struggle for freedom to the overwhelming majority of the population."

By November 1946, the French resolved to free Ho's followers from their northern strongholds and bombarded the port of Haiphong, killing several thousand civilians. This incident initiated a full-scale guerrilla war that lasted until 1954. Gradually, through its support for France and general opposition to communism, the United States became a third party to the struggle.

In Europe, the U.S. Army was being supplied with information on the Russians by General Reinhardt Gehlen, former head of the German Intelligence operations against the Russians. Following the German defeat, Gehlen had buried the files on the Russians and in time contacted the Americans and folowing a series of discussions with officials in Washington and with General Siebert, General Eisenhower's G-2, Gehlen returned to Europe and began operations. In his memoirs, Gen. Gehlen pointed out several aspects of his operations which are worth making note of.

> "First, we had to convince the justifiably skeptical Americans that, apart from our document files (which the natural process of obsolescence would render valueless in time), we could offer them other intelligence of a topical and worthwhile nature, which would be all the more impressive in a Germany torn by chaos, her communications constricted by interzonal frontiers, and with millions of her citizens forced to migrate aimlessly the length and breadth of the nation. Second, the passage of time would make it harder with every week that passed to recruit the nucleus of workers we needed. Once they had been discharged from captivity and swallowed up into civilian life, we would probably never manage to find these experts again, given the prevailing conditions of catastrophe."

Continuing his discussion, Gen. Gehlen Pointed out that:

> "Our existence was a closely guarded secret; to be successful and guard against infiltration by the enemy we had to remain a secret, too. So our typical worker's return to normal life as a regular citizen was blighted from the start: for security reasons he could not mention his work to his relatives; he had no government protection, because the German state as such had ceased to exist, and the protection the occupation authorities could offer him was less than marginal. The jurisdiction of the United States authorities was restricted to their own zone, even after the economic fusion of this with the British zone and the formation of the bizone late in 1946. On top of this, initially only USFET's G-2 section

knew of our existence, a state of affairs we wanted to last as long as possible; so for a long time our operatives were at the mercy of the ultrasuspicious organs of other American security agencies, particularly the ever watchful CIC and the military police."

At first, the organization was financed with American dollars which, while welcome, were difficult to exchange into German currency. The first trial intelligence-procurement operations had started early in April 1946, and the results had met with the Americans' approval. They were not able to "awaken" some of their agents in the Soviet Union who had become dormant with the end of the war; and, in fact, the original network was to play a smaller part in the rebirth than had been suggested in some publications. A start was made in that direction, but it was felt that it was better to concentrate on recruiting fresh agents while they could, as they could not be sure which of the old ones had been won over by the Russians. Those that they could trust were "awakened" by prearranged signals, but in the state of disorder existing in postwar Europe, it was comparatively easy for their people to be sent deep into the Soviet Union to establish personal contact. Of far greater value, however, were the files and indices they had maintained on the Russian military units.

Meanwhile, after the July 1946 conference with General Sibert had resulted in the "gentlemen's agreement" establishing the organization above, espionage operations proper had begun. The first requirement was the creation of a small but efficient "brain" for the organization, followed by a somewhat larger operations staff to control the espionage work and a reliable analytical section. This vital spadework took much time. They had little space to work in, no technical equipment such as radio transmitter and receivers, and urgently needed a larger staff. But they had lost contact with many of those who had been working on intelligence during the war. They also had to recruit enough clerical personnel for their purposes. But beginning again from scratch like this did have its advantages: it is far harder to take over a large existing organization and try to convert it and modernize it than to create one from nothing, benefiting from all the experience gained in the past.

The speed with which they could set up the new organization was bound to depend on the space, funds, and equipment placed at their disposal. But to the Americans they were still something of an experiment; so improvisation and makeshift characterized the first trial runs of the "Gehlen organization," as they soon came to be known to their friends. Despite this, they still had to show worthwhile intelligence results, if they could, to convince the Americans that there was a future in them.

In discussing the relationship with their American financers, Gen. Gehlen said,

"We soon established good relations with the American liaison team -- Colonel Deane and Captain

Waldman. It was Waldman who bore most of the brunt of the cooperation with us. I have already emphasized how much we owed to him. Even when his superiors showed little sympathy, he committed himself wholeheartedly to our cause, putting up with the personal disadvantages this involved him in without a murmur. Colonel Deane was an outstanding active service officer, who had distinguished himself in combat but had had little to do with the intelligence work for some time. A number of minor difficulties resulted from the colonel's lack of experience in intelligence affairs. When, for example, I tried to impress him with the need for us to obtain false identity cards, his first retort was an astonished, 'That's against the law!' It took some effort on my part to persuade him that it was not a true violation of the law and that the use of fake identity cards is common practice in intelligence circles. After I had gradually succeeded in convincing him of certain other peculiarities of our trade, this trusty officer swung around to our side and threw the full weight of his personality behind us. Thus we gained a second mentor in addition to Waldman."

Gehlen continued by pointing out that:

"We restricted our investigations at first to purely military questions. This was inevitable, as we had rebuilt our organization on the existing foundations of the forward reconnaissance units (Frontaufklarungseinheiten) we had used on the eastern front. It soon became clear however that along with the growing estrangement between the former Allies, the Americans' interest in purely political problems increased. By the end of 1946 we were already keeping an eye on political trends behind the Iron Curtain. From that, it was a logical progression to embrace espionage on Communist economic affairs and arms technology as well. In this latter field, which the orthodox American services had begun to watch only comparatively recently, we were able to communicate particularly important results to them. My own concept of a uniform intelligence service, which I had based on the experiences assembled by Group II (i.e., long-term appreciation studies) of Foreign Armies East during the war, was clearly right, if these early results were anything to go by."

Continuing his discussion of the early years of the organization, General Gehlen pointed out that:

"In the autumn of 1947 we unfortunately lost both General Sibert and Colonel Deane. The latter was replaced by Colonel L_____, who with the best will in the world failed to see eye to eye with us and unwittingly jeopardized the entire joint operation. He was a good soldier -- even as a full colonel he still regularly practiced parachute jumps -- but he regarded his as a position of command, with authority over us Germans too, an attitude totally at variance with the gentlemen's agreement I had concluded with Sibert. He knew only one military relationship: he gave the orders and we had to obey them; it was a creed he had practiced his entire military life. We were servants of the U.S. Army -- therefore we had to toe the line. His attitude caused a lot of friction; he was not the best of partners for myself, as head of an organization which had by then already expanded to a considerable size, employing several thousand men. I am sure he did his best to work in harmony with us; but the differences of opinion multiplied, and they began to affect our work.

One achievement must be chalked up to this colonel, from the few months before he was moved to another position. By now, we were literally bursting our accommodations at the seams. He managed to secure for the organization a small estate at Pullach, a village some five miles south of Munich. The move took place at a time of a crisis of confidence within the organization. It had been caused by the fact that we were not always able to meet the needs of our personnel for better accommodations and to provide the equipment appropriate to the job, including vehicles, radios, and other technical equipment. The U.S. Army's provision of office equipment and the necessary funds for our continued existence also left much to be desired. An official budget had been negotiated with the American authorities, but again and again it proved quite inadequate. On all these matters there were lengthy and tedious negotiations, and for the most part I had to conduct them in person. It is difficult to give an adequate impression of the numerous trivial questions which had to be dealt with -- matters that I frequently had to push through in what was almost unarmed combat. I see from my records that in 1948 alone I had to submit to the Americans no less than four long lists of urgent and explicit requests.

Our field workers of course knew little or nothing of this constant fight on their behalf, so I could well understand their grumbling. The U.S. Army

liaison team did what it could to satisfy our demands, but the army suffered from bureaucracy and insisted on our following the proper "service channels." And since those channels led from Pullach to Frankfurt and from Frankfurt to Washington and all the way back again, the process was long and time-consuming.

The disputes with Colonel L_____ finally culminated in my flatly refusing to obey an order he issued in March 1948, since it would have cost the organization its hard-won independence. I told him bluntly that the management of the organization was my affair and mine only, as had been laid down in the gentlemen's agreement with Sibert, and that I would therefore accept no "orders" which directly interfered with the internal affairs of my organization. I might be prepared to accept recommendations; but I would not consider myself bound to accept them, I added, unless I felt they would serve the mutual interests of Germany and the United States. At this he withdrew his 'order.'

This episode and other instances of a lack of intelligence-mindedness in Colonel L_____ finally obliged me, for all my respect for this soldierly and distinguished officer, to ask for his replacement by an officer better versed in our affairs. The negotiations were not particularly easy, since the American authorities were at first inclined, however much they agreed with me, to put their prestige into the scales on the colonel's behalf. But they finally recalled him in August 1948. He was replaced in December of the same year by Colonel Philp. The change occurred at a particularly fortunate time, for the following eight months were to see my organization laboring under great strains. These were primarily the result of the currency reform in West Germany, but there appear to have been certain domestic budgetary difficulties for the Americans as well. Philp reconciled the two positions and kept the collaboration going more than once, setting a great example of how much depends on one trustworthy and reliable personality if different nations are to cooperate in intelligence work."

The proof that the Americans valued the German work highly was that they were given more and more missions to fulfill. This meant they had to recruit more and more workers; and this in turn brought them a number of organizational headaches. Gehlen's own position was that for an organization like theirs to start producing results virtually from the first day, they would have to make do with a minimum of red tape. The lack of funds forced this on them too: what money they had was there to produce results, not to finance a

large and extravagant superstructure; there was always the risk that such a body would tend to follow Parkinson's Law and finally become an end in itself. This was a tendency which Gehlen was determined to defeat from the start.

In any case, even by 1948 there could be no certainty that the organization was a permanent fixture, and for this reason too they felt they had to keep the number of permanent employees as small as possible. Also, the smaller the superstructure, the easier it would be to keep under surveillance; and the greater would be their chance of detecting "leaks" rapidly.

Strange though it may seem, this was a time when the Germans feared the Allied fiscal authorities more than the long arm of Soviet counter-espionage agencies. The June 1948 German currency reform brought particularly severe monetary problems. During the reign of the reichsmark, the budget had been solidly based on their dollar allocation, a currency of real value on which we could depend; but although the disappearance of the dollar and the postwar bartering of cigarettes and other commodities was a blessing for the national economy, it was a disaster for the Gehlen organization. Forthwith their allowance was paid in the new deutschmarks and the overall American allowance was cut back anyway; and coupled with the artificial rate of exchange they were given (1 dollar to 3 marks, versus the official rate of 1 dollar to 4.20 marks), they were suddenly receiving 70 percent less than before. To add insult to injury, the deutschmark was for a long time regarded with hesitancy by the public, and its value sagged markedly. The outcome was that for months the organizataion did not have enough funds to make ends meet; they could only have met their most urgent commitments if the Americans had increased their subsidy by at least 50 or 100 percent, and even this would have left a serious gap to be plugged. It was a bitter experience after so many years of work.

It must be remembered that at that time they were not an official government agency, backed by all the resources of the state. They were an independent organization being financed by such funds as the U.S. Army could spare. The need for efficient camouflage alone forced them to lead something of an underground existence; and in the midst of this financial crisis, they had to do what they could to keep their heads above water.

On the other hand, the German public's willingness to help was very great in 1948. We received much financial assistance at Pullach from wealthy industrial circles, partly in the shape of loans and partly in the form of valuable goods; and in due course Gehlen established under General Horst von Mellenthin a "special connections" section whose responsibility it was to maintain touch with government and industry. (Unfortunately, West German industry was reluctant to go beyond purely financial assistance. When it was suggested to certain firms with major contracts behind the Iron Curtain that they employ key members of the organization to provide them with a legitimate cover, almost all refused.

Only one thing could rescue them from their chronic financial crisis -- the rapid transfer of the Gehlen organization from U.S. Army control to the special coordinating agency the U.S. government had set up in 1947, the Central Intelligence Agency. They confidently expected the CIA to have a much broader horizon in consequence of its global assignment to collect and collate political, economic, and military intelligence. It would surely recognize the possibilities inherent in close German-American collaboration over intelligence work, and it would have a realistic idea of how much this kind of operation costs.

From as early as November 1948, therefore, they were involved in negotiations with the CIA's representatives. Their first job, obviously, was to find out as much as they could about the kind of work the organization was performing. This took some time -- to their increasing embarrassment, for by now they were in the jaws of an increasingly uncomfortable dilemma. By February 1949, their financial position had become so acute that Gehlen found himself obliged to warn the U.S. Army liaison officer attached to them that if the crisis persisted much longer, Gehlen would have to prune the organization he had built up, and this would inevitably lead to a reduction in efficiency. Soon afterward, Gehlen repeated this position in a letter to the G-2 at SHAPE. Gehlen went so far as to offer his resignation, and recommended that in view of the imbalance between the modest means placed at their disposal and the tasks they were expected to perform, the Gehlen organization should be disbanded. This cannot have fallen on deaf ears, for only shortly before this time their Operation Bohemia had succeeded in penetrating and smashing the entire Czech spy network operating in West Germany. The Esslingen office had persuaded two Czech intelligence officers to defect, and they had driven across the border in two cars loaded with a mass of files and details on the Czech networks, enabling the American authorities to move in and destroy them without trace.

At this time a very accommodating Department of the Army colonel happened to be visiting. He at once recognized what the problem was, but explained that the American defense budget as a whole was in some difficulty as a result of the Berlin crisis. (It was the period of the costly Berlin airlift forced on the Western powers by the Soviet blockade.) He entreated Gehlen not, on any account, to disband or cut back the organization, as they were doing such valuable work for the Americans. He gave his word that something would be done to help us. So the goodwill of the American allies was without doubt as fervent as ever; the real cause of the crisis was red tape, a phenomenon with which everyone in Germany was only too familiar.

An intelligence service is a highly sensitive instrument. The moment there is any kind of upset at the top the tremors are sensed by every link all the way down the chain even if the actual details do not become known lower down.

The effect of the five-month financial crisis described was to increase the general uncertainly in which the organization had to operate. It was not until the late spring of 1949 that talks with the CIA finally reached a positive outcome; the terms were formally settled in English on May 13 and in German on the twenty-third, in a new gentlemen's agreement that this time was put in writing. On July 1, the beginning of the new American fiscal year, the CIA took over responsibility for us. But even then our difficulties were not really over, for the cracks could not be papered over as easily as that.

The CIA appointed a liaison staff to replace that of the U.S. Army; civilian clothes now took the place of the familiar American army uniforms. The CIA liaison staff chief, Colonel M_____, turned out to be a particularly straighforward and forceful personality. There were some initial snags before mutual confidence was established, but after that the colonel did all he could to keep things moving and to help them. Even so, financial problems continued to dog them for many months. They resolved to make a virtue of necessity and start a long-term shake-up in the organization to refine it to the n^{th} degree. Fortunately, the experienced CIA men were less interested in getting immediate results than in building up a really worthwhile and efficient organization. Gehlen's admiration for the individuals on that early CIA liaison staff was boundless: they recognized that their own parent organization was consideraly younger than Gehlen's, and clearly regarded their job as being to learn as much from the Germans as they could. There is not one member of that CIA liaison team who did not reach a high position within that agency.

They began the rationalization process late in the summer of 1949. It yielded a crop of problems which were all interrelated in one way or another. First, they had to take steps to adapt the organization to its reduced circumstances without any loss of efficiency; second, the organization had to be restructured to conform by and large with the regular procedural and administrative methods of the CIA; and third, they had to start preparing for a policy meeting with the new West German government.

Life was not a bed of roses with the CIA at first. Their bureaucratic attitude toward the financing of the organization, and in particular their "project" system, resulting in Gehlen shelving major operational plans for long periods since the question of whether or not they would be provided with funds for them could only be decided at CIA headquarters in Washington. The essence of the project system was that the probable outcome of every operation and its requirements in time, manpower, and money had to be submitted for clearance in advance. By the time clearance arrived at Pullach from Washington, the whole plan was usually long out of date.

Gehlen's Abwehr experience led them to prefer a system whereby the operational decisions and the allocation of resources were left to the German upper command echelons alone; these would be given

operational funds of their own and general guidelines and directives (except for instances where Gehlen reserved the right to make final decisions himself).

These infuriating and repeated delays, along with further friction connected with their transfer from the U.S. Army to the CIA, resulted in yet another crisis of confidence within the organization. With the transfer of the active intelligence system to the CIA, the Army effectively lost control over the system and with it, a corresponding loss of information. The system effectively placed Washington as the focal point for intelligence on Soviet developments. Liaison teams in the Soviet Sector and border outposts provided the army with current information on what was directly across the border but no idea what was happening in the Soviet Union in the area of weapons development, particularly in the area of conventional weapons.

In the Far East, as well as in Europe, U.S. military forces were on occupation duty and their primary mission was to function as policemen and not soldiers. Most were not ready for battle either mentally or physically except a few professionals who were always ready. Under the policy of retrenchment forced upon the Army by Secretary of the Army Louis Johnson, the size of an infantry regiment had been reduced from three battalions to two. The firing batteries in the artillery battalions had also been reduced from three to two. All medium tanks had been placed in storage partly because they were not needed for police duty but mainly because they broke the bridges on Japanese roads.

On June 25, 1950, the North Korean Army, supported by Soviet-designed tanks and aircraft, struck suddenly and unexpectedly across the 38th parallel. South Korean forces, ill-prepared for major military operations, began falling back rapidly. The South Korean capitol of Seoul fell on June 28 and the invaders continued south with the objective of occupying all of Korea.

When the attack struck, the shock in Seoul was stunning. It was scarcely less so in Washington and in General MacArthur's Far East Command headquarters in Tokyo. Questions instantly began to be asked how, with the immense, sophisticated and ultrasecret means the United States intelligence services had at their disposal, a huge communist army could have assembled directly opposite a friendly state's border with all the equipment, ammunition, supplies and turmoil this entailed, and nobody have suspected it until the first shells began landing on ROK positions.

The director of the Central Intelligence Agency, Rear Admiral Roscoe H. Hillenkoetter, moved only a day after the attack to clear the CIA's skirts. He implied to the Senate Appropriations Committee that the CIA had provided ample clues that the attack was coming. This ploy set off an immediate, intense undercover hunt in Washington and Tokyo for a scapegoat to blame for the breakdown in intelligence. None was found. Every responsible agency finally

proved it had predicted a North Korean attack could come, but none, including the CIA, had predicted it would come.

The South Koreans doubtless would have been grateful if the United States had been able to predict the attack, if for no other reason than to cancel weekend passes. But in the United States the failure of the intelligence services was only of academic interest: the United States had no plans whatsoever to counter any invasion of Korea, whatever the date.

The intelligence agencies were of little more help in explaining who had instigated the attack. Though most fingers were pointed at Russia and some at Red China, there was really no clear evidence. Still, the bewildering speed of the advance into South Korea made many officers suspect that such success could be accomplished only with the massive support of the Soviet Union, if not the Red Army itself. In the panic that ensued no one recognized the disarming simplicity of the reason: the North Koreans had tanks. No active involvement by any other forces was needed; the North Koreans were invincible until something to stop tanks was introduced into the Korean peninsula.

The origin of the war goes back to the enforced division of Korea into two competing and antagonistic states after World War II, a situation hardly anyone in Korea wanted, but which was imposed on the Koreans by the postwar geopolitical pressures of the Soviet Union and the United States. Russia, acting in 1946 as it had acted for centuries, tried to keep control of every bit of territory its troops occupied. The Russians refused to accept an all-Korea government that presented a possibility that the Soviet-occupied north could be incorporated into a unified Korea which might then vote out communist control. It was the same policy the Russians adopted in Germany and which led to division of that land into two competing states.

American antagonism to the Russians was not directed entirely at their land-grasping urges. Another anger had smoldered ever since the end of World War II, and it burst into flame when the North Koreans, construed as being clients of the Soviet Union, crossed the 38th parallel and embarked on overt aggression. The anger was based on the belated recognition that the United States could have kept the Soviet Union entirely out of the Pacific war if it had recognized clear signals that the Japanese were beaten while the Russians were still locked in combat with the Germans.

North Korea was one of the spoils the Russians gained in their intervention in the war against Japan. Another was Manchuria, where Japanese forces, upon surrendering to the Russians, provided abundant war equipment and the secure base that Manchuria provided assured the Chinese Communists the strength they needed in the Chinese civil war. By October, 1949, the Chinese Reds had driven the Chinese Nationalists off mainland China and forced them to flee to the island province of Taiwan, one hundred miles offshore.

The Russians, who had done practically nothing in the war against Japan, became the major beneficiary of the defeat of the Japanese. The United States, which had provided 95 percent of the men, material and brains, lost most of the fruits of victory and opened the way for communist expansion.

At the highest levels in the U.S. there was the feeling that only air and naval forces would be needed to contain the invasion. On June 27, American air and naval forces entered the conflict to assist the evacuation of Americans from Seoul and Lichen. The United Nations, formed in 1946, had called for a cease-fire and requested member nations to assist. By June 30, it was apparent that American ground combat troops would be needed. On July 1, 1950, a task force consisting of half a battalion combat team from the 21st Infantry, 24th Infantry Division, under the command of Lieutenant Colonel Charles B. Smith, deployed from Japan to Korea to try to hold the North Koreans while other elements of the division deployed.

As it was pointed out in the official histories of the Korean War:

> "The United States was hardly in condition to wage war during the summer of 1950. Popular sentiment against a large standing military establishment and eagerness to effect economies in government had forced drastic reductions in defense expenditures in the years following World War II. Few trained units were available for immediate commitment in Korea. There existed only twelve American combat divisions (including two U.S. Marine Corps divisions). Of these, every one was considerably under war strength except the 1st Infantry Division, then in Europe. Also, since no one knew whether Korea was merely a sideshow to divert attention from a larger communist thrust elsewhere, it was deemed inadvisable to send all divisions to the Orient. To maintain the maximum number of active combat units within manpower limitations, the Army had removed the third battalion from infantry regiments and had similarly reduced other organizations.
>
> Most of the American divisions, moreover, were many thousands of miles from either Japan or Korea. No U.S. combat units were in Korea when the communists began their invasion, and the four divisions of the Eighth U.S. Army in Japan had been concerned chiefly with occupation duties. Most of the men in uniform were very young and few had ever been exposed to hostile fire when the first of the four divisions in Japan was alerted for combat in Korea. Since time was of the essence, General MacArthur was forced to commit his command piecemeal.

With the North Koreans flooding down through Seoul and Inchon and threatening Suwon, the young republic teetered on the brink of oblivion. To prevent a complete enemy break-through and to gain time for the creation of a defense zone, planes based in Japan and naval craft blasted North Korean troops and installations, and Task Force Smith, approximately one half a battalion combat team, was detached from the 21st Infantry Regiment of the U.S. 24th Division and transported by air on 1-2 July across Tsushima Strait to the South Korean port of Pusan. With the rest of the division following by sea, this task force raced north by rail from Pusan to the city of Taejon. There, it piled into trucks and, pushing through endless lines of bewildered refuges, made its first contact with enemy ground troops in the vicinity of Osan on 5 July. A strong force of North Korean infantry and tanks struck Task Force Smith as it stood alone in the roadway between Seoul and Chonan.

For seven long hours the outnumbered Americans poured their howitzer, bazooka, mortar, and small arms fire at the Russian-made tanks. Five of the tanks were knocked out by howitzer shells, but the North Koreans flowed around the American flanks in great numbers, forcing the surviving infantrymen to abandon their heavy weapons and withdraw. Hopelessly out-gunned and outmaneuvered, the tankless Americans had received a grim baptism of fire. Two rifle companies, a battery of 105-mm. howitzes, two 4.2-inch mortar platoons, a platoon of 75-mm. recoilless rifles, and six attached teams equipped with World War II type 2.36-inch bazookas had held an entire enemy division from 0800 until 1500. The Americans who lived through the rigors of this battle lost their contempt for the fighting abilities of the North Koreans. It was evident that the enemy soldiers were excellently trained, led with skill, and equipped with an unexpected amount of fire power. For these men of the 24th Division, the early days of the fighting were bloody and humiliating. They lacked the numbers and the weapons to defeat the north Koreans, and Major General William F. Dean, the temporary ground force commander in Korea, had the unhappy task of sacrificing space to gain time in a series of hard-fought delaying actions. The battle for the railroad line from Osan south to Taejon was marked by frustration, heroism, and death.

As Task Force Smith fought its way out of impending encirclement near Osan, it withdrew through the 34th Infantry Regiment and additional elements of

the 21st, both of which had moved hurriedly into position twelve miles south of Osan. During the task force's initial baptism of fire, a contingent of North Koreans had continued down the road and had struck the 34th Infantry Regiment. The enemy delivered a powerful frontal attack and then proceeded to execute the usual envelopment movement. The 34th Infantry was unable to knock out the enemy tanks and under the cover of darkness endeavored to escape the trap.

Farther to the south, at Ch'onan, an inspiring illustration of leadership and heroism was demonstrated when Colonel Robert R. Martin, commanding the 34th Infantry Regiment, threw himself into the thick of the fighting in order to rally his troops by his personal bravery. This gallant officer met his death while firing his last bazooka rocket at a communist tank only fifteen yards away. Colonel Martin was posthumously awarded the first Distinguished Service Cross of the campaign.

Responsible officers in Tokyo, of course, did not expect that the limited forces first committed could hold the enemy indefinitely and, therefore, they prepared plans to establish an initial defensive position to include the railroads which connected Soch'on on the west coast with P'ohang'dong in the east. Such a zone would also protect the double-tracked railroad running from Taejon south through Taegu to the port of Pusan and thus roughly enclose the areas south of the Kum River.

The Tactical situation dictated that the 24th Infantry Division should initially fight a delaying action through the mountains and rice paddies of central Korea. In the meantime, other major U.S. units, the 1st Cavalry Division (Infantry), the 25th Infantry Division, and the 7th Infantry Division, were to cross from Japan and push northwest to reinforce the elements of the 24th. Later, additional substantial reinforcements could be expected from the United States. It was intended that, if necessary, the U.S. divisions would pull back to a perimeter around Pusan where, with military supplies flowing into the port from Japan and the United States, American forces and regrouped ROK units probably could hold a relatively large beachhead indefinitely. Within the perimeter a formidable concentration of men, equipment, and fire power would be developed while the enemy was subsisting on lines of supply stretching back into North Korea. After many weeks of preparation within the beachhead, a

counter-offensive could then be launched against the communists, with the Americans and South Koreans breaking out for a drive to the 38th parallel.

By 9 July the battered Americans had left the smouldering rail junction town of Ch'onan to the North Koreans. When they tried to retreat by road, they were subjected to a withering cross fire from the hills. Bitter, haggard, tattered, and exhausted, they withdrew toward the Kum River and the town of Taejon.

On land, the communists had achieved great tactical advantages which fortunately they failed to exploit fully. After the second week of fighting, although the U.S. units were still spread thin and while the ROK Army commanders were struggling to regroup their divisions, the North Koreans slowed rather than hastened their pace. At that time, an all-out enemy assault against the 24th Division might well have resulted in its destruction, leaving the route to Taejon, Taegu, and Pusan bare of defenders. Every hour of enemy delay saw more troops and equipment arriving at Pusan. The need for additional ground forces and more and heavier weapons was a desperate one. Enemy casualities were high, but the heavy American casualities were even more serious because of the small number of U.S. troops actually engaged in the conflict. In addition, the North Koreans had a decided advantage in weapons. The presence of their Russian-manufactured medium and light tanks, 120-mm. mortars, and 122-mm. howitzers permitted the communists to outgun the ROK and U.S. troops in all the the early engagements. At first the heaviest American weapon was the 105-mm. howitzer, but by the third week of the fighting, 155-mm. howitzers began to arrive in the combat zone. The gradual improvement in American arms, however, did not offset the enemy's tremendous superiority in manpower and weapons which continued to force General Dean's troops to the rear. The 24th Division fought a difficult delaying action from Ch'onan to Kongju, and then south across the Kum River toward the important town of Taejon.

While General Dean's 24th Division attempted to hold the Kum River line, a few Sherman tanks began to make their appearance in combat, although their 75-mm. guns were not a match for the heavier armament carried by the Russian-made T34's. The new and highly effective U.S. 3.5-inch bazooka reached Korea while the battle for Taejon was raging. These rocket launchers were placed into the eager hands of the

infantry as rapidly as they could be flown to the front from the United States. The troops found the 3.5-inch bazooka to be an effective close-range antitank weapon. Firing a nine-pound rocket with a shaped charge designed to focus its full force forward in a jet, it could and did stop North Korean tanks."

In June 1950, the only functioning Technical Intelligence Operation was the 528th Ordnance Technical Intelligence Det. It was under the Operational Control of ORDGU-IN, OCO, and was attached to the School Troops at Aberdeen Proving Ground. With the outbreak of hostilities in Korea, the 528th deployed to Korea and in September 1950, they returned to the United States to escort the first captured T34/85 tank. They returned on a cargo vessel which was considered a "slow boat," having been evacuated from the Pusan perimeter. Since they were the only Technical Intelligence Operation in Korea, the move to Continental U.S. by slow boat was not looked upon with favor by the ACSI (Assistant Chief of Staff, Intelligence). Three days after landing in Conus, the Detachment was airlifted back to Korea. Future evacuations of important material were to be done by aircraft. The other Technical Services fielded pick up teams by late summer of 1950. The tank was placed on display in Washington and then sent to Chrysler for a detailed engineering analysis.

By this time the rest of the 24th Division had arrived and taken up defensive positions north of Taejin. The 25th Infantry Division and the 1st Cavalry Division, also on occupation duty in Japan, deployed. By July 20, the 24th Division began a retrograde from Taejin.

The small forces available prevented the establishment of a continuous front and facilitated the use by the enemy of tactics of infiltration and envelopment. Under constant threat of encirclement, U.N. forces were forced back until a perimeter defense could be established around their supply base at Pusan. General Douglas McArthur was Commander-in-Chief of all U.N. forces, General Walton Walker was Eighth U.S. Army Commander, and X Corps was commanded by General Edward Almond. America began to prepare for another conflict. Reserve personnel released at the conclusion of World War II were recalled to active duty. Other nations began to send troops. Greece and Turkey provided large commitments. Among the many troops to deploy to Korea was Anthony B. Herbert who was to become the most decorated enlisted man of the Korean War.

General McArthur carefully assembled the limited troops available and assembled a striking force for offensive operations. In a difficult amphibious operation, which achieved complete surprise, the X Corps embarked from Japan and landed at the west coast port of Inchon on September 15, 1950. Driving east from Inchon, X Corps recaptured Seoul, thus severing the enemy's main supply line into Southern Korea. At the same time, Eighth Army units in the Pusan

Perimeter launched a general offensive and linked up with X Corps near Suwon, south of Seoul. Many North Korean troops were isolated in Southwest Korea and were captured or escaped north or began to conduct guerrilla warfare from the mountains. United Nations forces advanced north into North Korea against negligible resistance by the disorganized and demoralized North Koreans. By October 19, the North Korean capitol of Pyongyong was in United Nation hands. The X Corps had been pulled out of action and made another landing at Wonsan on the east coast and began moving northeastward while the Eighth Army drove north and northwest.

On November 25, Chinese communist forces, which had secretly been massing in North Korea, struck the right wing of the advancing Eighth Army. How secret this buildup was is debatable. General McArthur either knew or suspected that the Chinese were providing the North Koreans with supplies and had made numerous requests to conduct bombing raids on the Yalu River bridges. President Harry Truman was opposed and this was another episode that would lead to McArthur's eventual dismissal.

The logistic lifeline to Korea from the continental United States was partially controlled by U. S. forces in Japan. While ground tactical operations in Korea were controlled by 8th U. S. Army, operations in the Pacific Theater were controlled by U. S. Far East Command. Technical Intelligence support of the 8th Army was accomplished by the 283rd O.T.I.C.D. and the 508th, 511th, 512th, 514th, and the 83rd O.T.I.D. and 920th and 528th.

The Ordnance Technical Intelligence Office, which was attached to the Development and Proof Services of the Ordnance Corps, had the responsibility for preparing manuals on foreign weapons and equipment. LTC Oscar Stegall had been the chief and was replaced by Major Claude Pope and then Captain Nottrodt who had prepared TM 30-240, Soviet Projectile Identification Guide, as well as other manuals on small arms and artillery while serving as the commander of the 283rd ORD Detachment (TI). (The small arms specialist was Joseph E. Smith who later became Chief of the Small Arms Branch of the Foreign Science and Technology Center. Captain Nottrodt's civilian assistants were Mr. Johnson and Mr. Himmer. M/Sgt. Frank Moyer was also a part of the office.

The chief of the Library and Museum Division of the Development and Proof Services at this time was Col. George B. Jarret. Based on his experience in World War II Ordnance Intelligence had prepared a Foreign Weapons Series of manuals, which were in the style of the WW II TME Series manuals. ST-F-15, entitled ORDNANCE INTELLIGENCE USERS GUIDE for SOVIET SUBMACHINE GUNS, was printed in November 1950.

Back in Korea, the Eighth Army, reeling under the pressure from the Chinese Fourth Army, began retreating south. After the initial clashes, the Chinese concluded that American troops were vulnerable to attacks from the rear and chose to operate as light infantry moving through difficult terrain to establish roadblocks in the

American rear and then following up with a frontal attack, normally attacking a platoon or company front. They were experts at camouflage, scouting, and cross-country movement. Constantly making use of surprise and night attacks, assaults were pressed throughout the night but were usually broken off at daybreak in an attempt to get away from U.N. artillery and air support.

By December 15, Eighth Army had occupied a strong defensive position just south of the 38th parallel. On Friday, December 22, General Walton Walker, commanding general of the Eighth Army, was killed in a jeep accident and word of this was transmitted back to General Ridgeway who was immediately dispatched for Korea via Japan. Upon arrival in Korea, General Ridgeway assumed command, met his subordinate commanders, and began a tour of the front lines.

General Ridgeway wrote that the spirit of the Eighth Army gave cause for deep concern. There was a definite air of nervousness, of gloomy foreboding, of uncertainty, a spirit of apprehension as to what the future held. Only three of the seven U.S. combat divisions were in the battle zone. The 24th and 25th were in contact with the enemy, the 1st Cavalry was in a blocking position to the rear, and the 2nd Division, still non-effective as a fighting unit, was reorganizing and re-fitting in the far south of the peninsula. The first Marine Division had just closed in the Masan area on the south coast and the 3rd and 7th Divisions were moving south by the sea.

The troops had lost their aggressiveness and their eagerness to fight and had apparently forgotten many of the unchanging principles of war. They were not patrolling as they should and their knowledge of the enemy's location and his strength was pitifully inadequate. All the intelligence could show General Ridgeway was a big red goose egg out in front with "174000" scrawled in the middle of it. He began to rectify this by ordering more aggressive patrolling. He also began to push for more knowledge of the terrain.

One of General Ridgeway's first actions on arrival was to request ten new battalions of field artillery but emphasized that he didn't want commanders to call for help unless they had used everything they had. In addition, he stressed supply economy and that he would court-martial any who threw away or damaged any piece of equipment or property. Anthony Herbert's reaction simply stated was, "We began to get more ammunition."

On December 31, barely a week after General Ridgeway's arrival, the Chinese attacked on a broad front and, indifferent to losses, attacked in successive waves forcing another withdrawal. Chinese forces also attacked X Corps forcing it to withdraw. While the right flanks withdrawal was uneventful, the left had to fight every step of the way. X Corps established a defensive perimeter at Hungnam and were evacuated by sea and shortly thereafter became part of the Eighth Army. By mid-January, the enemy attack lost its momentum and Eighth Army halted its withdrawal south of Jenil.

On January 25, 1951, the Eighth Army inaugurated a series of limited objective attacks, consolidating each gain before again moving forward. They reached the 38th Parallel on March 31 and three weeks later established a strong defensive position 20 miles beyond.

By April 22, 1951, the communists initiated a spring offensive with the principle effort in the west, which gained up to 35 miles; however, the Eighth Army returned to the attack and by mid-May had regained almost half the territory that had been lost. The Chinese again attacked, this time in the east and a counterattack drove them back.

"During the Korean War, the Naval Ordnance Test Station (NOTS) (now the Naval Weapons Center (NWC) at China Lake, California), developed from scratch and fielded in the remarkable time of only 19 days, a 6.5-inch air-to-surface ballistic (Free) rocket with a large HEAT warhead capable of defeating nearly two feet of armor! The 6.5-inch antitank aircraft rocket (ATAR) was designed to defeat what was then the heaviest known armor in the world, the Joseph Stalin III heavy tanks, which were reportedly enroute to Korea on the Trans-Siberian railroad. However, the JS III was apparently not introduced into the Korean theatre and the number of North Korean T34/85 tanks was rapidly depleted.

Although the JS III was never encountered by U.S. or NATO forces in combat, it became the target basis for the Western World's antitank developments for nearly two decades.

The scientists at NOTS who had observed the development tests of the 6.5-inch ATAR were impressed by what they had seen, particularly when an M3 Grant medium tank was rather spectacularly blown apart in a dynamic test of the prototype ATAR rocket with its 50-pound HEAT warhead. Desiring to learn what caused such devastating effects, a NOTS in-house-funded study was authorized to determine the phenomena occurring behind armor penetrated by a shaped charge. This NOTS study and others that followed resulted in several significant discoveries including the nature of the various effects produced behind the defeated armor, and how the effects are influenced by the liner material, size of the shaped charge, metal parts design (including line configuration, explosive properties, and attack attitude).

As a result of the early NOTS study, and many other such studies worldwide starting in World War II, there exists a large quantity of data on the

nature of events produced behind defeated armor by both HEAT and KE mechanisms. However, the dissemination of such data has been severely restricted because of the security interests of the nations involved, but more important, because it concerns a subject that most governments do not wish to publicize for fear of its effect on their armed forces."

Again, the strategic intelligence organizations had provided early warning of JS III tanks moving toward the Korean War. Ordnance Technical Intelligence operations in the post World War II era had provided the details of the armor on the T-34 series tanks and engineers and scientists had produced a countermeasure.

At the Far Eastern Command Headquarters, as a result of another confrontation with President Truman, General McArthur was relieved of command on April 11, 1951. The full story of this aspect of the war has been the subject of numerous books and movies. General McArthur realized that the real threat to America and the security of the free world was not North Korea but communism and the Chinese communists. He was accused of not taking his own advice about not getting into a land war on the Asian continent and attempting to promote a war with China. Truman was quoted as saying, "Hell, I'm trying to prevent World War III and he's trying to start it." There was also speculation over a clash between two egotistical people. Either way, McArthur was relieved and General Ridgeway assumed the duties of Commander-in-Chief. General Ridgeway was succeeded in Korea by General Mark Clark.

As a result of the hostilities, large numbers of soviet designed weapons had fallen into U.N. hands, however, many items were not recognized by U.S. troops. It would again fall to the Technical Intelligence teams to exploit this material. Although the basic mission of Technical Intelligence was evacuation of captured enemy material, during actual combat operations, one of the team leaders, Lt. James Taylor, was awarded the Silver Star for personally capturing the first Chinese Communist 75mm Recoilless Rifle. It turned out to be a direct copy of the U.S. 75mm R.R.

In June of 1951, the office of Ordnance Research was established on the campus of Duke University in North Carolina, far removed from Aberdeen Proving Ground or any commodity command. It would remain until 1959 when it would be relocated in a new facility at Duke University and redesignated ARO-D on January 16, 1961 and as best I can determine, it had limited access to intelligence reports or captured material exploitation reports.

While the conflict in Korea was still going on, the U.S. representatives in the U.N. charged in July 1951 that the USSR was supplying the North Korean aggressors with weapons. The Soviet representative, Mr. Vishinsky, replied, "Prove it." Word was transmitted to the 528th in Pusan to send back a sample Soviet weapon. Sgts. Simmons and Mills went to the nearest pile of captured weapons

and selected the newest PPSh-41 they could find and shipped it back to the States. Upon examination in the U.N., the Soviet representative quickly pointed out that it was made in a North Korean arsenal at Pyong Yang. This simple fact was determined from the factory code stamped in the weapon receiver.

This episode proved to be very embarassing to the United States as well as revealing to the Soviets the weakness within our intelligence services. While it has never been made public, it is questionable if the military had fully exploited the documents that they had captured from the Germans. The principle figures during WW II, Holger Toftoy and James Hamill, were involved in setting up America's rocket program while Col. J. B. Jarrett was setting up the Ordnance museum and library collection. In the area of intelligence, most people had departed from service and those who had remained took little interest in exploiting captured documents.

The C.I.A. had become interested in Soviet developments but did not explain in any detail their procedures to the military. They had conceived a program similar to the WW II programs that were performed by the Air Technical Intelligence Unit and others to examine captured data plates. Rather than collect a large quantity of data plates, they had developed the simple expedient of photographing the factory markings. In addition, the Army began a project known as CANOPENER, in which captured tanks, vehicles and other weapons were evacuated from Korea to Japan where they were completely torn apart to obtain detailed information on various parts. The work was done by Japanese civilian personnel under the supervision of members of the 84th O.T.I.D. While technical intelligence detachments in Korea were evacuating captured material and operating Project Can Opener, the Ordnance Corps developed a formal 12-week course to train Technical Intelligence officers.

In the war zone, combat operations had forced the North Koreans back to the Yalu River and with the intervention of the Chinese, back south to the 38th Parallel, the overall conduct of the war was uncertain. Preparing for the worst case, that of continued and perhaps expanded operations, the Ordnance Corps began to implement the program to train Technical Intelligence Officers. This was the 9-OE-39 course (Technical Intelligence) which was taught by the Technical Intelligence Branch of the Ordnance School. In March 1953, Captain Richard Lynn was the branch chief, Lt. Uglick taught small arms and ammo, Lt. Leroy taught map reading, and Lt. Davis taught Russian Ordnance terms. The NCO's taught several subjects: Sgt. Simmons taught administration and reports, Sgt. Riley taught artillery, Sgt. Fluharty taught wheeled vehicles, and Sgt. Thompson taught tracked vehicles. Two members of the Central Intelligence Agency taught classes on Technical Photography and Project Can Opener, now renamed Chuck Wagon. Captain Valko taught a modified course on Explosive Ordnance Disposal.

The final week of the 9-OE-39 Course included an orientation visit to ORDGU-IN for the officer students. By May 1953, the Organi-

zation had expanded to 20 personnel. The military Chief was LTC. Fitzpatrick and the Operations Officer was Captain Max Harmon, who would later become part of the Foreign Science and Technology Center. ORDGU-IN was a library operation which maintained all the prior reports and studies on weapons, etc., and had staff supervision over the T.I. Branch. In May 1953, Captain Nottrodt received orders to Korea, arriving in July and assumed command of the 283rd O.T.I.C.D. Lt. John Baker arrived in Korea the following November and replaced Captain Ray Huntington as commander of the 528th O.T.I.D., who moved down to the 510th O.T.I.D. in Masan. Two of the other Technical Intelligence team leaders were R. M. Wenneson and W. B. Horne, who commanded the 83rd O.T.I.D. Lt. Davis commanded one detachment, and a Lt. Daniels commanded both the 512th and 920th detachments.

Apparently the first effort to inform field personnel of enemy equipment was the little booklet, "MATERIAL" in the hands of or possibly available to the North Koreans which reached the field in August 1951. A large part of the work was done by an NCO named Frank Moyer. Moyer began his Ordnance career in 1948 and did classified experimental work at the Ballistic Research Lab. Moyer went to Korea and spent three years in an Ordnance Intelligence capacity. By 1952 some of his work appeared in this 134 page handbook for U.N. Forces in Korea. Work also continued to update Special Text 9-2900-1 entitled, "Allied and Enemy Explosives", which had appeared in 1951. The new version was titled, "Fundamentals of Explosives, U. S. and Foreign". It was published in January 1953 and reached the field troops some time later. It was classified "RESTRICTED".

By August 1953, DA Pamphlet No. 30-26 entitled, "A Guide to the Collection of Technical Intelligence", was published superceding the one published in July 1950. In the foreward it indicated that it was designed to assist observers and other personnel in preparing reports of a technical nature concerning weapons and equipment, and it was anticipated that it would materially improve intelligence coverage of foreign material. The use of the pamphlet for training purposes was encouraged but there were no indications on how to make use of it for training. No distribution of this pamphlet was made to the National Guard or the Reserve.

The 283rd O.T.I.C.D. and subordinate teams provided support for U. S. forces and helped to train the Republic of Korea Technical Intelligence personnel. For their efforts, Captain Nottrodt received a letter of appreciation from General Ahn Dong Soon, the chief of the Korean Ordnance Department and the Bronze Star.

During 1954, these teams began conducting some foreign weapons demonstrations and did provide limited support to various Corps Commanders as well as Conus organizations. Foreign weapons training continued under the staff supervision of Colonel Powell, the 8th Army ordnance office. Captain Nottrodt and Lt. Horne conducted one of these demonstrations at the SMP rifle range in Yong San on March

27, 1954. The demonstration had three phases: Phase I was an introduction of Technical Intelligence; Phase II was a Sight and Sound Recognition with various U. S. and Soviet weapons being fired in alternate bursts; and Phase III was a county fair display of weapons. On the firing line were M/Sgt. Joseph Bingle of the 511th O.T.I.D., M/Sgt. Hiti and Sgt. Bruno from the 512th, Sgt. Blatz from the 83rd, and Corporal Serr from the 514th.

The 84th O.T.I.D. also supported American forces from their location at Camp Zama, Japan with operations being conducted throughout the Pacific theater through liaison flights to the field. Whenever the 528th could obtain a supply of captured ammunition they would put on firepower demonstrations of foreign weapons. One favorite stunt was to take rusty and corroded ammunition that was falling apart and fire it through the Soviet weapons to show their reliability.

The 84th O.T.I.D. also set up displays of foreign material that troops in the Pacific might encounter. One such display was on April 22, 1955. SSG Roginski and two other members of the 84th had travelled to Okinawa to display foreign weapons to members of the 75th Regimental Combat Team.

In addition to the displays and demonstrations, the 84th worked on a manual titled, "Identification of Shells and Shell Fragments", used by U. S. forces, North Korean Army, and Chinese communist forces in Korea. This manual had 281 pages and was designed to provide artillery units with a capability to identify fragments and thus caliber of the weapon, which was part of crater analysis and done for both counter battery fire and intelligence.

While Technical Intelligence teams in Korea and Japan continued field operations, work continued in the United States to update various manuals. The Development and Proof Services had been working to compile a "Handbook of Small Arms" which was published in December 1954. Volume I covered handguns, and Volume II had three parts: (a) Handguns and Automatic Pistols, (b) Automatic Pistols, and (c) Automatic Pistols. The project leader and editor was Donald Bady. The assistant editor and translator was Karl F. Kempf, the artwork was done by Aubry Bates, compilation of data was done by J. P. Cross, and the other assistant editor was Valmer J. Forgett.

With the assistance of the Chrysler Engineering Analysis of the T34/85 tank, other captured tanks were disassembled and examined in detail. Disassembly of the captured Soviet tanks showed that the clutch plates of one tank had been made outside of the Soviet Union by a supposedly neutral nation. Funds were expended to disassemble all the captured tanks to see if the neutral nation was a major supplier of parts to the Soviets. As it turned out, the neutral nation was not a major supplier.

By 1955, the 283rd O.T.I.C.D. and other O.T.I.D.s were returned to Conus, re-designated the ___th Ordnance Detachment (TI) and

assigned to Arlington Hall Station in Virginia. Most of the detachments were inactivated and the personnel were dispersed throughout the Army or departed for civilian occupations. Among those who had been involved who returned to civilian careers were Lt. Robert Horne, who became managing director of the Federal Cartridge Company. Sam Cummings, who had been an analyst with the CIA and Val Forgett departed the service and began their own arms companies dealing with surplus military weapons.

Perhaps one of the best discussions of weapons used in the Korean War was contained in a book, "This Kind of War," by T. R. Fehrenbach written in 1962. In discussing the conflict, Fehrenbach pointed out that throughout the fighting, the enemy was adept at capturing and employing U.S. weapons and equipment. During the first ninety days, the North Korean People's Army secured enough equipment from ROK and U.S. divisions to outfit several of their own; and the Chinese Communist Forces, on entrance, were in many cases equipped with U.S. arms shipped to the Nationalist Government both during and after World War II, all of which had fallen into Communist hands. The Chinese (as the ROK's) also had a considerable quantity of surrendered Japanese arms and ammunition, from rifles to field guns. The principal source of armament for both North Koreans and Chinese, however, was Soviet Russia. Just as the United States provided 90 percent of all munitions used in the United Nations forces, the Russians designed, mass-produced, and delivered the bulk of all Communist weapons. As with the American arms, the majority of Russian equipment was of World War II vintage.

Russian weaponry, as Russian equipment in general, has one marked characteristic: it is extremely rugged, of the simplest design consistent with efficiency, and very easy to maintain, making it in many cases more suitable for the equipping of peasant armies than the more sophisticated U.S. arms. Despite its simplicity and lack of refinement, it is good.

Fehrenbach discussed the weapons used by each side on a weapon-by-weapon basis. In his discussion of armor, it is worth noting that the Russian T34/85, the Soviet main battle tank of World War II, which appeared in final form during the winter of 1943-1944, remained the Communist battle tank throughout. The T34, weighing 35 tons and capable of 34 miles per hour, had excellent traction and was admirably suited to the terrain of Korea, where heavier American tanks such as the Patton found rough going. The T34, mounting an 85-mm. gun and two 7.62-mm. machine guns, was considered by the Soviets an obsolescent tank in 1950. Their heavier, more modern tanks, such as the Josef Stalin III, were never furnished to satellite or auxiliary armies. In the first weeks, 150 T34's, spearheading the NKPA attack, raised havoc with both ROK and U.S. forces. Later, both a prepondernace of American armor and airpower reduced Communist armor to a minor role; it was carefully concealed and hoarded, and rarely employed.

Since both combatants tended to use old and obsolescent arma-

ment -- such as the T34/85 and the Sherman M4A3E8, or the 1944 7.62-mm. Rifle and the pre-World War II M-1 -- no comparison of weaponry is particularly significant or valid in the Korean War. In general, Communist equipment proved adequate, and in its class comparable in performance to American.

Of definite significance, however, was the fact that the Soviets had developed entire new families of small arms and supporting weapons, superior to those of World War II, which they were placing in mass production. The Western nations, including the U.S., while they had such weapons on the drawing boards, did not produce them. Fehrenbach pointed out that in a future limited conflict, the West might find itself outclassed in the field of conventional weaponry.

Since this book did not appear until 1962, it was by then too late to have any influence on weapons that were about to enter the U.S. system in 1962. In the immediate post-Korean War era, the few books appearing on Korea were for the most part the memoirs of the commanders and they had been the commanders of World War II. In 1956, General Matthew Ridgeway's book, "Soldier," appeared which basically was his life story rather than a detailed discussion of the Korean War. It was not until 1967 that his book, "The Korean War," appeared in print. Many of General Ridgeway's observations and lessons learned could have been put to good use in Vietnam had they been publishd earlier.

General Ridgeway said that what cost us dearly in blood was a failure to assess properly the high level of combat effectiveness that the North Korean People's Army had obtained. When fighting began, GHQ would have to increase daily its estimate of the force needed to stop the invaders. The withdrawal of foreign troops from Korea prior to the war was done in deference to a resolution by the General Assembly of the United Nations. Our sole concession to the realities of the situation had been a decision in March, 1949, to equip the 65,000-man Republic of Korea Army and 4,000-man Coast Guard. The Koreans were then equipped with World War II Japanese weapons.

General Ridgeway described the period following World War II as a time that gave a soldier deep concern as there was a growing feeling that in armies of the future, the foot soldier would play a minor role. The two factors that stimulated this thinking was the desire of the nation to cut down on its military expenditures and the erroneous belief that in the atomic missile delivered by air, the U.S. had found the ultimate weapon.

In discussing the situation with General Ridgeway, I was advised that there was no official report done on the overall performance of U.S. weapons in Korea. By 1959, General Gavin, a hero from WW II and Korea, had retired from his position as Chief of Army R&D. In his book on "War and Peace in the Space Age", he briefly discussed some aspects of the weapons used in World War II.

"...First there was the inadequacy of our weapons. It is nothing short of homicidal to send American young men into combat with weapons not up to the job that confronts them." Elsewhere in his book, Gavin says: "...there are numerous examples of weapons, or their systems' components being delayed or disapproved because the individuals who have funding control, do not, or simply will not understand the need of the fighting man in the field."

This situation could have been corrected, if the Technical Intelligence teams and personnel had been assigned to each arsenal, combat development center and various troop units. These teams or detachments, however, would have been of little use as the intelligence system was almost non-existant in the military. The Central Intelligence Agency had become operational but their main effort was oriented on political events worldwide rather than improving the performance of U.S. weapons.

Backtracking in time somewhat, despite the supposed failure of American intelligence to predict the outbreak of the war, the Chinese intervention as well as other failures, and the fact that our forces were out gunned in the early stages, U.S. tank designers were in the process of developing tanks that would match the Soviet tanks.

Based upon a limited knowledge of the Soviet tank industry and Soviet plans in the post WW II era, as well as an analysis of future needs, three types of tanks had emerged, the light tank, the medium and the heavy. In 1946 the Army had decided to continue development of these three types of tanks, however, after the war domestic demands in the U.S. restrained new investments in military developments. As early as March 1950, however, the newly established CIA predicted a June attack and 1,200 separate reports to General MacArthur's G2 in Tokyo confirmed the massive military buildup in North Korea. The fact that little action was taken to inform the troops about enemy weapons was partly due to the postwar demobilization of the intelligence effort. It was also partly due to a proliferation of Japanese weapons in the Pacific which had been reported on during WW II. Many of what would eventually become known as wars of national liberation began with small guerrilla armys equipped with surplus WWII weapons, in most cases those captured by the Soviets from the Germans.

It is futile to attempt to discuss tank design or weapons programs without some discussion of the world situation at the time important decisions were made. While scientific advances and the technological change which results are independent of politics, they can be speeded up or slowed down, primarily through the control of funding for research and development.

While the United States was involved in the Korean War, the French were involved in an effort to regain their status as a colonial power in Indochina. The turning point was the Second World War. The Japanese conquests of Southeast Asia shattered the aura of

invincibility that the European powers had enjoyed as colonial masters. After the war, Europe's former subjects no longer held them in awe and would not tolerate foreign rule indefinitely. The Europeans found that they could either grant independence to their colonies voluntarily or be driven out militarily.

Some, like the British in Malaysia, saw the writing on the wall and provided for a peaceful transition to independence. Others, like the French in Vietnam, asserted that they had come, as one French general put it, "to reclaim our inheritance" and delayed serious consideration of independence until it was too late to do so without bloodshed. For France the result was the first Vietnam War. From 1946 to 1954, the French battled Vietnamese insurgents in a vain attempt to stay in Indochina. The United States from the outset urged France to give the colonies their independence. Presidents Roosevelt, Truman and Eisenhower all pushed for decolonization. But it took over $5 billion in military expenditures and 150,000 casualties before the French government was forced to follow that advice.

France's principal enemy was the Communist Viet Minh, led by Ho Chi Minh. During World War II, Ho had taken carefully calculated steps to position himself to strike for power afterward. At the war's end, his opportunity came. Through ruthless and adroit infighting, he had eliminated his nationalist rivals as significant military forces. When the sudden surrender of Japan produced a vacuum of power in Vietnam, Ho moved quickly to exploit it. In 1945, he seized power in Northern Vietnam and declared the creation of the Democratic Republic of Vietnam.

The United States kept the French war at arm's length. Truman wanted non-Communist governments in Cambodia, Laos and Vietnam, but he did not want to taint American policy with colonialism by cooperating with the French in their war against the Viet Minh. He understood that the Indochinese needed to be given a stake in the battle against Communism. They would not fight indefinitely in order to keep Indochina for the French, but they would do so if they were defending their own governments. Still, Truman believed he had little leverage to force the French to decolonize. His priorities were in Europe, where he needed French help to ward off a bellicose Soviet Union, and therefore he was reluctant to antagonize France over Indochina.

The fall of China to Mao's Red Army in 1949 swept away previous assumptions. The French, who had planned to grind down their weak opponent, now had to fight an enemy who as a result of assistance from the Chinese was better armed and supplied. Ho, who had waged a poor man's war, now could turn up the heat on the French.

Truman, who had considered the war a colonialist misadventure, now saw it as a necessary element in his strategy to contain the expansion of Communism. And when Communist Chinese troops intervened in the Korean War in late 1950, Truman came to regard the

French presence in Indochina as the means to draw at least some Chinese forces away from the Korean peninsula. Chairman Mao became Uncle Ho's godfather. He overhauled the Viet Minh's primitive forces, training its troops at Chinese bases and providing them with combat advisors, trucks, artillery, and automatic weapons.

Because of the nature of the world wide threat, the potential areas of conflict and the terrorism conditions involved, the United States made the decision to concentrate their tank design efforts on the medium tank.

The Soviets had not been idle and had been working on upgrading their tanks. They developed the T44/85 in 1944 which had an improved hull, transmission and suspension. By 1947 the T44 had been up gunned by the addition of a 100-mm. gun but in 1948 the Soviets fielded the T54 tank. Much of the information on the "new Soviet tanks" came from intelligence sources and it would not be until several years later that the actual hardware would come into the possession of the United States. The Soviets also continued to develop light tanks and heavy tanks. In the overall requirement to gain an understanding of Soviet military capabilities, Technical Intelligence Operations provided the basic analysis of Soviet equipment and industrial capabilities. The foreign weapons training that they conducted would prove to be the basis of future training programs.

The Korean War also showed that the United States could no longer remain in isolation from the world's problems. It also pointed out some serious shortcomings in our material acquisition process, as well as our military intelligence effort.

Logistic support of the U. S. Army was also undergoing changes. During World War II the chemical operations were a part of ordnance and transportation truck companys were part of the Quartermaster Corps. All logistic services were loosely grouped under the Service of Supply and were unofficially called the Blue Star Commandos because their patch was a blue star on a white field in a circle of red. Following the Korean War, the Chemical and Transportation Corps were created and the chiefs of the seven technical services were given the responsibility for providing current technical intelligence in their areas of jursidiction. This resulted in the creation of seven separate Technical Intelligence Activities including O.T.I.A., the Ordnance Technical Intelligence Agency, which was now located at Arlington Hall Station and was responsible for providing Technical Intelligence support to the Ordnance commodity commands. By September of 1955, Captain Nottrodt was given the job of organizing the Technical Intelligence Office of the Ordnance Missile Laboratories at Redstone Arsenal in Huntsville, Alabama. This organization would evolve into the Missile Intelligence Agency.

One of the primary tasks of the Missile Command was to develop strategic missiles. World War II German scientists were recruited

and brought to the United States where, with the assistance of Ordnance Technical Intelligence personnel under Captain Nottrodt and others, began translation of captured German documents. Recovered V1 and V2 rockets were disassembled for study and refinement. Since antitank rockets were considered small arms, analysis of the captured German Panzerfaust rockets and other similar systems was done at Picatenny Arsenal in New Jersey.

Major missile systems which were fielded in the 1950's included the Air Force Martin TM61 Matador with a range of 500 miles, which entered service in 1951, the Army Honest John with a range of 23 miles, the MGM-18A LaCrosse with a range of 20 miles. Virtually all of these systems were developed from the German ideas. The Soviets also developed missile systems and doctrine and tactics to match.

The major effort of United State Intelligence was directed toward the Soviet Union and its operations in Europe. To this end the NORTH ATLANTIC TREATY ORGANIZATION was established for mutual defense. The Soviets countered with the Warsaw Pact, composed of the Soviet Union and the various nations of Europe which had been overrun by the Soviets during World War II. The major powers of World War II each occupied a zone of Germany and each had liaison teams operating in the other's zone. These teams formed the basis of our ground level intelligence collection. Within the framework of NATO were the military organizations of each nation. United States forces occupied southern Germany and maintained a garrison in Berlin. United States Intelligence operations in Europe, to include our attaches in various locations, proved to be reasonably successful at keeping track of the movements of Soviet military forces, however, the intelligence operations broke down at the ground level among U.S. troops. Training was limited and as there was a lack of "captured Soviet equipment" Field training made use of the Aggressor Program, but it provided almost no realism.

In London, Winston Churchill feared that the United States would start a world war during the 1950's and worried that U.S. bases in Britain made it a Soviet target. Documents from 1954 show that Churchill, then Prime Minister, was so alarmed about U.S. atomic bomb tests on Bikini Atoll in the Pacific that he urged the United States to open talks with the Soviet Union to try to prevent a nuclear arms race. Churchill was so worried the United States would plunge the world into war that he and the cabinet decided in July 1954 to build a hydrogen bomb for Britain.

Cabinet Ministers meeting that month soon after the Korean War and only weeks after the French defeat at Dien Bien Phu in Indochina were worried about impulsive U.S. action.

"At present some people thought that the greatest risk was that the United States might plunge the world into war, either through a misjudged intervention in Asia or in order to forestall an attack by Russia," cabinet minutes show. "Our best chance of preventing this was to maintain our influence with the United States government,"

the minutes said. To maintain that influence, Churchill argued that Britain must convince America it was able to "match and counter Russia's strength in thermonuclear weapons." The Cabinet, worried about public opinion rebounding against the Conservative Party, finally agreed after being reminded that Britain had already built an atomic bomb under a previous Labor Party government. The records also showed that Churchill quarreled with Foreign Secretary Sir Anthony Eden over British withdrawal from the Suez Canal Zone in Egypt. Eden opposed the pullout. When Eden succeeded Churchill as Prime Minister he was instrumental in launching the 1956 Anglo-French invasion of Egypt, prompted by the nationalization of the Suez Canal by Egyptian leader Gamal Abdel Nasser.

By 1954, the only organization which was capable of supplying the national leadership with effective intelligence on the Soviet Union was the Central Intelligence Agency. Supported by information provided by the State Department and military attaches as well as communication monitoring done by the National Security Agency and some cross-border operations by the military, the Central Intelligence Agency had become responsible for preparation of National Intelligence Estimates. These estimates were better than nothing, but they lacked in-depth knowledge of activity inside the Soviet Union. Aerial reconnaissance, and photographic interpretation, which had reached a high level of perfection in WW II would be able to provide a great deal of information, if only we were able to fly over the Soviet Union. In November 1954, President Eisenhower authorized the CIA to spend $35 million to build a high flying spy plane that could cross the Soviet Union without being shot down. It was the U2.

In 1956, Nikita Khrushchev, First Secretary of the USSR's communist party, denounced Stalin's excesses, which marked a drastic change in Soviet thinking. In June, a workers' uprising against communist rule in Poznan, Poland, was crushed and, as previously mentioned, by July Egypt had taken control of the Suez Canal. In July, the CIA began flying secret U2 reconnaissance flights over the Soviet Union which would continue until May 1960.

On November 5, 1956, British and French troops invaded Egypt at Port Said and a ceasefire was forced by U. S. pressure stopping the British, French, and Israeli advance by November 6th. A revolt began in Hungary and Soviet troops and tanks moved in to crush the anticommunist rebellion. Among these forces were the JS III heavy tank and the new T54 medium tank. Since U.S. combat forces were not involved in any of these actions, there was little for the Technical Intelligence field collection teams to do, hence, the various detachments remained inactivated except those few that had been retained in continental U.S. Years later, a comment was made that prior to 1975 these teams would have more properly been callled Foreign Material Shipping Detachments.

The immediate conclusions that can be reached about intelligence operations during the Korean War Era are that the post WW II

demobilization and diversion of funds from the military, left the nation unprepared for combat in Korea. Intelligence operations, which had been scaled back in the military, were quick to respond and in the area of combat operations were adequate. Technical Intelligence Operations were slow to respond and slow to become effective. The mission that they were assigned in the Korean conflict was of limited value to the combat troops because of the short duration of combat operations, however, their operations would prove extremely valuable for future planning and during the Vietnam conflict.

The failure of the United States to retain Technical Intelligence detachments as part of the active peacetime force would result in problems for U.S. forces years later. It may have been apparent to senior planners but they were handicapped by lack of funds, hence little action was taken to incorporate foreign technology or foreign weapons training into U.S. force development and training programs.

The secrecy surrounding CIA operations, the various National Level Intelligence Estimates and the lack of an effective military Intelligence organization, left the Army and the troops in the field in ignorance of intelligence operations. In supporting the material acquisition process, intelligence assessments were limited to the identification of "new" Soviet threats, such as fielded systems. One U2 flight, just prior to an upcoming summit conference took place on May Day 1960. Unfortunately the aircraft was brought down and the pilot was captured and the entire super secret program received world wide attention. As the map on the opposite page indicates, the mission was to spy on Tyuratam, the Soviet Rocket research center and Plesetsk which was suspected of being the Soviets first ICBM site. Several months later, a spy satellite confirmed that missiles were in place at Plesetsk.

While the intercontinental threat posed by ICBMs was greater than other weapon systems, the possibility of ground warfare was not completely eliminated. Design, development and production of the M48 series of tanks was underway during the 1950's as was the design of several other prototype vehicles. During a part of the decade of the 1950's Technical Intelligence Operations began to have an impact on armored force development and tank design. To begin to understand this, it is necessary to review briefly the production of the M48 tank, which will be done in the next chapter. The other major area of weapons development was small arms development, which had continued during the Korean War, and the work of the Operations Research Organization began to be felt to include small arms.

ORO's involvement in the small-arms area came largely through the relationship of its director, Ellis Johnson, and Army historian S.L.A. Marshall, whose provocative research during the Second World War had already demonstrated his interest in small arms. The two men agreed to study tactical issues more fully in the context of the Korean War, which began soon after ORO was formed. ORO's analysts saw the Korean War as "a very happy circumstance," since it promised

to provide them with the data they needed for their work, data the Army had rarely bothered to collect during the course of World War II. Some 150 ORO analysts journeyed to Korea during that conflict, among them Marshall himself.

As for small arms, their research led them to conclusions which struck at the very heart of the Army's marksmanship tradition. "The average effective infantry fire with weapons lighter than the machine gun," observed Marshall, "was consistantly less than 200 yards." The light machine gun itself saw effective use, he continued, only out to about 400 yards. Overall, "of 602 men questioned by ORO researchers about the use of the M1 rifle in Korea, 87 percent said that at least 95 percent of all their firing was done at targets within 300 yard range."

This coincided with the views sponsored by Britain's Ideal Calibre Panel after the Second World War, but did not accord with the ranges envisioned in the U.S. Army's traditional tactical scenarios.

Furthermore, even within this range, marksmanship played a very limited role. Some 67 percent of the men interviewed in one ORO study claimed to aim, "on the average, only one round of an 8-round clip." Most soldiers felt that "the job of the rifleman is primarily to pour out as much lead as possible to keep the enemy's head down." ORO concluded that the low ratio of combat hits to rounds fired resulted from the fact that "the purpose of much of the fire is not primarily to produce casualties. It is what is called 'area fire,' and its purpose is to neutralize an area or pin down an enemy." Area fire thus once again confronted the marksmanship tradition, this time backed by a substantial body of empirical data.

ORO analysts conducted operational tests to clarify further the problems associated with rifle fire in combat. To stimulate combat stress, for example, they attached electrodes to test shooters, passing harmless but irritating shocks through them on a random basis as they tried to fire at targets. To simulate a combat target system, they decreased the exposure time of targets in their test firing ranges to more realistic levels. From tests like these they concluded that under a reasonable facsimile of combat conditions the Army's best marksmen and its worst had about the same chance of scoring a hit with rifles designed to achieve high single-shot accuracy.

In 1955, the Infantry Board again shifted its attention, this time to the AR10, built by Armalite, a subsidiary of Fairchild Engine and Airplane Corporation. Although the AR10 fired the 7.62mm NATO cartridge, George Sullivan, one of Armalite's founders, and Eugene Stoner, the firm's inventive chief engineer, had incorporated a variety of innovative ideas to lighten the weapon and make it more controllable. Using a steel-sheathed aluminum barrel and fiber-filled plastic stock and handguards, they had pared the rifle's weight down to just over seven pounds. They also had used a

straight line stock which put the operator's shoulder directly behind the weapon's recoil. This was meant to limit muzzle climb, although at its given weight the AR10 still jumped during automatic fire. The Infantry Board was impressed with the rifle's weight and capabilities, and asked the Ordnance Department to buy copies of the weapon for tests.

By this time the department had spent several years perfecting the T44. Its experts were skeptical of the AR10's capabilities and uncertain of their ability to mass-produce the piece. No doubt they also were angered by news stories about the AR10 that criticized the Army's ongoing rifle development program. Stoner and the AR10 arrived at Springfield Armory for the rifle's formal tests just after such an article appeared in Time magazine, and were given a stiff, formal reception. Still, the tests proceeded without incident until the 6,000-round endurance tests, where the weapon's barrel failed. Though Stoner produced a relatively lightweight steel barrel within the following week, the Springfield tests were by that time essentially over, and the AR10 had been deemed unsuitable. Armalite curtailed its efforts to sell the weapon shortly thereafter.

For the Ordnance Department, much was at stake in these tests; a good deal of the department's prestige, and the prestige of its Springfield Armory, went into the T44. With control over half of the Army's test and evaluation apparatus, the department could exercise veto power over all rifle candidates. This is precisely what it did. By 1956 its T44 was more or less ready for final evaluation, and within a year Secretary of the Army William Brucker announced its standardization. Significantly, the Infantry Board never gave its final endorsement to the rifle. The friction of the decade's first half clearly posed no insurmountable problems to the department's rifle project, or to its prestige.

Still, that friction testified to the work of the same divergent interests and perspectives that had separated user and developer in 1950, and, to a lesser extent, in 1932. The Infantry Board's interest lay in the weapon, not with fiscal or production constraints or the Ordnance Department's prestige. In particular, infantry personnel were prone to suggestion, especially when it came in the form of a working technology like the EM2 or the AR10. The Ordnance Department's interests had over the years gone in the other direction, toward mass-production and the preservation of its tools and equipment. Standardization of the M14 did not put a stop to the friction inherent in this user-developer relationship. For if the board refused to endorse the M14 in 1957, it did so because its interests had by this time taken it once again outside the realm of the caliber .30 rifles to a substantially different weapon of smaller caliber.

In shifting again on the caliber issue, the Infantry Board drew on conceptual and technical data generated largely by the Operations Research Office and the Ballistics Research Laboratory. Staffed with

operations analysts, ORO took a broad conceptual approach to the overall problem of rifle effectiveness. BRL worried less about broad conceptual issues than about narrower ballistics problems that affected rifle performance. ORO broke with traditional rifle concepts; BRL broke with traditional design parameters. Neither organization's work endeared the Infantry Board to the Army's ongoing rifle project. Much of BRL's work took off from the results of the Pig Board of 1928, which had suggested that a bullet's mass was less important to its lethality than had traditionally been thought. Though the Pig Board's conclusions fell by the wayside in the wake of MacAurthur's decision to retain the caliber .30 cartridge, World War II revived interest in small projectile lethality. By 1944, BRL analysts suggested that a projectiles lethality depended on the cube of its velocity at impact, making the projectile's mass subsidiary to its velocity in creating wounds. Later work at BRL lowered the relative importance of velocity but reaffirmed its overall dominance in creating lethal wounds.

This work suggested that a small-caliber, high-velocity cartridge could provide the lethality of the larger caliber .30 round while providing the weight savings and reduced recoil usually associated with small bullets. Rifles firing such rounds promised to kick less than a full-power, caliber .30 rifle, reducing the soldier's aiming error and thus theoretically improving his accuracy. Soldiers also could carry more of the smaller cartridge, thereby increasing potential hits per combat load of ammunition. Tests conducted in 1953 showed that an extremely high velocity caliber .22 round in fact outperformed the 7.62mm NATO round in virtually all respects, even at a range of 2,000 meters. Its analytic thinking vindicated, BRL became an ardent advocate of the small caliber, high-velocity (SCHV) concept. This put BRL at odds with ORO, whose analysts eschewed the whole idea of a single-shot rifle, whatever its caliber.

Both the organizations and the issues had their day in court in 1956, when ORO conducted the so-called SALVO tests at Fort Benning. Authorized by Chief of Staff J. Lawton Collins, who was impressed with the work of ORO researchers in Korea, the SALVO tests were unique in two ways. On the one hand, they employed a target system designed to mimic that encountered in combat. This involved the use of target exposure times considerably shorter than those normally employed for rifle training. Many of the targets were obscured by brush and dirt, representative of the hidden or barely visible enemy soldiers common to Korean as well as World War II battlefields. On the other hand, for the first time a genuine variety of alternative concepts of rifle fire was submitted to the test; however, the MP44, designed by the Germans, was not considered. The Soviets, on the other hand, had taken captured MP44's, modified and refined them, and by 1949 had fielded the AK-47. Internal politics in the Soviet arms industry prevented widespread use of this weapon until the mid-1950's. In his book, "The AK 47 Story," Dr. Edward Ezell of the Smithsonian Institute provided the first in-depth study of the development of the AK 47; however, his book, which appeared in the

mid-1980's, was heavily dependent upon work that had yet to be done. According to Ezell, there were at least three models of the AK 47 by 1959. The first model that came into the possession of the U.S. intelligence was obtained in 1956 and was the third model 7.62 x 39mm Avtomat Kalashnikova, obrazets 1947g, with a machined steel receiver.

Ezell's book was the first book to shatter the myth that the Soviets had taken captured MP 44's and modified them by pointing out that Soviet intelligence in WW II had managed to obtain the plans of the new weapon even before the Germans had the weapon fielded! The perception that the Soviets were a backward nation and could only copy someone else managed to survive for many years.

The Soviets, however, did do an extensive exploitation of captured weapons, from hand grenades to rockets, and incorporated this information in their weapons design process as well as their intelligence assessments. In addition to making excellent use of captured material, the Soviet Intelligence Services had become concerned about developments in the West, both political and in the area of Science and Technology. The Soviet KGB was a super secret organization that the west knew very little about until 1954 when the first person to defect from the organization came to the United States. Peter Deriabin had become disillusioned with his life as an officer in the KGB and defected to the United States. His memoirs published in 1959 provided a very good organization chart of the KGB. It was interesting to note that one of the sections of the Foreign Intelligence Directorate was a section entitled Scientific and Technical Intelligence Section.

The successful exploitation of Scientific and Technical information collected abroad would enable the Soviets to constantly improve their weapons for many years to come. The extent of Soviet developments in the area of weapons would take years to determine because the American intelligence operations were, as in the past, scaled back and in some areas, eliminated. Writing in the 1980's Vicktor Suvorov, a pseudonym taken by a Soviet defector, stated that:

> "The Soviet Union has designed a large number of first-class weapons, among them the T-34 tank, the Kalashnikov automatic assault rifle and the IL-2 Shturmovik ground attack aircraft. Even today, in the early 1980s, no one has succeeded in improving on the performance of the Soviet 130mm gun, although it was developed as long ago as 1935. The Soviet Union was the first to use rockets fired from an aircraft -- this was in August 1939 in Mongolia, in combat with Japanese aircraft. A Soviet motor torpedo boat (under Egyptian colours) was the first in history to use rockets to sink an enemy ship. The Soviet Union was the first to use the BM-13 salvo-firing rocket launcher. The Soviet Union was the first, many years ago, to realize the value of smoothbore guns, with

their astonishingly high muzzle velocity, and it was the first to mass-produce automatic mortars and many other excellent types of weapon.

At the same time, the Soviet intelligence services, the largest in the world, search unceasingly for anything new in the field of military equipment. The enormous extent of Soviet activity in this sphere beggars description. Soviet intelligence succeeded in obtaining all the technical documentation needed to produce nuclear weapons, in winning over a number of distinguished scientists and in ideologically recruiting others as agents.

Since the war, the Soviet Union has succeeded in copying and in putting into mass production the American B-29 bomber, British Rolls-Royce aircraft engines, American lorries and German V-2 rockets. It has also completed the development of a number of German rocket designs which were still unfinished at the end of the war. It has stolen plans for the construction of French anti-tank rockets, American air-launched missiles, laser range-finders, stabilizers for tank guns, rocket fuel, special dye-stuffs and many, many other highly important products."

During the 1950's, the western world began the process of studying the lessons of WW II as modified by experience in Korea and elsewhere and began to make changes in their plans for the future. These changes dealt with strategy for the nuclear age, organization and tactics, as well as weapons technology.

As part of this process, the Navy's Bureau of Ordnance commissioned Lt. Col. George Chinn to prepare an in-depth history of machine gun development which was completed in 1952. Comprising many volumes, it was considered a classic and referred to by weapons designers during the decade of the 50's. Volume II, Part Vii dealt with Soviet weapons and was classified Confidential and was not declassified until 1970. This meant that the information could not be provided to the vast bulk of the Army. While some, if not most of the information was beyond the comprehension of the average soldier, the basic aspect of Soviet weapons should have been included in the training programs, but it was not and U.S. ground forces would suffer accordingly in Vietnam.