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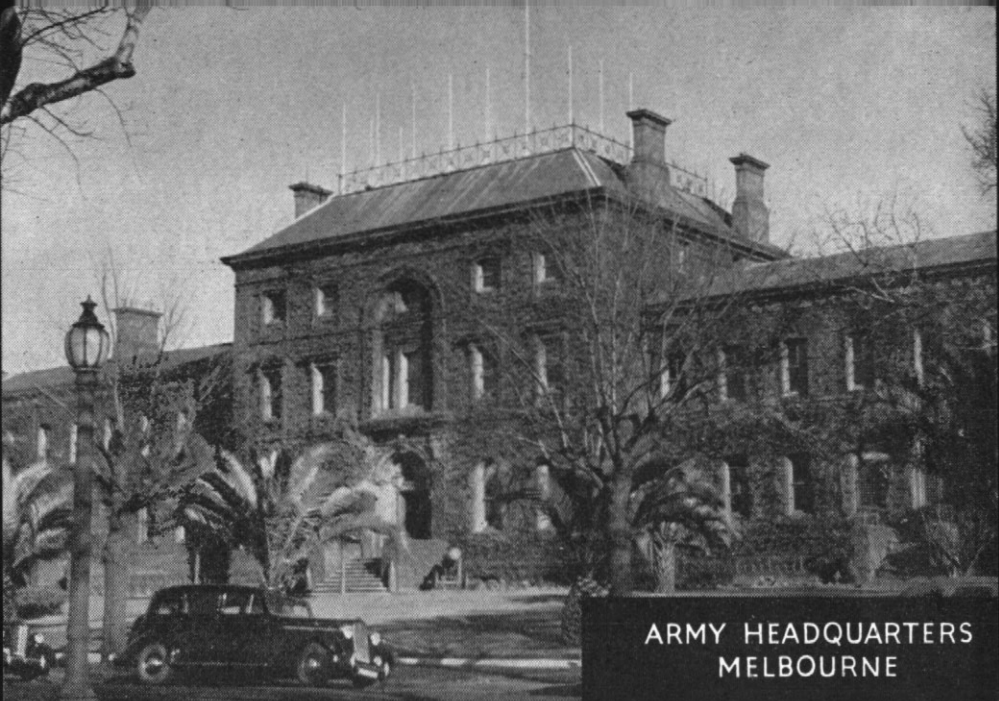
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ARMY HEADQUARTERS  
MELBOURNE

## AUSTRALIAN ARMY JOURNAL

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Contributions, which should be addressed to the Director of Military Training, Army Headquarters, Melbourne, are invited from all ranks of the Army, Cadet Corps, and Reserve of Officers.

# The NORTH ATLANTIC TREATY ORGANIZATION (NATO)

Directorate of Military Intelligence.

## Introduction.

The failure of the Four-Power Conference on Germany at the end of 1947 made the division of Europe inevitable. From that moment the Western Powers had no choice but to carry out their plans for the economic recovery of Germany in the Western Zones, and to build up some form of Western bloc as an answer to the Eastern bloc already formed under the leadership of the Soviet Union. As a direct result of this came the Brussels Treaty or Western Union, which was a voluntary association of Governments—Great Britain, France, Belgium, Holland and Luxembourg—to deal with practical, economic and military problems.

It was not without significance that, on the 17 March, 1948, the day on which the Brussels Treaty was signed, President Truman made a statement to the United States Congress in which he said: "I am sure that the determination of the free countries of Europe to protect themselves will be matched by an equal determination on our part to help them to do so." The establishment of the Brussels Treaty Defence organization was no more than a beginning, but it was a significant beginning.

## The Treaty.

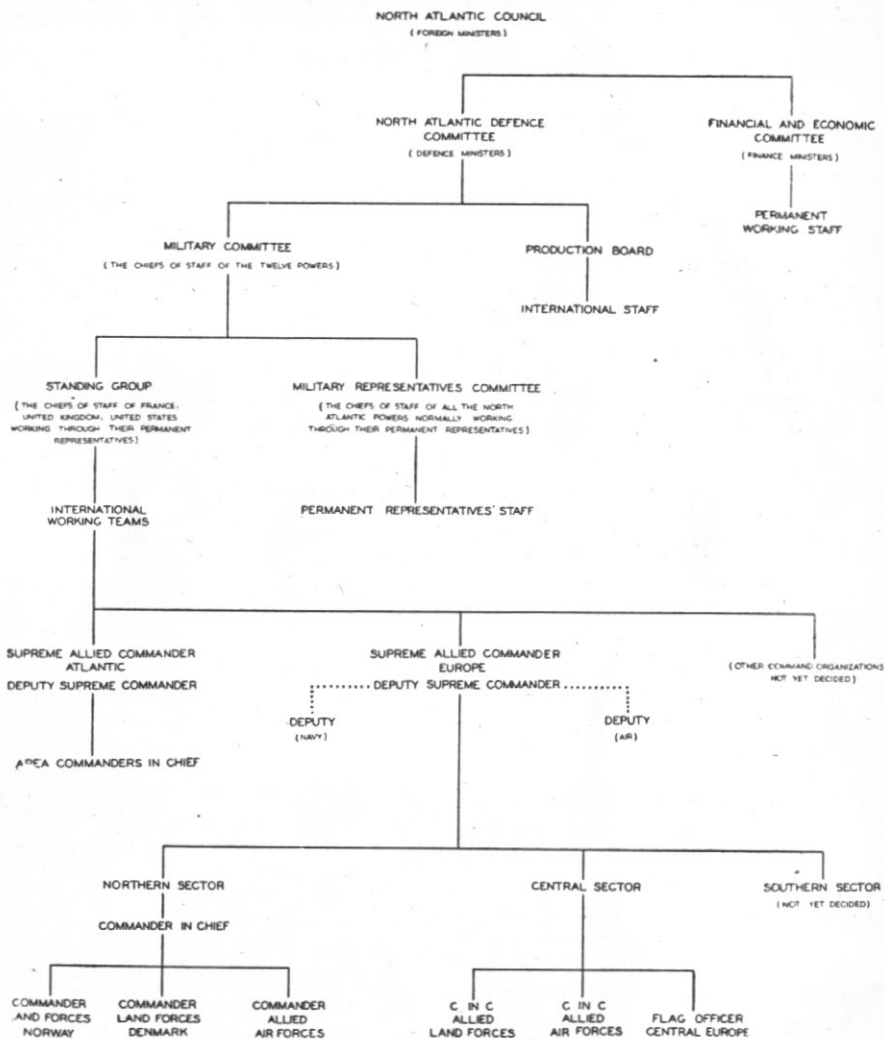
Just over nine months later, on 4 April, 1949, it was possible to proceed with the signing of the North Atlantic Treaty, in which not only the Five Powers of the Western Union were associated with the United States and Canada, but Norway, Denmark, Portugal, Iceland and Italy also arranged themselves in an alliance to safeguard the freedom, common heritage and civilization of their peoples, founded on the principles of democracy, individual liberty and the rule of law.

The Treaty, composed of the preamble and fourteen articles, may be summarised as follows:—

- (a) The Parties undertake, as set forth in the Charter of the United Nations, to settle any international disputes in which they may be involved by peaceful means.
- (b) They will seek to eliminate conflict in their international economic policies and encourage economic collaboration between any or all of them.
- (c) The Parties will consult together whenever the territorial integrity, political inde-



# NORTH ATLANTIC TREATY ORGANIZATION



pendence or security of any of them is threatened.

- (d) That an armed attack against one or more of them in Europe or North America is an attack against them all, and under article 51 of the Charter of the United Nations they will assist the Party or Parties attacked.
- (e) The Treaty in no way affects the rights and obligations under the Charter of the United Nations.
- (f) No party shall enter into an international agreement in conflict with this Treaty.
- (g) The Parties hereby establish a Council to implement the Treaty, and may set up such subsidiary bodies as may be necessary, and in particular a Defence Committee.
- (h) Other European Parties may be invited to contribute, but only by unanimous agreement.
- (i) After the Treaty has been in force for ten years or more it may be reviewed if required.
- (j) After the Treaty has been in force for twenty years, any Party, upon one year's notice, may withdraw.

#### Organization.

Article 9 of the Treaty established a Council, comprising representatives of each of the Twelve Powers, charged with the responsibility of considering matters concerning the implementation of the Treaty and setting up any necessary subsidiary bodies. The establishment of the Council and its various bodies and their relationship one to the other are shown on the diagram.

The Ministerial authority in the defence field is exercised, under the

political guidance of the North Atlantic Council, by the Defence Committee with its two main arteries—the Military and Supply Planning Staffs—represented by the North Atlantic Military Committee and the Defence Production Board.

The Military Committee, under the supervision of the Defence Committee, is the supreme military authority in the North Atlantic Treaty Organization. As military decisions cannot wait for the periodic sessions of the Committee, a Standing Group, consisting of the Chiefs of Staff of France, Great Britain and the United States, working through their permanent representatives, was constituted. In order that the views of countries, not members of the Standing Group, are represented a Military Representatives' Committee was established and this works in close collaboration with the Standing Group.

The other artery of the Defence Committee, the Defence Production Board, has the main task of co-ordinating and integrating national production. The Board has under it an International Staff headed by a Director, who sits on the Board and is responsible for continuing the work of this organization.

#### Command System.

The meeting of the Defence Committee at Brussels in December, 1950, resulted in the creation of a command system in NATO.

The Supreme Headquarters Allied Powers in Europe (SHAPE) is responsible, under the general direction of the Standing Group, for the defence of the Allied countries of Continental Europe against invasion; and the Supreme Allied Commander Europe would, in time of

war, control all land, sea and air operations to this end. Internal security and defence of coastal waters remain the direct responsibility of the national authorities concerned, but the Supreme Commander would have full power to carry out such operations in these areas as he considered necessary for the defence of Western Europe. He normally receives his directions from the Standing Group, but he has the right of direct access to the Chiefs of Staff of any of the Twelve Powers, and in exceptional circumstances to the Defence Ministers and Heads of Governments.

The Supreme Allied Commander Atlantic (SACA) covers broadly the North Atlantic Ocean, but excludes British and European coastal waters. This naval Command is divided into an Eastern and Western area, whose commanders in time of war would control any forces in support of their areas, with SACA, under the general direction of the Standing

Group, exercising the normal powers of a Supreme Commander. In peace, SACA does not command the forces of other nations except those placed under his command for combined training exercises.

#### Conclusions.

The framework for carrying out the instructions of the Governments and Chiefs of Staff of the Twelve Powers, and a command system for the North Atlantic Treaty area, has been created. So far as higher military control of NATO is concerned, the exercise by the Standing Group of an authority similar to that held by the Combined Chiefs of Staff in the last war has been accepted. One part of the command structure has been built up, but the command problem for the Mediterranean still remains.

The Treaty is a bold and novel conception for the preservation of peace, or, if need be, for the defence of Western Europe.

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Professional attainment, based upon prolonged study, and collective study at schools, rank by rank, and age by age—these are the title deeds of the commanders of future armies, and the secret of future victories.

*Officers' Call, USA.*



# BATTLE for the STRAITS

Translated and condensed by the "Military Review," USA, from an article by Lieutenant-Colonel F. O. Miksche in "Forces Aériennes Francaises" (France).

**W**HAT are the principal factors which, in case of world conflict, would exercise a decisive influence on the strategy of the Soviet High Command? The Soviet strategists would not have an easy task for, though the strength of the USSR is based on its enormous reservoir of men, the strength of the Western Powers is based on its greater industrial capacity. The question, therefore, is to know how the Russian General Staff will be able to compensate for its inferior technological position through its crushing superiority in manpower.

The USSR, whose territory extends from the Baltic to the Pacific, is the greatest land power of our time. It possesses neither a high-seas fleet nor, probably, an adequate air force. Thus, it lacks the geographical and technical bases necessary for the control of the seas and, probably, the air. It would be necessary for it to envisage the necessity of conquering territories which, alone, would permit it to conduct strategy on a world scale.

It would be the Soviet Army on which the task would fall to open the way for the Soviet naval and air forces. Once the coasts of the ocean were occupied by forces advancing wholly by land, the Eastern offensive would have reached the limits of its possibilities.

## Western Powers' Strategy.

On the other hand, the strategy of the Western Powers would be entirely different. The naval and air forces would prepare the way for the ground forces, by means of transportation, landings, and other operations supported by strategic bombing. This essential difference, which is revealed by a comparison of the strategic problems of the East and the West, results from their technical and geographical characteristics; geographic isolation and technical lag in the case of the East, and technical superiority, hence control of the seas and air, in the case of the West.

## Soviet Strategy.

A simple glance at a map enables one to obtain some idea as to the probable strategy of the Soviet Union. The first phase of the operation, inevitably, would be a battle for the straits, so that the Soviet Army would be able to force a passage to the open seas for the Russian squadrons in the Baltic and Black Seas.

Concurrently, plans would be made for the conquest of the Danish Peninsula to clear the North Sea passage for Russian war vessels through the Skagerrak and Kattegat. The Kiel Canal, which connects the Baltic with the North Sea, would, doubtless, play an important

role in the operation. Another preliminary necessity of the Atlantic strategy of the Soviets would be to obtain possession of naval bases, principally on the coasts of Norway, Germany, Holland, Belgium, and France.

#### Soviet Naval Strength.

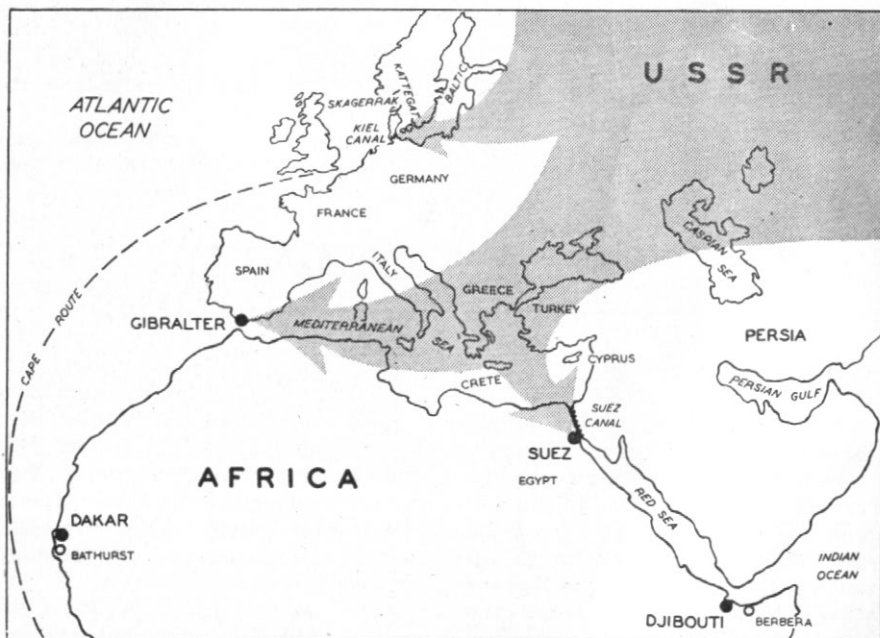
In spite of their release from isolation, the Soviet fleets could never become serious rivals of Anglo-American naval power. Only the operations of snorkel submarines over the principal sea lanes could constitute a serious threat. Nevertheless, the experiences of two world wars prove that it would be difficult for submarines, alone, to obtain decisive results. On the seas and in the air, time would work against the East. The output of Soviet industry, from the standpoint of both quantity and quality, would

never suffice to permit the waging of a successful war against the Allies.

Nevertheless, could not the strategic inferiority of the Soviet fleet be compensated for by means of operations different from those mentioned above? Access to the different straits is only one aspect of the problem. The blockade of certain other strategic points would give the USSR an opportunity to improve her position on the seas. This is particularly true in the case of the Mediterranean.

#### Key Positions.

It is quite natural for the Soviet strategists automatically to turn their attention toward Gibraltar and Suez. The enormous advantages for the Soviet Union resulting from the possession of these two key positions could well be the following:



1. The conquest of Gibraltar and Suez, resulting from the fall of Western Europe and the Middle East, would represent the only possibility for the Soviets, deprived of the control of the sea and depending solely on manpower, to extend their strategy to three of the five continents; Europe, Asia, and Africa.

2. With access to the Mediterranean barred to the Western Powers, all their bases on this sea, such as Italy, Greece, Malta, Sicily, Crete, and Cyprus, would be cut off suddenly from the rest of the world. The Allied defences then would be limited to the coast of North Africa, back of which, to a depth of 1,500 miles, extends the Sahara Desert. Consequently, the assembly point for an Allied counter-operation against the Soviet Union would be drawn back behind the Sahara to an imaginary line such as Dakar—Djibouti. However, as in World War II, North Africa could not be the springboard for the liberation of Europe unless both Gibraltar and Suez were controlled and defended by the Western Powers.

3. The barring of the Mediterranean to the Allied fleets automatically would give the Soviet Navy superiority in those waters. Allied vessels would be obliged to make use of the long route around Africa, thereby reducing their effectiveness and permitting the Soviet Navy to attain a condition of equality.

The military geography of the Mediterranean includes two distinct theatres of operation; the eastern and the western, separated from one another by the Italian Peninsula and Sicily. The western theatre, with the countries of Western

Europe, Italy, Spain, and North Africa, forms a strategic ensemble belonging to the Atlantic group. On the other hand, the eastern theatre comprises the Balkan Peninsula, Turkey, and Egypt, as well as Persia and the other Middle East countries. It must be apparent, therefore, that Gibraltar in the west and Suez in the east are key positions to both the Allies and the Soviet Union.

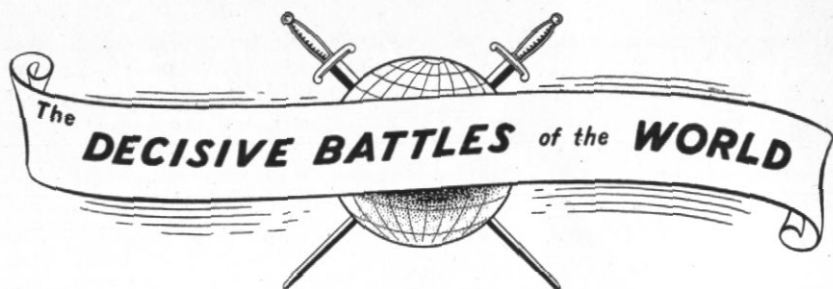
#### **A Mediterranean Pact.**

As long as the Western Powers hold these two points, they will be able to prevent the Soviet Union from developing a world strategy. However great may be the successes of the Soviets in Western Europe, in the Balkans, the Middle East or elsewhere, as long as they do not control the Mediterranean, final victory will escape them just as it escaped Hitler, in spite of the initial successes of his armies.

From this point of view, the true importance of the Atlantic Pact is evident. Its principal object is the defence of Gibraltar by means of a deep beachhead whose defence line begins at the Atlantic coast, follows the course of the Rhine, and is anchored in the Alps as far as the coast of the Adriatic.

The Atlantic Pact, however, solves only the defence of Gibraltar. One cannot regard our system as complete unless we also protect the other entrance to the Mediterranean—Suez—by means of a similar, deep beachhead. This should form the basis of a Mediterranean Pact which, together with the Atlantic Pact, each complementing the other, would form a political and strategic ensemble.





## CHALONS, AD-451

**T**HE popular conception of Roman life and manners in the last centuries of the imperial city's temporal power, given to us through the mediums of the popular novel and the cinema, should not blind us to the fact that even in the years of her decline Rome accomplished much of lasting value to mankind. Between the first and fifth centuries of our era Roman influence established in Europe the foundations of our Western Civilization. There was born the culture we enjoy today. There was nurtured the Faith by which we live. There was erected the idea of the importance of man as an individual, and there were established the broad lines on which our art and our laws were to develop.

There was a moment, though, when all trembled in the balance, a moment when the whole future of the world hung upon the issue of a single battle, a moment when a little less military skill, a little less resolution, would have permitted all that Western man had accomplished to be engulfed forever in a flood of Asiatic invasion.

### **The Frontier Crumbles.**

For about 250 years after her defeat by the Germanic prince, Arminius, Rome held her northern frontier on the Rhine and the Danube without much difficulty. Inceea, under the Emperor Trajan (A.D. 98-117) the frontier was pushed across the lower Danube to include the province of Dacia, while the eastern boundary was carried across the Euphrates to the Caspian Sea. But Rome had shot her bolt. Her energy was spent, and from the death of Trajan the tide of her fortunes ran steadily out.

While the strength of Rome declined the strength of the barbarians beyond her frontiers increased. They began to look with hungry eyes on the settled provinces of the Empire, the rich pastures and the splendid cities, the opportunities for plunder. On the northern frontier in particular the pressure was heavy and continuous. Wave after wave of Germanic tribes flung themselves against it, and finally broke through permanently at several points. The Franks, the Alemanni and the Bur-

gundians carved out kingdoms for themselves in the Roman province of Gaul, north of the Loire. The Vandals crossed Gaul, settled for a time in Spain, then crossed to Africa and conquered the Roman territory as far east as Carthage.

On the north-east the Goths, the most easterly of the teutonic peoples, conquered Dacia and settled down there for nearly 200 years. However, they were continually harassed by waves of Asiatic barbarians—the Huns—and in A.D. 376 Rome permitted them to cross the Danube and settle south of the river.

Twenty years later the Goths, under their king, Alaric, plundered Greece and then turned to attack Rome herself. Their first attempt was thrown back by the Roman general, Stilicho, but after his death they returned to the attack, took Rome and sacked the city.

Alaric had started with the idea of destroying Roman power and substituting in its stead a Gothic Empire. He died with his purpose unfulfilled. His successor, Ataulf, gave up the idea because he had the insight to appreciate the superiority of Roman law as a medium of government, and to realize that his people did not yet possess the knowledge and skill required for the administration of what was still a very considerable empire. He withdrew from Italy and established for himself a kingdom in southern Gaul, with Toulouse as his capital.

The teutonic tribes who had thus overthrown the military strength of Rome were in turn vanquished, at least in part, by the civilizing influence which still flowed strongly from her dying heart. But the barbarians themselves contributed much to the amalgam of the new

civilization, which was slowly and painfully taking shape in Europe. Christianity gradually tamed the more savage elements in their nature, Roman law provided them with the medium of government, while Roman arts and crafts gave them the means of a richer and more orderly life. On the other hand the established institutions and customs of the Empire were modified and enriched by the teutonic ideas of chivalry, of personal independence, and, above all, of the worth and importance of the individual.

This then was the state of Europe, a crucible in which a new and splendid civilization was being created, when out of the East there came another and more terrible wave of barbaric conquest and destruction.

### The Huns.

The original Huns were a tribe of nomads living somewhere in the region north of the Caspian Sea. There is some evidence that they first migrated eastwards and made trouble on the Chinese western border. Then, apparently driven by the superior fighting qualities of other nomadic tribes, they began to move slowly westward. As they moved they increased in numbers and power. By the time the march had reached the Urals it had, through the *adhesion of numerous lesser tribes*, become a considerable migratory movement flowing steadily westward. Eventually the advance guards of this movement struck the *outposts of civilization on the banks of the Danube*. As we have already noted, the steady increase of this pressure forced the Goths to abandon their settlements, and cross the Danube.



Hun Patrol.



The new tide of barbaric pressure building up along the line of Danube was far more terrible than any which had preceded it. Although they possessed a rude tribal organization suitable for a nomadic people, the Huns were savages in outlook and in manners. Living for war and plunder, they obliterated everything of a civilized nature or a settled way of life on which they could lay hands.

Nevertheless they were formidable warriors. They were a race of horsemen accustomed to spending most of their waking hours in the saddle. It is said that they habitually took their meals mounted, and that they could sleep comfortably on their horses' necks whilst on the move. Consequently they were capable of extraordinarily long and rapid marches.

As events proved, the Huns had a firm grasp of the principles of strategy, but we have no clear idea of their tactical organization. They always fought mounted, depending on numbers, agility, and the fury of their onslaught to carry them to success. In attack they were terrific, but if they could be thrown on the defensive they seemed to lose confidence and cohesion.

Usually they began a battle by sending wave after wave of horsemen against the front and flanks of their adversary. Each wave galloped up, discharged a cloud of arrows, and wheeled away to make room for the next wave. As casualties occurred among the defenders, successive waves rode in closer and closer until eventually they were able to bring their sharp, curved swords into play.

The Huns were difficult to attack, because, unless they could be pinned

on ground unfavourable to rapid mounted action, they simply melted away from the front of the assault and closed in upon its flanks. They were extremely skilful at cutting off detachments, and at taking instant advantage of any gap which occurred in front or flank.

#### First Attacks on the Empire.

In 396 the Huns made their first big raid against the Empire itself when they crossed the Caucasus, looted Armenia, and laid waste "the pleasant fields of Syria." Then in 409, while Alaric and his Goths were busy in Italy, they crossed the Danube and raided deep into Bulgaria.

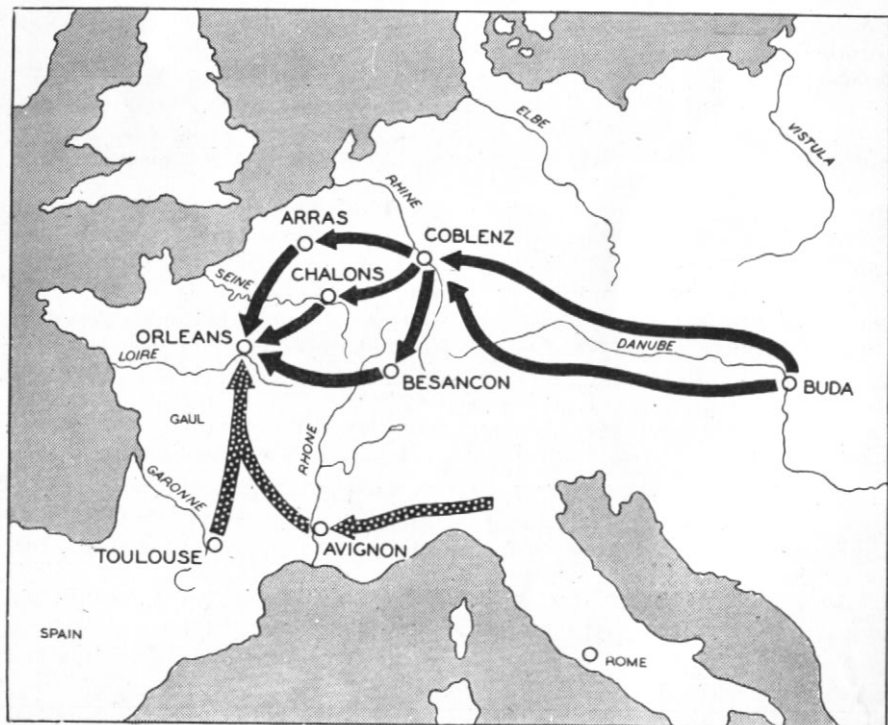
Each time the Hunnish tide receded from a raid it stopped short of its original starting line. After their Bulgarian expedition they settled firmly in the land now known as Hungary. In this base they rapidly built up their strength for a full-scale effort against the inner marches of the Empire.

In 423 two brothers, Attila and Bleda, succeeded to the chieftainship of the Huns. Two years later they founded the city of Buda on the Danube, proclaiming that they intended to make it the new capital of the world. Soon after this event, Attila, by the simple expedient of murdering his brother, made himself king of the Huns.

The extensive territory on both banks of the Danube, north of the Black Sea, and eastwards of the Caucasus, over which Attila ruled, cannot be accurately defined. Besides Huns, it must have contained many tribes of Slavic, Gothic, Teutonic and Finnish origin, all of whom gave allegiance to Attila.

Although nurtured in the tradition that the sword is the only worth while medium of discussion, Attila realized that the chaotic condition of the Empire gave him the opportunity to achieve much without resource to force. The more he could gain by diplomacy, the more military strength he could build up for the decisive blow. He played power politics with great skill, threatening to unleash his dreaded horsemen whenever resistance to his demands was offered. The jealousies of the kings great and small trying to set themselves up in the provinces of the Empire, coupled with the mortal weakness of the Empire itself, provided him with ample opportunity for diplomatic manoeuvring.

By the year 441 he was ready for his first military attack. Moving with two armies, he occupied much of the territory of modern Yugo-Slavia. With this conquest he rested content until 446, when he again took the field. In the space of twelve months he destroyed two Roman armies, pillaged some seventy towns, and pushed south as far as Thermopylae in Greece and eastward to the Dardanelles. Only the strong walls of Constantinople successfully resisted his onslaught. As the price of peace, Theodosius, Emperor of the East, was forced to pay an immediate indemnity of 6000 pounds weight of gold and agree to an annual tribute of 2,000 pounds. The Eastern Empire had been utterly defeated, and Attila was free to move against the West.



### Attila Moves West.

In the closing months of 450 Attila began the assembly of a large army in the vicinity of his capital, Buda, proclaiming as his aim the subjugation of the West. By January of the following year he was ready to move, having in the meantime sent emissaries to enlist the adhesion of the northern Germanic tribes and the support of disaffected princes in Gaul. The armies moved westward on both sides of the Danube, and concentrated to make their final preparations in the forests north of the Rhine in the vicinity of Coblenz. Completing his preparations in March, Attila had before him the whole spring and summer in which to carry out his great enterprise. Although accounts of the size of his forces must be regarded with caution, it seems safe to assume that he disposed of not less than 700,000 fighting men.

As soon as he was ready, Attila moved with his usual speed. Crossing the Rhine near Coblenz, he despatched one army in a north-westerly direction upon Tongres, Arras and other towns in that part of Gaul. With the remainder he moved up the Moselle until he had crossed the Saar. From there a strong column moved south on Besancon, whilst the centre column, under Attila's direct command, moved towards Orleans on the Loire.

There was little real resistance except in the east, where the Burgundians attempted to stem the tide. They were literally cut to pieces by the wild charge of Attila's horsemen, their towns sacked and their countryside laid waste. The length and breadth of the area be-

tween the outer columns became a scene of the most frightful devastation. City after city, town after town, village after village, was engulfed in a roaring flood of fire and plunder. The whole countryside became a smoking ruin inhabited by a few survivors hiding in the woods.

The march of the three main columns was directed with keen strategic insight intended to give maximum all-round security and, at the same time, conceal the ultimate aim until the last possible moment. This was important, because Aetius, the Roman commander-in-chief, had begun to assemble an army in northern Italy as soon as Attila moved from Buda, while Theoderic, king of the Goths in southern Gaul, was also collecting an army. Attila arranged his movements so as to keep both these commanders in doubt as to which one was to receive the weight of the main blow. He calculated that neither would come to the other's aid until he was sure that his own country was not the object of attack. Thus his most easterly column menaced the passes through the Alps and suggested an advance on Italy, the central column threatened the Goths, whilst the westerly one provided security against any flank attack by the people of the north west. It was not until the three columns began to converge upon Orleans that it became clear that Attila aimed at the conquest of Gaul and not at Italy, for the time being at any rate.

Orleans was the gateway to southern Gaul and formed a bastion against an invader coming from the north. From the point of view of morale it was also important because it was honoured by all Gauls as the scene of some of their bravest

struggles against the Romans. Its capture by Attila would be bound to have important psychological effects.

Although the city's defences were in a state of disrepair, and despite the terrible example of the fate of all who had dared to resist Attila's demands, Orleans remained true to her heritage by refusing to obey the summons to surrender.

Orleans was too strong to be taken on the run, and Attila had no option but to lay siege to the place. He had come prepared for this form of warfare by enlisting into his service numerous mercenaries skilled in siegecraft.

#### The Counter Offensive.

Until Attila was well on his way on his march from Buda to the Rhine, Aetius could not be sure of his enemy's intentions. Until the main body of the Huns had passed the northern face of the Alps they might have intended to turn south and attacked Lombardy. Only when this danger was past was Aetius free to move his army from its primary task of covering the capital of the Empire.

As soon as tidings reached Aetius that Attila was concentrating on the Rhine he set his army in motion towards Gaul. Late winter snow, however, delayed his passage of the Alps, and by the time his main body had arrived at Avignon the Asiatic flood was sweeping over northern Gaul.

From Avignon, Aetius sent out emissaries to call the princes and chieftains to the defence of Christendom. The response was immediate, the mere presence of an Im-

perial army revived the waning resolution of the people of south-eastern Gaul. Even so, until Attila's columns had begun to converge upon Orleans, Aetius was denied freedom of manoeuvre because he still had to cover the passes of the Alps. The resistance of Orleans, however, gave him the opportunity for a counter-offensive. He saw clearly that if Orleans fell the Goths would be the next to go. Then his would be the last Western army in the field, and it would stand but little chance against the Asiatic horde. Furthermore, he was well aware of the Huns' weakness in defence, and saw in the siege of Orleans a chance to catch them at a disadvantage.

Meanwhile Aetius' emissary was trying to persuade Theoderic, king of the Goths, that if he remained on the defensive Orleans was bound to fall and with it all southern Gaul. Theoderic took some time to see the danger of defeat in detail, and the delay very nearly brought disaster. Fortunately when at last he moved he acted with great energy and resolution. Collecting every able-bodied man immediately available, he marched rapidly northward to effect a junction with Aetius at a point south of Orleans.

Although the allied army thus assembled comprised men of many different peoples, it was Roman in organization and spirit. The legions formed the core of the army, and from their steady, soldierly bearing something of the old confident spirit spread through the ranks of the Goths and the other contingents. The Allies lost no time in appointing Aetius to the supreme command.

Meanwhile things were not going well at Orleans. Attila's siege experts had little trouble in breaching the crumbling fortifications and his Huns, although unaccustomed to fighting on foot, pressed the assault with great vigour. The morale of the defenders fell rapidly and some of their leaders actually opened negotiations for surrender. Fortunately Attila, enraged by the delay, would accept nothing but unconditional capitulation. More breaches were made, and the first waves of the attackers were in the outskirts of the town when a great cloud of dust was seen rolling up from the south. It was the advanced guard of the Imperial Army, the Gothic cavalry riding hard for Orleans.

Attila had been either misinformed or over-confident. At any rate he had failed to make any arrangements to cope with an attempt to relieve the fortress, or even to send out patrols to give warning of the approach of hostile forces. Consequently he was caught completely off balance; the Gothic cavalry were charging into his rear before he could turn to meet them.

The resultant confusion in Attila's army gave time for the Roman legions to come up and give weight to the attack. With irresistible *élan* they carried all before them, the Huns broke and fled. Orleans was safe, the tide of invasion had been halted at last.

#### The Pursuit.

Attila's retreat from Orleans would seem to have been one of the most terrible of which we have any record. It was made through territory already devastated. Every wood, every coppice, every swamp, contained a band of desperate men

waiting to issue forth and fall upon the scattered groups of horsemen. For the Hunnish officers, unaccustomed to withdrawal, were unable to maintain cohesion throughout the army.

The Imperial army pressed the pursuit with the utmost vigour. Aetius demanded the impossible—and achieved it. He was everywhere himself, urging on his cavalry, encouraging his infantry. The legions marched as they had not marched since Nero led them to the victory of the Metaurus.

Attila hoped that once across the Seine he would be able to shake off his pursuers. But Aetius' advanced guards were close upon his heels and, without pausing for rest or reorganization, they forced the crossings in a night attack. Nevertheless the slight delay gave Attila time to restore order in his army and deploy it for the battle which he could no longer avoid.

#### Battle of Chalons.

Few details of the battle of Chalons are available; we know only the broad outlines of what took place. Attila appears to have drawn up his army with his Huns in the centre and his allies on either wing. It is certain, however, that Aetius gave him but little time for deployment and, before the main action began, he succeeded in occupying some rising ground which commanded the left flank of the Huns.

Seeing the importance of the high ground, Attila commenced the battle by a furious attack upon it with some of his best troops. However, the broken ground impeded the horsemen and their repeated charges were repulsed with heavy loss.

Meanwhile the Goths on the allied left charged and routed Attila's right. Then they turned inwards upon the Hunnish centre, which was already heavily engaged on its front. In this extremity the Huns fought steadily and bravely and were still unbroken when night put a stop to the fighting.

During the night Attila succeeded in withdrawing to a fortified camp, where he proposed to make his last stand. Dawn, however, found the Imperial army in no fit state for an immediate resumption of the attack. The troops had been pushed beyond the point of human endurance. They could do no more until they had been given a little rest. Seizing his chance, Attila slipped away with the remnants of his army, abandoning his camp, his wagons and his loot.

Attila's attacks on the West were soon renewed, but never with the same peril to the civilized world as menaced it before his defeat at Chalons. And on his death two years later, the vast empire which his genius had created soon fell to pieces. The name of the Huns ceased to inspire terror in western Europe, their power had passed away with the life of their great king.

#### Comments on the Operations.

Although we know little about the details of the fighting a few important points stand out clearly enough. The first of these is Attila's capacity as a strategist and his lack of ability as a tactician. His strategic design, well calculated to keep his adversaries dispersed and inactive until his objective was almost within reach, was brought to naught by his neglect or ignorance of elementary tactical principles.

There is a striking similarity between the first Asiatic attempt to conquer Europe in B.C. 490 and the second attempt under Attila nine hundred years later. In both cases the commanders laid themselves open to defeat through their neglect of the *Principle of Security*. At Marathon Datis failed to provide protective detachments to screen his march across the front of the watchful Greeks. At Orleans Attila failed to even send out patrols to warn him of any approaching danger. In each case their opponents made instant and effective use of the opportunities thus presented.

Misled perhaps by his past experience, Attila failed to evaluate correctly the character of the fighting likely to result from a collision with a well-trained, disciplined Roman Army. He counted on the invariable success of the one tactical operation in which his troops excelled—a furious cavalry charge. Had he correctly appreciated the characteristics of his opponents he would have realized that complete reliance on this one manoeuvre was an unjustifiable gamble. Despite its great mobility, Attila's army proved to be too *inflexible*, in thought and in training, when it collided with the more versatile legions.

From a study of his opponents' characteristics, Aetius correctly appreciated their strength and weakness. He saw clearly that if he could, through strategic manoeuvre, throw them on the tactical defensive, he would stand a good chance of success despite the great disparity in numbers. The secrecy and speed of his march upon Orleans were calculated to bring about a situation of this nature.

Notwithstanding the political dif-



ferences and mutual mistrust between Rome and the Goths, Aetius, by sheer force of character, succeeded in maintaining complete *Co-operation* between all elements of his army throughout the operations. Although desperately anxious to relieve Orleans, he fulfilled the *Principle of Concentration* by uniting his legions with the Goths before launching his attack. The speed—*Flexibility* in the sense of mobility—of his approach march enabled him to *Surprise* his opponent. *Offensive Action* was the keynote of all his plans and actions. His relentless pursuit exploited his initial success to the greatest possible extent; he

gave his adversary no chance to recover his balance. From first to last he kept steadily in mind *Maintenance of the Aim*—the physical destruction of the Hunnish army. Only the complete exhaustion of his troops prevented him from achieving it.

Chalons was the last great victory of Imperial Rome, a fitting finale to the long and illustrious story of her triumphs and achievements.

[This is the sixth article of the series "Decisive Battles of the World." Next month we shall consider the Battle of Tours, in A.D. 732.—Editor.]

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The attack on the Republic of Korea . . . was a clear challenge to the basic principles of the United Nations' Charter and to the specific actions taken by the United Nations in Korea. If this challenge had not been met squarely, the effectiveness of the United Nations would have been all but ended, and the hope of mankind that the United Nations would develop into an institution of world order would have been shattered.

—President Truman, USA.

# JAPANESE STRATEGY

## in the

# PACIFIC

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Translated and condensed by the Military Review, USA,  
from an article by Edmond Delage in "Revue Militaire  
Suisse," Switzerland.

**A**N essential factor for achieving victory in war is the ability to determine the exact nature of the war to be conducted and the ability to adapt the means to the objective.

Because Hitler transgressed this fundamental rule, he failed to achieve victory. It was for the same reason that Japan also failed.

How was it then that a country which had remained relatively weak (compared with the United States) from the military, demographic, and industrial points of view, assumed the risk of a struggle to the death against the most powerful nations on the earth?

### **A Limited War.**

On 7 December, 1941, when Japan started the War in the Pacific, Prime Minister Hideki Tojo and his military and naval chiefs visualized only a limited war. In spite of the

promises made to the Axis leaders, they had no intention of participating in a world-wide conflict. They intended only to conduct a war that would be exclusively Japanese.

Prime Minister Tojo and the Japanese military and naval chiefs had remained the disciples of the campaigns of 1895 and 1904-1905. In those campaigns, the Japanese leaders realized that they could never triumph over China and Russia unless they confined themselves to a limited war adapted to their forces.

The same laws governed Japanese strategy in 1941. Japanese military and economic power had increased greatly since the Russo-Japanese campaigns, but in spite of the feverish efforts of the five years preceding World War II, her industrial power did not exceed that of a country the size of Belgium. Japan still had to rely on other coun-

tries for her essential raw materials—oil, iron, zinc ore, chromium, and rubber.

The "Chinese Incident," at the Marco Polo Bridge in Peiping, led Japanese policy into a blind alley. It was impossible for her to withdraw from China without "losing face," and yet, by cutting the vital Chungking life line—the Burma route—there was danger of a clash with the British Empire. Yosuke Matsuoka, Minister of Foreign Affairs, told Hitler, on 4 April, 1941, that to attack the British and Dutch possessions in the southern zone of the Far East would be the equivalent of declaring war on the United States.

#### A Need for Raw Materials.

The map and war manoeuvres, in Tokyo, in 1941, ended with a revival of the strategy crowned with success in 1895 and 1904-1905. Admiral Yamamoto consented to the pursuit of but a single objective—the isolation and "blitz" attack of Borneo, Java, Sumatra, Malaya, and Burma. This conquest was to have as its result the elimination of Japan's weakness, lack of raw materials.

An attack on the Philippines was not imperative and could be expected to bring nothing in return but an attack from the United States. Despite this fact, Admiral Osami Nagano, chief of the naval general staff, won out over the protests of Admiral Yamamoto and obtained permission to nip in the bud the American power in the Pacific by a surprise attack on Pearl Harbour. This attack was not to include offensive action against the Hawaiian Islands, but only such action necessary to prevent American intervention during the first six

months' operations towards the southern seas.

The surprise attack on Pearl Harbour was facilitated by the fact that the attention of the United States was turned away toward the narrow seas of China, where large movements of naval vessels could not be concealed.

The unexpected destruction of the "Prince of Wales" and the "Repulse," an event which was almost fatal to the British Navy, contributed to Japanese strategy in gaining control over the area between the Indies on the west and Australia on the east.

#### Extended Operations.

In spite of their apparent triumph, the Japanese naval forces found themselves faced with the same terrible dilemma that faced Admiral Heihachiro Togo during the Russo-Japanese War—the necessity for retaining possession of the western Pacific and maintaining a central reserve capable of repelling any counter-attack coming from the United States. This threat carried with it the essential condition that the main body of the Japanese fleet should suffer no serious losses. The Japanese Admiralty, therefore, kept its large naval vessels in the rear and made use only of forces which were more easily replaceable.

The surrender of Bataan, on 8 April, 1942, and Corregidor, on 6 May, 1942, marked the end of the conquest of the whole of the strategic system. The stubborn resistance of the Americans, however, necessitated a Japanese effort twice as long as had been anticipated when planning this operation during the preceding year.

This apparent triumph—even after the fall of Singapore and the victory of the battle of Java—did not save the Japanese strategists from a cruel and embarrassing situation. Should they, or should they not, penetrate into the Indian Ocean?

The British naval forces had taken advantage of the lull to strengthen their defences, but they continued to be weak. The British naval units, which had been rushed from the Mediterranean, were outmoded and possessed antiquated aircraft.

A month after the fall of Java, Admiral Sir James F. Somerville, British commander-in-chief in Indian waters, was obliged to fall back as far as Kilindini on the east coast of Africa. However, the Japanese did not feel capable of following him.

The fate of the War was being shaped at that moment. The Allies showed themselves able to maintain between the two totalitarian "blocs" of Europe and the Far East, the immense barrier of Russia, the Near East, India, and China. If the Japanese Navy had been able to cut the Anglo-American life line in the Indian Ocean, the Russians could not have received the means necessary for their resistance at Stalin-grad, nor the British for their offensive at El Alamein.

At this moment, the Japanese chiefs did not have the courage to abandoned the strategy and gamble everything on the chances of obtaining a victory in the Indian Ocean, which would have, perhaps, saved their partners in Europe.

They preferred a limited war and the retention of their conquests. As a result they lost everything and

were not able to act anywhere. Australia was too large a mouthful for them, but they could have at least tried to take Port Moresby, the strategic centre of its northern defence, by circumventing New Guinea. However, they did not dare take the risk involved in such an attack.

Early in May, they resumed their advance towards New Caledonia and New Zealand; but the Americans, now reinforced, inflicted two defeats on them—at Tulagi and in the Coral Sea.

#### The Turning Point.

At this time, the Japanese chiefs should have concentrated their efforts on some one decisive point, but they dispersed them in four directions—Madagascar, Sydney, the Aleutians, and Midway. It was at Midway that the main body of their carriers fell into an American trap and were lost. Japanese forces then resumed their attack in the crucial zone of New Guinea and the Solomons.

In these areas they suffered crushing reverses toward the end of October and November, losing two line vessels, numerous transports, and 30,000 men. The stinging Japanese defeat at Guadalcanal marked a decisive turn in the War in the Pacific and, for the Americans, the change-over from prudent defensive to audacious offensive action.

#### Fighting a Losing Battle.

The Japanese chiefs still hoped to be able to wear down the Allies and prevent them from penetrating the insular fortress which protected the heart of Japan; a grave error.

The annihilation of a great convoy of 30,000 men in the Battle of the Bismarck Sea and the attacks from carrier-based aircraft had telling results on Japanese operations. It was, however, only after the loss of Truk, centre of their push toward the south-east, that the collapse of their strategy became obvious to the Japanese. The Allies had required only three months to bring this about—from mid-November, 1943 to mid-February, 1944.

After the loss of the Gilbert and the Marshall Islands, the Japanese were no longer capable of slowing

down the advance of the Allies.

Japanese resistance dragged out for more than a year, but all they could hope to accomplish was to temper their defeat by the vast distances involved. However, this concept was nullified by the all-powerful American logistics system, a decisive element in the victory across the Pacific.

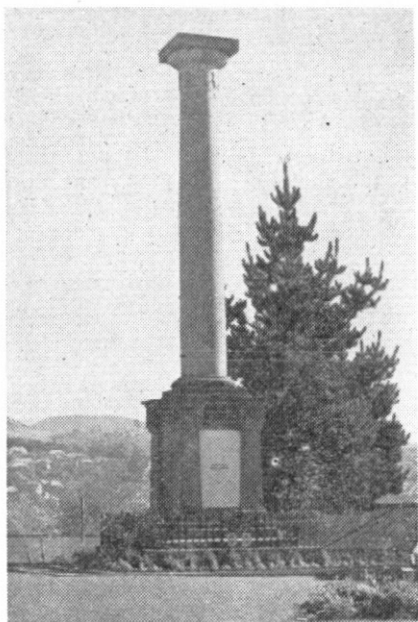
The Nipponese strategy, committed blindly to a war for which Japan did not possess sufficient means and which it believed it could limit, went down under the blows of the Allied forces.

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In modern war, the whole economic structure of society is promptly involved. A gigantic military force, backed by a weakened economic and industrial system, would not have the long-run stamina and resources required in a global war. The heart of the problem, therefore, is to find the balance point between an effective military striking force and the reservoir of men, machinery, and morale that always must stand behind that force.

—*Officers' Call, USA.*

# A UNIQUE MONUMENT



THE British Commonwealth group of free and independent peoples which has attempted to form on a permanent basis a Commonwealth without any written constitution or formal agreement of any sort. The political and economic interests of its components often diverge, sometimes they are in actual opposition. Yet, through the exercise of patience, toleration and

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sensible compromise, we are creating something which might well become the model for a more comprehensive organization of the free nations of the world.

Basically, the British Commonwealth rests upon a foundation of sentiment and tradition, comprised partly of our common heritage of culture and outlook, and partly by innumerable tiny threads linking relatively small groups of people in our several countries.

One of these extraordinarily strong little threads is represented physically by the Monument to the





the Monument has been cared for by the Army. Each year the Wiltshire Regiment sends a wreath in memory of those to whom the memorial was raised.

To mark the centenary of its erection, the Wiltshire Regiment sent a plaque to be affixed to the base of the Monument. The ceremony took place on 12 November, 1950, in the presence of the Deputy Governor, Sir John Morris. In the

course of an impressive memorial service the plaque was unveiled by Major R. P. Royle, of the Wiltshire Regiment, who is on duty in Australia with the United Kingdom Services Liaison Staff.

Thus the Monument erected on Australian soil by English hands a hundred years ago still serves to remind people in this country and in the Motherland of our common heritage and our common interest.



Major R. P. ROYLE unveiling the Plaque.

# PSYCHOLOGICAL FACTOR

in

## ATOMIC WARFARE

Extracts from an address by Brigadier-General James P. Cooney, M.C., Chief of the Radiological Division, Atomic Energy Commission, USA.

### Foreword.

Perhaps the least understood (and hence most often exaggerated) effect of an atomic bomb explosion is radioactivity in the target area. Ignorance and exaggeration can foster unreasoning fears; these can lead to panic and paralysis in an emergency. Our knowledge of atomic radiation is far from complete. Yet we have learned enough to discount much of the fiction and misinformation often associated with this subject.

General Cooney, an Army medical officer, is one of our top authorities on the medical aspects of radiology. Here he explains and evaluates the effects of radioactivity on people. By placing this phenomenon in its proper perspective, he concludes, we can regard it as an "acceptable hazard" of war.

Many of the ideas I want to discuss are matters of opinion—and they are, in some cases, ideas on which the diversity of opinion

seems to be a function of the number of people having the ideas . . .

Please do not interpret any of my remarks as indicating anything less than the fullest respect for the phenomenon of radioactivity as a diabolical instrument of death and injury to men. I only want to point out that we are justified in taking a rather hard-boiled attitude toward it. Since we have no choice but to live with it, we must keep it in proper perspective.

Since the advent of nuclear explosives in the so-called atom bomb, with its attendant ionizing radiations in massive amounts, unfortunate psychological reactions have developed in the minds of both the military and civilians. This reaction is one of intense fear, directed against forces that cannot be seen, felt or otherwise sensed . . . The fear reaction is of such magnitude that it could well interfere with an important military mission in time of war . . . Since it is impossible to stipulate all conditions of experimentation and observation in most of the articles written about radiation for lay consumption, an idea

has evolved in many minds that any and all radiation exposure will cause immediate and mysterious injury or death. This reasoning is fallacious, but it is also attractive and has become contagious.

The problem of radiation injury is not one which can be easily simplified. In fact, over-simplification may be the cause of a situation such as we are combating at this time. It seems desirable to explore radiation hazards more fully in relation to other hazards which are considered more common and acceptable . . .

War is fought with the knowledge that men will be killed. Campaigns are planned with the expectation of losing so many thousand men. If this is regarded as an "acceptable hazard," then it is obviously not wise to treat radiation hazards very differently. If other military hazards will be lessened by acceptance of the radiation hazard, then it should be accepted. This can only be done, however, if the attitude of the men exposed is psychologically similar toward the two types of hazard. If they are going to be as much terrified by the knowledge that a recent atom bomb explosion has contaminated the ground they are walking over as they would be by seeing one in ten of their buddies fall by machine-gun fire, one cannot apply the "ideal" solution. What is dominant for actual percentage survival is the resultant of all the actual hazards. But for battle discipline and military effectiveness the dominant measure is not the hazard itself, but the soldiers' estimation of the hazard.

Men at war suffer many hazards,

acute and chronic, besides bullets—malaria, exposure to cold and wet, starvation, etc. Some of these are under-evaluated by the doughboy. Others are grossly over-evaluated. At present radiation is perhaps the most over-evaluated of all, partly due to our great care in Operations Crossroads. That operation was conducted at the peace-time level of safety to personnel. Unless we had openly proclaimed immediate danger of war, the military level for hazardous training programmes, such as we had actually adopted during the war, using live grenades and live ammunition in the machine-guns, was not tolerable at Bikini. It must be emphasized that hazards acceptable in a peace-time operation cannot be adhered to in war-time.

Psychological training for the military level of acceptable radiation hazard is possible and should be prosecuted, even though operation field training does not permit this to be accomplished at the present time.

We hear much about sterility as a result of exposure to ionizing radiation. It must be borne in mind that sterility results only from a large dose of acute radiation or from smaller doses over a longer period of time—a matter of years. Sterility also results from other accepted hazards encountered in war. We are aware of hundreds of paraplegias due to spinal fractures, gunshot wounds of the cord, etc., during the last war resulting not only in sterility, but impotence. Leukemia may be another late result in casualties from repeated radiation, but amoebic dysentery and schistosomiasis carry a great delayed hazard, as does beri-beri,

which was so prevalent among our prisoners-of-war.

During August of 1946 I interviewed and examined a large number of Japanese who had recovered from radiation sickness. They appeared perfectly normal and were handicapped in no way toward pursuing their manner of living. Such is not the case with thousands of our soldiers who participated in "conventional" warfare in World War II. They are handicapped by loss of limbs and eyes. Neither is it true of many of the Japanese who received no radiation injury, but suffered severe burns and traumatic injury as a result of the bombing. It has been estimated that from 5 to 15 per cent. of the deaths at Hiroshima and Nagasaki were due to radiation. Why do we concentrate on the 15 per cent. and forget the 85 per cent.?

The atomic bomb was developed as a blast weapon of war and strategically so used. The radiation effect was never considered to be the prime component of its effectiveness. The destruction attendant upon the blast, heat, and secondary fires was paramount. In Japan there was no significant "poisoning" of the ground by fission products or induced activity from neutron capture; yet many believe that the bomb is primarily a weapon which destroys by mysterious radioactivity.

I have appeared before local defence agencies in many of our cities. They are preparing for defence against an atomic bomb attack and universally they are thinking only of radiation. Invariably they ask, "Where will we get Geiger counters?" Geiger counters are not

their only problem — fire-fighting equipment is many times more important, as are well-organized rescue squads. "But we have been told that we will not be able to go into a bombed city and rescue the injured." Hiroshima and Nagasaki disprove this. The residual radiation from an air burst bomb is significant. The significant radiation occurs in a matter of microseconds and does not extend beyond a 2000-yard radius. Immediately after a detonation, such as occurred at Hiroshima or Nagasaki, it is perfectly safe to enter into a bombed area and rescue the thousands whose injuries will be such that they will not be able to walk. But how about an underwater or ground burst? In such cases certainly the residual radiation hazards would be increased many fold, but the blast and fire hazards and the prompt radiation hazard would be proportionately decreased, and in my opinion, the total number of casualties would be less.

Much has been written about "poisoned" water. In case the water supply of a city is contaminated by fission products or unfissioned material from an air burst of an atomic bomb, all the evidence on hand at present indicates that after passing through a modern filtration plant, the water at the tap would be safe to drink. More work will be done to prove or disprove this statement. We do know, from our experience at Bikini, that the water from evaporators used on the ship is safe for drinking. Again we must not forget that frequent cases of typhoid fever still occur from drinking polluted water.

If we are to live with this piece of ordnance and ever have to use

it again in the defence of our way of living, we must acquire a practical attitude, not only towards its efficiency or limitations as a bomb, but also toward the possible effects and limitations of this "mysterious" radiation. We must recognize that the casualties caused by the blast and burns from this weapon will be many times greater than the deaths caused by radiation. We must also dispel the erroneous idea that the rescue work of the injured will be impossible due to residual radiation.

It is of the utmost importance that we recognize that the radiation hazards are **additional** hazards. They only add to the complexity and perhaps even the severity of the other hazards of total warfare. Therefore, we must not and cannot concentrate on this phase of atomic warfare to the detriment of other defensive preparations. Rather, we must know and understand the facts about ionizing radiations if we are to survive the other dangers.

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Man can sustain no heavier spiritual blow than the thought that his life or death is of no consequence. Too often has the conviction that the individual is of no importance led the soldier to the collateral belief that his individual effort is of no importance either. If this thought is generated in enough men in the Army, the end result in battle is obvious. Therefore, we must strive to build an officer corps that will recognize, honour and preserve the dignity and identity of the humblest soldier. At the same time we must use every device available to us to convince the soldier himself that his well-being, his aspirations, his service, are all matters of prime importance to his Army and to his country. We must seek to fulfil the desire in every human heart to count for something, to be needed.

Brigadier-General C. T. Lanham, US Army.



# The MALAYAN WAR

1948 — ?

Lieutenant T. A. Gibson,  
The Wiltshire Regiment.

SINCE the outbreak of the Korean war, with its savage large-scale fighting, the anti-bandit campaign in Malaya has naturally dropped into the background of world events. But, occasionally, small newspaper paragraphs telling of ambushes and murders give a grim reminder of the bitter struggle between the British security forces and the Communist terrorists. As many officers will have had experience of jungle fighting in the South-West Pacific during the recent war, and, also, as the ground will be especially familiar to old officers of 8 Australian Division, an account of current military operations in Malaya may be of interest.

Briefly, the bandit set-up in Malaya is that the bandit forces, calling themselves by the rather grandiose title of the Malayan People's Liberation Army—a bad hang-over of the wartime Spencer-Chapman Force 136 era—number about five thousand, practically all Hokkien-speaking Chinese. Organised over the Peninsula in regiments which are only weak battalion strength, they carry an assortment of British and Japanese arms, while their uniform or garb is generally a shoddy canvas peaked cap with a faded red star, shirt and shorts and gym shoes. The secret of their success lies in their first-class intelligence

service, called the Min Yuen, or People's Movement, the non-militant Communists who live in the towns and villages and who supply information and food and money to their armed friends. Other sources of food and money are the squatter areas and the rubber and timber kongsis, whose inhabitants have the choice of either contributing comforts to the MPLA or their lives. The bandits live in the jungle in platoon and company camps and their favourite sports are firing rubber plantations, ambushing and murdering planters, ambushing lone vehicles, burning civilian buses, and shooting-up trains. To counter the bandit menace, police and military work in very close co-operation. The whole of the Federation is divided up into areas called police circles. In a circle are one or two battalions, according to its size and importance. From agents and informers information about bandit activities comes into the police-military Joint-Operations Room, run by the battalion intelligence officer and a British police officer from the local CID. If the information is reliable and top-grade, an operation involving troops and police jungle squads is immediately mounted.

Military operations against the terrorists are directed by GOC Malaya District, Major-General R. E.

Ghurka sapper squadrons (now in Hong Kong) and a Provost unit, have been formed.

When a new British battalion disembarks at Singapore, it usually undergoes a short kitting-up and re-equipping period of a month to six weeks at Nee Soon or Selarang Barracks on the Island. During this Urquhart, CB, DSO, who is also GOC 17 Ghurka Infantry Division, comprising the eight battalions of the four Ghurka regiments selected for transfer to the British Army in 1947, and also British units. Obviously, the accent at present in Malay is on infantry, so the brigades are non-tactically composed, some having as many as five battalions. The only field regiment RA there does infantry patrols as well as an occasional operational shoot in a big drive. The British-officered Malay Regiment is very active with four battalions; also a Royal Marine Commando Brigade from Hong Kong is in the field or, rather, jungle. Until quite recently, 2 Guards Brigade was in Malaya, which is a tribute to the Federation's importance as the Empire's greatest dollar earner, as traditionally in former days Guardsmen were never seen "east of Suez."

The background of 17 Ghurka Division is that it was hoped the Ghurkas would provide their own RE, RA, Signals, REME and Provost, but this idea now seems to be undergoing a lingering death. While the hardy, brave Ghurka is the ideal infantryman, he makes no boast of mental brilliance or book education, and complicated modern equipment is a little beyond him. For instance, 7 Ghurka Rifles were to be converted to artillery, but this has now been abandoned. However, two

time most of its officers and NCO's are sent on a three weeks' "ulu-bashing" course at the FARELF Training Centre (formerly at Tampoi, near Johore Bahru, but now twenty miles along the Kota Tinggi road from Johore Bahru), while selected private soldiers go to Nee Soon and Blakang Mati on jungle cooking and water duties courses. The Training Centre at Tampoi definitely had the right atmosphere—it was housed in what was formerly the State mental home, and the garden before the main building contained the graves of two British doctors murdered by the Japanese in 1942.

Each new intake at the Centre is promptly issued with the '44 pattern equipment, a No. 5 rifle and fifty rounds, which are carried everywhere and at all times, jungle boots and a jungle hat, and also the finer essentials of comfortable jungle living, such as a poncho cape, machete, tommy cooker, sterilising tablets, paludrine and mosquito repellent.

The course consists of mainly practical stuff, like jungle lane snap shooting with the rifle, LMG and SMG, compass work and photo reading, jungle technique and formations, interspersed with lectures by interesting personalities, such as the G2 (I) and G2 (Air), Maldist, and the Police Superintendent, CID, Johore. Lieutenant-Colonel "Mad Mike" Calvert, DSO, RE, of Chindit fame, who was based on Tampoi recruiting for his newly-formed Malay Scouts, used to conduct a couple of amusing sessions. His first was a lecture on "The Pattern of Guerilla Warfare." Referring to the fact that Aung San, the late Burmese leader, had at first thrown in his lot with the Japanese, he said the

British were not particularly worried as Aung San was Sandhurst-educated and it was better to have a chap who had been through Sandhurst against them than one who had not! Regarding the problem of our patrols being detected by barking village dogs, he suggested that each patrol should take along a bitch in an amorous frame of mind. This, apparently, is the solution, if not the textbook one, to barking dogs. Then only sex, and not a bandit, rears its ugly head. His other period was a problem worked out from the map, called a "jewt"—a "jungle exercise without trees." The Malay Scouts, incidentally, are a jungle version of the Long Range Desert Group—cum—SAS. The men, all British, will be trained to live and operate in the jungle for very long periods seeking out bandit camps, though their general role will not necessarily be confined to Malaya. As trained paratroops, they will be readily available to deal with outbreaks of violence anywhere in the Far East.

Recently, however, patrols hugging the jungle fringes to a depth of only two or three miles have had more success in encountering bandits. Generally a routine British patrol—i.e., unless a big drive is on or definite information is being acted upon—is a strong section, about ten to fifteen men, commanded by a sergeant or subaltern. As the bandits will not stand and fight unless the odds are heavily in their favour, surprise is the essence of the contract, and a patrol over this strength in primary jungle is too unwieldy for good control.

Regarding the tactics, organization and equipment of that patrol, several schools of thought exist. Most

battalion commanders think differently, and as Malaya is purely a subaltern's war, they have plenty of time to think. The usual composition is a scout group, a rifle group and a Bren group, certainly the two former. The scout group is the eyes and ears of the patrol and also the cutters in thick country. Generally a couple of riflemen under a junior NCO with a SMC, they undergo a heavy strain, not only the physical one of swinging a machete, but the mental one of having to be super alert for ambushes and chance contacts, and they are usually relieved after a couple of hours. After the scouts come the patrol commander, his runner, EY rifleman and signaller, and then the rifle group, possibly containing up to five riflemen. Finally, at the rear come the Bren group, unpopular in the jungle with some units because of its weight, for the men, as well as carrying their



ammunition and grenades, have four days' rations and their capes on their backs. Then again, other units say there is nothing like its firepower in a crucial moment and the weight consideration is secondary.

If tactics are a slightly controversial question, the value of individual weapons claim more decided views. The pistol is regarded as quite useless, followed a close second by the Sten SMC, because of its unreliability in the wet humid climate. Grenades, both the 36 and the white

phosphorous, are universally popular and, as it is of course quite impractical to use the 2-inch mortar because of the jungle density, the EY rifleman is quite an important man to step up the hitting power of the patrol. Two weapons being introduced are the Owen gun, to replace the temperamental Sten, and the American semi-automatic carbine. The No. 5 rifle, the Airborne and Special Service rifle, is quite good, but obviously its bolt action is a disadvantage in fleeting engagements. Most battalion commanders like to use their 3-inch mortars



whenever possible, though this employment is limited by the need for the target area to be within range of a vehicle track; also the bombs are very sensitive to the climate. That effective weapon of the Pacific war, the man-pack flamethrower, is rapidly coming into its own as a counter to MT ambushes. These road ambushes, to which the bandits are very partial, invariably take place in a cutting with sides so steep that the bandits can shoot down into the vehicles without fear of counter-attack unless a laborious flanking movement is made. Flamethrowers in a trapped convoy can promptly drench the rim of the cutting with fire, which is enough to deter the stoutest of bandit hearts.

Innovations in anti-terrorist measures are constantly being tested. Two new ideas introduced late last year were night bombing of suspected bandit encampments by the RAF and "prophylactic firing" by the guards on the much shot-up night train from Singapore to Kuala Lumpur. This latter measure consists of the train guards raking with fire every cutting the train goes through and has proven fairly successful in decreasing the number of incidents. The drill for the night bombing is that two searchlights are positioned near the target area, one with its beam upright about four miles or so from the target, the other still further away with its beam cutting the upright one every now and then. The bombers come over, line themselves up on the cutting beam, and when over the upright one, do a timed run on to the target. At dawn next day, troops sweep through the area and if the camp has existed, generally find that

the bombs have fallen more or less on target. But whether the RAF merely blasts acres and acres of jungle rather expensively without causing a casualty is a debatable point.

The Air, however, is extremely good in Malaya, and air drops, air strikes, evacuation of casualties by helicopter, can be laid on by battalions at very short notice. Probably the efficient and enthusiastic inter-Service and all ranks' teamwork accounts for the good morale of the British soldier in carrying out such an arduous and unpleasant task—he feels he is doing a worthwhile job and all are in it together. For his camp on the fringe of some out-of-the-way Malayan town has few amenities—a cold shower after his patrol, some inter-platoon sport, perhaps a visit to the local Chinese cinema in the evening. But even life then has its sneaking hazards, as reported recently when a grenade was thrown into a cinema at Bentong, Pahang, and wounded among its many victims thirteen Gurkha soldiers.

Like all things to do with the Army, sanity is preserved by a sense of humour. One night when the slow, and heavily-gunned, night train to Kuala Lumpur was chugging its way north, a group of officers, all except the OC Train, greener than the jungle, were standing in the dining car by the bar. The OC Train pointed to a couple of bullet holes over the bar, and said:

"That's what happened to the cook last week."

"Yes," said the barman, "but he wasn't a very good cook, anyway."

# ORGANIZATION

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# AIRLIFT



Lieutenant Colonel William B. Bunker,  
Transportation Corps Chief, Air Transport Service Division,  
Office, Chief of Transportation.

**F**ROM the start of the Korean hostilities, it was apparent that considerable reliance would have to be placed on aerial transportation to supply the rapidly moving combat elements, and to overcome the deficiencies of other means of transportation. The campaign continued, to a large measure, to be dependent upon air transportation, particularly in the northern areas, where a lack of seaports made it one of the most important mediums of supply.

When the campaign started, there was no logistical organization in the theatre for the operation of aerial ports of embarkation. At Matsushima, an Air Transportability Training Centre had been organized from the 11th Airborne Parachute Training Centre to give tactical air-transportability training to Eighth Army units. This organization was an Eighth Army school; under the

supervision of its G3, and its instruction emphasized, primarily, airborne doctrine concerned with teaching units to load their own equipment and supplies into aircraft as well as the proper method of unloading the material. In order to establish an aerial transportation system, the Air Transportability Training Centre was attached to the 374th Troop Carrier Wing. Detachments of the centre were set up at the Tachikawa, Brady, and Ashiya Air Force Bases and were charged with the dual mission of loading and unloading aircraft and of conducting aerial resupply.

During the first two months of the campaign, the centre operated in this manner, primarily in the status of an air freight terminal on the air base. It is interesting to note that, during this same period, the Ashiya Detachment conducted five or six aerial resupply drops to units which had been isolated in the retreat to the Pusan perimeter.



### **Combat Cargo Command Established.**

When the rear area logistical elements of the Eighth Army were combined into the Japan Logistical Command, General Headquarters directed it to assume the responsibility for the operation of the aerial ports of embarkation established within Japan, and the operating detachments of the Air Transportability Training Centre were transferred to its command. At this time, the general nature of the airlift was changed from that of tactical support to that of a logistical supply medium for the forces in Korea. Several additional units, notably the 314th Troop Carrier Group and the 46th and 21st Squadrons, were added to the airlift and a command echelon for their operation, the Combat Cargo Command, was established directly under Headquarters, Far East Air Force. In order to handle this change in concept, it became necessary for the Japan Logistical Command to organize complete aerial ports of embarkation and the necessary command structure to handle its responsibility.

### **A New Command Structure.**

Under the Japan Logistical Command, the Air Transportability Training Centre was assigned the additional mission of operating the required aerial ports of embarkation. The technical supervision of this operation was delegated to the Transportation Officer of the Japan Logistical Command, who added an Air Division to his organization to handle this responsibility.

The Air Division, Japan Logistical Command, primarily was concerned with representing the Air Transportability

Training Centre in dealings with the various staff divisions of the Japan Logistical Command, particularly in the matter of co-ordinating the flow of supplies and equipment, to be air-transported, to the various ports of embarkation to meet forecasted airlifts. It was also responsible for keeping the Air Transportability Training Centre advised as to the policies and requirements of both the Japan Logistical Command and General Headquarters for the use of the airlift, and the general allocation of priorities. Because of the geographical situation, the Air Division also took action directly with Tachikawa Air Force Base to release cargo for the airlift shuttle service for inter-Japan moves.

The Air Transportability Training Centre Headquarters was established at the Ashiya Air Force Base, in the same location as the Combat Cargo Command. This was necessary in order that the over-all operational plans of the Combat Cargo Command and those of the aerial ports could be integrated daily. In addition, the Commanding Officer, Air Transportability Training Centre, also acted as the Japan Logistical Command representative to the Combat Cargo Command on matters of mutual interest.

### **Aerial Ports.**

Aerial ports of the Air Transportability Training Centre were established at Ashiya, Tachikawa, Itazuki, and Brady airfields. Their detailed organization varied considerably, between the several airfields, due to the number of aircraft based there and other local conditions. At Tachikawa Air Force Base, which had been an aerial port for a considerable time, the army

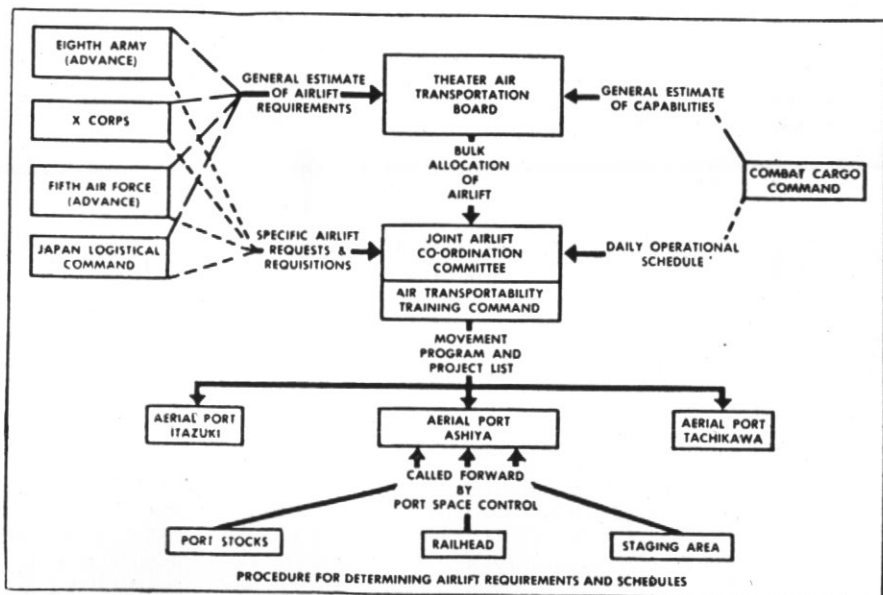
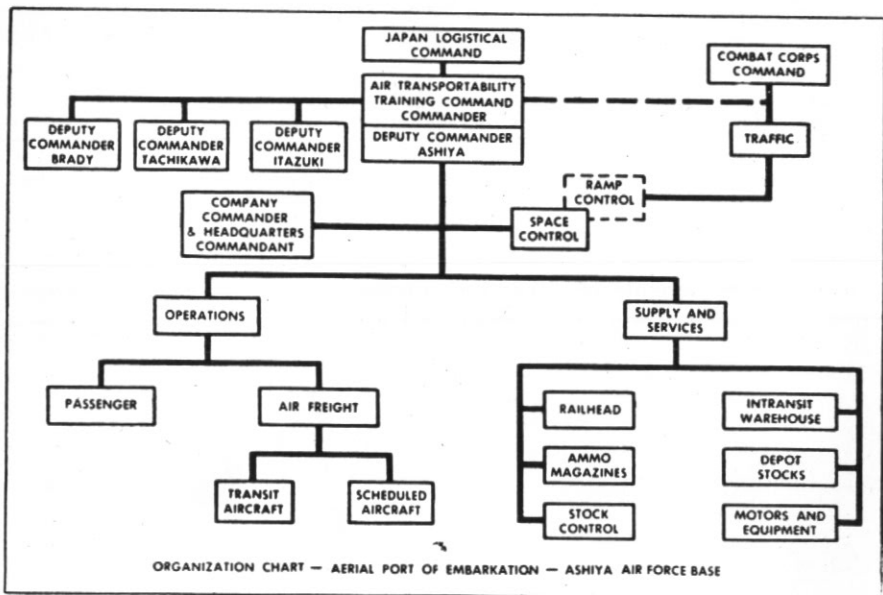
headquarters was superimposed on the existing air force organization, and the detailed operations were performed by the same personnel as had been operating the Air Force Air Freight and Passenger Sections. This was considered desirable inasmuch as port-type operations there would continue after the cessation of the campaign and the base commander was reluctant to have his personnel temporarily dispossessed and then have to replace them when the army port was withdrawn. At the Brady airfield, the operation was quite small since the aircraft based there, C-47s, were used only in the minor local lifts and as couriers. At Itazuki, the establishment, likewise, was small since the already existing air freight operation of the Fifth Air Force and the Air Evacuation Squadron, at this field, continued to handle most of the port work.

The Ashiya Air Force Base, which was responsible for supplying a major portion of the airlift from Japan to Korean stations, was completely organized as a ground force operated aerial port of embarkation. The organization was divided into two main divisions, an Operations Division and a Supply and Facilities Division. The former was responsible for loading and unloading aircraft and for handling cargo between the aircraft and warehouse hangars. The latter was responsible for the operation of marshalling camps, supply points, and ammunition magazines and other facilities for the stock-piling of airlift supplies. In addition, it was charged with the operation of the railhead, the stock control of intransit and stock-piled materials, and the operation and maintenance of the me-

chanical equipment required by the port.

#### Space Control Officer.

Co-ordination between the activities of the Operations and the Supply and Facilities Divisions was obtained by establishing a Space Control Section as an executive function of the port commander. The Space Control Officer was responsible for establishing the loading programme for the Operations Division, including the documentation of shipments and maintenance of records of aircraft being loaded and time of loading. The Space Control Officer also was the point of contact between the port and air force operations. Working directly with the Combat Cargo Command Ramp Control Officer, he received information as to aircraft to be loaded, allowable loads, and other operating instructions. He, in turn, advised the air force operations personnel, through the Ramp Control Officer, of the load which was being placed aboard the aircraft, its destination, and the time it would be available for take off. By working closely with the Supply and Facilities Division, he programmed daily movement schedules in order to take advantage, insofar as possible, of movements directly from the railhead to aircraft, thereby avoiding double handling of intransit cargo. Since there were no designated passenger flights in this operation, the Space Control Officer was responsible for keeping in close contact with the Passenger Section to ensure that aircraft, as required, for passengers were made available and for contacting the groups, through the Ramp Control Office, in order that proper personal safety equip-



ment could be placed aboard the aircraft.

#### **Air Shipment Priorities.**

Priorities for air shipment to Korea were prescribed by the General Headquarters Air Priorities Board. The Combat Cargo Command submitted a weekly estimate of its capabilities for transport to various Korean areas, and, at the same time, the major commands in Japan and Korea submitted their estimates of requirements for airlift for the ensuing week. Based on these data, the theatre Air Priorities Board issued a bulk tonnage allocation to each major command on a weekly basis, leaving to the Commanding Officer, Air Transportability Training Centre, the prerogative of making daily adjustments between claimants and the responsibility for the collection of detailed requirements.

A daily programme meeting was held at Combat Cargo Command headquarters, attended by representatives of the claimant shippers, the Air Force, and the Air Transportability Training Centre operations staffs.\* At this time, a project list for airlift for the following day was formulated, within the broad allocation framework, giving detailed assignments by air-craft types and destinations for the lift required. This list became a movement direc-

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\*This procedure established an informal operating agency designated the Joint Airlift Co-ordinating Committee, which, using the bulk allocations of the theatre, considered specific airlift requirements and the air force and aerial port operating capabilities.

tive to the space control officers for their next days operation. At this meeting, local arrangements were made, when required, between the claimants' representatives to meet urgent requirements and operational restrictions. Because of the time element and the rapidly changing situation, quite frequently the programme bore little or no relation to the general priorities allocation pattern.

The Space Control Officer was responsible for keeping the Air Transportability Training Centre commander currently advised as to the availability of cargo or units for air shipment so that he could request their inclusion in the daily programme. Upon receipt of the daily programme, the Space Control Officer then prepared his detailed schedule of operations in conjunction with operations and supply officers. He took the necessary action to have units alerted and available for loading. The Supply and Facilities Division Officer then arranged for railhead operations in order to meet the detailed programme of out-loading and prepared mobile loads, on trucks, for the programme.

#### **Plane Loading Procedures.**

The Ramp Control Officer secured from the operating groups the numbers and the locations of aircraft available for loading, and advised the Space Control Officer, who entered them on his space control record. The Space Control Officer then assigned one of his programmed loads to the aircraft and advised the Operations Officer. Actual loading operations were conducted by teams consisting of a non-commissioned officer loading foreman, a non-commissioned officer

checker, and 10 Japanese labourers. Since only small 2-ton (Japanese built) trucks were available, three truck loads were required for most aircraft. This team, together with fork-lift trucks or other materials handling equipment required by the particular load in question, was despatched to the plane sites by the Operations Officer, together with two copies of a prepared manifest of the load.

The port loading team was fully responsible for the loading and the lashing of cargo, and then turned a copy of the manifest over to a representative of the plane crew, who was stationed at the aircraft during loading operations. Loading operations were supervised by two ramp officers of the Operations Division, who cruised the loading area in jeeps. It was discovered that their effectiveness was increased considerably by issuing them radio-equipped jeeps so that they were in constant contact with the operations desk. The average time for loading and lashing general cargo aboard a plane was approximately 40 minutes, and the objective of the port was to have every aircraft loaded at least 30 minutes prior to its scheduled departure.

After loading, the crew returned to the space control headquarters and turned back a copy of the manifest, indicating the time the loading was completed, signed by the non-commissioned officer in charge of the loading operation. The time of loading indicated on the space control records, however, was shown as the entire time between the despatch and return of the crew or the time the aircraft was held by the port operations.

### Operational Responsibilities.

As the authority of the Japan Logistical Command was restricted to the Japanese Islands, and as personnel for port operations was seriously limited through most of the campaign, the Air Transportability Training Centre did not supply personnel for the operation of the airheads. The Combat Cargo Command formed provisional support units from its own personnel, consisting of four or five officers and 50 to 100 enlisted men, to operate the ports of debarkation. These units were equipped with essential equipment by drawing from the air base and the Fifth Air Force. After the situation had been stabilized somewhat, responsibility for the ports of debarkation operations was assigned, by General Headquarters directive, to the ground force commands functioning in these areas.

During the initial operations at every airhead, the supplies being shipped were in such demand that the tactical units being served were quite willing to assist in unloading and clearing the airfield. After the situation stabilized, however, some difficulty was experienced in securing support for the operations of the airfield. This became particularly apparent when one of the Korean airheads was changed to a port of embarkation to serve another more advanced field.

In view of the close relationship between the activities of aerial ports of embarkation and debarkation served by the same transport command, and the direct interrelationship of volume of traffic between the fields, it appears that the operation would have been improved considerably had the Air Transport-

tability Training Centre been assigned the mission of operating all aerial ports of embarkation and debarkation served by the Combat Cargo Command. Further, the command relationship between the Army and the Air Force for this operation would have been improved considerably if the Air Transportability Training Centre were placed on a level parallel to the Combat Cargo Command as a major command in the theatre, rather than on a local level for each area.

#### Conclusion.

Of the factors affecting, most seriously, the efficient utilization of the available air transportation, the most important was, undoubtedly, a complete absence of an efficient method of determining priorities. All shipments and requisitions were marked and sponsored as "first priority," which forced the Air Transportability Training Centre commander to make his own decision as to the relative urgency of each shipment when weather, diversions, or other factors decreased the total available airlift. While, normally, the airlift is reserved for high priority shipments, it is still perfectly feasible to ascribe a relative degree of urgency so that the port may expedite the proper item for shipment. In this same connection, requirements for airlift, particularly from the Army, fluctuated violently, and while it often required several times its assigned allocation, at

other times it could not use the available lift.

There seemed to be a general lack of appreciation, in Army supply agencies, of the necessity for maintaining the air transportation system at or near peak production in order to ensure its instant availability for high priority shipments in emergencies. Precision pattern flying requires continuous operation, in order that procedures and air traffic patterns can be stabilized and flying personnel retain a high degree of efficiency. In the same manner, the aerial ports must have a fairly uniform work load, requiring near maximum exertion, in order to be able, instantly, to meet emergency developments. If air transportation is reserved entirely for emergency shipments of the first priority, a sudden unforeseen emergency will find the system either in disuse or already loaded to capacity and, in neither case, will it be able to react instantly to meet the new requirements.

In addition to emergency requirements, supply agencies should have an airlift programme of lower priority which will use the air transportation system for decreasing stock-piles and pipe-line inventories of high unit value supplies, such as medical and signal equipment. This programme then will serve as a base load factor which can be used to absorb the slack between peak emergency requirements and thereby keep the system operating smoothly between emergencies.



# TANK DEFENCE AGAINST ATOMIC ATTACK

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Major Garth Stevens, US Army.

**W**HAT will happen to tank units if attacked with atomic explosives? Will the tank be discarded as a weapon if any enemy starts using atomic bombs tactically? As atomic weapons become more plentiful, answers to these questions become increasingly important. The tank is probably the least vulnerable of ground weapons to atomic explosions, and slight changes in material, organization, tactics and techniques can greatly increase the effectiveness of the tank under atomic attack.

The publication of *The Effects of Atomic Weapons* by the Department of Defence and the Atomic Energy Commission has provided an authoritative reference available for analyzing the effects of atomic weapons on ground warfare. The following is a brief discussion of the effects of atomic explosions when used against tanks and tank units. An atomic weapon with an explosive equivalent of 20,000 tons of TNT is assumed.

## Effects of an Atomic Explosion.

An atomic explosion destroys in three ways: (1) By blast, in the same manner as any high explosive, (2) by thermal radiation, or heat, and (3) by nuclear radiations. Each of these effects is deadly by itself. However, to obtain maximum over-all destructive effect against troops in the field, an enemy would probably explode the bomb about 2,000 feet above the centre of the target area; the following discussion assumes such an air burst.

The blast from an atomic bomb only differs from that of other military high explosives in that it is stronger and lasts longer. Although a properly placed atomic bomb can crush any man-made structure, an enemy who would explode an atomic bomb to destroy one or a few tanks would be as foolish as the enemy who would use a TNT blockbuster to destroy a cracker box. Since the best protection against blast is armour plate, in a large area under an atomic explosion, although buildings would be knocked down, wooded areas would

be levelled, and debris would be thrown for miles, still a tank close to the ground centre would have a chance of survival. Not only would the tank's armour plate protect against the initial blast, but, more important, it would protect against flying debris.

A tank next to an atomic explosion would be vaporized by the intense heat. Thermal radiation or heat would cause more casualties among unprotected personnel in a cleared area than blast and nuclear radiations combined. Yet a tank directly under the explosion would probably survive this hazard, assuming all tank hatches were closed at the time of the explosion. A tank commander with his head out of the turret would pull back a charred stub, and the crew would be killed instantly by blast and heat with the hatches open.

Nuclear radiation hazards are of two kinds; those which are nearly instantaneous, and those which are delayed and are called lingering radiations. Lingering hazards result from radio-active materials being deposited upon the tank or onto areas in which the tank must operate. An explosion 2,000 feet above the target would cause negligible lingering radiation hazards. Units could move into the area under the explosion immediately after the explosion with assurance that crews would not suffer from radiation hazards. However, no tank built carries sufficient armour plate to protect the crew from instantaneous nuclear radiation from an atomic explosion 2,000 feet away. The tank's armour plate will, however, reduce instantaneous nuclear radiation by at least half, thus giving the tank crew some protection. The discus-

sion so far has assumed a high altitude burst. Such a burst will normally cause greatest over-all damage, but an enemy might well burst at atomic projectile on the ground, or allow the projectile to penetrate the earth before exploding if the target is a tank unit. While blast and heat hazards from such bursts would be greatly reduced, the lingering radiation hazard would be increased. Tanks might not only be contaminated with radio-active dust, but might be forced to move through highly contaminated areas to perform assigned missions. An underground or surface burst could thus create a substantial roadblock which would need no attendance.

#### **Tactical Use of Atomic Weapons.**

An atomic weapon, like any other supporting weapon, would normally be used to best further the assigned mission of the unit. Thus, an attacking enemy would be expected to burst atomic weapons to best further the attack, and in the attack the atomic weapons would be a powerful weapon. Assume defending units to be occupying strongly fortified positions which would force the attacker through a well-fortified line. Penetration of a heavily defended and mined area would require the massing of artillery at the proposed point of penetration, the use of engineer troops to clear or mark mined areas, the use of heavy infantry attacks to open and maintain a breach, the massing of supplies, and the selection of terrain favourable for both tanks and infantry. However, with atomic weapons available, the equivalent of hours of intense artillery and air bombardment can be accomplished in a few seconds. The height of the

atomic explosion can be varied so that the effects emphasized would be to clear mine fields, to level wooded areas, to remove tank barriers, and to destroy personnel over a large area.

To briefly recapitulate, let us list some of the advantages of an attack supported with atomic weapons:—

- (a) The possibility of surprise is increased. No artillery preparation is necessary. Less massing of troops for the attack is required.
- (b) Detonation by atomic explosion of anti-tank mines in limited areas greatly simplifies the mine clearing job.
- (c) Substantial destruction of defending personnel in critical areas greatly simplifies what remains of mine clearing and obstacle removing jobs.

Warfare in which atomic weapons would be extensively used would probably require highly mobile dispersed units, such as could be created from existing types of armoured units. In such warfare, the tank would be of increasing importance both for offensive and defensive actions.

#### **Protection Against Atomic Attack.**

Atomic warfare will require greater dispersion of units. The circular type bivouac often used during World War II would be an ideal target for an atomic bomb. However, the communications systems of armoured units permit them to operate in dispersed formations, and their mobility permits rapid assembly at critical points for either defensive or offensive action.

Atomic warfare will require decentralization of supply and maintenance functions. Large units with large headquarters are tempting targets. Possibly ordnance, quartermaster, signal and medical functions now performed on the division level should to a larger extent be performed by battalions and companies. Such decentralization might result in decreased combat efficiency because of small units performing functions that can best be performed by larger, better equipped units, but this loss in efficiency is nothing to that which would result if an entire division headquarters were suddenly destroyed, or an ordnance or quartermaster battalion were wiped out.

Atomic warfare will require modifications in tactics and techniques. As an atomic explosion might result in the sudden removal of defending personnel, mines, and other obstacles, an attacking unit might be expected to use routes of attack not normally considered favourable for tanks. Camouflage will be more important. Air warning systems will be very important, as one plane can now carry the destructive load formerly carried by dozens, or even hundreds, of aeroplanes. Use of defilade will be important. A hill is ideal protection against an atomic explosion.

#### **Summary.**

Extensive use of atomic weapons against tactical units may greatly increase the importance of the tank and armoured units. It is therefore important that tankers understand the advantages of the tank in this type of warfare, and that the greatest effort practicable be made to develop tactics and tech-

niques which will fully exploit these advantages. It is well to remember that, although an atomic explosion is a tremendous thing, it will not kill a person any deader than a .30 calibre bullet, and the hazards of

atomic explosions are to be reduced by good training, proper use of equipment, and use of mobility, cover, and concealment, just as other battlefield hazards have been reduced by similar procedures.

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