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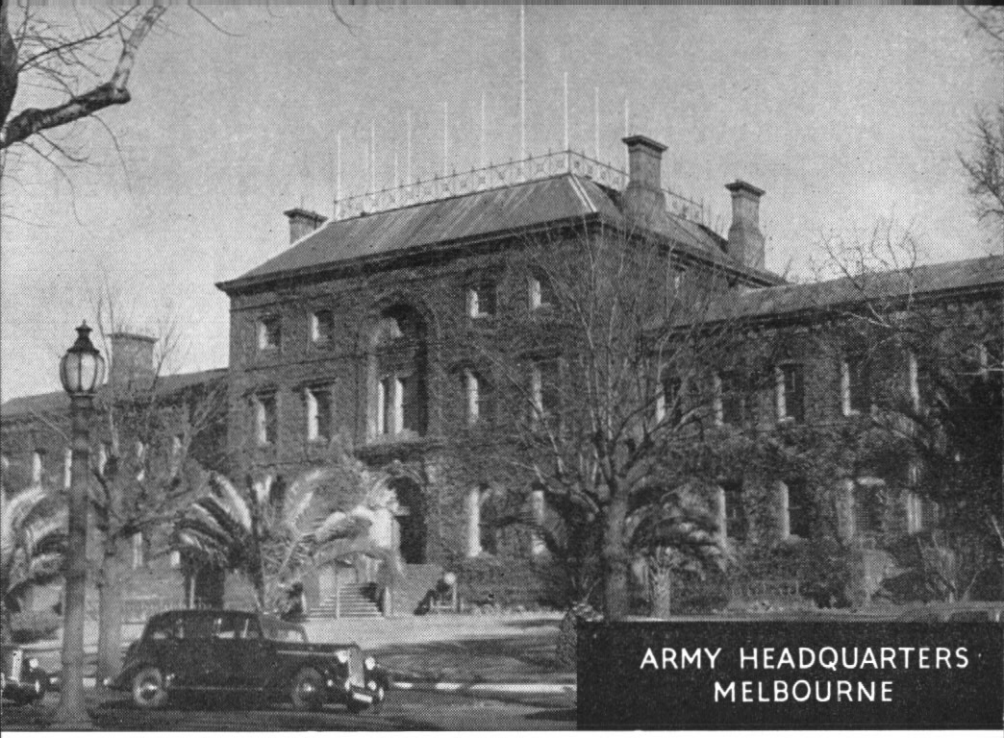

AUSTRALIAN ARMY JOURNAL

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TACTICAL APPRECIATIONS for the NCO

Major C. L. Thompson,
Melbourne University Regiment.

IN the Australian Army Journal for March, 1951, there appeared an article titled "Tactical Appreciations for the NCO," in which the writer suggested a simplified form of appreciation under three headings, namely—

Aim
Ground
Plan.

Another method of approach to this problem is suggested in the following paragraphs.

The essential part of any appreciation is not the plan, as stated by the writer of the article under review, but the deductions. The plan flows logically from the deductions, and to achieve the best plan the simplified form outlined above does not provide the correct framework for streamlined thinking. The following alternative form is submitted as a possibility for the Section Commander.

The Objective.

The Section Commander must know the objective as it is of greater significance to him than the aim. The aim is the charter for action. The objective is the vital ground for the section to seize, and is what concerns the private soldier. Certainly troops should be briefed as to the platoon aim.

Approaches to the Objective.

A study of ground follows, the purpose of which is to weigh up the pros and cons of the various ways of getting forward to the objective. Under this heading would be considered the question of surprise and deception.

Obstacles to Movement.

Natural and artificial obstacles to forward movement must be considered, not the least important being the question of what enemy fire will be encountered and from what location. It is here that the Section Commander determines the most suitable fire power necessary to help him neutralise the enemy, and considers how he should deploy his own troops to give the maximum fire either at longer ranges or during the hand-to-hand assault.

The Plan.

The plan is now evolved from the previous study of the above factors, and would include the question of reserve and probable action on the objective.

In a platoon battle the courses open to the Section Commander are usually very limited as he is required to play a part in a team action. Much of the Section Commander's considerations have already been examined by the Platoon Commander when he does his own appreciation.

Relative Strengths.

At the Platoon level the question of Relative Strengths is most essential. The writer of the article under review says:—

> "It is not wise to encourage Junior Commanders at platoon and section level to worry overmuch about this factor."

However, it is considered that Relative Strengths at the platoon level mean:—

(*a*) *The Enemy*—

A study of his known fire positions, the kind of fire he may use against the opponents, the kind of emplacements he may have, and what is required to neutralise them, and last, but not least, the question of this deployment and how a flank or rear assault may affect his strength. The question of reserves to deal with any unknown strength flows from this factor.

(*b*) *Own Troops*—

The capabilities of our own weapons in dealing with the known enemy posts, which weapons should be employed first, which ones held in reserve, what additional aid in fire power is needed.

In other words relative strengths at the Platoon level becomes a critical examination of merits and disabilities of the enemy and our own troops' fire power. After all, the correct deployment of a platoon is the application of fire power on to an objective so that by the minimum expenditure of human lives a position can be secured.

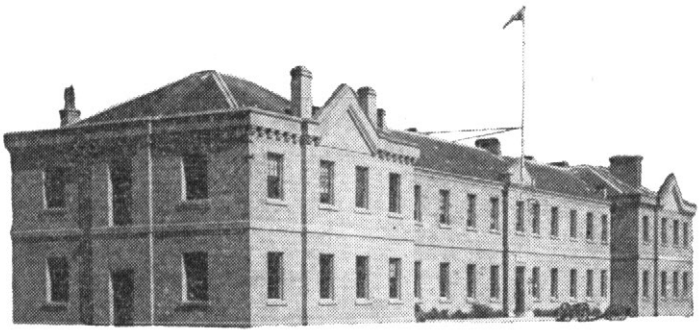
Reorganization.

It is good tactics to give emphasis to the method of securing a position (reorganisation) as it is not unusual for the enemy's chief weapon to be in his counter attack once he has lured the attacker on to ground which he can assault with his tanks or artillery. It is on the objective that the infantry soldier comes into his own and, accordingly, no appreciation at whatever level is sound without consideration of the method of holding the area just captured.

These remarks may seem to appertain to the appreciation for "the attack," but the theme outlined is nevertheless just as realistic in the appreciation for "the defence."

The Story of . . .

ANGLESEA BARRACKS



Brigadier E. M. Dollery, OBE, MC,
Commander, Tasmania Command.

ANGLESEA Barracks, the Headquarters of the Military Forces in Tasmania, with a unique history dating back to several years before Waterloo, is the oldest occupied military establishment in Australia.[1]

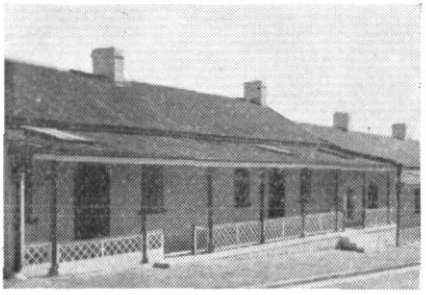
On 2 December, 1811, during his first visit to Van Dieman's Land, then a dependency of New South Wales, the Governor of the latter Colony, Colonel Lachlan Macquarie, a most energetic and efficient administrator, rode out one morning from Government House and reached the top of a small rise about one and a half miles south-west of the settlement of Hobart Town. To his Aide-de-Camp, Captain Antill, he said, "This is the spot for a Barracks," and it was called "Barrack Hill" from that day.

The garrison at that time was formed by a detachment of the 73rd Regiment of Foot, later The Black Watch, one of the most famous of all British Regiments. It was housed in hutments of wood and mud in the township under very uncomfortable conditions. Macquarie had taken one look at these deplorable quarters, and had expressed himself in the most caustic terms to the local Commander. As Macquarie himself was an officer of the 73rd, it can be assumed that he would be more than ever anxious to alter these conditions for the better as soon as possible.

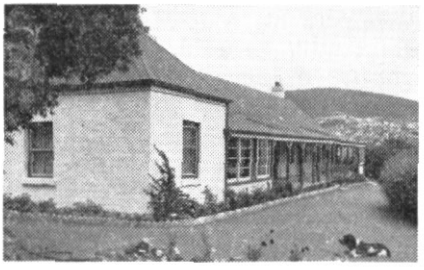
1. The respective dates of foundation of Military Barracks in Australia are:—
Anglesea Barracks, Hobart, 1814.
Lancer Barracks, Parramatta, 1817
Paterson Barracks, Launceston, 1838
Victoria Barracks, Paddington, 1814
Victoria Barracks, Melbourne, 1859
Victoria Barracks, Brisbane, 1860
Swan Barracks, Perth, 1896
Keswick Barracks, Adelaide, 1913.

Before he left Hobart Town he had given orders for a new barrack to be built on Barrack Hill, and had personally supervised the plans and specifications. The new barrack was to house 150 men, with quarters for officers, and a hospital with sufficient accommodation for 30 sick cases.

Records are not clear as to when the work on these buildings was begun, but from the time of his return to Sydney, Governor Macquarie kept urging their construction and demanding reports on the progress made with the work. (A similar procedure is normal practice 140 years later.)

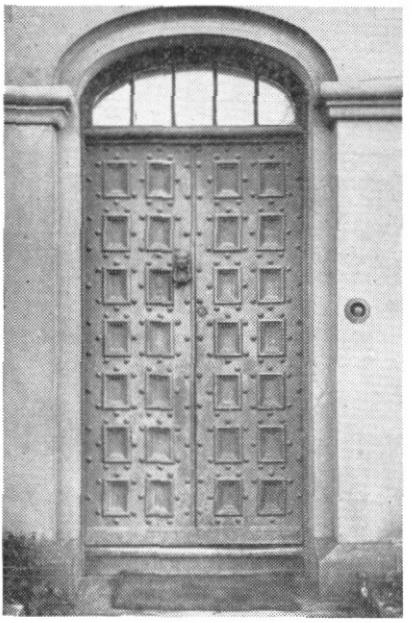


1. Original Officers' Barracks (1814).



2. Commandant's Residence (1818)

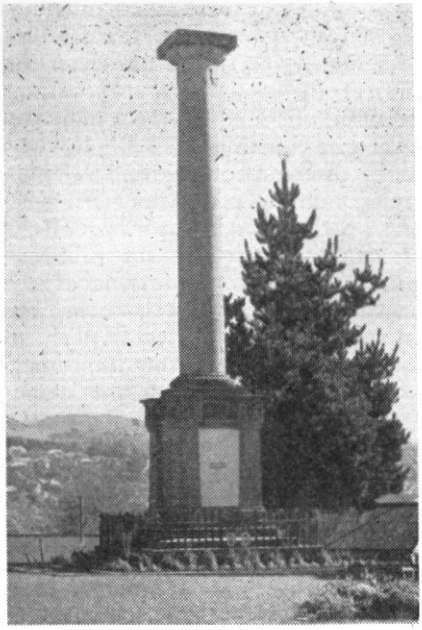
3. "C" Block (1824)



6. Doorway of Jail (1846)

In the diary of the Reverend Robert Knopwood, the first clergyman to officiate in the Colony, is found the record of the laying of the foundation stone of the Officers' Barracks by the Lieutenant-Governor, Lieutenant-Colonel Thomas Davey, Royal Marines. This was on 17 August, 1814, and the range of single-storied colonial-type buildings referred to is standing today in a very good state of preservation. (See Plate 1.)

The lower end of this block contains the original Officers' Mess, first occupied by the 73rd Regiment.

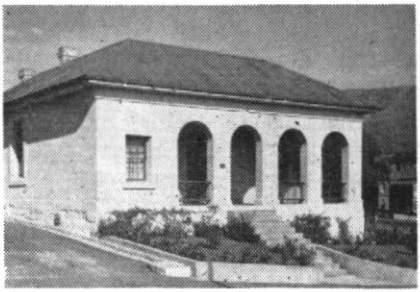


8. The Monument (1850)

The ornamental carving in cedar adorning the doors and windows is a feature of the Dining Room. Unfortunately this has all been covered by many coats of paint over the years. It is interesting to try and recall the scenes of those days, and to picture a Mess Dinner, with the officers of the Regiment in scarlet mess jackets round a long polished table furnished with silver and glassware, with their Colonel at the head. And then the Loyal Toast, and glasses raised to "His Most Gracious Majesty King George IV," and years later to "Her Gracious Majesty the Queen Empress."

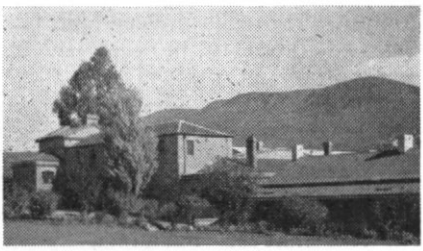
The old Mess is now used as a Conference Room and Theatrette.

Next in order of construction comes the original hospital, which has been used as the Commandant's Residence for half a century. Built in 1818, it contained four wards of eight beds each, with surgeon's quarters, operating theatre and detached kitchen and staff quarters. The small brick mortuary still stands in the grounds, and it is being converted to a glass house for raising plants and seedlings for the area. Surely a fitting end for such a structure. This must be one of the oldest inhabited houses in Australia. (See Plate 2.)



4. Guard House (1838)

5. Front of Jail (1846)



7. Side View of Jail (1946)

In 1824 a Drill Hall with offices was constructed for the Infantry Regiment in Garrison. It stands today as "C" Block, and forms a Training Depot for the Field Regiment, together with Officers' and Sergeants' Messes. (See Plate 3.). This building looks down on the old parade ground, which dates from the foundation of the Barracks.

Another interesting old building is the Regimental Canteen, build in 1834 during the period of occupation by the 21st Regiment of Foot (Royal Scots Fusiliers). It has served as the Commonwealth Weather Bureau since 1880.

A gem of early Colonial architecture is the Guard House, standing at the entrance gates to the Barracks. It was built in 1838. Muskets were kept in a rack on the verandah, and there were rooms for the Officer of the Guard and the sentries off duty, and a cell for prisoners awaiting trial. (Plate 4.)

A most interesting historical relic is the Military Jail, designed by Lieutenant-Colonel Victor, of the Royal Engineers, in 1846. The front portion formed the Jailer's quarters, and the main building contains 12 cells, in two tiers of six each, with an exercise yard surrounded by high stone walls. In this jail soldiers under sentence were confined in conditions almost similar to those of the convict prison at Port Arthur. The cells, indeed, are replicas of those to be seen in the penitentiary at that place of ill-omen, but are somewhat larger, and gave the unfortunate inmates a greater proportion of light and air. The lower tier has been retained in its original condition, and a typical cell may be examined by interested visitors. The facade of the building (Plate 5) has been loudly praised by experts in architecture over many years, and has been the subject of sketches and paintings in both oils and water-colours by local and visiting artists. It combines both Grecian and Roman styles, and its proportions are perfect. Of note are the huge blocks of sandstone used in the pilasters, and the stately proportions of the one-piece curved lintels over the windows. A magnificent door of cedar, which gives the impression of frought bronze, adds the finish-of wrought bronze, adds the finish-of convict construction. (Plate 6.) Plate 7 gives a side view of the jail, showing entrance to cell galleries.

Last of the old buildings, but certainly not the least, is the dignified and splendidly proportioned sandstone block which houses the Headquarters of the Tasmania Command. Built in the fifties, the Southern Wing was added in 1912 to complete the original design.

One of the features of the Barracks is the beautiful avenue of Lime Trees, planted by Colonel Edward Broughton, R.E., the then Commandant, in 1860. A few of the trees have disappeared over the 90 years of their existence, but the avenue remains practically intact, and is a delight to the eye when in full leaf.

Some of the original buildings, including the original Commandant's Quarters, and a long, single-storied block of OR's Married Quarters, were demolished in the early years of this century, and some of those remaining have reached the end of their useful life, and will eventually have to make way for more modern requirements. However,

Anglesea Barracks will long remain a unique example of the earliest architecture in Australia, and will lose none of its charm in this respect for many generations.

The final point of interest I must mention is a unique monument standing in the south-east part of the Barracks Area. It is the only monument in Australia erected by British troops to the memory of their comrades who fell in action, and was set up in 1850 by the 99th Regiment of Foot, now the Wiltshire Regiment, who were then stationed in Tasmania, as a memorial to the officers and men of that regiment who fell in the New Zealand War of 1845-6. (Plate 8.) The centenary of this monument occurred last year, and as this was marked by a most interesting ceremony I propose to supply a further article giving details of it.

Considerable research has been undertaken in order to ascertain how and when the name "Anglesea" was given to the Baracks. It would appear reasonably certain that they were named after the Right Honourable Henry William Paget, Marquis of Anglesea, who was Master-General of the Ordnance during the periods 1827-28 and 1846-52. He was a contemporary in the Army of Colonel George Arthur, and it may be assumed that Arthur so honoured him during his term of office as Governor of Van-Dieman's Land (1824-1836).

The officer in charge of quarters and warlike stores will not issue new arrowheads unless worn or damaged arrowheads are produced in exchange.

—Canadian Army Journal, from an ancient Chinese document discovered by Sir Aurel Stein on the Chinese Western Frontier.

PERSIAN CRISIS

Directorate of Military Intelligence.

A GREAT deal of the instability of Persian politics during the past 150 years must be put down to Great Power rivalry in that country, but the main causes which have brought about the present situation are symptomatic of the serious internal condition of Persia today.

For many years Persian society has been in a state of unrest. Many outsiders, somewhat misled by the lack of violent reaction, have tended to underestimate the tension which had been set up, and in some ways the present situation has come as something of a surprise to them.

Unrest in Persia is endemic, and when General Razmara was appointed Prime Minister by the Shah in June, 1950, high hopes were held that his personal honesty, efficiency and known determination to carry through badly needed political and social reforms would result in a much needed clean-up of Persian politics. But he had barely began to carry out his policy of making Persia a worthwhile place to live in before he was murdered.

However, the assassination of Razmara is only one link in the chain of unrest which exists in Persia today. The causes wherein this unrest was born have their origin far deeper than a mere assassination of one man, no matter how great that man may be.

There exists in Persia a tremendous gulf between the Government and the people. The Government may be likened to a parasite in that it lives upon the people and yet gives little or nothing in return. There is no tradition of a disinterested public service such as exists in the democratic countries as known to us.

This public service, it numbers approximately 2,250,000 out of a population of some 17 millions, has little reason to be loyal to any Government, whether it be composed of members with Western leanings or Russian bias. For it is never adequately paid and in fact goes for months at a stretch without being paid at all. Therefore it is not surprising that many, although not all, supplement their meagre incomes by various forms of corruption.

There exists no clear decision as to the nature of the political power in Persia, whether it is to be wielded by the Shah supported by the Army or by the Cabinet supported by the National Assembly, or what is to be the nature of the Assembly, whether it is to be representative of various interests or of the people as a whole. The result is insecurity and uncertainty. Also, there is a lack of balance between Teheran and the provinces, for years all commercial, economic and political activity has been concentrated in the capital. This has resulted in

the movement to Teheran of the wealthy, intellectual and professianal classes, thus denuding local governments of the necessary men of experience and ability.

Further, there exists a lack of balance between the rural and urban populations. During recent years, in keeping with other countries, there has been an exodus from the land to the cities. The fact that the peasant tends to leave the land for the precarious existence of an unskilled workman in towns is perhaps an indication of the insufficiency of the livelihood offered him and of the insecurity of his position as an agricultural labourer or a crop-sharing peasant. Moreover, there is a gulf in understanding between the rural and the urban populations which the townsman makes little or no attempt to bridge; he tends to regard his country cousin with thinly veiled contempt.

Within Persia there is a long-standing antagonism between the settled populations and the tribes who form an important element of the country; these tribes constitute a reserve both of manpower, and of economic wealth. In the past they have also contributed to much of the internal insecurity which exists within Persia. Riza Shah, before his abdication in 1941, tried to bring the nomad tribes into the orbit of his immediate control. However, despite the support which he received from much of the population he failed. This failure, however, was perhaps due mainly to the ruthlessness and inefficiency with which his policy was carried out, in effect it increased the mistrust between the Government and the tribes. Since Riza's abdication the policy of the Government has been one of "divide and rule," and all in all the policy is steeped in uncertainty where the tribes are concerned.

The wealth of Persia is concentrated in the hands of the land-owning class, which more often than not, includes the merchant and contractor class on one hand and the upper crust of the Public Service and higher ranks of the Army on the other. However, land no longer affords the best field for investment and consequently land-owners are often found to be engaged in other activities. Again, since the ownership of land continues to offer social and political prestige the ranks of land-owners have been swelled by those mentioned above.

Then there is the gulf between the so called "westernised" elements and the rest of the population. These elements are out of touch with the mass of the population, and fail to understand any nationalistic leanings. They are not popular, and, knowing that they cannot achieve power by themselves, they tend, whether from ambition or zeal for reform, to seek support from outside. The result is that since the present ruling class is erroneously supposed to be supported by Britain, these critics tend to become associated with left-wing and pro-Russian movements.

The cumulative effect of unrest in Persia has been to make life in the country extremely difficult. Some appear to feel that they are faced with choice between revolution and royal despotism. Others who refused to compromise with a world which to them was irrational have taken refuge in such bodies as the Tudeh Party and the Fidayani

Islam (Warriors of Islam—the sect responsible for the assassination of Razmara).

It would be short sighted to deny that there has been a breakdown in society which has caused numbers of people to turn in almost desperation to movements such as those referred to above. It is evident to clear thinking people that the breakdown is not new. There has been an acute unwillingness to accept personal responsibility and a tendency for years to simplify social unrest by blaming scapegoats within society for all wrongs.

The corrupt ruling class is, and has for years, been considered by a great many Persians to be the creature of Britain, and the belief is fostered that it has been only the British Government which has been and still is blocking internal reforms. It is indeed a perverse situation that a Power such as Britain, whose policy over a period of some 150 years has been consistently directed towards the maintenance of the independence of Persia should be named as the exploiter of the country and supporter of corruption and misrule.

Britain's interests, in reality, have demanded an independent Persia and forced her to deal with the Government of the day. Anything else would have been in practice a denial of her aims. On the other hand Russia, restrained by no such scruples has been free to interfere and, although her activities have been such as would lead to the extinction of Persian independence, has avoided the stigma which has become attached to Britain.

Therefore the demand for reform becomes tied up with anti-British feeling and pro-Russian sympathy.

The inner tension which has built up within Persian society over the years has now become such that it can be met only by an acceleration of the drive against the external scapegoat, Britain. This is perhaps the real explanation of the present crisis in Persia. The new factor in the situation appears to be that the Anglo/Iranian Oil Company has been substituted for the British Government.

The long popular pastime in certain circles, that of abusing Britain, has been transformed into a movement against the Anglo-Iranian Oil Company, which is not like the British Government, a foreign Power, but an organisation working within the framework of Persian society.

The old order in Persia is undoubtedly at the point of collapse. That is not to say that the people may not be forced to return to it, but such return can only be short-lived and for them meaningless. Unless a new order and a new concept of society emerges there is little hope for Persia. The present crisis goes far deeper than the question of oil nationalisation, as Dr. Mussadeq, the newly appointed Prime Minister, and leader of the National Front Party, claims.

In foreign policy General Razmara pursued a prudent line. He cultivated friendly relations with the Western Powers—it was not his fault that the supplemental agreement with the Anglo-Iranian Oil Company failed to secure the approval of the Majlis (the Persian Parliament)—but he also took realistic account of the fact that Persia is a neighbour of the powerful Soviet Union. He concluded a barter trade

agreement with Russia, but bargained sturdily in the process, obtaining before the agreement was signed the release of Persian Frontier guards captured by the Russians, and an assent to the appointment of a joint commission to decide the future of Persian gold to the value of twenty million dollars that had been held in Moscow since the war. When the Russians asked that Persia should relay a broadcast programme called "The Voice of Russia," General Razmara refused, but, in pursuit of the middle course, he informed the United States and British Government that relay of the "Voice of America" would be discontinued.

It is not improbable that General Razmara has been the victim of passions which extreme politicians of the right or left have fed with the oil question. The adherents of the outlawed Pro-Russian Tudeh Party and the so-called National Front compete in incitement of the public against foreign interests. In the Majlis, oil politics are controlled by an extreme Nationalist and Anti-Communist group with a reputation for summary treatment of their opponents. Although they have only 12 seats out of 132 in the Majlis, they succeeded, before General Razmara took office, in getting six out of the 12 seats in the Majlis Oil Committee.

This Committee, at the end of December, reported unfavourably on the supplemental agreement with the Anglo-Iranian Oil Company, although that agreement would have substantially increased the government oil revenues. Its ratification would bring Persia no less than forty-five million pounds during the current year and would guarantee her a minimum annual income of twenty-two million pounds. But the Oil Committee of the Majlis decided otherwise and an agreement between Aramco and King Ibn Saud on the basis of a fifty-fifty division of Arabian oil prompted it to demand nationalisation of the Anglo-Iranian concern. Meanwhile, due to the lack of funds, seven-year plans for the social and economic development of the country are at a standstill.

The strategic importance of the Persian oil fields to both Russia and the Western Powers will no doubt enter into any considerations which the Persian Government may decide to apply when the question of buying rights for oil are determined in the event of nationalisation taking place. Britain's dependence upon oil supplies from this area is such that without these supplies she would be unable to maintain even her present internal industrial capacity, let alone fight a major war against aggression. Russia on the other hand is alleged not to have sufficient oil supplies at this stage to fight a prolonged war, and is trying to obtain oil from any source.

It is therefore possible that the Persian Government may, in the usual Persian way, try to sell to the highest bidder, and one of the bidders will undoubtedly be Russia.

The Anglo-Iranian Oil Company has now offered to the Persian Government a similar profit sharing agreement to that operating between the Americans and King Ibn Saud. However, it is problematical whether this offer has been made too late. Dr. Mussadeq appears to be quite adamant that nationalisation plans for foreign oil interests will be proceeded with.

Economically Persia is, and has been over the years, dependent upon the receipt of royalties from the Anglo-Iranian Oil Company to maintain her internal economy. She has no reserves of money, and has received no royalties since the trouble over the Supplemental Oil Agreement began last December.

It is therefore difficult to understand how this country can find enough money to pay the tremendous compensation which will be required in the event of Persia taking over the oil installations. The running of the fields after they have been acquired raises the problem of scientific and technical maintenance staff. There would not be in the whole of Persia any technicians or scientists capable of undertaking this job. This then means that such staff must be obtained from sources outside the country.

As a closing thought it is perhaps well to remember that from the Persian oilfields alone last year, came some 32,000,000 tons of oil, and it is (or was) expected that this total would rise to 35,000,000 tons by the end of this year. Therefore these oilfields are vitally necessary to the Western Powers, because from them comes the necessary fuel with which the wheels of their industries are virtually turning. Particularly so does this apply to Britain, and what is more, approximately 60 per cent. of Australia's oil comes from this area.

Without access to these fields and production from them it would indeed be difficult for the Western Powers to satisfy their old requirements for civil and defence purposes.

At present, beyond question, there appears to exist a war psychosis amongst Soviet leaders. The constant and violent charges with which they assail the West are simply a manifestation of the Communist characteristic of loudly accusing others of the acts which they themselves are committing, or intend to commit.

—Walter Bedell Smith, in "Moscow Mission."

The SOVIET HIGH COMMAND

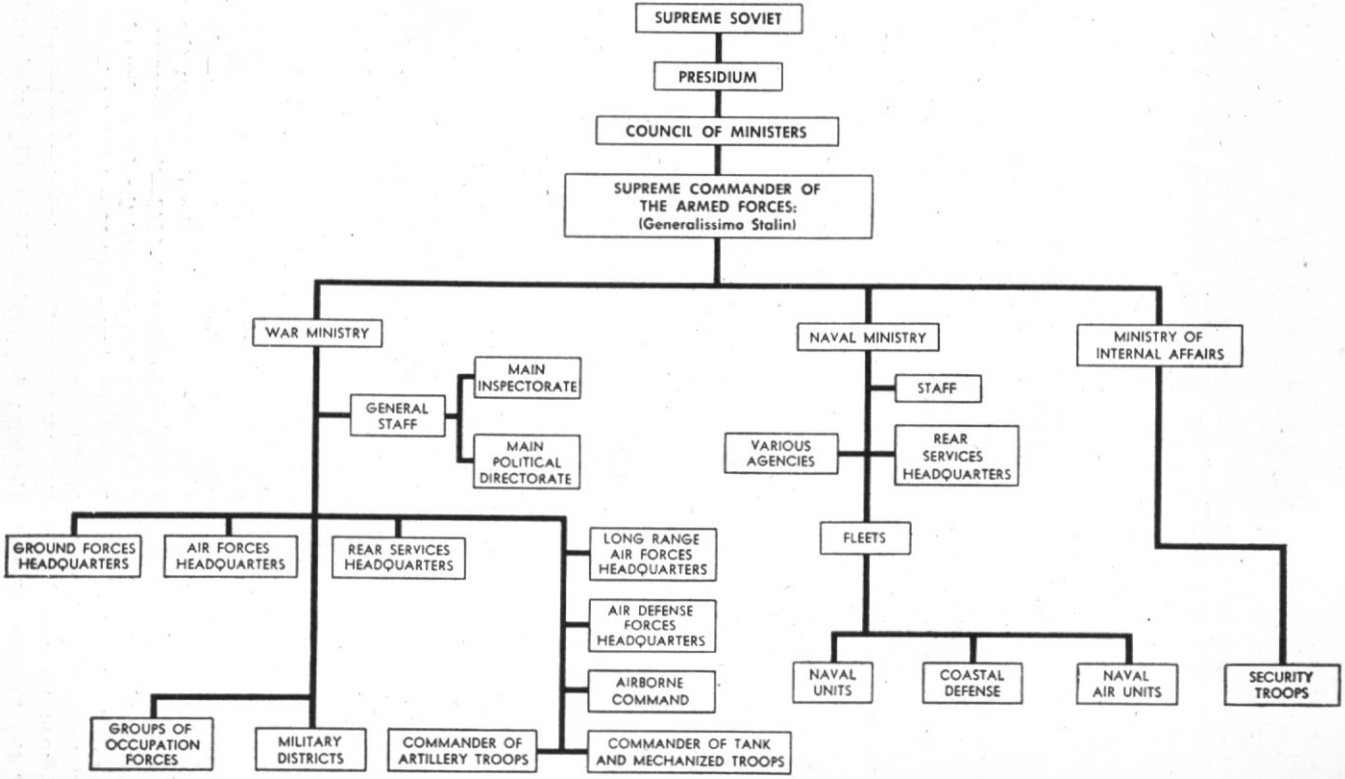
From an Article in "Army Information Digest," USA.

THE Soviet Union considers the maintenance of large armed forces essential to the fulfilment of its policies. The Soviet leaders clearly recognize, however, the danger inherent to themselves in an over-powerful military caste, such as that developed by the German Reich in the last century. Thus, while Soviet armed forces constitute the largest standing army in the world today and its members enjoy great prestige among their fellow citizens, the government provides for absolute control over both the officer corps and the troops by retaining the command function within its own hands.

Control of all military forces in the Soviet Union is vested constitutionally in the Supreme Soviet and its Presidium and is exercised under these bodies by the Council of Ministers. (See Organization Chart.) In 1946, by decree of the Presidium of the Supreme Soviet, the armed forces were unified through the creation of a Ministry of Armed Forces. Since it is predominantly a land power, the Soviet Union was able to impose a form of unification by submerging its air and naval forces in the new Ministry. This Ministry, while essentially an Army Ministry, included the semi-autonomous, but subordinate, air and naval elements. The High Command and its General Staff controlled the ground forces more directly than the naval and air elements, which were considered of secondary importance. By 1950, however, a change in Soviet organizational concepts had occurred and the Ministry of Armed Forces was abolished. In February of that year—almost four years to the day from the unification of 1946—the Supreme Soviet announced the formation of separate War and Naval Ministries.

Thus, after four years of trial the Soviet Union discarded unification

ORGANIZATION OF THE SOVIET HIGH COMMAND



and returned to an organization which closely parallels that of World War II. However, the formal redesignation of separate War and Naval Ministries probably represents a relatively minor command change since the Navy had considerable autonomy under the pre-existing Ministry of Armed Forces. The various air forces, except the naval air forces, still remain under the War Ministry. As this change illustrates, it is apparent that the Soviets have not yet settled on a final structure for the organization of the High Command. The creation of a separate Naval ministry probably reflects a determination to place more emphasis on naval development. On the other hand, purely administrative difficulties may be the basic explanation since control of the far-flung sea frontiers of the Soviet Union is not entirely practical under the military district system. The High Command structure as it existed from 1946 to 1950 nevertheless still holds for the greater proportion of Soviet armed strength—the ground and air forces. This structure is probably duplicated (with appropriate changes) in the newly established Naval Ministry.

The supreme command of the Soviet military forces is vested in the *de facto* and *de jure* chief of state, Generalissimo Joseph Stalin. During World War II Stalin himself, assisted by a supreme headquarters called the STAVKA, actually assumed operational direction of the military effort. With the end of the war, however, the day-to-day administration of the Soviet military forces—with the exception of the security forces, which are controlled by MVD, the Ministry of Internal Affairs, devolved upon the constitutionally established Ministry of Armed Forces. This agency consisted of a Minister, a First Deputy Minister and five principal assistants, including the respective commanders of the services and the Chief of the Armed Forces General Staff. With the organization of a separate Naval Ministry in 1950, one of the principal assistants, the Deputy Minister for Naval Forces, became the Naval Minister.

The War Minister—and the Naval Minster also—receives his directives from the Politburo through the Presidium and the Council of Ministers. He in turn issues orders on operational matters directly to the field forces; that is, to the military districts and groups of forces (or fleets, in the case of the Naval Minister). Actually a certain amount of antonomy obtains in the case of the air elements and certain other commands, but the ground force troops and the fleets are in almost all cases operationally controlled by the respective Ministers.

The War Ministry is provided with a General Staff, which is somewhat comparable to the United States Joint Staff—less the naval representation. This staff, however, is perhaps more nearly similar in function to the historical German General Staff, for while there is no permanently assigned General Staff Corps as such, the staff is charged with the preparation of detailed plans and operations orders implementing the directives laid down by the Minister.

The General Staff of the War Ministry is divided functionally into a number of agencies, not all of which correspond to general staff divisions in the United States sense. At this level the staff contains an operations directorate similar in or-

ganization to the United States Army General Staff G3 Division; and intelligence directorate, similar to the G2 Division; and an organization and mobilization directorate roughly similar to the former Organization and Training Division of the United States Army General Staff. It also contains a topographic directorate and a signal communications directorate, both of which are hold-overs from Tsarist times, and a historical division. The ground and air forces as well as the rear services also are represented.

At the War Ministry General Staff level there are two additional agencies—the Main Inspectorate and the Main Political Directorate. The Inspectorate is an active and powerful agency charged with keeping the Minister informed on the state of readiness and combat efficiency of the field forces. The Main Political Directorate maintains separate channels of communication to its representatives at all levels down to battalions. It is the Party's and the Minister's instrument for insuring that the armed forces adhere to the Party line and that Party doctrine is disseminated to all ranks.

These units — the Ministry, the General Staff, the Inspectorate and the Political Directorate—comprise the control and strategic planning echelon of the Soviet ground and air forces. It should be noted that the Soviet Ministry and the General Staff have far more detailed operational control over the field forces than do the United States Joint Chiefs of Staff, Joint Staff and Secretariat . Soviet air and ground forces are entirely and directly subordinate to this echelon just as the fleets are directly subordinate to the Naval Staff and Ministry.

The several headquarters of the arms and services subordinate to the General Staff level are chiefly staff administrative agencies. They include Ground Forces Headquarters, Rear Services Headquarters, Military Air Force Headquarters, Long-Range Air Force Head-quarters, Air Defence Headquarters, and a number of independent administrative agencies. In addition there may be technical or logistical headquarters at the army-air force level concerned with those technical functions which pertain to both services.

Generally speaking, the Soviet armed forces have the tendency to solve organizational problems by further departmentalization. For example, while the principal services basically have only technical training and administrative functions, each of the headquarters has its own staff organization, including an Inspectorate, the ever-present Political Directorate and other units appropriate to the service. Certain ground force troops — especially artillery, tank and mechanized troops—are under a separate headquarters for training control. These headquarters are also responsible for their own technical supplies.

The second group of sections under Ground Forces Headquarters is composed of the various directorates concerned with day-to-day administrative operations and the directorate of military schools. These two groups of units in many respects resemble the organization of the Special Staff sections of the United States Army General Staff of pre-World War II days. But insofar as their function and authority are concerned, they are chiefly responsible for training and are possibly more analogous in this respect

to the United States Army Field Forces staff today.

Even though there is some representation of the Rear Services in the planning echelon, there apparently exists no logistics division as such. The Soviet Government has adopted the service command principle, which General Eisenhower has said the United States would undoubtedly require in war, but probably could not afford in peace. This organization in the Soviet War and Naval Ministries is really not a command as such, but a vast number of service and logistics agencies co-ordinated by a Chief of Rear Services. They may be divided by type into transport, supply and special agencies such as medical, veterinary and finance units.

The Rear Services organization provides nearly all of the logistic needs of the armed forces, with the exception of certain highly technical equipment for which the services are charged with their own procurement.

The Soviet air elements differ widely from the current United States air organization. At present there are three closely related, but operationally and jurisdictionally separate, air organizations in the War Ministry. These are the Military Air Force, the Long-Range Air Force and the fighter elements of the Air Defence Forces. The Military Air Force is by far the largest of these air units and is probably charged wtih most of the technical procurement for all the air elements. On the other hand, it has the most limited autonomy operationally since the tactical air units of this headquarters are very frequently subordinated to army group commanders in the field and in some instances to military district commanders. The command of long-range bombing units in the field, however, probably extends from the War Ministry through the Long-Range Air Force Headquarters directly to the troops.

Air Defence Headquarters controls the defence of Soviet national territory against air attack and is composed of both air and ground units.

The Naval Air Force fighter units are subordinate to the Naval Ministry through the various fleet headquarters.

This, then, is the Soviet High Command. Since the necessity for compromise does not arise in the Soviet system of government, the Military High Command probably represents a nearly ideal organization from the Soviet point of view. To the extent that it provides unity of command, it is probably effective. Even the creation of a separate Naval Ministry should not disturb command unity in the USSR, where all the armed forces are ultimately controlled by the Politburo through the Party Machine.

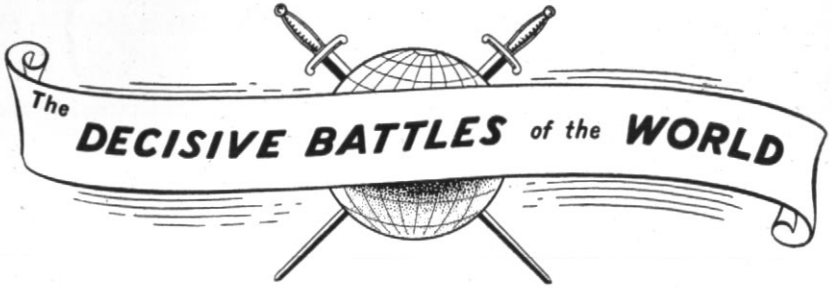
There appear to be, however, several characteristic weaknesses in the overall staff organization. The extensive departmentalization, which, in the case of such units as the Air Defence Headquarters and the Long-Range Air Force may be desirable, can greatly magnify the problems of internal communications, co-ordination and administrative control—as indeed it may in any staff organization. From the United States point of view, the Soviet staff organization would seem to be a very unwieldy structure with widely overlapping functions and responsibilities.

Since the Soviet High Command is composed largely of ground force personnel whose training and background have been derived almost exclusively from ground operations, it is likely that the current combined organization in the War Ministry is unbalanced in terms of joint operations. This type of operation, it is true, undoubtedly has received emphasis in Soviet planning and training, but the ground force tradition will be difficult to temper.

Because the Party's determination to retain absolute control over the armed formes, the Ministers have frequently been selected more on the basis of party loyalty than for their professional abilities as staff officers. However, during World War II many politically unimpeachable officers gained considerable staff and command experience with the result that today senior commanders, and the Ministers of War and Navy, in particular, are much more able and are better qualified than their predecessors. On the other hand, the jealous political control which is an integral element of the High Command imposes a feeling of personal insecurity in all ranks and limits the willingness of commanders to assume independent responsibility.

A design without strength to execute it is fraud and deception, and strength without design is ignorance and lunacy.

—*Sa'di of Shiraz, A.D.* 1258.



THE VICTORY OF ARMINIUS AD-9

THE Roman Empire differs from all other empires of the western world in that, at the height of its power, it had no rival to challenge its supremacy. There were no other great nations known to western man. Beyond its boundaries lay only tribes of rude barbarians possessing little political or military organization.

In the process of her expansion Rome was a great civilizing influence to the peoples she brought under her rule. To the conquered peoples she gave peace and security, as security was measured in those days, a reliable legal system, commercial opportunities, great public works and a thoroughly organized system of communications. In return she took from them their liberty, that most precious of all human possessions.

The loss of liberty might have been endured had Rome retained the virtues which made her great. But with power came corruption. The Senate, once the meeting place of men devoted to the public interest, became the forum for political strife, the hatchery for plot and counter-plot. Individuals and parties struggled and fought for power, personal aggrandizement and the acquisition of wealth became the ruling passion of statesman and citizen.

In a long series of civil wars the free middle class of Italy was virtually destroyed. Above the position which it had occupied an oligarchy of wealth reared itself. Beneath it was a mass of poverty and degradation, a population of slaves brought in by the wealthy to work the land seized from the dispossessed peasantry. Spiritual and moral values were forgotten, the temples were abandoned. The foulest profligacy of manners was general throughout all levels of society. Eventually the nation, conscious that it had become too debased for self-government, submitted itself to the dictatorial authority of the Emperor Augustus and his successors. Roman political institutions, once the passionate champions of personal liberty, the stern guardians of public probity, became mere instruments of adulation of the emperors and their courtiers.

If the early emperors gave the empire a period of peace and stability they made no effort to stop the drift in manners and morals. On the contrary, they turned religious indifference, already widespread amongst all classes, into contempt by asserting their own divinity, and thus deprived citizen and statesman of the last remnants of the spiritual force which had been the source of their moral and material strength.

Nevertheless, the impetus of a nobler age still drove the Roman frontiers outwards. Augustus and his immediate successors would have stopped if they could, but the old urge, coupled with a desire to find better, more easily defended frontiers, drove them on. The next line always looked better than the one on which they stood. Besides, Rome had never been content to stand on the defensive; she had always settled frontier troubles by bringing under subjection the people who disturbed the peace of her borders.

The corruption at the centre gradually spread to the outer provinces. Roman rule, always strict, yet tempered with justice and tolerance, became harsh and burdensome. As the old upright magistrates and administrators died or retired their places were taken by men of the new order, some of them extremely competent, nearly all of them intent upon their own enrichment at the expense of the people they were sent to rule.

In the reign of Augustus the Roman Army retained the same general form which had carried it to victory in the wars with Carthage. Some changes had been made in the organization of the legion, armament and tactics were much the same, while important advances had been made in engineering methods and equipment. However, a most important change had taken place in the character of the Army. In the earlier days, in the years of victory, it had been a citizen army composed of men actuated by motives of patriotism, men who esteemed military service a privilege to be exercised only by free Roman citizens. Now, partly owing to the losses in foreign and civil war, partly because the military spirit of Rome was steadily declining, ever increasing difficulty was experienced in keeping the ranks filled with men of the right types. The Army was converted to a long-service, professional army and, although officered by Romans, it became largely composed of non-Roman mercenaries.

The change in its composition made the army a more highly trained, more skilful instrument. At the same time it changed the basis on which morale and discipline had formerly rested. Instead of springing from patriotism and spiritual values, morale became entirely a matter of *esprit-de-corps*, while discipline became simply a matter of punishment or reward. These values, whilst they held the army together for a long time, were neither deep enough nor strong enough to sustain it in the face of unaccustomed perils and difficulties.

The Northern Frontier.

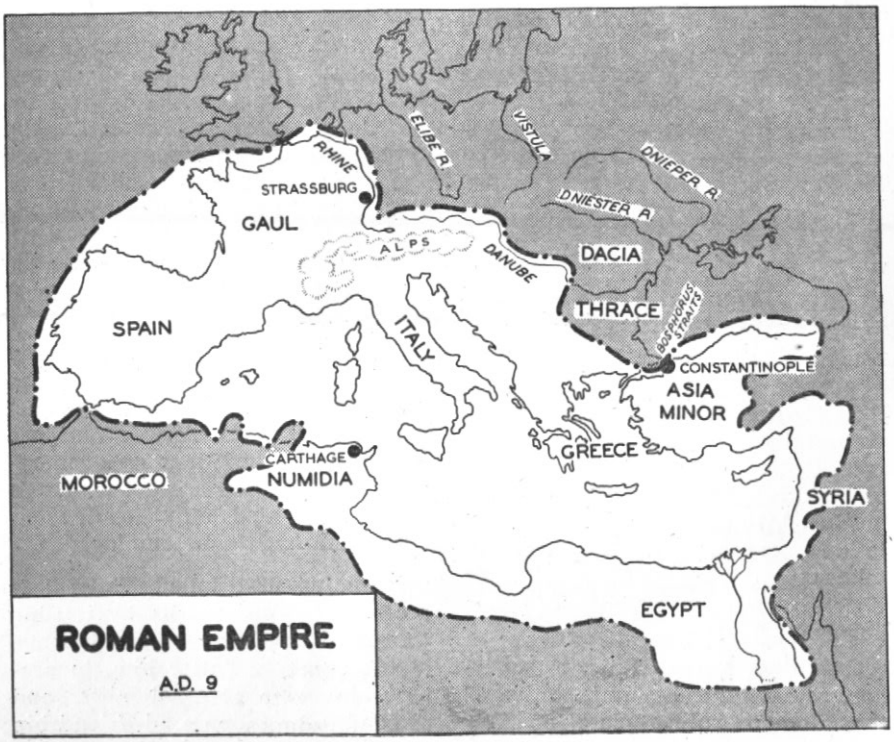
When Augustus became emperor the northern frontier ran in a northwesterly direction from the Bosphorus to the great southern bend of the Danube. It followed the course of that river for some hundreds of miles, then ran along the northern

edge of the Alps, thence along the Rhine to the North Sea.

Augustus resolved to straighten and shorten the frontier by pushing it forward from the Alps to the Danube, and from the Rhine to the Elbe. This would have given him a relatively short, easily defended frontier running across the continent from the Bosphorus to the mouth of the Elbe. It would also have removed the menace of the warlike German tribes living between the Rhine and the Elbe by bringing them under direct Roman rule.

The first operation, the advance from the Alps to the Danube, was accomplished without much difficulty. The second operation, the advance from the Rhine to the Elbe, was to be carried out in two phases. First the area Strasburg-Dresden-Hamburg-Cologne, was to be occupied. When this territory had been thoroughly subdued and Romanized, its eastern face and the western end of the Danube line would be swung up to the Elbe.

Although the German tribes resisted fiercely, the occupation of the territory named in the first phase was accomplished with the usual Roman military efficiency. The legions then settled down to a period of garrison and police duties to give time for the taming and Romanizing of the inhabitants.



Arminius.

Had Rome maintained her virtue, her ancient skill at winning the loyalty of conquered peoples might have reconciled the Germans to their lot. Many, indeed, did submit tamely enough. But the austere, clean-living tribesmen, particularly the chieftains, viewed with disgust the corruptions of Roman life, while the petty tyrannies of local rulers filled them with resentment. Among these chieftains was Arminius, a prince of the Cherusci, whose support the Romans had, in their customary fashion, attempted to win by admitting him to Roman citizenship, conferring honours upon him, and taking him into their service.

Arminius learnt all that he could from the Romans whilst maintaining the closest liaison with his brother chieftains. He had intended to remain outwardly loyal to Rome until the projected revolt had been properly organized, but an accusation of abduction—actually it was an elopement—brought against him by a powerful adherant of Rome, forced him to take to the forest before he was ready.

Quintilius Varus.

About the time that Arminius sought refuge in his native forests a change of governors took place. This change, while it materially favoured the ultimate success of the insurgents, served, by the immediate aggravation of oppression which it produced, to make the native population more universally eager to take up arms in defence of their liberties and the sanctity of their homes.

Quintilius Varus, the new governor, was a typical representative of the Roman ruling class of that period, except that he possessed less than average military ability. Like most of his class, his education had given him a taste for intellectual gratification, a keen appreciation of literature and art, an extensive knowledge of jurisprudence, and a fondness for forensic oratory, without having softened the old Roman indifference to human suffering, and without acting as the least check on unprincipled avarice or on habitual and gross profligacy. In character Varus was vain, ambitious, and susceptible to flattery.

Arminius' Plan.

The problem facing Arminius was indeed formidable. Even if Varus himself possessed little military ability he commanded an army of three legions, an army superbly equipped and thoroughly trained, well disciplined, accustomed to victory, and led by officers of proven ability and courage. Allowing for garrisons and detachments, the force which Varus could put into the field could not be estimated at less then 14,000 regular infantry and 900 cavalry, together with about the same number of irregular horse and foot collected by local levees.

Against this formidable array Arminius could pit only ill-armed tribesmen, quite incapable of undertaking formal military evolutions. Under these conditions an open revolt resulting in a pitched battle would have led only to disaster. Strategem had to be employed.

Arminius first lulled Varus into a sense of false security by causing the tribal chieftains to pay homage at his court, to flatter him, to present him with personal gifts, and pretend admiration and friendship

for Rome. Behind this screen of apparent submission the revolt was prepared and the trap baited and laid.

The Insurrection.

Immediately after a period of heavy rains had made the country difficult for the operations of regular troops, Arminius caused the tribes between the Weser and the Ems to declare open rebellion. This was represented to Varus as merely a local rising, but nevertheless a dangerous one which required the bulk of the army under his personal leadership to suppress. The chieftains at court promised to facilitate to march and to keep their own tribesmen in order.

Blinded by flattery and vanity, Varus fell into the trap. Concentrating his army he marched eastward on a line parallel to the course of the River Lippe. For some distance his route lay along a level plain, but on arrival at the tract between the curve of that stream and the source of the Ems he encountered more difficult country.

A woody and hilly region intervenes between the heads of the two rivers. This district, still known as the Teutoburger Wald, was a tableland intersected by numerous deep and narrow valleys surrounded by steep hills and rocks and accessible only by narrow defiles. All the valleys are traversed by streams, shallow in summer, but swift and deep after heavy rain. The slopes were heavily timbered, while the swampy valley bottoms were broken up by numerous gullies and covered with thick undergrowth.

Contrary to the usual strict principles of Roman discipline, Varus had permitted his army to be accompanied and impeded by a train of baggage wagons and by a rabble of camp followers, as if his troops were merely changing station in a friendly country. When the long array quitted the level ground, and began to wind its way among the woods, the marshes and the ravines, the difficulties of the march, even without the intervention of an armed foe, became apparent. In many places the soil, sodden with rain, was impracticable for cavalry, and even for infantry, until trees had been felled and a causeway formed through the morass.

To provide the necessary labour many units were broken up to form working parties and the main body of the army fell into some disorder. At this stage word was passed forward that the rear-guard was being heavily attacked by tribesmen. Varus resolved to push on, but no sooner was the decision taken when clouds of arrows from the woods on either flank began to play havoc in his broken ranks. Simultaneously his local levees, on whom he had relied for forest fighting, deserted to join their brethren in the woods, and to add their arrows to the barrage already falling on the legionaries.

Since it was impossible to deploy his regular troops on such broken ground, Varus formed his army into a perimeter camp on the most open piece of ground he was able to reach before dark.

On the morrow Varus resumed his march, hoping to find the tribesmen drawn up to meet him in battle array. But Arminius had no intention of engaging his poorly armed and untrained men in a stand up fight with the disciplined power of the Roman legions. He held the

initiative and he chose his own method of fighting.

Soon after breaking camp Varus found a suitable piece of ground on which he formed line of battle. Nothing happened, no-one appeared to accept the challenge. No sooner, however, had he formed column of route again than the legions were assailed with showers of arrows from both flanks, while the natural difficulties impeding the march were increased by numerous heavy obstacles—fallen trees and rocks—placed in position by the tribesmen.

Fatigue and discouragement now began to show in the legions' ranks. The lines became less steady, discipline began to break down. Baggage wagons were abandoned, and as this happened many soldiers left the ranks to secure the most valuable portions of their property. Each was busy about his own affairs, and purposely slow in obeying the word of command.

When the confusion was at its height Arminius gave the signal for a general attack. In thronging multitudes the tribesmen assailed the flanks, pouring clouds of arrows and javelins on the encumbered legionaries, and seizing every opportunity to charge through the gaps and break up the columns. The wounded horses, slipping about in the mire and their own blood, plunged wildly amongst the infantry and increased the general disorder.

Varus now attempted to countermarch, but retreat had become as impracticable as advance. The attempted withdrawal served only to increase the confusion and encourage the assailants. Numonius Vala, the commander of the cavalry, rode off with his squadrons in the vain hope of reaching safety by abandoning his comrades. Unable to keep together, the horsemen were overpowered in detail and slaughtered to the last man.

The Roman infantry fought steadily and stubbornly, but gradually losing the compactness of their array, and becoming weaker and weaker beneath the incessant rain of arrows and the repeated charges of the vigorous and unencumbered Germans. Varus committed suicide. One lieutenant-general was killed, the other captured. The columns were broken up into small groups which either fought to the last, or sought to surrender. But mercy to a beaten foe had never been a Roman virtue, and the triumphant Germans slaughtered them almost to a man. Few, very few, ever saw the left bank of the Rhine again. Seldom in history has an army been so utterly destroyed in so short a space of time.

Comments on the Operations.

Our knowledge of the battle in the Teutoburger Wald is somewhat meagre because practically everyone on the Roman side who could have given a coherent account of events perished in the forest. It seems clear, however, that Varus violated all the accepted principles of war.

In the first place his vanity led him to mistake the flattery of the German chieftains for genuine attachment. He seems to have taken them at their word, forgetting that men placed in the unfortunate position of the Germans must, and always will, use the weapon of deceit. It is, indeed, the only sure weapon they have, and Varus should have guarded

against its use. And to have placed any real reliance on local auxiliaries, drawn from a people not yet reconciled to Roman rule, was foolhardy in the extreme.

In taking along his wagon train he disobeyed Roman regulations, and he seems to have ignored the *Principle of Security* at every stage of his march. It was extremely foolish to plunge into the forest without adequate reconnaissance; it was sheer madness to do so without covering the main body with strong advanced and flank guards. Through this inexcusable neglect he laid himself wide open to surprise. Once deeply entangled in the forest and closely surrounded on all sides by hordes of nimble and determined foes, he never had a chance. His neglect of *Security* had given his advertary absolute control of the situation.

On the other hand Arminius made few mistakes. He fulfilled by all the means at his disposal the Napoleonic maxim *"Mystify, mislead and surprise your enemy."* Thorough exploitation of the *Principle of Surprise*, coupled with *Security*, *Flexibility*, *Co-operation*, *Concentration*, and *Morale* based upon patriotism, enabled him to defeat with his tribesmen a large, first-class Roman army.

Immediate Results.

News of the disaster threw Rome into a panic, where it was feared that Arminius would follow up his victory by marching on Italy itself. The emperor hastily raised a new army, collected by a conscription of discharged veterans and emancipated slaves, and sent it to the northern frontier under command of Tiberius.

Arminius, however, had no intention of attacking Italy, his only object being to defend the liberties of his country. When Tiberius moved into Germany in A.D. 10 Arminius was too cautious to challenge him on ground favourable to the legions, while Tiberius was too skilful to entangle his troops in the difficult parts of the country. After much unproductive marching and countermarching Tiberius withdrew to the Rhine.

Five years later Germanicus Caesar attempted to restore the frontier on the Elbe, and narrowly escaped the same fate as Varus. However, in the following year he defeated Arminius, but the campaign proved so costly that he was recalled. Rome gave up for ever the idea of the Elbe frontier, the first occasion on which her tenacity of purpose had been broken in her long history of victorious endeavour.

The victory of Arminius saved his countrymen from the de-vitalizing effects of the now effete Roman civilization. In the security of their forests beyond the Rhine they developed the culture and the military strength which were later to play important roles in the growth of Western Civilization.

Ultimate Results.

What might ultimately have happened had Rome succeeded in subduing the German tribes is a matter of speculation. The Elbe would have been a shorter frontier than the Rhine, and Rome might have held it against the inroads of the barbarians until a much later period. Indeed, many of the barbarians—the German tribes—would have become Romanized, and would probably have helped to defend the Empire. As things turned out, how-

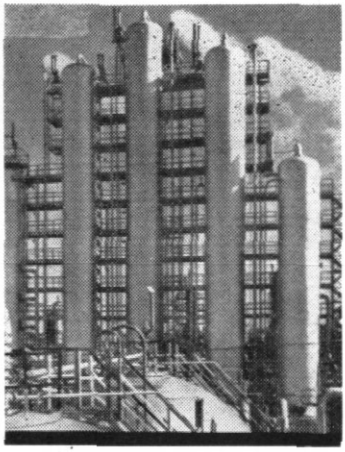
ever, these same tribes, issuing in due course from their native fastness, carved with their swords the outlines of the map of modern Europe.

The victory of Arminius has a peculiar interest for English-speaking people. Had the Roman frontier been firmly established on the Elbe the Saxons would, in all probability, have become Romanized. Had that happened it is unlikely that the Saxons would have invaded England, there to mingle with her native population and produce the Anglo-Saxon people, who have contributed so much to the upward march of mankind.

[This is the fifth article in the series "Decisive Battles of the World." Next month we shall consider the Battle of Chalons in A.D. 451.—Editor.]

In any sort of society and in any organization somebody has got to give orders. It is no use boggling at that, and it is no use treating an order merely as a basis for discussion. Orders have to be carried out. But whenever it is possible it is a very good thing to explain why an order is given, why things are done in a certain way, and what the article being made is used for. Let the man see a bit further along the chain in which he is a link. It is at least as easy to do that in a workshop as in the forward area.

—Field Marshal Sir William Slim.



OIL SUPPLIES in WAR

Condensed from an article by Major-General W. E. V. Abraham in the "Journal of the Royal United Service Institution," Great Britain.

TOWARDS the end of World War 2, petroleum products constituted about one-half of the total tonnage which had to be moved to any theatre. The tonnage required in war theatres was about a hundred times as great as in World War 1, and the resultant world requirements (military and civil, but excluding Axis-controlled countries and oil produced in Russia), was at its peak in 1945. It totalled about one million tons a day, made up very roughly as follows:—

	Tons
Aviation gasoline	100,000
Motor gasoline	300,000
Kerosene	100,000
Fuel Oils	400,000
Other products (including "loss")	100,000

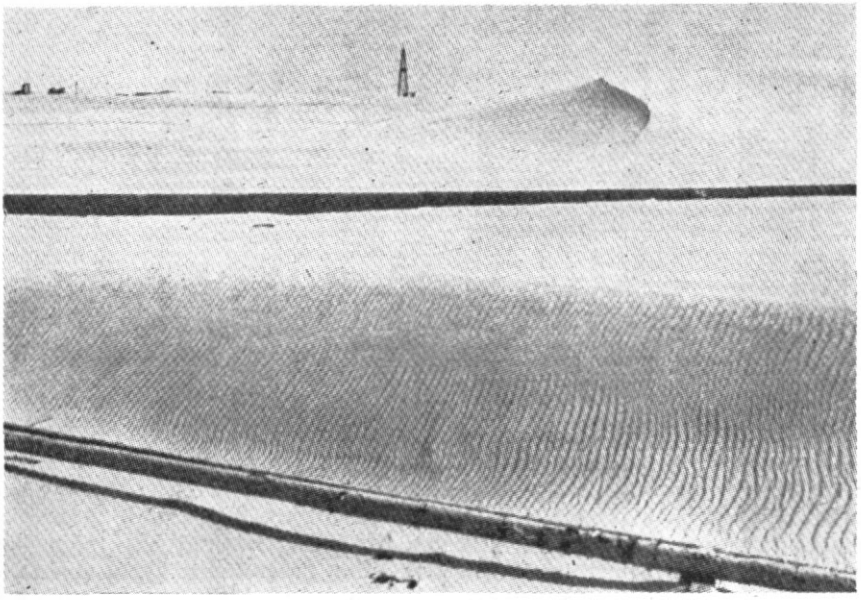
To make these enormous quantities available, four main achievements were necessary:—

1. Crude oil production had to be increased by about a third from its pre-war figure of something like three-quarters of a million tons a day. This meant greatly intensified drilling programmes. The main increase was in America, although the *percentage increase was actually* greater in the Persian Gulf area.

2. Refinery capacity had to be similarly increased. This was done, not so much by building new refineries (though this also was necessary), as by making full use of existing refineries. All Allied refinery capacity outside of Russia was treated as a single whole, putting each individual refinery to the best possible use for the common good.

3. Special arrangements had to be *be made for particular products, and* above all, for aviation gasoline. Its output had to be increased no less than 10 times, and its quality increased from 87 to 100 octane. This

increase in the octane number is the technical way of indicating an improvement of anti-knock quality of the gasoline. It may mean more to you, if I point out that a change from 87 to 100 octane makes possible higher compression, means a reduction of 16 per cent. in take-off distance, and an increase of 40 per cent. in climbing speed. This combination of improved quality with a tenfold increase in quantity was an outstanding achievement, calling for many completely new plants. Most of the increase was again in America, but we have every right to be proud of the British contribution, too, especially at Abadan, in Persia.



Oil from the Desert—Saudi Arabia.

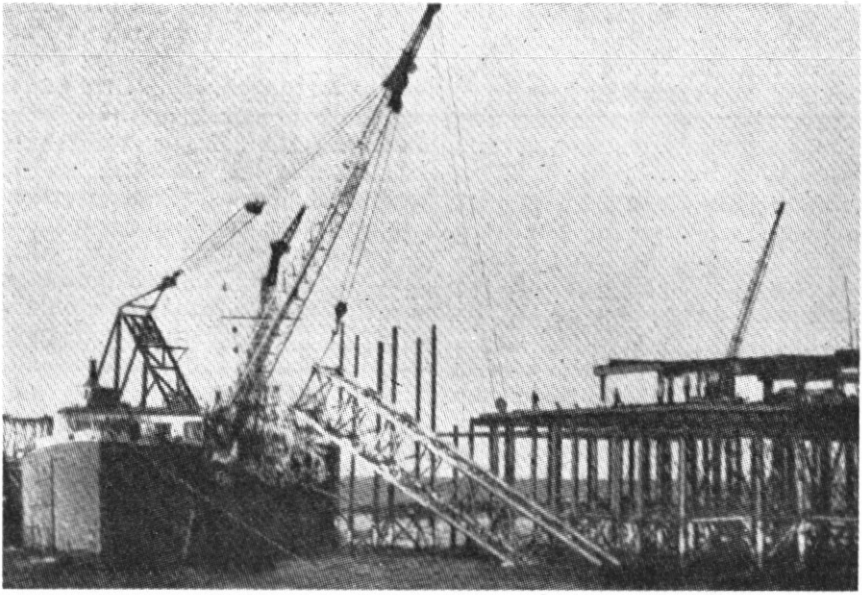
4. Lastly, certain large-scale transportation adjustments were necessary. Of these the most important were:—

(a) The consequence of the closing of the Mediterranean in 1940, when we could no longer afford the long haul from the Persian Gulf round the Cape of Good Hope to the United Kingdom, and had to draw supplies from Venezuela instead. As a result, Abadan had to be shut down below what it could produce —only to regain its importance not long afterwards, when Japan denied us the oil of the Dutch East Indies and Burma.

(b) The action of American oil interests before America entered the War, in carrying oil from Venezuela, Trinidad, etc., to New York, where British tankers could pick it up for the much shorter journey to the United Kingdom.

(c) The arrangements made in the United States, first, by rail tank-car and barge, and later, by the laying

of enormous transcontinental pipe lines, to relieve American tankers from the work of carrying petroleum products from the Gulf of Mexico to the Atlantic seaboard. This freed them for the common effort of supplying the United Kingdom and the theatres of war, as they developed.



Oil from the Sea Bed—Gulf of Mexico

These arrangements were made possible only by the utmost goodwill on the part of American oil interests before America entered the War, and thereafter, by a complete fusion of the oil interests—of all kinds— of the United Kingdom and the United States. Even then, no transportation adjustments would have won the day, had it not been for an intensive tanker-building programme, mainly in the United States, which left the Allies at the end of the War, in spite of heavy losses, with appreciably more tanker tonnage—and faster tonnage—than at the beginning of the War.

Another important factor was the huge storage space which had been created in the United Kingdom before the War. This reservoir, with excellent fast-working taps both in and out, and backed up later by over 1,000 miles of pipe line in the United Kingdom alone, gave a flexibility to our supply arrangements without which some of our transportation crisis could not have been surmounted. As an example, the North African landing was fuelled largely on stocks from the United Kingdom.

I have so far discussed only the movement of oil products to the countries in which they were required. You will appreciate that in any theatre of war, the further movement and distribution of these products from base ports to the

fighting troops, is itself a difficult and complex matter. Supplies are usually pumped forward some distance by oil pipe line and then moved to mobile container-filling equipment either by pipe or by tank truck. The varying and often unpredictable requirements of the military machine necessitate large numbers of portable containers for distribution to troops to replenish quickly fuel tanks for ground and air equipment. Many of you will remember the large leakages in the desert and elsewhere from "flimsy" containers, and how the "Jerrican" eventually provided the most satisfactory solution both there and for beach landing operations. Quality and quantity control of all petroleum products is, of course, most important, up to and including deliveries to troops. The complexity of the task calls for the provision of specially trained and organized military distribution units.

Production and Consumption.

World production of petroleum and consumption of petroleum products rose from 50,000 tons a day in 1900, to 500,000 tons a day in 1930, and is today about 1,300,000 tons a day. The rate of increase shows no sign of decreasing, and in another 15 years or so, world production will be about 2 million tons a day. Bearing this important fact in mind, let us consider where the oil of the world is produced today, and where it is consumed. The figures, in percentages of world output, are:—

	Production %	Consumption %
United States	60	61
Caribbean (Venezuela, etc.)	17	6
Middle East (Persian Gulf, Iraq, etc.) .	12	2
Russia	6	6
Rest of the world ..	5	25
	100	100

From these figures, the main trend of the international movement of oil at once becomes obvious. The dominating fact is that the United States not only produces, but consumes nearly two-thirds of the world's production, and has, therefore, no net surplus for export. Similarly, Russia consumes what she produces, plus probably what she can take from her satellites. The Caribbean and the Persian Gulf areas, on the other hand, have each an exportable surplus of about one-tenth of the world's production. It is this two-tenths, or one-fifth surplus that offsets the 20 per cent. deficit of the rest of the world. A large part of this deficit has to be made good in Europe including the United Kingdom. The inter-continental oil trade of the world, therefore, consists largely in the movement of oil from the Caribbean and the Persian Gulf areas to Europe.

To complete this picture, and extend it into the future, we must note that:—

1. The United States reserves of oil are very large, perhaps 30 per cent. of the known world reserves. They are not large enough, however, to justify indefinitely a production of nearly two-thirds of the total world production. As a result, the United States, which until recently has always been a net exporter of oil, has now become a net importer. The degree of her dependence on imports is certain to increase continuously for many years, and the

most convenient source for such increasing imports is obviously Venezuela.

2. The Middle East has enormous reserves of oil—perhaps 40 per cent. of the world's known reserves. Its output, and therefore the exportable surplus of the Persian Gulf area, is increasing, and will continue to increase rapidly.

3. This big increase from the Persian Gulf area will go largely to Europe, whose main source of supply will tend to become the Persian Gulf region rather than Venezuela, leaving Venezuela to look after the increasing needs of the United States. European refinery capacity is being greatly increased in order to deal with large volumes of Middle East crude oil. The problem of transport from the Persian Gulf area to Europe will be solved partly by the use of enormous pipe lines.

4, This switch over from the Caribbean to the Persian Gulf area is, by far, the most important long-term development affecting oil supplies for Western Europe. The change has already begun, and already we in the United Kingdom are drawing some 35 per cent. of our oil supplies from the Middle East, as opposed to only about 20 per cent. in 1938. In another five years or so, the proportion may have increased to 75 per cent. or more.

General Conclusions.

This, then, is the world picture of oil production, movement, and consumption. From it certain conclusions follow, as regards oil supplies for the United Kingdom and Western Europe generally in any future war:—

First, these supplies will have to come in war, just as in peace, by sea. Blue water communications are essential.

Second, for all practical purposes, there are only two sources of supply—the Caribbean area more than 4,000 miles distant, and the Middle East, more than 6,000 miles away. This latter distance may be greatly shortened by trans-Arabian pipe lines, and is, of course, considerably shorter in respect of any oil taken by pipe line from Kirkuk in Iraq.

Third, if both of these main sources—the Caribbean and Middle East —are available, with communications therefrom, the proportion that will be taken from each will depend on a number of factors, including the date and nature of the war, the requirements of allies, and the availability of tanker tonnage.

Fourth, if the Persian Gulf area, or communications therefrom, should be denied to us, the extent to which the Caribbean could make good the deficit would depend fundamentally on the extent to which the United States could cut down her requirements. This is a point on which I would not care to express any detailed opinion. It would be difficult, because America is geared to an oil economy in a way that we here hardly appreciate. In war, however, the impossible is always happening, and I suppose that somehow or other the thing would be done. It must be clear that the difficulty is likely to increase rather than diminish, as we become more and more dependent on the Middle East as our main peace-time source of supply.

I ought, perhaps, to add my personal opinion that synthetic pro-

duction of oil — uneconomical in peace, but, as Germany demonstrated so clearly in the late War, quite possible technically — is not likely to contribute in large measure to a solution of our own problem in war.

In conclusion, I must emphasize that there is nothing static in any sense about oil, and that what appears here will certainly require amendment at some later date. The less important products of today may be the more important ones of tomorrow. It is not so very long since gasoline was burned as a waste product of kerosene manufacture. Kerosene, after a period of relatively minor importance, is now coming back into its own as a fuel for jet aircraft. Generally speaking, the oil industry has shown, and will continue to show, great flexibility in providing, in the required proportions, the products needed from time to time.

NEW SWEDISH ANTI-AIRCRAFT GUN.

A wholly automatic remote-controlled version of the Bofors 40mm. gun, which was well-known during the last war, was among the new weapons the Swedish Army demonstrated recently.

The firing rate of this gun has been doubled to 240 shells a minute. When only shorter bursts of fire are required all personnel can remain under protection at some distance, and even for protracted firing only two loaders need be near the gun-carriage. Also shown was the new 57mm. Bofors gun, which, it is claimed, will destroy the largest targets known in field war-time. Its firing-rate is 120 shells a minute, and its power six times that of the standard 75mm. gun, while the effect of its shells is the same. It is also operated by remote-control, and has great precision—with the aid of radar—even against aeroplanes at extreme height.

Another invention on view was a machine-gun rifle fitted with an infra-red beam, enabling the soldier to find his target in pitch darkness at fifty yards without himself being seen. The Swedish constructed "Super-bazooka" or rocket rifle was proved able to penetrate armour-plate eight inches thick.

The Swedish Parliament is being asked to appropriate money to equip the Swedish Army with these new weapons.

—Irish Defence Journal.

FIRE STORM

Captain R. S. Millar, RAASC.

MUCH has been written, both in official and unofficial publications, of the non-stop bombing of Germany during the last two years of the war in Europe.

In this article I propose to describe what actually took place in Hamburg during the great air raids of 24th July—3rd August, 1943, which culminated in the "Fire Storm," and caused a loss of approximately 63,000 persons. Much of my information was obtained from a document called "The Battle of Hamburg," supplemented by personal interviews with Germans who were in Hamburg during the raids.

Sixty-three thousand is the absolute minimum estimate of casualties, as the authorities could not give any figures as to what number of refugees were actually in the city during this period, and possibly large numbers of these were buried under the rubble, and therefore were not included in the above estimate.

There have been many great and terrible fires recorded in history:—
"The Burning of Rome"
"The Fire of London"
"The Fire of Tokyo"
"The Fire of the City of London during the Blitzes,"
and now "The Fire of Hamburg" must be included in this list.

Hamburg had a population of 1¾ millions in 1939, its area was 288 square miles including the harbour, which is the largest in Europe, and the fourth largest in the world.

The city is situated on the banks of the Elbe River, and has in its centre two large lakes called Binnen Alster, and Aufzen Alster. (Compare this with Sydney's population of 1½ millions and an area of 200 square miles.

The Civil Defence Organization was highly efficient and was considered one of the best in Germany.

The shelter organization consisted of:—

(i) Multied-storied above ground shelters (Bunkers) .. 69
(ii) Small Towers 15
(iii) Underground shelters (Bunkers) 30

The shelters alone could accommodate 200,000 persons, and in addition to these, all householders were compelled to construct a reinforced cellar. The public was extremely well disciplined. All civilians were compelled to remain under cover during an air attack.

The Attack.

Up to 24th July, 1943, there had been 213 raids on Hamburg in which considerable damage had been done, but the civil defence organization proved equal to the task. On the night 24/25 July, 1943, at 0100 hours, a night attack by more than 600 allied aircraft took place, and approximately 2,400 tons of bombs were dropped.

This attack caused gigantic fires, which were still burning 24 hours later. The city's winter coal and coke supplies caught fire and could not be extinguished for weeks. Essential services were severely damaged, all telephone communications were rendered useless. The dockyards were badly damaged. By noon on 25th July a dense cloud of smoke hovered over the city, and prevented the sun from shining through.

The central control room (Civil Defence Organisation) was burnt out and an auxiliary control centre had to be formed. All communications had to be maintained by motor cycle.

Despite the valiant efforts by the civil defence services, the immense fires could not be prevented from flaring up again. Casualties were particularly heavy, 1,500 persons being killed.

On 25th July at 1440 hours an attack developed in which 150 aircraft took part, dropping 260 tons of bombs, heavy damage being done to the port and shipbuilding yards. Casualties were small in comparison with the previous days.

On 26th July a small raid took place, only eight tons of bombs being dropped, but it was most effective, as it put out of action the main power station of Hamburg.

On the following day another small raid, in which only four tons of bombs were dropped, caused little damage.

The fifth attack developed on night 27/28th July. Its magnitude and consequences were far beyond all expectations.

In all 800 aircraft approached the city from all sides, and dropped 2400 tons of bombs, the main weight of the attack being concentrated on the left shore of the Alster.

The effects were unimaginable, almost complete annihilation of certain districts was achieved in a very short time. Extensive parts of the area were enveloped in a sea of fire, tens of thousands of small fires united together within a short time to conflagrations which developed into a "fire storm" of typhoon-like intensity.

The Hamburg Police President said:—

"The cause of the enormous extent of the heavy damage, and particularly of the high death rate in comparison with former attacks, is the appearance of "fire storms." In consequence of these, a situation arose which must be regarded in every way as new and unpredictable."

The official account of the phenomenon is as follows:—

As a result of high explosive bombs of all sizes, roofs were laid bare in large numbers, windows and doors blown in and smashed and the self-protection service was driven into the cellars.

The incendiaries, which were then dropped in enormous concentration, found ample food amongst the destruction already caused.

The self-protection personnel, despite the complete breakdown of the municipal water supply, then sallied forth to fight the fires; but more high explosive bombs drove them back again into the shelters.

This alternate dropping of high explosive and incendiaries allowed the fires to spread almost unimpeded. They occurred not only in attics and upper floors, but often at the bottom of buildings as well.

The immediate fanning out thus made possible the coalescing of an immense number of individual fires into a series of huge area fires. All this occurred within the space of about half an hour, and these area fires produced the "fire storm."

The explanation of the physical occurrence of the "fire storm" and its attendant phenomena is reasonably simple.

As a result of the confluence of a number of fires, the air above is heated to such an extent that, in consequence of its much reduced specific gravity, a violent updraught of air, far exceeding the strength of normal winds, shrieks in from all sides towards the centre of the storm.

This circumstance explains the colossal force of "fire storms," which cannot be compared to normal meteorological phenomena.

Another result of this great force is that weather conditions, even the strongest prevailing wind, have no effect on the development of the "fire storm."

This power to overcome the prevailing wind, together with the centripetal suction effect on surrounding masses of fresh air, is also the reason why a "fire storm" does not, as a rule, tend to spread sideways. Normally they only spread as a result of flying sparks or radiated heat.

Local building conditions and layout may have great influence on the development or otherwise of a "fire storm."

In Hamburg the phenomenon originated in densely built-up and thickly populated areas, where, by reason of the type of buildings and the densely massed houses, conditions were favourable for the development of a "fire storm."

In the affected area in Hamburg there were mostly large blocks of flats in narrow streets, with numerous houses behind them, with inner courtyards, etc. These courtyards became, in a very short time, cauldrons of fire which were, literally, mantraps. The narrow streets became flues through which the flames were driven.

Large blocks of flats were set on fire in a moment, from the ground floor upwards. The usual intermediate stage of incipient fire, which in former attacks had been successfully dealt with by the fire guards in Hamburg, did not occur.

The suction of the "fire storm" in the larger of these area fire-zones had the effect of attracting the already overheated air in the smaller fire-zones. One effect of this was that the fire in these smaller zones was fanned as by a bellows. In this way the various fires became united in one vast "fire storm," which destroyed 22 square kilometres.

Thus, in a very short time, there developed a hurricane of fire probably never known before, against which all human resistance was, despite the many and valiant efforts, useless.

The rapidity with which the fires and "fire storms" developed made all prospects and plans of defence by the inhabitants hopeless. Houses which in previous attacks might have been preserved by the self-protection and other personnel, now fell victims to the flames.

Before the necessity of flight could be realised, often every path to safety was cut off. People who now attempted to leave their shelters to see what the situation was, or to fight the fires, were met by a sea of flames. Everything round them was on fire. There was no water, and, with the huge number and size of the fires, all attempts to extinguish them were hopeless.

Many members of the self-protection service on their patrols, or when trying to fight fires, were either buried by high explosive bombs or cut off by the rapid spread of the fires. None knew where to begin fire fighting.

The heat, which was becoming unbearable, showed plainly that there was no longer any question of putting out fires, but only of saving their lives.

Escape from the sea of flame seemed already impossible. Women especially hesitated to risk flight from the apparently safe shelter of their strengthened basements, through the flames into the unknown.

So people waited until the heat and the obvious danger compelled some immediate action, unless action was forced upon them by rescue measures from outside. In many cases they were already unable to act for themselves. They were already unconscious or dead from carbon monoxide poisoning. The house had collapsed, or all the exits had been blocked.

The "fire storm" raging over many square kilometres had cut off innumerable people without hope of rescue. Only those got away who risked early escape, or happened to be so near the edge of the area that it was possible to rescue them. Only where the distance to water, or some sufficiently large open space was short, was flight now possible.

Many of these refugeees even then lost their lives through the heat. They fell suffocated or burnt, or ran deeper into the fire. Relatives lost one another. One was able to save himself, others disappeared.

Many wrapped themselves in wet blankets, or soaked their clothes and thus reached safety. In a short time clothes and blankets became dry and hot. Anyone going any distance found that his clothing was in flames, or the blanket caught fire and was blown away in the storm. Some hundreds of people took refuge in a sports ground — an open space of some 200 yards square. They were all burned to death.

Numbers jumped into the canals and waterways and remained swimming, or standing up to their necks in water for hours. Even these suffered burns on their heads and faces. They were obliged to wet

their faces constantly or they perished in the heat.

The "fire storm" swept over the water with its heat and its showers of sparks, so that even thick wooden posts and bollards burned down to water level. Some unfortunate people were drowned. Many jumped out of windows into the water or the street and lost their lives.

The scenes of terror which took place in the "fire storm" were indescribable. Trees of 30 years' growth and up to three feet in diameter were uprooted. Children and babies were torn away from their parents' hands or arms and were whirled into the fire. People who thought they had escaped fell down, overcome by the devouring force of the heat and died in an instant. Refugees had to make their way over the dead and dying. The sick and infirm had to be left behind by rescuers as they themselves were in danger of burning.

The number of deaths has never been finally settled, but estimates vary from 40,000 to 55,000. Even today many bodies remain buried beneath the ruins.

The destruction was so immense that, of many people who died, literally nothing remained. From a soft stratum of ash in a large air-raid shelter, the number of persons who lost their lives could only be estimated by doctors at 250 to 300.

Another attack took place on the night of 29/30th July, and again another 2,400 tons of bombs were dropped, and this was directed against the port and the industrial portion of the town not previously damaged in earlier raids.

The damage was immense, the water supply failed, and the whole of Hamburg was on fire. The casualties in this raid were few due mainly to the evacuation of the population.

Weather conditions stopped attacks for three days. On the night 2/3rd August, a raid by 300 aircraft dropped 1,400 tons of bombs, a great number of these falling in areas previously bombed. Casualties were very few.

Analysis of Results.

Damage.

In London, during five years, 95,000 dwellings were detroyed, whereas, in the space of ten days, 175,000 were destroyed in Hamburg.

Casualties.

There were 60,500 casualties in the whole of England during five years. In Hamburg a minimum of 60,000 was killed in ten days.

Bomb Density.

In Hamburg the following quantities of bombs were dropped in ten days:—

Block Busters	1,200
High Explosives	25,000
Incendiary	3,000,000
Phosphorus	80,000
Petrol	5,000

Evacuation.

During "The week of catastrophe" over 1,000,000 people left the city by rail, road and water. Evacuation was organised by the local authorities with the assistance of the army. The problem was immense.

Problems Remaining.

After the battle was over the following problems still remained:—

(a) Damping down fires.
(b) Body recovery.
(c) Clearing rubble.
(d) Re-establishment of public utilities and industry.
(e) Prevention of disease.
(f) Restoration of morale.

In fact, Hamburg was economically knocked out.

NEW FRENCH WEAPONS.

A demonstration of prototypes of new French weapons took place recently in the French zone of Germany.

One of the most notable of the new weapons displayed was the 13-ton tank. This tank is already in production and successfully underwent tests in the United States last year. It aims at solving the threefold problem of speed, fire-power and weight of armour. The 75mm. gun is mounted on an oscillating turret and its great muzzle velocity gives the weapon a remarkable power of penetration at 600 yards. The tank is conspicuous for its squat appearance—the total height is just over six feet. It is capable of a maximum speed of about 50 miles an hour, and a cruising range of around 275 miles.

The Somua armoured reconnaissance vehicle can be driven in either direction, at a maximum speed on the road of 60 miles an hour. It has an effective range of about 500 miles, and is armed with a long 75mm. gun. The vehicle is made conspicuous by its eight large wheels, the end wheels being fitted with tyres and the four middle wheels with a tractor thread. When driven along roads the central wheels can be raised.

The demonstration included the new French 105mm. and 155mm. howitzers. In their designing and research French constructors have aimed at greater standardisation. The 105mm. howitzer can be brought into action in two minutes. When brought into action the wheels are raised and the gun rests on three legs, which gives it a full circle of fire. The 155mm. gun, which has a range of just over 11 miles (nearly two miles more than its American counterpart), weighs little more than seven tons. It can be brought into action in about 10 minutes, and is especially designed for high trajectory fire. Both of these weapons have been made as self-propelled models as well.

One of the most successful of the smaller weapons designed so far is the French bazooka, unequalled, it is claimed, for trajectory, muzzle velocity and lightness. It has a range of about 200 to 300 yards and a penetration of over 11 inches. The weight of the weapon with about four bombs is only 22 lb. It has been adopted by the Atlantic Pact Organization, and is being mass produced.

—*Irish Defence Journal.*

TOMORROW-NEXT WEEK-NEXT YEAR

Lieutenant Colonel Robert E. Coffin,
Artillery Instructor,
Command and General Staff College.

"The common purpose of Army war plans, campaign plans, and operation plans is to let each element of the command know what is expected of it in order that the efforts of all may be co-ordinated toward the attainment of the common objective."

—F.M. 101-51, Department of the Army Planning System.

SUCCESSFUL military actions are based on sound plans. This axiom applies to all echelons of command. The squad leader fights his men in conformity with the platoon leader's plans; the theatre commander utilizes his forces in conformity with the strategic war plan. The squad commander's action is planned only minutes or at most hours before it happens, whereas the theatre commander's actions are based on plans that were formulated months and even years before.

Planning Problems.

What problems face all tactical commanders in planning? First, **time;** the time necessary to prepare the plan itself, the time necessary to assemble the troops and materials required by the plan, and the time to prepare and issue orders and rehearse the planned operation. Second, **staff organization;** the organization of a staff which will permit the commander to carry out his dual role of director of current operations and planner for future operations. Third, **control;** the keeping of all staff planners synchronized so that all elements of the plan are developed simultaneously to achieve the common objective. Fourth, **co-ordination;** the integration of the over-all plan with those of the navy and air force, and the plans of subordinate headquarters, to ensure that all plans are mutually supporting.

The factor of time always must be given careful consideration before a planning mission is assigned to a subordinate headquarters. The lower headquarters must be given ample time to prepare their plans based on the over-all concept of the operation.

In organizing his staff for long-range planning, the commander must avoid placing his planners in an "ivory tower" where they are out-of-touch with current operations. These—current operations—always have a marked effect on contemplated plans, and their influence must be reflected in those plans. Conversely, future plans

—*From Military Review, USA.*

will determine, to some extent, the assignment of immediate missions since current operations should facilitate future operations. In short, the organization of a staff must provide for the releasing of its planners from the administrative details of existing operations, yet keep them intimately acquainted with current developments.

Control of planning requires positive means of ensuring that all planners are working toward the same goal. The use of outline plans and planning time schedules are effective control measures.

Internal security within a headquarters may force the commander to entrust the planning, initially, to a small group of individuals. However, at some point in the planning process, subordinates must be utilized to complete the details. The great value of an outline plan and a time schedule then becomes apparent. The broad concepts will have been fitted together to form the basic framework of the plan. The tedious task of filling in the many details can then be accomplished within that framework.

The most difficult problem facing any planning staff is co-ordination. A major operation will include not only army, navy, and air force plans, but, within each of these services, there will be tactical, fire support, administrative, and communications plans which must be co-ordinated. The army commander, from the initiation of planning, must be sure his plans fit into the over-all concept of the operation and are co-ordinated with the plans prepared by supporting and supported headquarters. The planner never forgets "for the lack of a horseshoe nail the battle was lost," and checks and rechecks his plan with those prepared by the other services that are concerned to assure himself that he has the "horseshoe nail"—whether it be the selection of a tactical objective, or the provision of a cotter pin.

Field Army Planning.

The problem of simultaneous planning, of current operations, and for future actions, is particularly difficult at the level of the field army. Normally, it is the highest echelon of command engaged actively in directing current operations, and is the lowest concerned with long-range planning. Department of the Army, theatre and army group headquarters, primarily, are planning staffs. They accomplish their mission by issuing directives and orders based on long-range plans. Corps, division, and smaller unit commanders execute the plans conceived by higher commanders and prepare relatively short-range plans to accomplish their mission. Thus, the large tactical and logistical staff of the field army commander is the agency which converts long-range plans and programmes into detailed operation orders. This responsibility of the field army commander forces him to organize his staff so that it can supervise the execution of current plans and orders and, **concurrently,** prepare new long-range plans.

A field army commander's decision on the organization of his staff for planning will be influenced by the existing situation. If his army is engaged only in planning a future operation, the entire staff can be used for planning. If, on the other hand, the army is fighting, the

bulk of the staff is engaged in current operations.

Long-Range Army Planning.

As an example of an entire army headquarters planning an operation, let us consider the invasion of Southern France by the United States Seventh Army.

Late in 1944, after the completion of the Sicilian operation, the Seventh Army commander, in Palermo, received a planning directive from Allied Force Headquarters. The directive instructed the army to prepare outline plans for further amphibious operations in the Mediterranean Sea area. Logical areas for future operations were selected by the army commander and the preparation of the outline plans was begun. Several plans for each of the selected areas were developed by the staff and presented to the army commander for his consideration.

Meanwhile, higher level planners had determined that the Marseilles area was the one which contributed most to the over-all campaign plan, and the Seventh Army was directed to concentrate its planning on that area. A major portion of the army staff was moved to Algiers and established as a planning section of the theatre headquarters. This arrangement for concurrent planning permitted informal co-ordination between the theatre and the army staff, as details of the plan were developed. The army used, as a basis for its plans, the outline plan developed earlier, incorporating its best features into the concept already developed by the theatre planning staff.

The organization of the army staff was the normal one for such a headquarters, although each section was limited, for security reasons, to relatively few individuals. As the target date approached, the size of the army's staff was increased to complete the details of planning. Navy and air corps planning staffs were established adjacent to the army headquarters, to facilitate co-ordination. Representatives of the base section, organized to support the combat forces ashore, were present in the headquarters to take part in the logistical planning, since much of the special equipment had to be ordered from the Zone of Interior (USA).

Control of the staff planning was facilitated by means of a series of conferences attended by members of the theatre, army, navy, and air staffs. Preliminary plans were subjected to "war-gaming" to test their feasibility. This resulted in the development of minimum requirements for shipping, troops, and support aviation. Based on the assumption that these requirements would be met, planning progressed to the development of a basic operation plan.

The successful completion of the first phases of the Normandy invasion released the shipping necessary to mount the Southern France operation. The theatre, assured that the landings would be made, assigned forces to the Seventh Army. Again, concurrent planning techniques were employed. The United States VI Corps, a combined British-American airborne task force, and French Army "B" were the major elements of the Seventh Army. [French Army "B" later became the First French Army, a separate entity under the 6th Army Group.] These commanders

were given planning directives by the army, and their staffs and the army staff, all in close physical proximity, continued to improve and enlarge upon the existing plans.

When the final operation orders were issued, all the major headquarters concerned had been involved in the development and testing of the plan upon which the orders were based. The army headquarters required no modification of its organization to provide for the planning staff. Control had been facilitated by continued briefings, war games, and rehearsals. Coordination had been achieved by concurrent planning and informal interstaff conferences. The original brief outline plan had been amplified until it became, finally, the detailed operation order, the execution of which moved, controlled, and supplied thousands of men and machines over hundreds of miles of water and land.

Short-Range Army Planning.

Opposed to the "pure" planning problem faced by a commander when his sole mission is to complete a plan is the situation where his forces are engaged in combat and he must plan, at the same time, for future operations. The direction of daily operations, to include the tactical support and supply of the combat troops, is of paramount importance; yet there is the continuing necessity for advance planning.

An illustration of a headquarters carrying out this dual role is that of the Seventh Army planning for the crossing of the Rhine River. The planning for this crossing was begun during the initial planning for the Southern France operation. Long-range estimates of special equipment were made, and the required requisitions were submitted to the Zone of Interior even before the invasion took place. Without these plans, which resulted in the procurement of the necessary special equipment, many critical items would not have been available when the actual crossing of the river occurred.

After the landings on the southern coast of France, the army advanced rapidly northward up the valley of the Rhone River. The Rhine River loomed on the horizon as one of the major obstacles blocking the army's entry into Germany. The army commander was faced with the immediate problem of conducting a difficult campaign and, at the same time, preparing detailed plans for the Rhine crossing. This problem was appreciated at theatre headquarters, and intelligence reports on the river, as well as continuing assistance in the procurement of special equipment, were forthcoming. However, the development of a tactical plan to put forces across the river line was the army commander's responsibility. The corps and divisions of the Seventh Army were too heavily engaged to be planning for a river crossing still several hundred miles away. Concurrent planning, therefore, was impractical.

To initiate the tactical planning, a planning committee was appointed by the army commander. It consisted of several officers from each staff section. A special operations room was established for briefings and as a central repository for information on the Rhine River. It was not the intention of the army commander that the planning staff should isolate themselves from the

rest of the staff and from their current duties. Rather, he appointed the committee to analyze the additional problems raised by the contemplated river crossing, in light of daily operations.

In an Ivory Tower.

The following case history illustrates the effect of organizing a planning staff as a separate entity in a large headquarters.

In the winter of 1944-45, certain medium artillery battalions were authorized to exchange their 4-ton truck prime movers for the new M5 tractors. What would have been the effect on the river crossing plans if the staff planners, operating as a "cell" within a headquarters and paying little attention to changes in the equipment of units, had failed to note this exchange?

First, the artillery plan itself would have failed to take into account the increased cross-country mobility of the medium artillery. This would have resulted in a faulty organization for combat.

Second, the ordnance plan would have failed to recognize the changed maintenance requirements. In addition, it would have failed to note that the basic load of the unit had changed which resulted in a new ammunition allocation to those units.

Third, the new personnel requirements for these units included mechanics with different training. The personnel plan would have had to anticipate a requirement for replacements with tracked vehicle maintenance experience.

Fourth, the supply plan would have failed to reflect the effect of the greater consumption of gasoline by the newly equipped units, as well as the procurement of replacement parts for the tractors. Eventually, unit replacements of assemblies and of entire tractors would have been required.

Fifth, the engineer plan would have failed to consider the increased necessity for maintenance on the roads where the tractor-equipped units moved, as well as greater bridge strengths required since the tractors are heavier than the trucks.

Finally, Intelligence would have failed to include the new vehicle in its identification of vehicles publications; the air force would not have been briefed on the appearance of the tractor to prevent its false identification as an enemy vehicle; drivers' schools would not have been started within the artillery battalions to teach the drivers the operation and maintenance of the tractor; and a new SOP for unit moves, required for artillery units, would not have been prepared.

All these aspects of a single "daily operational" matter would have been lost to the planner if he had been shut off from the rest of the staff.

The Seventh Army commander prevented such a situation from developing by keeping his planning staff integrated with his operational staff. The army successfully executed its deliberate crossing of the Rhine River against intense enemy opposition. The army's success can be attributed, in part, to the commander's foresight in initiating planning for the river crossing long before that operation took place, so that the necessary special equipment was on the ground when it

was required. With no change in staff composition or organization, a planning staff that was within the personnel limitations imposed by the requirement for security, and, at the same time, familiar with current operations, had developed a basic plan. Control was facilitated by continued briefings and the development of a series of outline plans, which, later, were expanded into final operation plans. Co-ordination was achieved through the use of a committee composed of members of the staff.

Conclusions.

Planning is vital to any large organization, whether it be a civilian business concern or the armed forces. Just as new model automobiles are planned for years in advance, successful operations are planned sufficiently far ahead so that the required men, equipment, and supplies are where they are needed, when they are needed.

"Ivory tower" planning deprives a planning staff of information concerning changes in the current situation or in equipment. Planning must be realistic; it must be based on current operations and capabilities. The organization of his staff will reflect a commander's concept of planning.

Control of planning requires a clear analysis of the mission, a planning schedule, and an outline plan which indicates the commander's concept of how he will accomplish his mission. This provides the staff with a planning framework. When the outline plan has been approved, it can be expanded into the detailed operation plan with no loss of control.

Co-ordination of plans within and between services requires early and close liaison with the other commands involved. Every detail of all the plans must dovetail to provide a smooth-functioning, successful operation.