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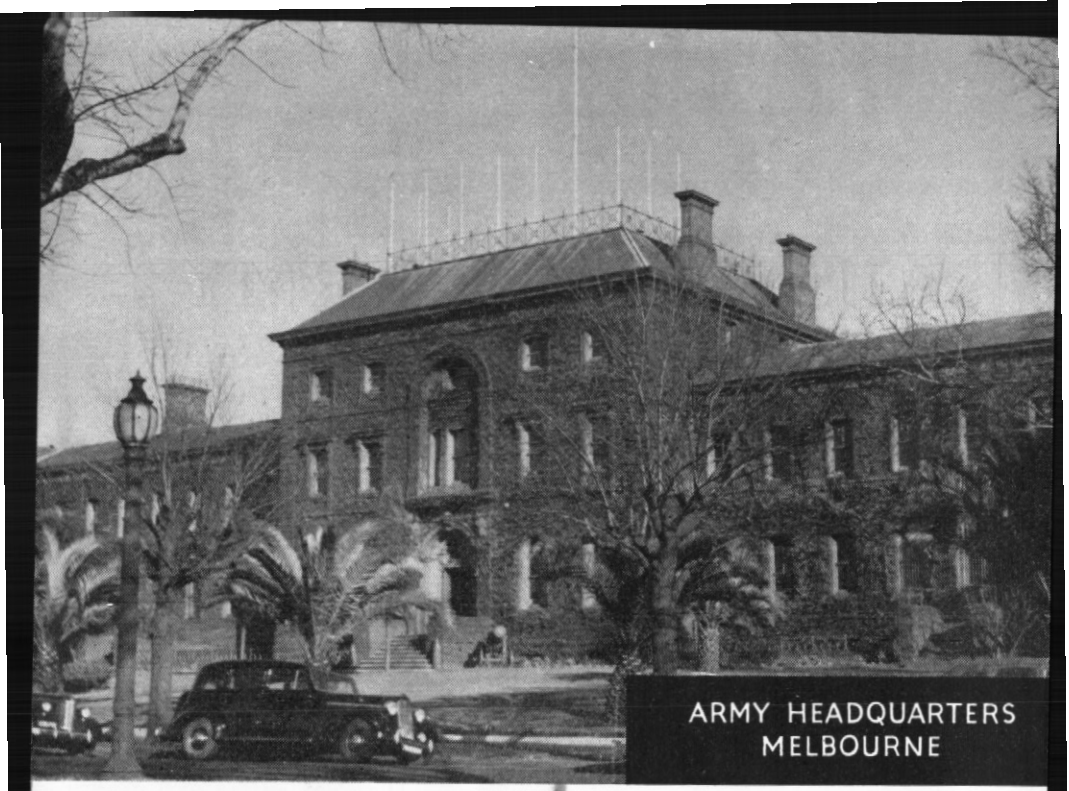
A Periodical Review of Military Literature

Number 5 —— **Feb-Mar, 1949**

CONTENTS



ARMY HEADQUARTERS
MELBOURNE

AUSTRALIAN ARMY JOURNAL

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Air Support of Armies

The Development of
BRITISH AIRBORNE FORCES

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INTRODUCTION

The object of this article is to give a short history of the development of British Airborne Forces, together with a brief outline of their operations and the lessons learnt as a result of these operations.

BETWEEN THE WARS

It was realized in 1918 that the aeroplane was likely to provide a new method of launching troops into battle and this idea strengthened between the wars. The use of parachutists was studied both at the War Office and the Staff College but, generally speaking, the idea did not appeal.

In 1936, at the invitation of the Soviet Government, British Army observers witnessed the Russian demonstration of the mass use of parachutists. Most of the observers were most impressed, and on return to England wrote numerous papers pointing out their advantages and advocating the formation of a British Airborne force. However, once again finance reared its ugly head and nothing concrete was done. Even when the expansion of the Armed Forces was decided upon, the Royal Air Force and the Royal Armoured Corps obviously had to be given first priority. Thus, until after Dunkirk, the question of Airborne Forces was shelved and papers written by the keen young Staff Officers were relegated to the archives of the War Office.

1940

After Dunkirk, when faced with the problem of regaining a foothold on the Continent, it was realized that Airborne troops would pay excellent dividends in the initial landings and, also, probably in the later campaigns. Even when not in action the potential threat would at least have the effect of making the enemy keep an eye over his shoulder, and dissipate some of his forces by having to guard vulnerable points. The Chiefs of Staff then became interested and, in July, 1940, War Cabinet was convinced of the soundness of the proposal and agreed to No 2 Commando being turned into parachutists. Later in 1940, gliders were put on the drawing board.

A suggestion from a Military Correspondent who has seen Professor Baldwin's descent.
— From the London "Graphic", 1888

RESOURCES

At that time, there were no aircraft specially designed for dropping parachutists or towing gliders. As the resources of the country were fully engaged in the production of fighters and bombers, no effort could be spared for transport aircraft, so Whitleys (obsolete bombers) were handed over to No 38 Group, Royal Air Force, for this purpose. Further, as metal could not be spared for the manufacture of gliders, furniture factories were mobilized for the production of wooden gliders.

THE BEGINNING

In July, 1940, immediately War Cabinet approval was given, a Parachute School opened at Ringway, under Lieutenant-Colonel Rock, RE, and Wing Commander Sir Nigel Normal, Royal Air Force. Fortunately these two officers were tenacious and not easily depressed, for "the going" was uphill all the way. The whole project was a most hazardous business in those days. The only parachutes in use were the old Royal Air Force "Pull" type and, of course, as mentioned earlier, Whitleys were the only aircraft available. The form, under these conditions, was to remove the turret from the Whitley and whilst crouching on a platform, release the parachute thereby, in due course, ensuring that the jumper was dragged off into space. There were one or two fatalities and several miraculous escapes.

GLIDERS

In August, 1941, the HOTSPUR, a 6-seater with no brakes was produced. This was of very little use.

In February, 1942, came the HORSA, which is still in use. It was a great improvement on the HOTSPUR as it carries 28 men or an equivalent combined pay load of men and equipment or stores, a pay load of 6,900 lbs.

The HAMILCAR was produced much later. This glider is a development of the HORSA and is capable of carrying heavy loads, up to 17,488 lbs.

OPERATION COLOSSUS

On 10 February, 1941, the first airborne operation, more in the form of a 'cloak and dagger' party than an operation, was carried out. It was known as "Operation Colossus", and had as its object the destruction of the Apulia aquaduct which carried the water supply for Bari, Brindisi and Taranto (Fig 1). It was thought that this operation, if successful, would assist our Greek allies in their war against the Italians, as the Italian forces in Albania and Africa were being maintained mainly from these ports. This was about the only assistance we could give them at that time.

The order of battle consisted of six Whitleys, each carrying one officer, five other ranks and some explosives.

The aircraft took off by night from Malta and as a result the operation was only partially successful. Parachute dropping by night invariably results in dispersion. In addition, one Whitley lost its way, was late, and dropped its party in the next valley, too far away to help in the task. In addition, two containers failed to leave another aircraft due to icing. However, the remainder reached their objective but, unfortunately, it was found that the aquaduct was reinforced concrete instead of masonry as was previously thought. Owing to these mishaps it was found that there was insufficient explosive to complete the destruction of the aquaduct. However, considerable damage was done, and the Italians got an awful fright. It also resulted in large numbers of Italian troops being diverted from other tasks to guard vulnerable points throughout Italy and their rear areas.

The original plan was for the party to be taken off by submarine, but one Whitley developed engine trouble on the return journey and came up on Wireless Telegraphy to report it. As this happened near the selected submarine rendezvous, the Admiralty rightly considered that security had been prejudiced and ordered the submarine not to go. It was just as well, as the whole party was captured before reaching the coast.

Thus ended our first airborne operation.

Lessons

Although not completely successful many important lessons were learnt.

The operation showed:—

(a) The potentialities of such raids;

(b) That breaches of security may jeopardize such an operation;

(c) The value of good intelligence, which was bad in this instance and thereby contributed to the failure of the operation;

(d) That difficulties of navigation by night result in dispersion and, finally,

(e) The necessity for allowing a margin for non-arrivals, e.g., in this case each party should have carried sufficient explosives to carry out the demolition.

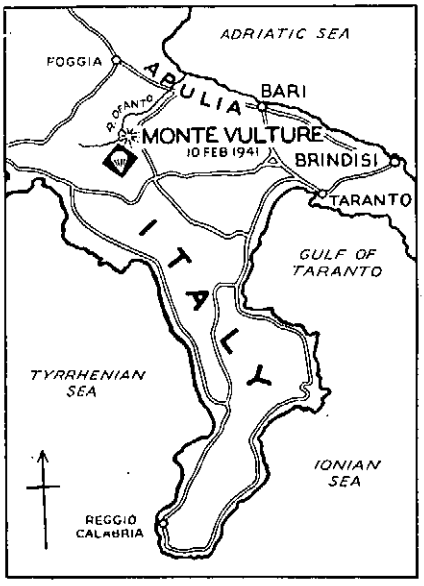


Fig 1

1 AIRBORNE DIVISION

The potentialities of airborne forces were now accepted and, in November, 1941, 1 Airborne Division was formed under General Browning.

Then began the struggle for aircraft and gliders.

With a view to creating confidence in the air landing brigade troops, it was decided that the Commanding Officer of this brigade should do the first HOTSPUR glider flight at Ringway. Just after the take-off one engine of the Whitley cut out so the pilot cast off the glider. Unfortunately the glider pilot failed to realize or forgot that the tow rope was still hanging from the nose of the glider. On turning in to land he endeavoured to come in low over a wood. Fortunately no one was killed but all were shaken, including the spectators.

BRUNEVAL

The next airborne operation was planned with the object of obtaining details and certain parts of an enemy radar equipment known as the Wyersburg apparatus which was situated near Bruneval, France, on the night 27/28 Feb 42. This raid was carried out by a company of 2 Parachute Battalion, six officers and 113 other ranks, assisted by an Engineer element and two scientists. The raid was a complete success. The scientists dismantled the set, removed the required items, and the remainder of the set was destroyed. The party then moved down to the beach where to their amazement and delight they found the landing craft awaiting them as planned. This was the first really successful combined operation.

NORTH AFRICA

The next British airborne operations were carried out in North Africa, in November, 1942, by 1 Parachute Brigade. (Fig 2).

On 12 Nov 42, 3 Battalion was dropped at Bone and succeeded in capturing the airfield and in gingering up the French.

On 16 Nov 42, 1 Battalion was landed at Souk El Arba, 80 miles south-east of Bone, with the task of raising the French and securing the airfields. On landing, the Commanding Officer was a little dismayed to find that Souk El Arba was a much larger town than expected, and that the French did not rush out, wave flags, or join him. However, nothing daunted he marched his battalion through the town in berets, then around and through again in helmets. This had the desired effect for the French Commander, duly impressed by both the bearing and numbers of paratroops, threw in his lot with the British.

On 29 Nov 42, 2 Battalion was landed at Oudna, near Tunis, and about 60/70 miles east of Souk El Arba. Their task was to capture the airfield and approaches to the town in order to assist an armoured thrust from the west. However, the armour failed and the battalion had to fight its way back, incurring very heavy casualties.

Lesson

The main lesson brought out by these operations was that parachute troops dropped in penny packets over widely dispersed areas seldom pay good dividends. Many think that had the whole brigade been dropped on Tunis it might well have captured the town and raised the French, thereby shortening the whole campaign.

Preparation for Sicily

In May, 1943, the remainder of 1 Airborne Division (less two Airlanding Battalions) went out to North Africa to prepare for the Sicilian operations, and were joined by 1 Paratroop Brigade. By this time 6 Airborne Division was being formed under General Gale.

The HOTSPUR glider had by now been replaced by the HORSA. Some of the HORSAS to be used were to be towed out from the United Kingdom and the balance of the gliders required for the operation were to be WACOS, provided by the United States of America in North Africa.

The flight to North Africa was somewhat hazardous as you may well imagine. One team of 6 Glider Pilots was shot down three times crossing the Bay of Biscay.

The Glider Pilots who were to pilot the WACOS were sent ahead of the Division in order to do a conversion course from HORSAS to WACOS, or HADRIANS as they are called in England. On arrival, no gliders could be found anywhere. At last, an American Air Force officer discovered a lot of crates stacked away which proved to be the much sought after gliders. However, these were all in pieces, and there were no technicians available to assemble them. The Commanding Officer, Glider Pilot Regiment, therefore, had no alternative but to organize his own production lines. This was done and, with the assistance of some Sappers, the Glider Pilots assembled the gliders.

Later, 1 Airborne Division flew in Dakotas and gliders from the Oran area to Kairoun, a distance of 800 miles crossing a 7,000 ft. mountain range. This flight was a complete success except for one glider which spun in at Kairoun, from where the operation was to be mounted.

OPERATION HUSKY

First Phase

The first stage of the invasion of Sicily, known as "Operation Husky", was to be the landing of 1 Airlanding Brigade on D–1/D Day to capture Ponte Grande just south of Syracuse. (Fig 3). As an airborne operation, this was a complete failure, but the objectives were captured. Only one glider landed near the bridge. However, the platoon in it achieved complete surprise, and secured the bridge about midnight. Reports state that the surprise achieved was so complete that at about 4 a.m. an Italian guard, returning from leave, dismounted from his bicycle and handed in his leave pass to the British sentry at the bridge. Subsequently, small parties of 1 Airlanding Brigade made their way to the bridge and enabled it to be held until a quarter of an hour before the arrival of the seaborne troops, and thereby assisted the seaborne troops to capture it intact.

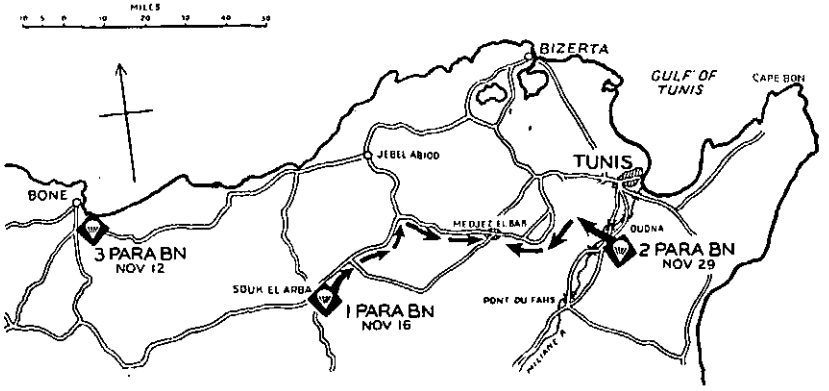


Fig 2

I stated earlier that as an airborne operation it was a complete failure. Here are my reasons for saying so:—

Fifty per cent of the gliders landed in the sea, including the Division Commander's, who ended up 10 miles

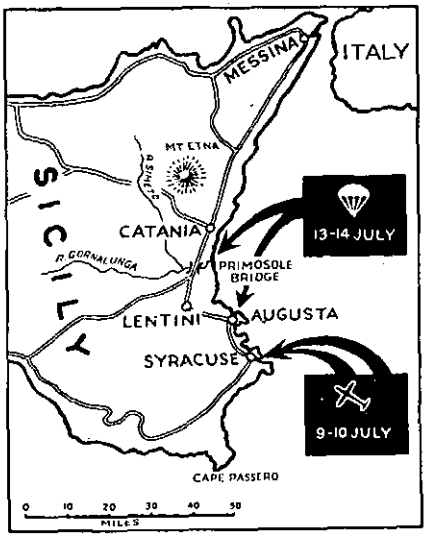


Fig 3

off shore. The Brigade Commander, Brigadier Hicks, who later achieved fame at Arnhem, was also deposited in the sea but a little closer to the land.

Brigadier Hicks, until recently 2 i/c School of Land/Air Warfare, Old Sarum, told me of his experience. It appears that the glider made a perfect landing in the sea, but quickly sank until only the wings and top of the fuselage were above water. The occupants all succeeded in getting out and scrambled onto the wings. They had been there for some time when they heard the sound of a landing craft passing more or less nearby. The Brigadier let out a brigadierial call for help, and to his and the remainder of the party's surprise and dismay, heard a hushed voice through a megaphone, reply — "Shut up, you b — f —, we're commandos doing a silent approach for a surprise landing!"

After the sound of the landing craft had faded into the distance, the Brigadier dived into the sea and swam ashore, eventually reaching the bridge after several hair-raising experiences.

The failure of this operation was put down to:—

(a) Inexperienced tug pilots who included American transport pilots with no operational experience. Shortage of aircraft made it necessary to brief them to avoid flak.

(b) Inadequate training of Glider Pilots caused by insufficient gliders and tug aircraft for training purposes. Very few Glider Pilots had done more than one landing with full operational loads.

(c) Adverse weather conditions. There was a gale blowing off-shore which prevented gliders, released at sea, making the land.

(d) Faulty photo interpretation to a lesser degree. Stone walls scattered around the landing zones had been interpreted as paths. When landing in a glider there is a marked difference, as the occupants of many gliders discovered to their personal discomfiture.

Second Phase

The second phase of the invasion envisaged the capture of Primosole, south of Catania, on D+3 Day, by 1 Parachute Brigade. This operation was a failure also but some very good lessons resulted therefrom. In the first place, the air formations were routed over one of our naval convoys, and some aircraft were shot down. This was not good for either the morale of the airborne troops or that of the Navy. Many aircraft failed to locate the Dropping Zones. Eleven aircraft were shot down, and 27 per cent returned to base without dropping the parachutists, which meant that less than 1/5th of the Brigade landed in the right place. To add to the confusion of those who did land correctly, German parachutists were using the same Dropping Zone at the same time. Arguments as to ownership of the various containers and stores resulted in almost endless bickering and squabbling. The final reckoning showed

that we had suffered very heavy casualties and were unable to hold the bridge.

Lessons

The main lessons brought out by Operation Husky were:—

(a) Airborne operations by night must have every possible navigational aid to assist both the tug and glider pilots.

(b) Night operations will inevitably result in dispersion.

(c) A very high standard of training is essential both as regards tug and glider pilots.

(d) Airborne formations should NOT be routed over naval convoys.

Return to United Kingdom

After a brief excursion to Italy where they fought as ground troops, 1 Airborne Division (less 2 Parachute Brigade which remained in Italy) returned to the United Kingdom in December, 1943, to refit for "Operation Overlord" — the invasion of Europe — as it was thought that they would make the initial landing. However, this honour was given to 6 Airborne Division.

OPERATION OVERLORD

On the night D-1/D Day, 5/6 Jan 44, 6 Airborne Division, together with 82 and 101 United States Airborne Divisions, landed in Normandy. The main tasks of 6 Airborne Division were to secure the left flank of the bridgehead and capture the bridges over the River Orne and Caen Canal. (Fig 4).

A small number of gliders and the two parachute brigades were landed and dropped by night whilst the main force of gliders landed by day on D Day. This operation was completely successful and all objectives were captured. Gliders were used successfully during the night D-1/D Day for the "coup de main" tasks of capturing intact the bridges over the River Orne and Caen Canal, and for the liquidation of the Merville battery.

This operation showed the value of gliders for "coup de main" tasks as they ensured the silent approach of complete sub-units. Also, that successful night landings may be made provided pathfinders are used. About 70 gliders carrying Divisional Headquarter elements and an anti-tank battery were landed on night D-1/D Day.

Even with the assistance of pathfinders, there was still, however, a considerable dispersion of parachutists.

Following the landing of the main forces across the beaches, 6 Airborne Division continued to hold firm the left flank and after the "break out" by the British Forces fought as ordinary infantry until the Seine was reached when they were withdrawn.

POST D DAY PLANNING

Between D Day and September, 1944, 1 Airborne Division took up a threatening attitude which, in addition to being irksome, involved them in the planning of 17 different operations all of which were discarded before execution except the last one planned — Operation

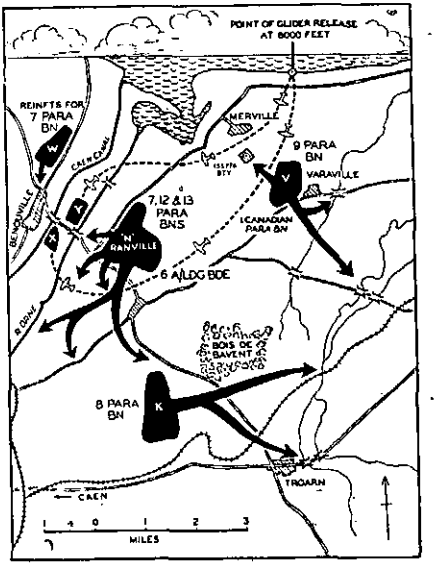


Fig 4

Market — the landing at Arnhem. Whilst it was most soul-destroying for the Divisional Staff, it did have the effect of reducing the time to plan an operation from two weeks to inside a week.

TYPES OF TASKS

The following operations which were planned by 1 Airborne Division show the types of task an Airborne Division may be called upon to carry out:—

(*a*) *Evrecy.*—The capture of a ridge south of Caen. DZ and LZs were good, and there were few enemy in the area. However, as the plan proceeded the area became the enemy reserve area and was surrounded by 2 and 3 Pz Divisions.

The plan, therefore, was abandoned.

(*b*) *St. Malo.*—As there was a United States convoy waiting to come into Cherbourg and the United States advance was slow, it was decided that St. Malo must be captured and opened for this convoy. 1 Parachute Brigade and 1 Airlanding Brigade were to be landed on the beaches. The beaches looked excellent both from the air and air photos. However, agents reported them to be quick-sand, therefore speedy deplaning without any heavy equipment would be necessary. All gliders landed would be written off as the sands would hold them until destroyed by the incoming tide.

This operation was cancelled owing to the timely speeding up of the advance of the United States ground troops and the capture by them of Cherbourg.

(*c*) *Vannes.*—Again the object was the need for a port. 1 Parachute Brigade was to take the airfield on which 1 Airlanding Brigade was to be landed, and then open the port.

(*d*) *Rambouliet.*—"Paris Gap". This operation was to have been carried out in conjunction with United States Armour (General Patton) to bottle up the enemy south of the Seine.

The United States Armour, however, pushed through quicker than expected and arrived the day before the Division was due to take off.

(*e*) *Bridges Over Meuse.*—1 Airborne Division and one United States Division at Liege and Maastricht were to secure the bridges for our advance over the River Meuse and, at the same time, cut off the German retreat.

Once again the United States beat us to it.

(*f*) *Comet.*—1 Airborne Division was given the task of capturing intact the bridges at Graves, Nijmegan and Arnhem, in order that the momentum of the advance of 30 Corps might be maintained. The plan allotted the objectives "coup de main" parties each a company strong. The gliders were to be landed right at the bridges making use of arrester parachutes.

As these three bridges were later allotted an Airborne Division each, it would appear that it would have been positively suicidal had the plan been put into effect.

All these operations were planned in detail at battalion level and for Evrecy, St. Malmo, "Paris Gap" and "Comet" the gliders were loaded and later unloaded. In the case of "Comet", one company had actually emplaned before the operation was called off.

OPERATION MARKET

On 10 September, 1944, First Allied Airborne Army received word that Operation Market was to be carried out by them.

Object

The object of the operation was to lay down an "airborne carpet" from Eindhoven to Arnhem, both inclusive, so as to enable 30 Corps to cross the river obstacles rapidly, with the ultimate object of cutting off all German forces west of Zuyder Zee and, by outflanking the Siegfried defences, to break out into the Ruhr. First Allied Airborne Army with three Airborne Divisions (one British and two United States and a Polish Parachute Brigade) under General Browning was given the task. (Fig 5).

Now for a few remarks on the part played by 1 British Airborne Division with a Polish Parachute Brigade under command.

Task

1 British Airborne Division was given the task of capturing the main road bridge leading into Arnhem and, if possible, a pontoon bridge and railway bridge across the Lower Rhine further to the west.

Topography — DZ/LZs

Owing to the nature of the surrounding country, the number of suitable Landing and Dropping Zones was limited.

To the south of the river there were numerous canals and built up roads. To the north it was hilly and too close to the Deelen flak area, and immediately west of Arnhem the country was thickly wooded with only a few clear spaces.

Dropping and Landing Zones, therefore, had to be selected too far away from the objective, somewhere about 8 miles.

General

It was known that Arnhem was a rest and staging area, also that there were normally about 5,000 troops in the Arnhem area and 4,000/5,000 troops in barracks at Ede, but it was thought to be emptying as all available men were

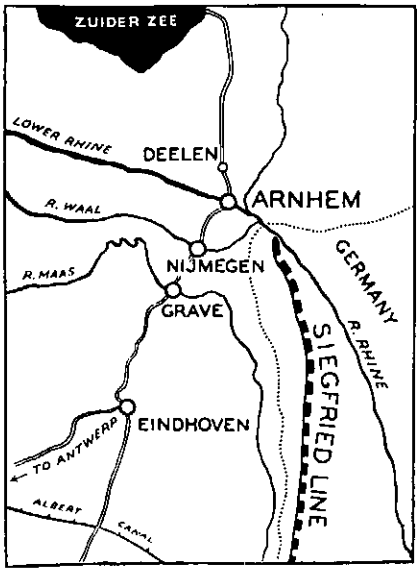


Fig 5

being sent south to dig trenches on the Albert Canal. In actual fact the estimated numbers were in the area and, in addition, there were two Panzer Divisions refitting.

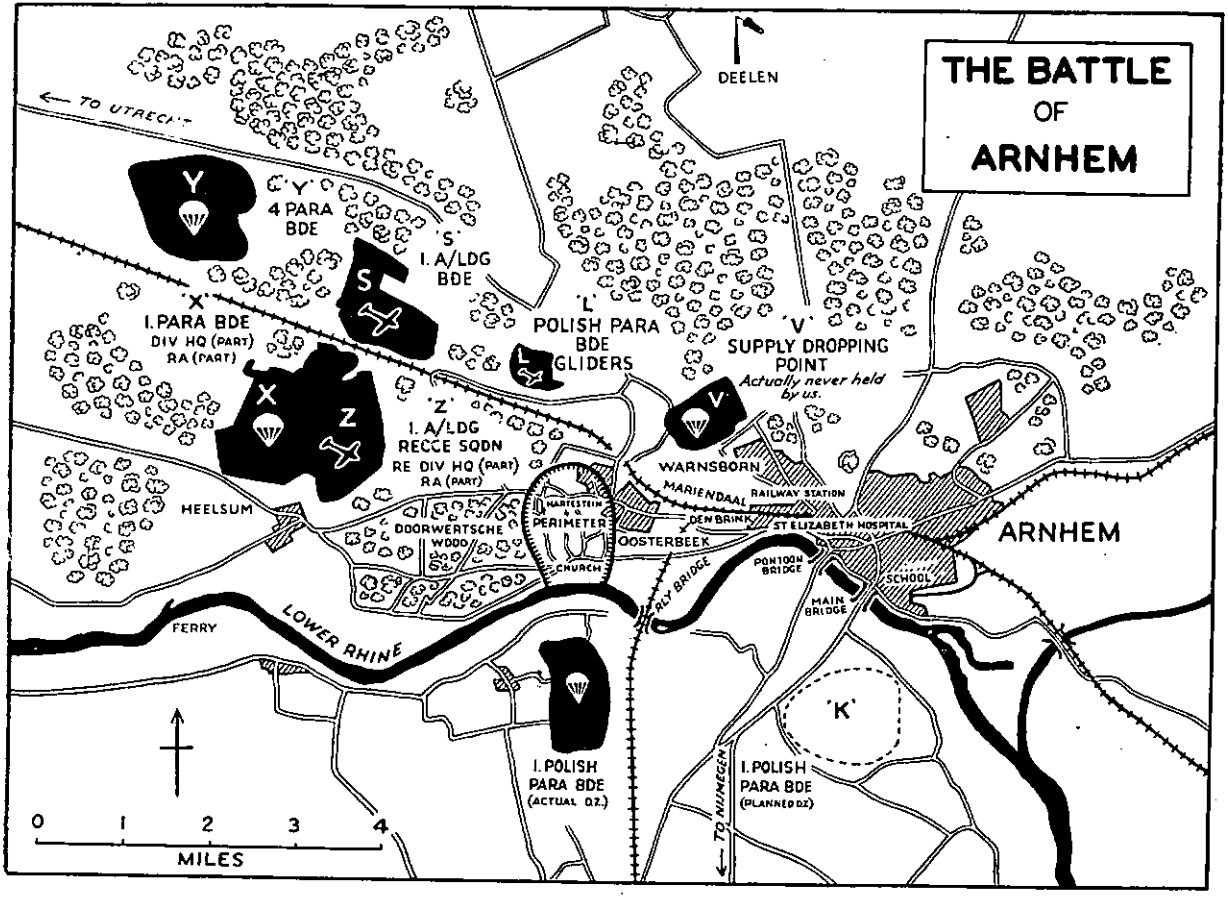
Owing to shortage of aircraft, the landing had to be carried out in three lifts, as a total of 1,077 aircraft sorties were used — 383 for parachutists and 694 tug/glider combinations.

Well, as you know, the operation was a failure and by dawn 26 September, approximately 2,120 survivors had been ferried across the river leaving about 300 more on the far bank, together with the remainder of the Division of 10,095 troops who were either killed, captured, or wounded.

Complete surprise had been achieved but lack of strength, due to the Division necessarily being moved in three lifts, prevented advantage being taken of it. Further, the distances from the DZs and LZs to the objective were too far.

OPERATION VARSITY

The final British airborne operation was known as Operation Varsity, which


THE BATTLE
OF
ARNHEM
TO UTRECHT
DEELEN
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I. A/LDG
BDE
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I. PARA BDE
DIV HQ (PART)
RA (PART)
'L'
POLISH PARA
BDE
GLIDERS
'V'
SUPPLY DROPPING
POINT
Actually never held
by us.
'Z'
I. A/LDG
RECCE SQDN
RE DIV HQ (PART)
RA (PART)
WARNSBORN
MARIENDAAL
RAILWAY STATION
HARTESTEIN
PERIMETER
DEN BRINK
ST ELIZABETH HOSPITAL
ARNHEM
HEELSUM
DOORWERTSCHE
WOOD
OOSTERBEEK
CHURCH
PONTOON
BRIDGE
SCHOOL
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'K'
I. POLISH
PARA BDE
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PARA BDE
(PLANNED DZ)
TO NIJMEGEN
0 1 2 3 4
MILES

was the airborne crossing of the Rhine carried out in conjunction with Operation Plunder — the surface crossing of the Rhine by 21 Army Group.

The troops employed comprised the 6th British and 17th United States Airborne Divisions.

The Air Force contribution to this operation consisted of:—

1,795 Troop Carrier aircraft,

1,305 Tug/Glider combinations, and

Fighter escort, apart from some 7,700 sorties by medium, light, and fighter bombers during the day of landing, 24 Mar 45.

In this case, the ground troops under cover of a smoke screen crossed the Rhine first. The Germans were expecting the Paratroops to be landed first and were thus caught unawares. 6 Airborne Division was then landed practically on their objective — the gun areas — and although they suffered heavy casualties they achieved their object.

The operation was conspicuously successful.

All lessons learned, up to and including Arnhem, were incorporated in this operation.

The whole Division was landed in one lift, in about 1½ hours, and re-supply was provided by 240 Liberators within 20 minutes of the last glider landing.

Incidentally, units were landed tactically by the Glider Pilots and not just anywhere on the landing zones.

DEMOCRACY

"Our constitution is named a democracy because it is in the hands not of the few but of the many . . . . The gates of our city are flung open to the world. We practice no periodical deportations, nor do we prevent our visitors from observing or discovering what an enemy might usefully apply to his own purpose. For our trust is not in devices of material equipment, but in our own good spirits for battle. So too with education. They toil from early boyhood in a laborious pursuit after courage, whilst we, free to live and wander as we please, march out none the less to face the self same dangers . . . . We are lovers of beauty without extravagance, and lovers of wisdom without unmanliness.

A State which gives equal chances to all citizens irrespective of birth or wealth, and honours excellence wherever found; of which the characteristic is not that it does much for its citizens, but that they have and take the opportunity to do much for it; a State which leaves the individual to lead his own private life in his own way . . . . whose members respect its laws, and give it due service of their own free will and uncompelled."

— Pericles, 490-429 BC.

THE GERMAN OFFICERS' CORPS

1 — Role of the Military Caste Between the Wars

J. H. Morgan, KC
Former Deputy Adjutant-General, British Army

GENERAL von Seeckt boasted, and with good reason, in his military testament Die Reichswehr that, in his frustration of the vigilance of the Control Commission of 1920-27, he had succeeded in "neutralizing all the poison" contained in the Articles of Disarmament of the Treaty of Versailles. His success in fashioning, as he did, the "Treaty Army," i.e., the Reichswehr of 100,000 effectives with its modest establishment of 4,000 officers, into the instrument of Germany's astonishing military revival owed everything, he explained, to the German Officers' Corps.

That great freemasonry of 34,000 regular officers "survived", as he put it, all the efforts of the Control Commission to dissolve it. So, indeed, in spite of our efforts to demobilize them, did the 100,000 regular NCO's who were recognized in the German military vocabulary as being also a corps and privileged as such. Nor did he omit to nurse a third corps, the Corps of non-professional officers, "reserve officers" as they were called, whose strength was given by the German Reichsarchiv in 1919 as 226,000. Their relations with the Corps of regular officers had always been, and continued after the war to be, extremely close.

In point of militarist sentiment the multitude of non-professional officers were notoriously "more Catholic than the Pope" in their naive reverence for the regular officers. It was this solid phalanx of 134,000 professional officers and NCO's and "reserve officers" whose survival and affiliation with the Reichswehr cadres von Seeckt, by a thousand secretive devices, secured with marvellous ingenuity.

One of the paladins of the Kaiser's Army, von Mackensen, wrote to von Seeckt as early as 1925, in a letter which remained a secret until its publication in 1938, to congratulate him on having made of the Reichswehr the "image in flesh and blood of our old incomparable Army."

An almost equally great multitude of officers, professional and non-professional, and of NCO's, has now been repatriated in western Germany. According to a statement by Mr. Shinwell in the House of Commons a few weeks ago, the repatriation of German prisoners of war hitherto in our hands is almost complete. The same is true of those captured by the American and French forces. What has happened to those in Russian hands no one knows, but there is good reason to suppose that their repatriation in eastern Germany is more nominal than real.

Process of Revival

It may be said at once that any such reincarnation in western Germany of

From the London "Times" of 2 November, 1948.

the old Army as von Seeckt achieved is at present quite impossible. So long as the allied occupation forces remain where they are and so long as the Russian troops keep their covenanted distance, the three disembodied corps can do little or nothing in the way of a military revival. They may, and almost certainly will, unobtrusively prepare for one, if only by assiduously cultivating their traditional prestige among their own people. There is abundant evidence of such preparation as early as 1945. They will also, no doubt, foregather again in their own regimental messes and in their old "Courts of Honour," their Ehrengerichte, as they did under the very nose of the Control Commission of 1920-27.

The extraordinary story of the audacious essays in the art of camouflage by which Seeckt achieved the perpetuation and continual renewal of the Officers' Corps has never, in spite of its immense importance for the future, yet been told. But in the year 1940 when Germany had nothing left to conceal and everything to boast of, the Keeper of the Reichsarchiv published in Germany a book, of which there is, I have reason to believe, only one copy in this country. In that book he praised certain devices, not unknown to the Control Commission of 1920-27, by which Seeckt had not only preserved the old Officers' Corps of the first world war intact but actually "rejuvenated" it.

The rejuvenation was accomplished by the institution, in 1921, of a vast eleemosynary system, costing the Reich billions of marks, of "Army Welfare." In defiance of the Versailles Treaty condition that Reichswehr officers were to serve continuously for 25 years and NCO's for 12, 25 per cent. of both the one and the other were induced to "retire" annually after only four years' service. The inducement took the form of half-pay, gratuities, maintenance allowances, and the like, the payment of which was conditional on the beneficiaries having to report periodically to the Reichswehr and on their re-entry into the Army in the event of mobilization. At the same time the whole of the 400 local recruiting depots (the Bezirkskommandos) of the old Army, nominally suppressed, were reopened as "Army Welfare Offices" and were feverishly busy keeping up to date the records and addresses of all the officers and NCO's thus on leave from the Reichswehr and, incidentally, the records of the 34,000 officers, of the 100,000 NCO's, and of the 200,000 or so "reserve officers" who, with the exception of those newly gazetted to the infant Reichswehr, had been retired or demobilized after the war.

Of the 100,000 maximum effectives of the Reichswehr itself no fewer than 72,000 were NCO's and at least 8,000 were officers. And these, with the exception of senior officers of outstanding ability, were periodically renewed. The Reichswehr thus became not only a training corps of instructors for the short-term recruits but a "Corps of Leaders," ripe for instant expansion into an army of seven times its "treaty" strength.

This brief excursion into unwritten history will serve to show how impossible, at present, is any repetition of such a military revival. To-day there is no "Defence Force," no Reichswehr to perpetuate and "rejuvenate" the Officers' Corps. There is also no State police force, such as the Security Police, instituted by Seeckt in 1920 as a duplicate to the Reichswehr. There are no "Army Welfare" offices to keep all the records and addresses of the millions of men of the Field Army now demobilized. The new Control Commission has suppressed them. All their records, so indispensable to mobilization, have gone their way to the incinerators. The whole fabric of Germany's military organization is thus in ruins.

Pillars of Authority

But tradition dies hard, as the "fathers" of the ill-fated Weimar constitution found to their cost. For that reason the embryo Republic of the new Germany may find itself threatened,

from the moment the forces of occupation are withdrawn, with the same infantile paralysis as foredoomed its predecessor.

The congenital weakness of the Weimar Republic was that it had no traditions with which to encounter the overwhelming traditional prestige of its sworn enemies, the Officers' Corps. No Englishman, except those who, like the writer, have lived in Germany under the First and the Second Reich, can have any conception of their semi-feudal prerogatives. Ludendorff did not exaggerate when he described the Officers' Corps as constituting "in the last resort the pillars of authority" in the Reich. The greatest constitutional lawyer in Germany, Laband, had expressed himself in almost identical terms.

This military caste permeated the whole of the Civil Service, including the police, and was as strongly entrenched after 1919 as before it. The Socialist Ministers of the Republic, who could do nothing without it, were mere civilians, accustomed always to a blind acceptance of the superior status with which German law itself invested the Officers' Corps. As civilians they had always had to make way, at their peril, for any officer in uniform whom they encountered in any public place. All these Socialist Ministers had done their two years' service with the colours, but, paradoxically enough, such service and even their intrepid war record, instead of ministering to their self-confidence when appointed to great offices of State, had exactly the opposite effect. It was a tradition of the Officers' Corps that, as its historian General von Freytag Loringhoven had written, conscripts should be so handled as to become "far more terrified of their own officers than of the enemy."

Dual Exculpation

Hence, no doubt, the explanation of the abject obsequiousness of Herr Noske, the Minister of Defence, in his dealings with German officers in 1919-20 and the docile collusion of President Ebert with General von Seeckt then and later in his "neutralization" of disarmament. Yet both Noske and Ebert were working-men Socialists of considerable force of character with 10 million trade unionists behind them. Noske, in his political testament, later pleaded that he had wanted to create an Army devoted to the maintenance of the Republic but could not find a single officer to share his sentiments.

In consequence of their capture en masse in 1945 the German officer caste have had no opportunity until now, as in 1918, of cultivating or restoring their prestige among their own people. Judging by their recorded statements in captivity there can be no doubt as to the form which that process will take. As prisoners of war they have been extremely loquacious. They have sought to take captivity captive by disclaiming at one and the same time all responsibility for their defeat in the strategy, and even in the tactical handling, of the war and for outrages in the conduct of it. The evidence of this policy of dual exculpation, for policy it must be called in view of the uniformity of hundreds of such utterances, is to be found in their statements, on being taken prisoner, to allied intelligence officers in 1944-45, their depositions when interrogated by the commissioners on being held, as hundreds were, as prospective witnesses for the trials at Nuremberg, and their testimony in the witness-box.

The evidence falling within the first two of these categories is largely unpublished. I owe my own acquaintance with it to the American War Crimes Commission now sitting at Nuremberg. It is no mere figure of speech to say, after reading these utterances, that when you have spoken to one German officer you have spoken to them all. It is this corporate outlook which makes them so formidable. One may therefore take it as perfectly certain that, now they have returned to Germany, they will industriously resort to the same tactics to re-establish their tarnished prestige at home.

WEST POINT

The United States Military Academy

Garry Armstrong, LLB

Mr. Armstrong is Secretary of the General Staff Branch at Army Headquarters. He accompanied the Secretary of the Department of the Army on his recent visit to the United Kingdom, Canada and the United States.

"FATHER, I cannot tell a lie!" The well known story of the boy George Washington and the cherry tree will doubtless be told as a model of truth and honour so long as the Anglo-Saxon civilization endures.

Less well known is the fact that President George Washington's last official act was to sign a letter again urging upon Congress the establishment of a military academy at Fort West Point on the Hudson River. Three years later the United States Military Academy was established by an Act of Congress passed on 16th March, 1802.

The link with George Washington is more than historical for, today, West Point regards the building of character as the corner-stone of its mission, and this it seeks to do primarily by the inculcation of that spirit of truth and honour personified in Washington's boyhood.

West Point is the oldest American military post still in use, and is steeped in tradition dating from the Revolutionary War.

In the early days of America the Hudson River was an important commercial and military highway. The river rounds West Point through a narrow defile where the rugged cliffs rise almost sheer from the water's edge. In those days the West Point heights constituted a tactical feature which commanded the shipping passing up and down the river.

The Americans established the first fort on the bank of the river opposite West Point in 1775. This was captured and destroyed by the British who were,

however, soon forced to withdraw from the area. Washington ordered another fort to be built on West Point. A small garrison laboured on the work throughout a bitter winter, their crowning achievement being the construction of a boom across the river. Soon afterwards the commander of the area, in a dramatically enacted plot, tried unsuccessfully to betray the fort and the American cause to the enemy. West Point was never again threatened, and has grown with the years as a symbol of American military strength.

Opening with a complement of five officers and 10 cadets, the Academy was at first mainly concerned with the training of military engineers. This early emphasis on engineer training served America well, for West Point graduates played a leading role in the development of many national works projects. It is, however, interesting to note that Brigadier-General Knox, who first urged the establishment of a military academy, recommended, as early as 1776, that it be established "on a liberal plan". "Liberal" has since become the keynote of the education covered by the curriculum.

In 1817 Colonel Sylvanus Thayer was appointed Superintendent of West Point, and laid the foundations on which the curriculum has been built. The measure of his wisdom is shown by the fact that the principles on which he established the curriculum have remained unaltered for more than a century. In this period the curriculum has been progressively developed and kept abreast of the times.

Colonel Thayer insisted firstly on character building with particular stress on honesty and integrity. Next he preferred education as liberal as might be consistent with the particular demands of military training. Thirdly, he required that the system of training should call upon the cadet to exercise his own mental aptitude and capacity for self expression.

Mission

The mission of the Military Academy, as stated by the Department of the Army is —

"To instruct and train the Corps of Cadets to the end that each graduate shall have the qualities and attributes essential to his progressive and continued development throughout a lifetime career as an officer of the Army. In general, courses of instruction and training will be designed to develop character and the personal attributes essential to an officer, to provide a balanced and liberal education in the arts and sciences, and to provide a broad basic military education rather than that individual proficiency in the technical duties of junior officers of the various arms which is of necessity a gradual development, the responsibility for which devolves upon the graduates themselves and upon the commands and schools to which they are assigned after being commissioned."

Curriculum

Between the two World Wars, and particularly during the period when General MacArthur was Superintendent, the curriculum was continually reviewed by the army authorities in conjunction with civil educationalists. The trend towards a more liberal education noticeable during those years has been carried further by curriculum reviews undertaken since the end of the recent war. The present course, whilst providing basically for a scientific and mathematical education, allots about forty per cent of the available time to social studies and the humanities. On graduation, cadets are awarded the degree of Bachelor of Science.

The course at the Military Academy takes four years. All cadets take the

same subjects, specialization in the requirements of the various arms of the service being undertaken at staff and service schools after graduation.

An interesting post-war development is the inclusion in the curriculum of a course in the Psychology of Military Leadership. This course has been placed in charge of an officer with a fine record of successful war leadership. In conjunction with a civilian psychologist he has produced a syllabus which combines military experience with practical psychological techniques, designed to assist the future officers in getting the best results from the American soldiers they will be called upon to command. The course includes sub-courses in public relations and relations with the National Guard. (The National Guard is the equivalent of the Australian Citizen Military Forces).

All cadets receive basic training in military aviation.

Considerable emphasis is placed upon the study of military history, particularly the study of the characters and methods of the great commanders from classical times to the present day. This course includes instruction in the principles of strategy.

On a normal working day the West Point cadet has only 2½ hours of leisure available for his own purpose. In a normal week he does about 72 hours work, including study time, classes, military exercises, and care of barracks and equipment.

Great attention is paid to the physical development of the cadets. Besides gymnastics there are 14 sports in which all cadets must take part. Successful Academy athletes compete in inter-university sport.

Discipline

The cadet's life is precisely regulated, and the strict discipline to which he is subject is directed towards the inculcation of a very high regard for truth and personal honour. Any breach of the trust reposed in each cadet is looked upon as the worst possible offence.

Under the "Honour System", on which discipline is based, it is the duty of a cadet to report himself for a breach of the regulations, whether or not anyone else witnessed the breach. Many offences are tried by the cadets themselves in a "Court of Honour."

Breaches of regulations, whether reported by another or submitted by the cadet himself, are entered on a charge sheet together with a short explanation of the reason for the breach. If the cadet is found guilty he is automatically awarded a certain number of demerit marks. Each breach of the regulations carries a definite number of demerits. Consequently there is no danger of a different number of demerits being awarded for a similar offence. Demerits in excess of the semi-annual allowance form a basis for dismissal from the Academy.

Environment

West Point is a very beautiful place which combines the practical facilities for an academy with a monastic atmosphere derived from stately buildings in a peaceful setting. Grey, gothic buildings in spacious grounds blend delightfully into the general layout of playing fields, parade grounds and plantations.

It is hard to say which is the loveliest and most interesting of the many fine buildings. The chapel, with its reminder of the great sacrifices made by graduates in the service of their country, is an inspiration in itself. The great dignity of the marble hall in which formal receptions and graduation balls are held compels a social graciousness which one usually associates with the last century.

The American Army is indeed fortunate in having such a gracious and beautiful Academy, so closely associated with its earliest traditions, in which to prepare the minds and bodies of its future officers for the responsibilities that lie ahead of them.

Long-Range Weapons Organization in Australia

Condensed from an official statement by the Minister for Supply and Development and written for the Australian Army Journal by Lieutenant-Colonel S. A. Morrison, Army Liaison Officer to the Longe Range Weapons Board of Administration

Historical Background

During the course of the recent war, it became evident, especially to Germany, that some radical change to the accepted methods of anti-aircraft defence and long range bombardment had to be brought about to compete with the Allied Air superiority, and the increased performance, both in speed and altitude, of modern aircraft. The anti-aircraft gun for high altitude shooting was rapidly becoming obsolete, and large numbers of shells were being expended in order to shoot down a single aircraft.

In an endeavour to overcome this problem, rendered extremely acute by the highly successful Allied bomber offensive, Germany turned a very large proportion of her immense scientific effort on to the production of high speed, pilotless guided anti-aircraft and ground bombardment weapons. In this work the German scientists were greatly assisted by a considerable amount of knowledge already available on rocket propulsion, a great deal of research having been carried on in this field prior to the war.

As a result of the enormous scientific and industrial effort devoted to this work, several types of subsonic and supersonic weapons appeared in service, the best known examples being the V1, the V2 and the Henschel powered glider bombs, the HS 293 and 294 series. In addition to these offensive weapons, several types of defensive anti-aircraft weapons were also under development, though none were completed in time to appear in service.

This work continued under high pressure until the end of the war, but due to the immense amount of damage caused to Germany's industrial areas and research establishments by Allied bombing, relatively little production was achieved, though a considerable amount of fundamental research was carried out and a mass of valuable data was accumulated.

Towards the end of the war, it was agreed that in spite of our complete air superiority, some effort should be devoted to research and development work on guided weapons, so that Britain should not lag behind in this new and very important field of defence. As a result of this decision, work was commenced in the Ministry of Supply late in 1944.

It immediately became evident that the production of a reliable and efficient guided weapon called for an enormous expenditure of money and a correspondingly large effort in terms of manpower. At this time very little was known either in Britain or America of

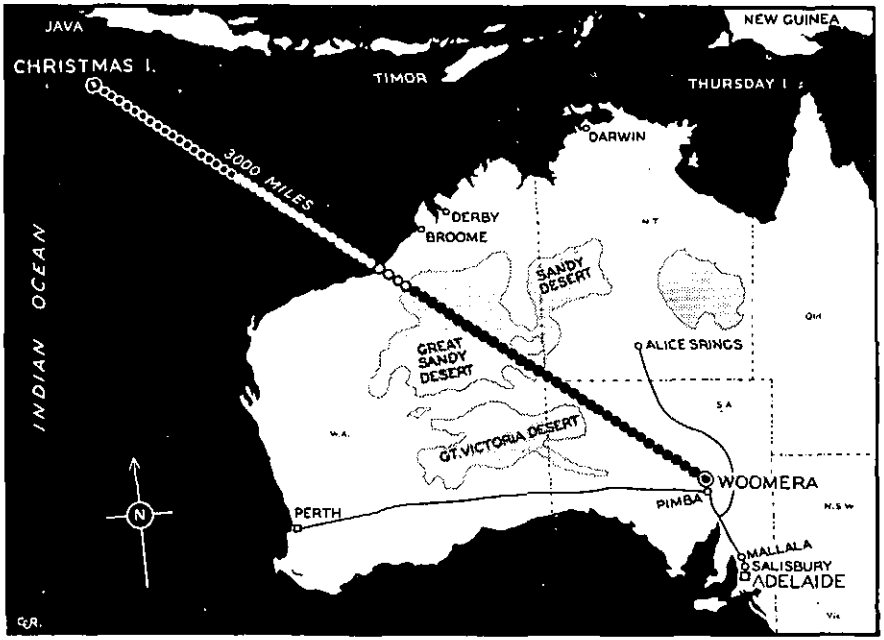
the problems associated with controlling guided weapons flying at speeds greater than the speed of sound, and practically no work had been done on liquid fuelled rocket motors or ram jets necessary to obtain the required performance.

This position was improved somewhat when Germany surrendered, since access was then possible to the vast fund of knowledge which had been built up by Germany during the war. However, it was still evident that a long, expensive and arduous task lay ahead before it would be possible to have a reliable guided weapon in the hands of the Services.

In addition to the many scientific problems presented in the actual production of the weapon and its associated equipment a purely practical problem was presented by the lack of a suitable trial ground within the British Isles. The only available ranges designed for gunnery, bombing, and unguided rocket trials, involved firing over the sea for strictly limited distances, rendering recovery impossible and seriously limiting observational facilities.

To overcome this problem the possibilities of other countries in the Empire were assessed with a view to finding a suitable area for constructing a long range over land, with a future extension over the sea, to give a total range length of about 3,000 miles. The only Dominions which showed any promise as a result of this assessment were Canada and Australia, the former having a big advantage in being relatively close to the United Kingdom, but a big disadvantage due to climatic conditions. Firing in Canada would inevitably have to take place over deep snow in winter, rendering observation hazardous and recovery extremely difficult, if not impossible.

The proposed area in Australia was first surveyed by a joint United Kingdom-Australian party in the winter of 1946. At that time it was intended to locate the Rangehead at Mount Eba, but later it was decided to move back to Woomera, so as to reduce the distance



from Adelaide and increase the length of the Range.

A report was made to the United Kingdom Ministry of Supply on the possibilities of the area, and negotiations were commenced between the United Kingdom and Australian Governments early in 1946. At the same time, work was begun in various Ministry of Supply Establishments, planning the technical aspect of the proposed range, assessing the requirements and estimating the cost of the project.

The proposed range was to run from Woomera, across the desert for a distance of about 1,200 miles, with the possibility of a future extension of about 1,500 miles across the Indian Ocean towards Christmas Island. The advantages of the area are immediately apparent. It is virtually uninhabited, so that little, if any, risk would be incurred. The climate, though very hot during the summer months, is good during the remainder of the year. The visibility, with the exception of ground heat haze, is good. Recovery of expended rounds presents no insuperable problem, and the setting out of observational facilities and general range instrumentation are relatively simple.

The disadvantages of the area are, in the main, those which would inevitably be associated with the setting up of any large project in a virtually uninhabited desert region.

These are broadly covered by lack of water, poor communications and general absence of essential facilities and amenities, but none of these problems is insuperable and all are being dealt with as described elsewhere.

The Department of Munitions (now Department of Supply and Development) was charged with the responsibility of setting up the organization necessary to conduct all aspects of long range weapons research, development and trials in Australia. Early in 1947, a party of engineers and scientists from the United Kingdom Ministry of Supply arrived in Australia to take part in this work, and the Long Range Weapons Organization, a joint United Kingdom-Australian enterprise was formed.

Organization

The Long Range Weapons Establishment in South Australia consists of three components, geographically separated, each under a Superintendent, but all working in a single entity under the Chief Superintendent.

Long Range Weapons Establishment — Salisbury (LRWE/Salisbury)

This establishment, with the Headquarters of the Chief Superintendent, is at Salisbury. Its primary purpose is to undertake all research and development work connected with experimental trials and with the equipment used on the Range. It is also responsible for the co-ordination and provision of all technical equipment and information required for the construction of the Range. As facilities at Salisbury grow, it is intended that more and more defence research and development will be undertaken, until this work eventually becomes the primary interest of the Establishment.

Facilities Being Provided at LRWE (Salisbury)

Administrative Building.—This building houses both the administrative and senior technical staffs, the Drawing Office, the Library and Information Centre, and the Conference and the Film Projection Rooms. At present work is in progress subdividing sections of the building to provide additional office accommodation.

Hostel. — Opposite the Administrative Building is the Staff Hostel, designed to accommodate 42 officers and staff. The Hostel will, in general, provide accommodation for visitors and temporary accommodation for permanent staff only while they are finding homes locally.

Transport Section.—The transport sections, at present under construction, will cater for all requirements for major repair work on vehicles belonging to the Organization. It will undertake all overhaul and repair work on special vehicles, such as Radar Vans, Mobile Workshops and Photographic Tenders.

Main Workshops. — These workshops will be fully equipped to undertake all the work of the Establishment of an experimental nature, such as the manufacture of proto-type equipment and the modification and repair of experimental projectiles to be fired on the Range.

Standards Laboratories.—Two laboratories will provide the following services for use by the scientific staff working at this Establishment:—

Photographic processing and assessing.

Mathematical computation.

Electronic standards.

Chemistry.

Project Laboratory. — The Project Laboratory will be provided to cater for the requirements of experimental projectiles. In this laboratory the work of assembly and testing will be carried out and the projectiles completed as far as possible before despatching to the Range at Woomera.

In this laboratory will also be carried out research and development of instruments intended for measurement of the performance of a projectile on the Range.

As the work grows, expansion can take place into five similar existing buildings, so that in time this area will become the centre of all scientific work at this Establishment.

Assembly Shop. — In the early days assembly will be done in the Project Laboratory. When the size of the experimental projectiles warrants a move, a building at present being used as a store will be converted to an Assembly Shop and equipped with the necessary testing facilities.

Staff

The recruitment of scientific and engineering staff for the Establishment is being carried out in two ways:—

Direct Recruitment. — By this method qualified technical staff are recruited by the Department of Supply and Development in Australia and in the United Kingdom for immediate employment at the Establishment.

Trainee Recruitment. — In order to build up a nucleus of trained scientific staff with a knowledge of guided weapons work, numbers of young scientists and engineers are being recruited, and after a short period at the Establishment they are sent to the United Kingdom for training. The period in the United Kingdom will normally be about two years, and during this time they will be employed by Ministry of Supply Research Establishments engaged on guided weapon work. On completion of this training period they will return to Australia and take up appointments in the Long Range Weapons Organization for a period of at least three years.

Long Range Weapons Establishment — Air Component (LRWE-A/C)

At present the Air Establishment is located at Mallala, and is staffed by RAAF personnel. Later it is hoped to move this Establishment nearer to Salisbury. The responsibilities of the Air Component are the provision of all air facilities necessary for experimental flying, transportation of stores and personnel, and air reconnaissance.

The RAAF Station at Mallala was originally built in 1941-1942 for use as a senior flying training school. It was used for this purpose up to 1945, when it was closed down and handed over to Department of Munitions as a store.

Early in 1947, it was selected by the Long Range Weapons Organization for use as an air establishment, and by arrangement with the Department of Munitions portion was handed back to

the Department of Air for this purpose. The buildings in use at the moment for the Air Establishment are :—Station Headquarters, Offices, Sergeants' and Airmen's Mess Quarters, Hangar and Workshop Accommodation, Station Sick Quarters.

The Units located at the Air Establishment are:—

A Communication Squadron, equipped with Viking, DC3, Anson 19 and Auster aircraft, some of these aircraft being permanently located at Woomera.

An Experimental Flight equipped with Lincoln and other aircraft for experimental flying work.

Long Range Weapons Establishment — Range (LRWE/R)

The Range Establishment, located at Woomera, is being planned to provide all services and facilities necessary to carry out large scale experiments as required by the Chief Superintendent. The majority of these services and facilities will be manned by personnel from the three Fighting Services, while the more special scientific measurements and the conduct of experiments will be in the hands of civilian scientists.

Facilities Being Provided at LRWE/R (Woomera)

Village.—In order to house the operational staff and their families at Woomera, a village is being constructed about 4 miles from the main Technical Establishment. This village will eventually be of permanent construction and will be designed to provide all possible amenities so as to reduce to a minimum the hardships of living 120 miles from a main centre.

As a temporary measure, water is being pumped from Lake Arcoona. The main water supply will eventually be obtained by means of a 10 inch main from the Morgan-Whyalla pipe-line at Port Augusta. Work on this supply has commenced and should be completed in about 5 months.

Airfield. — An airfield is being provided with three runways, one, 2.5 miles long, and two, 2 miles long. Hangar accommodation and all facilities for both experimental work and aircraft servicing will be provided.

Laboratories. — One large laboratory block will be constructed to accommodate the scientific staff working in the Range Area. The laboratory block will be designed to provide all the necessary facilities for project work, photography, maintenance of electronic equipment, chemistry, etc. The building will be constructed in permanent materials and will be fully air-conditioned.

Workshops. — A workshop will be provided for the maintenance and manufacture of equipment for the Ranges. Work beyond the capacity of this workshop will be done at the Establishment at Salisbury.

Transport Section. — A transport section will be provided to maintain the transport required for use on the Ranges.

Miscellaneous. — In addition to the facilities outlined above, technical stores, canteen, administrative headquarters, fuel stores and magazines will be provided.

Range Instrumentation

In view of the immense cost and effort that goes into the making of a single experimental projectile, considerable care must be taken to ensure that the maximum amount of information is obtained from every firing.

The type of information required will vary from round to round, since each firing is in the nature of a scientific experiment designed to obtain valuable data on some aspect of scientific interest.

Thus a trial might be run to get data on longitudinal accelerations, lateral acceleration, angles of pitch and yaw, and information on roll. Another trial might demand information solely concerned with the means of propulsion, such as temperatures, pressures, time of burning, etc.

To meet these varying requirements, a very elaborate system of range instrumentation must be built up, and some of the methods used are outlined below.

Electronic Methods of Instrumentation

Radar Tracking.—To obtain the position of the round at any given instant, straight radar tracking can be used. This operates in exactly the same way as a radar set tracking an aircraft. A pulse transmitted from the set is reflected back from the round and picked up in a receiver. The direction of the round is thus obtained, and its distance from the set is given by the time taken for the pulse to complete the "journey out and back." From this information the elevation, bearing the distance of the round are established, giving its position in space at any given instant.

Telemetry. — By carrying in the projectile a telemetry set, information as to what is happening inside the round itself can be transmitted to the ground and picked up on a special receiver. By this method, information on accelerations, roll, pitch and yaw, pressures and temperatures inside the round can be obtained during flight.

Optical Methods of Instrumentation

Several optical methods of instrumentation are used, the main ones being:—

High Speed Photography. — By means of a high speed cine camera, with a time base photographed on the film, it is possible to follow the round during the early stages of its flight, and obtain useful data on altitude and velocity.

Acceleration Cameras. — Acceleration cameras, operated by remote control and located to a flank, take a series of photographs of the round at fixed time intervals during the acceleration period. These photographs can then be interpreted to obtain the axial accelerations during the early part of the trajectory.

Kine Theodolites.—The kine theodolite is virtually a theodolite operating with a camera, the theodolite readings being photographed together with the round in flight. By using two or more of these instruments located at known positions, it is possible to compute the position of the round and its velocity at any given instant.

Terrain

The country around Woomera is very sparsely populated. It is a wool producing area with a carrying capacity of about 20 sheep to the square mile. Although the rainfall never exceeds 10 inches a year water is obtainable from artesian bores.

Much of the country over which the missiles will be fired is uninhabited, so the operations of the Establishment will cause little inconvenience to anyone.

"In history we have bottled experience . . . . only waiting to be uncorked."

— *Liddell Hart.*

Recruit Training—1847

Lieutenant D. H. Colsey

THOMAS Faughnan, having bound himself as a factor to the 17th Regiment commenced his training with commendable promptitude. (Recruiting One Hundred and One Years Ago, Australian Army Journal, No. 4.) Twelve hours after receiving half a crown from a local magistrate as "swearing in" money he was on his first route march. That curse of the modern recruit's life — the route march — was then, as it often is today in spite of mechanization, the means of locomotion between those two celebrated military landmarks, points A and B. Together with five other "brothers-in-arms" he was ordered to march from Mohill to Beggar's Bush Barracks in Dublin, a distance of over 150 miles.

Whether the recruit of today would set out as cheerfully to march, in civilian clothes, from Marrickville Camp, Sydney, to the Recruit Training Brigade at Greta is debatable, but Thomas had the added incentive of escaping the unwelcome attentions of his relatives who,

> " . . . . on hearing I had enlisted came after me, and tried hard to get me off but the sergeant would not hear of it and I was unwilling . . . ."

The march took ten days, during which the old staff-sergeant who commanded the party, in order to shorten the journey, told them many a thrilling tale of battles and seiges of the Peninsular War. He also treated them to a most valuable dissertation on the rules of conduct to be observed by a young soldier who wished to make a name for himself in the Service.

Advice to a New Recruit

This advice has lost none of its value with the passing of a century — although few recruits today have visions of becoming "ornaments to society" or "everlasting monuments to their friends and relatives", most have hopes of promotion.

> " . . . . be willing to lend a helping hand to a sergeant, corporal or a comrade without being asked. By these little acts of civility and politeness you gain a host of friends, and your name becomes proverbial among the non-commissioned officers and men; your good name will soon reach the ears of the officers and the commanding officer . . . . hence promotion, then by emulation, good conduct, and attention to your duties you soon attain the ladder of fame and become a boon to your Queen and Country, an ornament to society, and an everlasting monument of glory to your friends and relatives."

Issue of Kit

On arrival at the depot of the 17th Regiment at Canterbury, Thomas Faughnan was issued with clothing and equipment. The equivalent AB 83 of those days listed only 22 different items, anything else required the soldier found for himself. Today a recruit receives over 60 different articles — but he has three times as much to lose!

> " . . . . we were marched to the quartermaster's stores and received our

uniform and kit which consisted of the following articles:—

boots, pairs	—	one
cloth trowsers (sic)	—	one
summer ditto	—	one
shako	—	one
tunic	—	one
stock	—	one
stock clasp	—	one
shell jacket	—	one
forage cap	—	one
mits, pairs	—	one
tins, blacking	—	one
braces, pairs	—	one
brushes, cloths	—	one
canteen	—	one
canteen cover	—	one
knapsack	—	one
knapsack straps	—	one
haversack	—	one
greatcoat	—	one
shirts	—	two
socks, pairs	—	two
towels	—	two

"For the marking of these we were charged a halfpenny each."

Fitting of Uniforms

The recruit received very little clothing but at least that little fitted, which is more than can be said of much of our modern khaki uniforms SD.

"....we were next taken to the tailor's shop, where we had our clothing altered and fitted; this lasted four or five days during which time we were exempt from drill...."

Rations

Perhaps the most marked contrast between the army of today and that of a century ago is in the quality, quantity and variety of rations issued to the present day soldier. No Catering Corps or dietary advisors were necessary to deal with the meagre rations, and it must have taken a man with a philosophical turn of mind to find anything good to say about the food.

"....the bugle sounding for breakfast, we all sat down to a pound of bread and a basin of coffee each. Many who are pampered with luxuries and continually complaining of their appetite, would envy those recruits if they witnessed the short work they made of their bread and coffee after an hour's drill. Those who are troubled with indigestion or dyspepsia would save a large amount of doctor's pill and doctor's bill if they would put themselves on a soldier's rations, which would be a sure cure if only they have forbearance enough to restrain their appetites from the indulgence in any other luxuries. There were no dyspeptics in the army."

With a mid-day meal consisting of a pound of meat stewed with a handful of vegetables, and a tea meal much the same as breakfast it would indeed have been surprising to have found a dyspeptic in the Army!

Parades

Parades could hardly have been less monotonous than the food. The day started at five o'clock with the making up of beds. Recruits today may draw some consolation from the knowledge that this early morning ritual has by now been somewhat modified — in 1847 it would appear to have been almost as difficult as producing a rabbit from a hat!

"....I go to work in shirt sleeves; lift the clothes off the mattress, which I roll up tightly and secure by means of a long leather strap buckled around its centre, lift it with one hand off the cot, which I turn up with the other hand; placing the mattress square upon the end of the cot, then fold the rug lengthways in four doubles, and place it across the mattress, folding the blankets and sheets neatly according to regulations, showing the edges of the folds with the blade of a knife; fasten a card, with my name and regimental number, on the front of my bedding."

After the barrack-rooms had been inspected the recruits turned out for drill.

" . . . . three times a day, viz.: before breakfast, club drill; ten o'clock, commanding officer's parade, with setting up drill; afternoon, goose step, extension and balance motions . . . . at all these parades and drills we were minutely inspected by the orderly sergeant, and afterwards by the sergeant-major, and if the least fault was found, ordered to parade again, which was called a dirty parade.

"When drill commenced we were formed into squads of six or eight men each, in line at arm's length apart, which is termed "a squad with intervals." After drilling in single rank for a week, one squad was increased to two ranks at open order, the rear rank covering the intervals. The sergeant-major frequently came round to superintend the drill, and whenever he found an attentive, deserving recruit invariably sent him up to a more advanced squad; in this way the more intelligent and deserving recruits were advanced. I was among the lucky ones, who were first sent up, and I afterwards got sent up step by step until I reached the advanced squad, where I learned company drill without arms, after which we were served with arms, formed into squads, taught the manual and platoon exercise, company and battalion movements with arms. We were then put through a course of ball practice. The distance being fifty, a hundred, one hundred and fifty, and two hundred yards; the "Old Brown Bess" being in use then. After we had finished the course, we were again inspected, when we acquitted ourselves to the entire satisfaction of the officers, and were accordingly dismissed from recruits' drill, and returned fit for duty as soldiers."

"Advantage is gained in war, and also foreign policy and other things, by selecting from many attractive and unpleasant alternatives the dominating point . . . . Failure to adhere to this simple principle produces confusion and futility of action, and nearly always makes things much worse later on."

— Winston Churchill in "The Gathering Storm".

THE RISE AND DEVELOPMENT

of the

GENERAL STAFF SYSTEM

Major E. W. O. Perry, B. Ec., (R of O)

"The General Staff is intended to convert the ideas of the general commanding into orders, not only by conveying the former to the troops, but far more by working out all the necessary matters of detail, thus relieving the mind of the general from a great amount of unnecessary trouble."

— General Karl von Clausewitz.

This article, which is condensed from a lecture given by the author to the United Service Institution of Victoria on 11 August, 1948, is being published in three parts. Part 1, which appeared in the December-January number of the Australian Army Journal, dealt with early developments and the French General Staff under Napoleon. Part 2 deals with the rise of the Prussian and German General Staffs from 1806 to 1939. Part 3, which will appear in the April-May number, traces the development of the British Imperial General Staff.

Major Perry, who is the archivist of the Australian War Memorial, has devoted a great deal of time to historical research. In these articles he has produced a document of considerable importance to students of military history.

Part 2
The Prussian General Staff since 1806

The destruction of the Prussian Army at Jena on the 14th October, 1806, revealed to its leaders the paramount importance of organization. As a consequence the German armies under Prussian domination subsequently succeeded by organization and training. German organization, which started with the idea of the ALL, saw in each man a Teil mensch, a partial man; and by rigorously applying the principle of the division of labour, restricted each worker to the special task which had been assigned to him. This organization began with the idea that no investigation had any real value unless it combined the two qualities of Vollstandigkeit and Grundlichkeit, i.e., unless it was both complete and well grounded. Such investigation, by reason of the variety and number of qualifications it pre-

supposed was generally beyond the compass of a single individual, and so the normal form of staff work was its distribution among many and divers officers, each of whom was fitted for the special function that fell to him.[1]

On the 25th July, 1807, the King appointed Major-General von Scharnhorst, who was probably the most outstanding officer in the Prussian Army at that time, the first chairman of the Military Reorganization Commission. Its immediate task was to rebuild the Prussian Army on a new basis.[2] Napoleon had, however, limited its establishment by the Treaty of Tilsit of the 9th July, 1807, to a strength of 42,000 men, and laid down rigidly the distribution of the personnel among the various arms. In order to circumvent this restriction, a short term system which was known as the 'Krumper' system was introduced which provided large reserves of trained men for the expansion of the Army in the event of war. This system provided a reserve of about 36,000 trained men between 1808 and 1813, in addition to the strength permitted by the Treaty of Tilsit.

This type of Army required a highly trained Staff to organize and train it in peace and to mobilize and direct it in the event of war. Scharnhorst was appointed acting Chief of the General Staff of the Army (General-Quartiermeister) in 1808 and devoted particular attention to these needs. He issued a set of regulations in 1808 which laid down the duties of General Staff officers in time of war and they were by his command issued to all general officers and general staff officers throughout the Army. Finally Scharnhorst's formulation of the principle of staff duties, namely, "The study of detail must never be allowed to cloud the picture as a whole" may be said to have remained a guiding principle of the Prussian and German General Staffs.

In March, 1809, a central body to coordinate all command and staff matters was formed by the creation of the Prussian Ministry of War. Scharnhorst was appointed Director of the War Department which was the most important department of this Ministry. The appointment of Minister for War, however, the King left vacant at this time. The duties of this Staff in the War Department were to think out the requirements of war; organize the means to meet these requirements; devise a unified system of training; and provide expert advice on any military situation that may confront Prussia.

The Prussian General Staff of the Army again appeared as an organized body in the campaign of 1812 against Russia, but a further reorganization of this Staff followed the downfall of Napoleon in 1815. It was at this time divided into the "Great General Staff" which was situated in Berlin and the "Army General Staff" which was distributed among the army corps and divisions. The whole of the General Staff at this time formed part of the Ministry of War.

On the 25th January, 1821, Lieutenant-General Baron von Muffling (1775-1851) was appointed Chief of the General Staff of the Army and on this date the General Staff was separated from the Prussian Ministry of War in accordance with a Royal decree.[3] The Chief of the General Staff now ceased to be subordinate to the Minister of War and henceforth became directly responsible to the King.

On the 28th November, 1829, Lieutenant-General Baron von Muffling was succeeded by Lieutenant-General von Krauseneck who was followed on the 13th May, 1848, by Lieutenant-General von Reyher who died in office on the 7th October, 1857.

It has been said that, 'after Waterloo the Prussian General Staff fell somewhat

[1] Philosophy of War. By Emile Boutroux, pp. 2, 65.

[2] Militar — Wochenblatt — Nr. 97, 1912.

[3] History of Germany in the Nineteenth Century. By Heinrich von Treitschke, Vol. 4, p. 210.

into decay and the General Staff Officers, hitherto attached to divisions in peace time, were abolished.' Many imperfections came to light during the tumults of 1848-50. These were remedied in the years that followed, and in 1852, the intimate relations between the General Staff and the Army laid down by Scharnhorst were re-established, and General Staff Officers were once more attached to divisions in peace.[4]

General von Reyher was succeeded by General von Moltke (1800-91) who was provisionally appointed on the 29th October, 1857, to carry out the duties of Chief of the General Staff of the Army and was confirmed in this appointment in September of the following year. General von Verdy du Vernois said that, "Shortly after General von Moltke became chief of the staff of the Prussian army he had laid down his views as to the conduct of a war against France. In the course of the succeeding years these had been revised and developed in accordance with the changes which had taken place meanwhile in the political and military situation, alterations and additional preparations being made wherever it seemed necessary. The General's plans had received the sanction of the King, and thus in 1870, all the orders and other arrangements needed when war might break out with France were already elaborated in the Staff Office, and it was only necessary to fill in the date on each document."[5]

The Franco-German War, 1870-71

After the report of a general mobilization in France had been confirmed in Berlin, a similar order was issued during the night 15th/16th July, 1870, for the mobilization of all troops of the North German Confederation. The same night the order to mobilize was issued in Baden, and also in Bavaria on the 16th July, and in Wurttemberg on the 17th July, 1870.

The Supreme Commander of the German Armies was nominally King William of Prussia, but the Chief of the General Staff of the Army, General Count von Moltke, actually directed the military operations. The Chief of the General Staff of the Army was assisted by the Quartermaster-General who was in effect the Deputy Chief of the General Staff of the Army.

The departure of King William of Prussia with the Royal Headquarters from Berlin for Mainz took place on the 31st July, 1870. The General Staff at the Royal Headquarters was organized into three Sections, and the Chief of each Section who held the rank of Lieutenant-Colonel was assisted by one Major and two Captains. According to General von Verdy du Vernois, "The three chiefs at the head of the three sections were, Bronsart for the movements of the troops, Brandenstein for transport and commissariat affairs, and myself for everything concerning the French Army. But this division only roughly indicates the most important tasks of the sections, each of them had various other matters to look after in addition."[6]

The Lessons of the Campaign of 1870-71

In former times when the tempo of war was much slower and armies were less highly trained, mistakes at the outset of a campaign were not necessarily disastrous but, after the Franco-German War, the belief that commanders and troops could be forged under the hammer of war was no longer tenable. In the campaign of 1870-71 the preponderating influence of the trained mind became manifest. Previous wars had shown the value of educated commanders, but this war showed the value of an educated army. The French Imperial Army was destroyed in seven weeks and three days although it had been organized and trained in accordance with the old conventional system.

[4] The Development of the General Staff. Anonymous. (Published in "The Army Review." Vol. 1, July-October, 1911, p. 16).

[5] With the Royal Headquarters in 1870-71. By General J. von Verdy du Vernois, p. 10.

[6] Ibid, p. 24.

Courage, experience and professional pride the French possessed in abundance. Man for man neither officers nor men were inferior in physical qualities to the German officers and men, but one thing their commanders of all ranks lacked and that was a sound education for war. Strategy had not been studied by them scientifically; organization was a matter of secondary importance; and there had been no systematic studying of foreign armies including their equipment and methods of training. In a contrast of the French Army with the German Armies in the campaign of 1870-71, Colonel Henderson said, "At no single point, with equal or even with larger numbers, did they gain the smallest advantage; in small enterprises as in great, in the operations of isolated detachments as of the main armies, they were continually worsted, outwitted and outmanoeuvred, the lore of camp and barrack proving utterly incapable of dealing with the judgment and the science of the Kriegsakademie." [7]

The new conditions in 1870, moreover, demanded a change in methods. Moltke grasped the new requirements and made the Prussian General Staff the keystone of the system of German military organization. 'In his capacity as Chief of the German Staff,' according to Colonel Whitton, 'he built up a great system of administration suited to the needs of modern war, raising organization to a level previously unapproached and reducing its principles to a science." [8] Every great power in Europe endeavoured to reproduce, according to its ability, the Prussian General Staff system to the perfection of which Moltke devoted half a lifetime.

Moltke's methods of warfare differed fundamentally from those of the Napoleonic era. Preparation for war as he taught it had no counterpart at the beginning of the nineteenth century. No previous campaign had been prepared for as was that of 1870. No military concentration had ever been worked out to its final details as meticulously as was that which in July, 1870, placed 370,000 men in the Palatinate in fifteen days. The mobilization of an army, in which the majority of the troops had to be recalled from their homes, moved to their respective assembly points to be clothed and equipped and then transported as units to the areas of concentration, demanded that every contingency had been foreseen and provided for in advance. The optimum use could not have been made of railway transport, for instance, unless the most careful study had been made of the ways and means of attaining the required ends. Colonel Henderson once observed that, "The relative value of armies is not to be arrived at by merely counting heads. Force which cannot be concentrated at the point of conflict is hardly worth taking into account. If the elements of such a force lack homogeneity, if they are so loosely organized that their mobilization is slow and their transfer to the scene of action a matter of months . . . . it is manifest that an imposing total is very far from a guarantee of the swift action and heavy blows which war so imperatively demands." [9]

The General Staff System after 1871

In accordance with the Imperial Constitution of 16th April, 1871, the land forces of the German Empire in peace and in war were under the command of the Emperor as Supreme War Lord [10] although his authority in peace time was restricted in many ways outside the Prussian Army by military conventions with the several States of the Empire. The land forces of the German Empire consisted of Contingents from Prussia, Bavaria, Saxony and Wurttemburg.

[7] The Science of War. By Colonel G F. R. Henderson, p. 402.
[8] Moltke. By Lieutenant-Colonel F. E. Whitton, p. 69.
[9] The Science of War. By Colonel G. F. R. Henderson, p. 382.
[10] See Article 63 of the Constitution of the German Empire.

The troops of the smaller States formed part of the Prussian Contingent. In consequence of this situation the dominating role in matters of organization and administration were reserved for the Prussian Ministry of War while to the Prussian Great General Staff in Berlin was reserved the prerogative of making the strategical preparation for war.[11] There was no Imperial Ministry of War or Imperial General Staff.

The King of Prussia, as Supreme War Lord, exercised his authority through the Military Cabinet, the Ministry of War, the Great General Staff, the Army-Corps commanders, the Army Inspector Generals, and the Technical Inspector Generals. The Chief of the Military Cabinet, the Minister of War, and the Chief of the General Staff of the Army were the three highest military authorities. They were in practice co-equals and were under the direct control of the Emperor. They did not issue orders to each other, nor did they exercise any powers of command over troops.

The foregoing factors must be clearly grasped in order to understand the organization and administration of the German Army, and to place the Prussian General Staff of the Army in its proper perspective in Imperial Germany after 1871.

Field Marshal Count von Moltke relinquished the appointment of Chief of the General Staff of the Army on the 10th August, 1888, after having held it for thirty-one years, and was succeeded by General (later Field Marshal) Count von Waldersee (1832-1904). Count von Waldersee's tour of duty in this appointment was a comparatively short one for he was succeeded by Lieutenant-General (later Field Marshal) Count von Schlieffen (1833-1913) on the 7th February, 1891.

General von Schlieffen's importance lay in the practical training he gave the General Staff, and in his preparations for a war on two fronts. Such a war formed the starting point of his strategical thinking and in it he saw the possibility of success only in the rapid destruction of one opponent first, before turning in earnest to deal with the other one.

General von Moltke (1848-1916), a nephew of the Field Marshal, succeeded Count von Schlieffen as Chief of the General Staff of the Army on the 1st January, 1906, and he remained in this appointment until the outbreak of war in August, 1914.

The principal staff officers of the Great General Staff in Berlin, as at the 1st April, 1914, were the Chief of the General Staff of the Army and five Assistant Chiefs of Staff (Oberquartiermeister).[12] The functions of this Great General Staff included preparations for war, the study of foreign armies, research in military history and science, and trigonometrical, cartographical and topographical duties. The work of the Great General Staff was organized into Sections. The Sections, with the exception of those which were under the immediate control of the Chief of the General Staff of the Army, were formed into five groups each of which was in charge of an Assistant Chief of Staff. These five Sections were at this time, according to Major Charles Miller, the Foreign Armies Section, the Fortress Section, the Railway Section, the Historical Section, and the Topographical Section.[13]

The War of 1914-18

On the 31st July, 1914, the German Emperor issued, in accordance with Article 68 of the Constitution of the

[11] Die Organisation des deutschen Heeres in Weltkriege. Von H. Cron, S. 1.

[12] *Einteilung* des deutschen Heeres und der Marine nach dem Stande vom 1, April, 1914. Verlag von Zuckschwerdt & Co., Berlin.

[13] 'Infantry Journal' Washington, May-June, 1914, pp. 887-888.

German Empire, a Declaration of an imminent State of War in the German Empire, and on the 1st August, 1914, he issued the order for the mobilization of the German Army and the Imperial Navy. In this order it was laid down that the first day of mobilization would be the 2nd August, 1914.

Consequent on the mobilization of the German Army and the Imperial Navy, the Great Headquarters of the Emperor was formed. This Headquarters was situated in Berlin from the 2nd August to the 16th August, 1914, and then it moved into the field, as the Royal Headquarters of the King of Prussia had done in 1870. The first position occupied by this Headquarters on foreign soil was in Luxemburg on the 30th August, 1914.

In accordance with the plans for mobilization, the General Staff system in the German Army was reorganized to meet the changed conditions that had been brought about by the Empire's change over from a state of peace to a state of war. The Chief of the Prussian General Staff of the Army relinquished that appointment which then lapsed and was appointed to the office of Chief of the General Staff of the Field Army. This General Staff of the Field Army formed part of the Great Headquarters of the Emperor. A Deputy Chief of the General Staff of the Field Army was also appointed. He was subordinate to the Chief of the General Staff of the Field Army and was in charge of the rear echelon of the General Staff of the Field Army in Berlin. Although this General Staff of the Field Army was a general staff for the whole German Army it was actually a direct continuation of the Prussian General Staff of the Army under a new name.

On the date of mobilization the Chief of the General Staff of the Field Army was empowered to issue operational orders in the name of the Emperor, and this authority remained in force for the duration of the war. Thus the supreme powers of command remained in the hands of the Emperor whilst in practice the actual conduct of military operations lay in the hands of the Chief of the General Staff of the Field Army who issued orders in the name of the Emperor. He was obliged to obtain the Emperor's approval only in matters of supreme importance.[14]

In September, 1914, General von Falkenhayn (1861-1922) succeeded General von Moltke as Chief of the General Staff of the Field Army, and General von Moltke was later appointed Deputy Chief of the General Staff of the Field Army in Berlin. According to Rosinski, "The younger Moltke broke down completely after the collapse of his plans in the battle of the Marne six weeks after the outbreak of the conflict; but his successor, the Minister of War Falkenhayn, who took over from him at the height of that crisis, was an altogether different figure. A relatively young man of exceptional ability and unbounded ambition, he took the highest possible view of his new post."[15]

Field Marshal von Hindenburg succeeded General von Falkenhayn in this appointment in August, 1916, and then held it for the remainder of the war. Hindenburg brought with him his able assistant General Ludendorff and it has been said of these two Generals that, "So great became their hold over the affections of the nation that it began to overshadow even the authority of the sovereign himself. Hitherto the Kaiser's effacement had been of his own free will, from a reluctance to interfere. Now he rapidly came to the point where he found himself unable to make his will prevail against those of his two redoubtable servants even when he wished to. He had called them into office, but

[14] Die Organisation des deutschen Heeres in Weltkriege. Von H. Cron, S. 9.
[15] The German Army. By Herbert Rosinski, (1944 Edition), p. 154.

he could not dismiss them as he had done with Moltke and Falkenhayn, without precipitating a psychological crisis of unpredictable consequences. However much he outwardly tried to preserve his imperial authority, he was only too well aware that de facto he was forced to give way whenever the two pressed a claim with the threat of resignation." [16]

Thus by the end of the war, Hindenburg, as Chief of the General Staff of the Field Army, was the actual Commander-in-Chief of the German Army and his chief assistant General Ludendorff, as First Quartermaster General, was virtually the Chief of the General Staff of the Field Army.

The German General Staff from 1919 to 1939

The Higher Organization of the German Armed Forces

The post-war German Army was organized on an entirely new and different basis from that of the old pre-war Army. The Prussian Army and also the armies of the former kingdoms of Bavaria, Saxony and Wurttemberg were disbanded in 1919 and, according to the new German Constitution of the 11th August, 1919, the defence of the German Republic became exclusively a Federal responsibility. Article 47 of this Constitution vested in the President the "supreme command over all the armed forces of the Federation." This change was therefore a transfer to the President of the powers formerly vested in the King of Prussia as German Emperor. A Ministry of Defence was created in 1919 which was the highest Command and Administrative authority of the German Armed Forces.[17] The powers of command were nominally delegated by the President to the Minister of Defence who exercised them through the Chief of the Army Directorate (Chef der Heeresleitung) and the Chief of the Naval Directorate (Chef der Marineleitung) both of whom were members of the staff of the Ministry of Defence.

In January, 1933, the President, Field Marshal von Hindenburg, appointed Adolf Hitler to the office of Federal Chancellor. Under this Hitler regime the command of the Army became divided between the Minister of Defence, Field Marshal von Blomberg, and the Chief of the Army Directorate, General Baron von Hammerstein-Equord who was succeeded in February, 1934, by General Baron von Fritsch.[18] The coup d'etat of the 4th February, 1938, ended this divided authority and re-established the absolute concentration of military command in the hands of one person, namely Hitler. By assuming this direct personal command, Hitler had fused the nominal supreme command of the Armed Forces (die oberste Befehlsgewalt der Wehrmacht), which he had held since the President's death in August, 1934, with the powers of the Minister of War,[19] Field Marshal von Blomberg, and those of the Commander-in-Chief of the Army,[20] General Baron von Fritsch.

Simultaneously with this consolidation of the supreme command in the hands of Hitler, the entire top-heavy machinery of the Ministry of War was completely reorganized by abolishing this Ministry and dividing its functions between the High Command of the Armed Forces (Oberkommando der Wehrmacht) which was a new supreme co-ordinating agency, and three new executive agencies of the

[16] Ibid, p. 156.

[17] Der Grosse Brockhaus, 15. Band (1933). S. 549.

[18] The German Army. By Herbert Rosinski, (1944 Edition), p. 161.

[19] The designation "Ministry of Defence" (Reichswehrministerium) was changed in 1935 to "Ministry of War" (Reichskriegsministerium).

[20] The title of "Chief of the Army Directorate (Chef der Heeresleitung) was changed in 1935 to "Commander-in-Chief of the Army" (Oberbefehls-haber des Heeres). This title was again changed in February, 1938, to "Chef des Oberkommandos des Heeres."

Army, the Navy, and the Air Force, namely, the High Command of the Army (Oberkommando des Heeres), the High Command of the Navy (Oberkommando der Kriegsmarine) and the High Command of the Air Force (Oberkommando der Luftwaffe).[21]

This outline summarizes briefly the main changes which took place in the higher organization and command of the German Armed Forces from 1919 to 1939 and attention can now be given to an examination of the way in which the General Staff of the Army fitted into this organization and discharged its functions during the inter-war period.

The General Staff of the Army

It was laid down in Article 160 of the Treaty of Versailles of the 28th June, 1919, that, 'The Great German General Staff and all similar organizations shall be dissolved and may not be reconstituted in any form'! And so officially and outwardly the 'Great German General Staff' was disbanded on the 1st October, 1919.[22]

Although this Treaty had specifically prohibited the retention of a central general staff with functions similar to those of the old Prussian Great General Staff it had not forbidden the retention of a general staff for the field formations, etc. (Truppengeneralstab) and this 'Troop General Staff' was allotted to the two Group Commands (Gruppenkommandos), and the Divisions in the military districts (Wehrkreise). Outwardly therefore there appeared to be no Great General Staff, but in reality its functions were carried on in secret and mainly through a Military Operations and Intelligence branch of the Ministry of Defence which was under the Control of the Chief of the Army Directorate and was known as the 'Truppenamt'. In speaking of this surreptitious work during the period from 1919 to 1935 when the Great General Staff system was again officially introduced, Wilhelm Necker said, "During all this time staff work went on as in the time of the Kaiser's army. Even Generalstabsreisen (staff rides) continued to be made as in the pre-war days, except that the participants assembled as members of a society of game hunters or stag hunters."[23]

The first general officer to be appointed to the office of Chef des Truppenamtes, i.e., chief of what was in effect the new great general staff, was the very capable and astute General von Seeckt. He held this appointment from November, 1919, until March, 1920, when he relinquished it to take up duty as Chief of the Army Directorate, and was succeeded at the Truppenamt by Major-General Heye who held this appointment from April, 1920, to February, 1923. He was succeeded by Major-General Hasse who held the appointment until October, 1925, when he was succeeded by Major-General Wetzell who relinquished it in December, 1926.

In 1926, General von Seeckt relinquished the office of Chief of the Army Directorate and was succeeded by the former Chef des Truppenamtes, General Heye. It has been said that under General von Seeckt's direction the Truppenamt gained a powerful position and its authority and influence permeated and dominated the Ministry of Defence.[24] According to Rosinski, "The reconstitution of the German Army in the Reichswehr was determined in its out-

[21] The German Army. By Herbert Rosinski, (1944 Edition), p. 161.
[22] Der deutsche Generalstab. Von General der Infanterie von Kuhl, S. 1.
[23] The German Army today. By Wilhelm Necker. p. 180.
[24] The German Army. By Herbert Rosinski, (1944 Edition), p. 160.

ward forms by the Treaty of Versailles, in its inner organization and spirit by Seeckt." [25]

The appointment of Chef des Truppenamtes was held by Major-General von Blomberg from January, 1927, to October, 1929, by Major-General Baron von Hammerstein-Equord from October, 1929, to October, 1930, by Lieutenant-General Adam from October, 1930, to October, 1933. In 1932, i.e., during General Adam's tenure of office, the Truppenamt's organization consisted of an Operations Branch, an Organization Branch, an Intelligence Branch, and a Military Training Branch. These branches were co-ordinated by the Chef des Truppenamtes who was immediately subordinate to the Chief of the Army Directorate.

General Beck succeeded General Adam as Chef des Truppenamtes in October, 1933, but when Truppenamt was redesignated "General Staff of the Army" in May, 1935, he assumed the title of "Chief of the General Staff of the Army." Certain differences between this new central General Staff at the Ministry of War and the old Prussian Great General Staff should be noted. First of all there was a difference in name. The old Prussian central general staff in Berlin had been known as the "Great General Staff" but this new general staff at the Ministry of War was known as the "General Staff of the Army." The Prussian Great General Staff had been an independent institution since 1821[26] and its chief became at that time responsible only to the sovereign, but this new General Staff of the Army was not an independent institution for it formed part of the Ministry of War and its chief was responsible not to the supreme head of the State but to the Commander-in-Chief of the Army. It was not intended either that this new Chief of the General Staff of the Army should automatically become the actual, in contradistinction to the titular, commander-in-chief of the field army in the event of war, as had been the practice in the days of King William I of Prussia and his grandson Emperor William II.

A further re-organization of the central General Staff of the Army took place in 1938, but it was mainly a regrouping of sections and branches. This central General Staff was now organized into branches under the control of Assistant Chiefs of Staff (Oberquartiermeister) each of whom was directly responsible to the Chief of the General Staff of the Army.[27] The Assistant Chief of Staff for Operations was in charge of the Operations Branch, Transportation Branch, Supply Branch, Topographical Branch, and Fortifications Branch; the Assistant Chief of Staff for Training was in charge of the Troop Training Branch, and the General Staff Training Branch; the Assistant Chief of Staff for Organization was in charge of the Organization Branch and the Technical Branch; the Assistant Chief of Staff for Intelligence was in charge of the Foreign Armies West Branch, the Foreign Armies East Branch, and the Attache Section; and the Assistant Chief of Staff for Military Science was in charge of the Military Science Branch. There was also a Central Branch under the immediate control of the Chief of the General Staff of the Army. Certain changes had been made in this organization by the time of the outbreak of war in September, 1939.

The General Staff system in the German Army had no counterpart in the British Army. It consisted of officers who were selected from the corps of officers and then trained to carry out all duties which were concerned with the over-all direction of military operations

[25] Ibid, p. 123.

[26] The Duties of the General Staff. By General Bronsart von Schellendorf. (Fourth Edition), pp. 26-27.

[27] General Halder succeeded General Beck as Chief of the General Staff of the Army in September, 1938, and did not relinquish the appointment until September, 1942.

and consequently the key staff appointments from divisions upwards were reserved for officers of the General Staff Corps. Most of the characteristics of the German General Staff were a direct consequence of the German conception of the role of a General Staff which had grown up from its earliest days. From the German point of view, the functions of an army may be divided into three main components: the command component, the fighting component, and the services component. The General Staff, as a body of advisers and assistants to all commanders, was an important part of the command component. General Staff officers and commanders alike were essentially specialists in the conduct of military operations by tactically self-contained formations.

CONGEALED GASOLINE

Present conceptions of the storage, transportation and use of petroleum products may be revolutionized if the research being conducted by the Quartermaster Corps in congealed gasoline results in perfection of this newly-developed material to a point where it is practical for use in internal combustion engines, jet motors and for fuel.

Congealed gasoline does not explode. It may be stored in open bins and shipped in ordinary freight cars like coal. It is possible to convert any grade of gasoline, kerosene, fuel oil, or any other petroleum product into a semi-solid or even solid state without changing the characteristics of the original fluid. Re-conversion to the fluid state is accomplished by compression.

Tests have shown that congealed gasoline does not readily ignite. When sufficient heat is applied to cause combustion, it burns about like coal. When converted from the solid form to fluid, a small percentage of residue remains. The percentage varies with the degree of hardness to which the product has been processed, being higher with the firmer types. The research programme is trying to find feasible methods for re-converting the congealed gasoline before it is fed into motors, burners or their using devices.

— The Military Review, USA.

FAR AWAY AND LONG AGO

Captain A. Preston, Northern Command
Central Recruiting Office

IN view of the tremendous advance in the development of anti-tank weapons it is interesting to turn our memories back only a few years, back to nineteen thirty five.

No "bazooka" then! No batteries of six or *seventeen pounders killing tanks* as you would swat flies! They were in the undiscovered future. The only anti-tank weapon in the armoury of the British Army at that time was the Boys Rifle, and there were not very many of them.

It will be remembered that about that *time the then senior dictator*, bellowing of the indestructible glory of the Italian nation, basing his claim to Empire and a place in the sun on his boasted eight million bayonets, marched into Abyssinia. This, it will be remembered, provoked a somewhat marked reaction at home, and for a time it did *appear that war between Great Britain* and Italy was inevitable.

The battalion in which I was serving at that time was stationed just outside Alexandria, and enjoying the flesh-pots of Egypt in no uncertain manner. With the likelihood of war and the consequent threat to Egypt through the Western Desert, then entirely unprotected, the battalion, torn from the milk and honey of the Delta, was thrust willy-nilly into the dry and arid desert.

We were to take up our position at Mersa Matruh, then readily accessible only by sea except to small parties using the meagre allotment of motor transport available. Whilst the battalion prepared to embark at Alexandria, two platoons of my Company were detailed as advance party and proceeded by train to Fuka, the then railhead. I regret that I cannot recall a prescient remark by any of us relevant to 'this being a grand position for a battle,' while we stood for an unaccountably long time at a tiny halt called El Alamein. I rather think that they were all scrounging hot water from an obliging engine-driver for a brew, and their thoughts and mine were far from such grim matters. At Fuka we were picked up by motor transport, and set off on the long dusty journey to Matruh.

When we set up house at Matruh in those far-off days it was a very different place from the Matruh remembered by those who served in that area during the war. With its white-walled red-roofed houses, sitting by its land-locked harbour bordered with yellow sands, and the sun sparkling on the splendid blue of the Mediterranean, it was a quiet, attractive little town to arrive at after the hot and dusty desert.

Our camp site was chosen, tentage erected, and in due time the battalion

arrived and settled in. The battalion role, it appeared, was in the event of an Italian attack to hold Matruh at all costs. I don't think anybody quite knew why, but since this was the first active soldiering anyone had done for quite a time, we were full of enthusiasm and set to work with a will.

With the exception of a few odds and ends like Sappers and a company of Essex on the border, we were about the only troops in the desert. But in very short order with the assistance of the aforementioned odds and ends, together with a wall-eyed, villainous looking crew of indigenous males recruited locally, a wire perimeter some twelve miles long, enclosing the town, and a most impressive anti-tank ditch outside it, was erected and dug. Behind the whole we located and dug our platoon posts. Very good they were too! Bomb-proof dugouts in the centre, all-round defence, and plenty of wire. The only trouble was that owing to the enormous battalion frontage and the configuration of the ground, there was no communication between the posts except by field telephone. Once you arrived, there you sat until you were relieved. It was all very heroic and last-ditch-like.

When the flap started, Intelligence reported that the Italians had large forces on the frontier, and as the strongest anti-tank weapon we had in the battalion was the Boys Rifle, it did not appear that there was very much future in it. It must be remembered, of course, that at this time nobody suspected that the Italians were quite as ineffective as they later proved to be. Quickly the cry went out "Give us anti-tank guns," and as quickly came the answer "We haven't any." Then I suppose somebody had a bright idea and said "Why, let's go shopping and buy some," and that is exactly what did happen.

Selected NCO's were sent off to Cairo for a course on this new and unknown weapon, and before they left it was carefully explained that as the new gun had not yet arrived it would only be a paper course on the makers' instructions. Off went the paperchasers and barely had they arrived in Alexandria when the S.S. "Highland Prince," outward bound from Marseilles with general cargo, anchored in Matruh harbour with four crated weapons for the battalion.

The crates, stencilled with the name 'Hotchkiss et Cie, Levallois-Perret,' were unloaded and taken directly to Anti-Tank Platoon Headquarters, where we welcomed them like long awaited Christmas presents, and eagerly attacked them with crow bars and hammers. The lids were ripped off and there they lay, our new guns, carefully greased and all complete, even to the makers' instruction book, just like a new car.

Really the only trouble was that the instruction book was printed in French! 'Manuel de la Mitrailleuse Hotchkiss de 13, 2 m/m montee sur Affut-trepied d'accompagnement,' the cover said. What we said cannot be repeated. Ruffling quickly over this interesting publication, our schoolboy French was equal to deciding that 'Le coffre aux rechanges et accessoires contient' really meant "Box spare parts"—but who could decide where or what 'Baguette de ressort de rappel avec 2 goupilles fendues' or 'ressort de gachette et de couvercle-support,' or even 'paine de gants a maillons metalliques' were.

The book was despatched posthaste to Cairo for translation, and in the meantime we set to with a will to get the gun assembled and firing. By trial and error, to the accompaniment of many strange oaths and barked and bleeding knuckles, the thirty-eight principal parts were finally put together and it went off with a bang.

By this time, the Small Arms Experimental Establishment in Cairo, who were two jumps ahead of us, had already worked out a typed sequence of instructions and instructors' notes and duplicated copies of this came to hand. Extracts from the introductory remarks make interesting reading today. "The gun represents the safest and most effective anti-tank gun which could be obtained readily. No trials beyond a

demonstration by the firm have been possible. In mobility it is unsuitable for permanent adoption for a lightly equipped battalion, and in range and calibre it is not powerful enough for support. Although it is designed as an automatic weapon it should not be used as such since the heavy recoil results in inaccuracy with automatic fire. There is, however, no special adjustment to ensure single shots. There will be no time for adjustment of sights after the target is engaged. A single setting for all ranges is not sufficiently accurate, but it will be sufficient to use two settings—

500 metres for all ranges from 600 yds to 400 yds inclusive.

300 metres for all ranges below 300 yds.

From these extracts it will be seen that the weapon could by no means be called one that would inspire confidence in the owner, nor one to strike terror into the heart of the enemy. Incidentally, to add to its already mentioned disadvantages, it weighed 91½ lbs without its mounting, and 240 lbs with it, while its length from butt to flash eliminator was 6.24 feet. Quite a handy little weapon!

Nevertheless with all its faults it was our gun and we took it to our hearts and loved it. We defended it hotly against all its detractors. Unfortunately our affections were not reciprocated.

Ammunition was scarce — perhaps somebody did not wish us to become too disheartened—but at any rate there was not enough for us to get sufficiently used to its peculiarities. Nothing remotely like this weapon had ever been seen in an infantry battalion before, and as a result everybody was extremely curious about it. As a consequence of much chaffing in the Mess, it was unwisely decided to remove the veil of secrecy from our operations and give a public demonstration of the gun's potentialities.

A wood and canvas tank was constructed and this, dragged by a vehicle at the end of a long tow rope, was to be our target. The whole battalion was paraded together with quite a few VIP's to watch the fun. The first stage of the proceedings went off very well—the lecture, the setting up of the weapon in its dual role of anti-aircraft and anti-tank gun. By the time firing was to begin, a breeze had set the dust lifting, not sufficient to obscure the target but enough to film the surface of the weapon.

The signal was given, the truck started on its journey, range and fire orders were shouted and the tank crawled slowly onto my sights. I pulled the trigger — Silence — I cursed, applied immediate action, squeezed again — Silence. Each time the cocking piece slid only halfway forward. It was clear that dust was fouling the breech block. It was removed, cleaned and replaced. The tank, by this time almost out of sight, was recalled to a fresh start, and the same thing happened again. It was apparent that the return spring was not strong enough to overcome the dust, and equally apparent that however well it worked in the soft and balmy airs of its country of origin, it was no earthly good in the desert. The onlookers dispersed with knowing remarks of, "I told you so," and many sly grins, while the disappointed crew brushed aside the sulphurous air, dismantled the gun and trailed sadly back to camp.

As every one knows, the crisis, as these things will do, died a natural death, and there was no need to depend on our new gun. But suppose it had not died. Suppose war had come. What then?

I have written about this episode in a spirit of levity because that's how it appeared to us at the time. None of us had experienced total war then. The lesson is now clear, and it is surely up to us all to use every bit of influence we have — be it large or small — to ensure that never again will the Empire be placed in such a position. When you buy or build a new house the first think you think about is the insurance. We have a far more precious possession to protect than any new house and the insurance is needed much more urgently.

MILITARY GEOGRAPHY

ANTARCTICA

Written for the Australian Army Journal by
The Directorate of Military Intelligence, AHQ

THE current political claims of Latin American states and post-war resumption of exploration and research have drawn attention to the south polar regions and the adjacent island groups. The Antarctic Continent is the largest remaining unexplored land mass in the world. In size it is between 4,000,000 and 5,000,000 square miles, an area larger than Europe. Surrounded by southern oceans, with the nearest land mass, South America, 750 miles from Graham's Land, most of the continental area is unexplored and much of the coast is still uncharted.

New strategic ideas, such as the shortening of communications by trans-polar flights and the possibility of establishing long range weapon bases, together with the world shortage of fats and oils and the search for strategic minerals, are the chief cause of increasing interest in the Antarctic.

Although not part of the Antarctic Continent proper, the adjacent areas of the Falkland Islands Dependencies — the South Orkneys, South Georgia, South Shetlands and Graham's Land — should be considered together with Antarctica because of their importance as the bases from which whaling and exploration have been mainly undertaken.

General Description of Antarctica

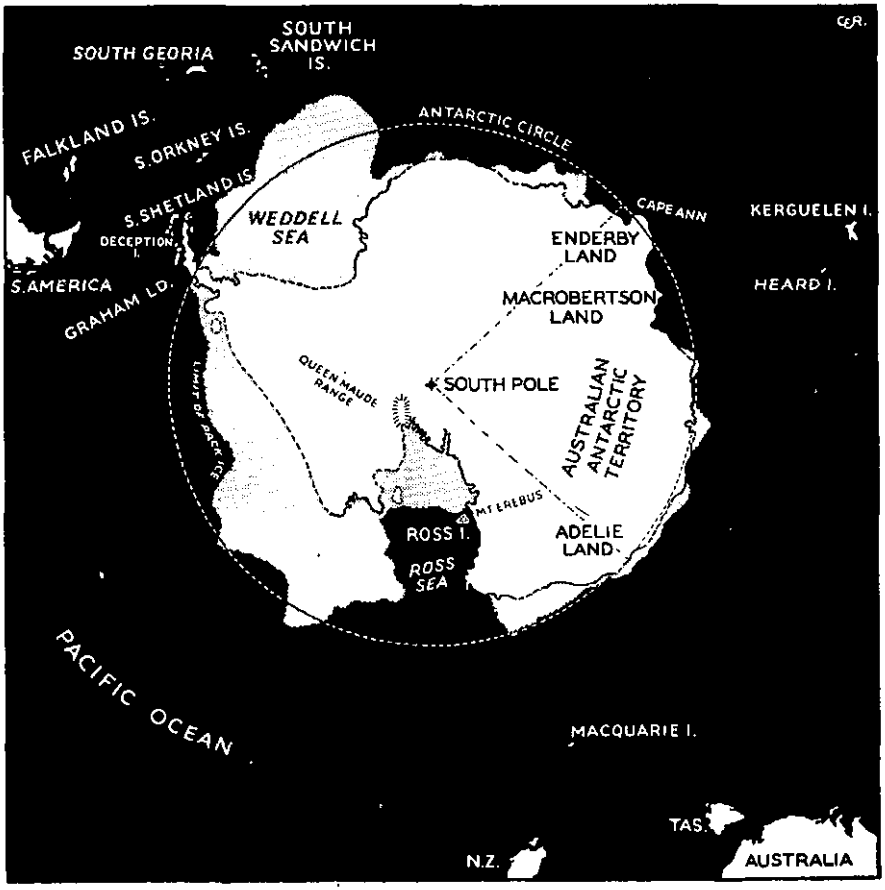
The general configuration of the Antarctic Continent is that of a large plateau which is permanently covered with an ice-cap and which rises to 10,000 feet at the pole. The usual shore line consists of the inhospitable ice-front of the great ice-cap. In a typical 200 mile section of coast, 127 miles consist of ice varying from 5 to 50 feet in height, and 73 miles is rock of which beaches occupy a mere three miles. There are numerous glaciers, particularly in the Ross Sea area where they feed the great Ross Ice Shelf. This shelf is triangular in shape and occupies the southern end of the Ross Sea. It is 500 miles wide by 500 miles deep and the terminal face runs nearly due east and west in latitude 78 deg South. Here it effectively bars the progress of ships because its height varies from six to 160 feet above the sea. The northern edge of the shelf is floating for most of its extent. The surface of the shelf is slightly undulating, but where it approaches land at the margins and where glaciers enter it, it is thrown into pressure waves forty feet high and from one to two miles from crest to crest.

Various ranges and isolated peaks which have withstood the glacial erosion rise above the ice-cap. The area is not without its anomalies and worthy of

mention is Mount Erebus, an active volcano which rises to 13,000 feet on Ross Island.

While meteorological information is far from complete and consists mainly of data collected at irregular intervals from scattered points, it has been established that the entire Antarctic Continent lies within the permafrost area. The continent is subjected to severe winds throughout the year, although great variation in annual average wind velocity has been recorded. Some remarkably high wind velocities have been measured, and Mawson, in Adelie Land in 1913, recorded a velocity of 107 mph for 8 hours with a maximum of 116 mph.

Apart from lichens and mosses there is no known Antarctic flora and consequently the land supports no higher animals. The seas, however, teem with life, particularly in the summer. This wealth of marine life, in particular the abundance of whales, is one of the principal factors that has led to the importance of the Falkland Islands and their dependencies. In addition, their position in relation to the Cape Horn route is of strategic significance. The Falklands are a Crown Colony with a population of 3,500, while the dependencies, also bleak and bare groups of islands, have only minor settlements, most of them seasonal only and consisting mainly of officials to cater for the whaling fleets.



Exploration and Research

The French were the first to send ships to far southern waters, but their first expedition under Kerguelen in 1772-3, did not penetrate the polar seas far enough to discover land. Captain Cook encircled the Continent during his five voyages in 1772 to 1775, crossing the Antarctic Circle (66° 30') three times, and discovered South Georgia and the South Sandwich Islands, but not the main land mass.

The first discovery of Antarctic land was made by Captain Briscoe, commander of a whaler belonging to the Enderby Brothers of London, who sighted Cape Ann in Enderby Land in 1831. In the next few years, French, American and British government and private expeditions explored the area and discovered various portions of the Continent, chiefly Adelie Coast, the Weddell Sea and Ross Sea, after which there was a lull in Antarctic exploration until the twentieth century.

The early nineteen hundreds saw the most famous period of Antarctic exploration, culminating with the Amundsen and Scott expeditions to the South Pole. Interrupted by World War I, exploration was resumed in the late nineteen twenties with better equipment, including aircraft, leading to the mapping of hitherto inaccessible territory. Principal expeditions in this period were the British Australian and New Zealand Antarctic Research Expeditions of 1929-31, nine Norwegian expeditions, Rear Admiral Byrd's three voyages, discoveries by Sir Hubert Wilkins and Lincoln Ellsworth, and a German expedition in 1938-39. These expeditions covered MacRobertson Land, Queen Maud Land, and the area now known as Australian Antarctic Territory, and included Byrd's and Ellsworth's Polar flights.

A number of expeditions in the post World War II period have been made or are in progress. The biggest so far has been the United States fleet exercise of 1946-47 which employed a task force of 4,000 men. Although undertaken primarily as a naval exercise in cold areas, considerable topographic and scientific work was also carried out. Currently the United Kingdom government is maintaining survey parties in the Falkland Island dependencies, and during the past season the Australian vessel "Wyatt Earp" surveyed part of the Australian Antarctic coastline. Australia also has scientific parties on Heard and Macquarie Islands. Chile and Argentina have weather stations in the Falkland Dependencies.

Economic Aspects

The present economic importance of Antarctica derives almost wholly from whaling, the output of whale oil having an annual average of some 400,000 tons, with a value running into millions of pounds. It is interesting to note that no nation made any definite claim to Antarctica Territory until the development of whaling in southern waters showed that, however poor the land itself might be, Antarctic waters were very valuable areas. In the years before World War II, 70 per cent of the whale fishery in the world took place either near Graham Land or in the vicinity of the Ross Sea. At present the whaling season is restricted to the period December-April, and the total number of whales which may be killed annually is limited to 16,000.

Large deposits of coal have been discovered in the Antarctic, mainly in the Queen Maud Range but under present circumstances their economic value is small.

With vast areas of the continent still unexplored, and only limited geological data available for the areas which have been traversed, it is possible that other minerals, including uranium and other radioactive ores, in sufficient quantities to be of economic or strategic importance, exist in Antarctica.

Territorial Claims

Lack of clear geographic boundaries in the polar areas had led to the adoption of the "sector" method whereby claims are delineated by a south latitude and two meridians.

The possession of Antarctic areas which have been claimed for many years by the United Kingdom is now being disputed, and the legality of Antarctic possessions by the various powers may yet have to be decided by some international authority.

Existing claims are:—

(a) France claims Kerguelen Island and Adelie Land (the latter between 136° 20′ E and 142° 20′ E.) These territories are controlled through the Governor of Madagascar.

(b) Norway claims Queen Maud Land, lying between 16° 30′ W and 49° 30′ E. Proclamation of this claim was made in 1939 and formally recognized by the United Kingdom Government.

(c) British Empire claims are:—

i. Australian Antarctica, from 49° 30′ to approximately 160° E, less Adelie Land.

ii. New Zealand Antarctica, from approximately 160° E to approximately 150° W.

iii. Falkland Islands Dependencies, covering the Weddell Sea, Graham's Land, the South Shetlands, the South Orkneys, South Georgia and the Sandwich Group, and includes all areas south of 50° S between 20° W and 50° W, and south of 58° S between 50° W and 80° W.

(d) Argentina claims an area almost identical with the Falklands Islands Dependencies. Argentina also lays claim to the Falkland Islands proper.

(e) Chile claims an area bounded by 53° W and 90° W. This partially overlaps Argentina's claim, but the two countries signed an agreement on 4 March, 1948, to co-operate in "defence of their rights."

Despite claims by American explorers, the official attitude of the United States Government is that it makes no claim to any Antarctic area, but neither does it recognize claims by other countries, and the State Department reserves its position in all Antarctic matters.

In the past, territory which, at the time of discovery has been unoccupied, has been acquired by occupation. What has been required to establish "occupation" has been:—

(a) *An official unambiguous expression* of the intention of the occupying power to the effect that it has acquired the territory as its own and intends to hold it.

(b) Effective physical possession and the establishment of an administration.

Now, however, developments in international law are such that little weight is given to discovery, and the necessity for continuous physical possession and administration is becoming greater. Also some stress is being laid on geographic proximity to the claimant State. However, there are no precise rules on the allocation of territories, and in many cases in the past the ruling authority has often been satisfied with very little support to a claim of sovereign rights, provided the claim was uncontested or that no other claimant could make out a better case.

Current Political Activity

The claims of Argentina and Chile form the only major events of recent political interest. Argentina lays claim on the grounds that the area is adjacent to her and is a natural extension of the South American continent, and on the

maintenance of a weather station in the South Orkneys for the past 37 years.

Chile's claims are similarly based on her contiguity to the area claimed. Both countries have been making these claims for some time — indeed, Argentina's claim goes back to the last century — but the establishment by Argentina recently of additional stations at Deception Island, in Graham Land, and in the South Shetlands, and the establishment of Chilean stations at Greenwich Island and Sovereignty Bay, both in Graham's Land, has roused political interest. The United Kingdom government has offered to have these claims referred to the International Court of Justice, an offer which has been refused by Chile and Argentina.

Conclusion

The increased interest in the Antarctic has produced a situation wherein clarification of rival claims will become necessary. The method by which this will be attempted is a matter of conjecture. Some bilateral discussion between the states involved is likely to be sought in the first place; the reference of the matter to the United Nations is a possibility, but fraught with some difficulties, since such a reference might bring Soviet interests into the arena, which the parties concerned would not welcome. An alternative might be a multi-state control by the states which already have claims in the South polar areas.

"To learn that Napoleon won the campaign of 1796 by manoeuvre on interior lines, or some such phrase, is of little value. But if you discover how a young unknown man inspired a ragged, mutinous, half-starved army and made it fight, how he gave it the energy and momentum to march and fight as it did, how he dominated and controlled generals older and more experienced than himself, then you will have learnt something."

— Field Marshal Lord Wavell.

How To Study Military History

Written for the Australian Army Journal by
The Directorate of Military Training, AHQ

"No study is possible on the battlefield, one simply does what one knows. Therefore, in order to do even a little, one has already to know a great deal, and know it well."

— *Marshal Foch.*

OF all professions, the profession of arms is probably the most difficult in which to become proficient, because the soldier has so few opportunities of engaging in practical experiment until the crisis of battle is upon him.

To master the mechanics of the military art, to learn the rules of strategy, tactics and administration, is fairly simple. But to learn how to apply this knowledge in the stress and tumult of battle is a very different matter.

Although he cannot gain battle experience in time of peace the soldier can, nevertheless, test by practical experiment the application of the theories he has learnt. If he cannot learn from his own experience, he can learn from the experience of others. By methodical study he can make military history into an experimental laboratory for testing his knowledge and ideas.

Every great commander has been a keen student of military history. Nearly all of them have emphasized the importance of this branch of study; some have gone so far as to say that it is the only way of becoming a master of the art of war. Anyone who believes that he can ignore this advice and still become a successful commander must be very vain, because he apparently imagines that he is a superior genius to the great military leaders of the past and the present.

The soldier who reads military history simply as an interesting story may acquire an extensive knowledge of *what* happened at various times and places. That won't help him much with his own problems of command. What he wants to know is *why* certain things happened and *how* the directors of events *made* them happen. For the civilian student it might be sufficient to know that Caesar defeated Pompey at the Battle of Pharsalus in 48 BC. What the soldier wants to know is *how* he did it.

The soldier who studies military history methodically will, in the course of time, build up in his mind a vast reservoir of practical knowledge of war. When exercising command he will not have to consciously think about past events and try to find a situation similar to the one in which he finds himself. But the knowledge will be there, in his sub-conscious mind, helping him to arrive at the decisions he is called upon to make.

The basis for a practical study of military history is a thorough knowledge of the principles of war and the doctrines contained in the training manuals. If these principles and doctrines are kept in mind the student will soon become aware of their practical application by the commander whose actions he is reading about. Once this awareness dawns he will have little difficulty in grasping the fundamental reasons for success and failure in the operations he elects to study. Then he will be well on the way to acquiring that extensive knowledge of war which Marshal Foch considered to be so necessary to the military leader.

As an experiment let us consider the application of the principles of war to a number of similar operations at different periods of history. And because the Australian Army has had little experience in forcing a passage over water obstacles, river crossings seem a particularly useful example to select.

Battle of the Hydaspes, 326 BC

In the year 334 BC, Alexander the Great led his army into Asia with the object of conquering the Persian Empire. He marched first eastward through Asia Minor, then southward through Syria and Palestine to Egypt, then back to Palestine. In the course of these operations he defeated the Persian Army sent to oppose him, destroyed the Persian fleet, and subdued all the country through which he moved. These operations provide us with the first recorded example of a commander taking care to secure his communications and establish a firm base from which to launch his main effort.

In the space of four years Alexander subdued the mighty Persian Empire. Turning to the conquest of India, he crossed the North-West Frontier through the Kabul River Gorge, and arrived on the north bank of the Hydaspes (Jhelum) River in the spring of 326 BC. There, further progress was opposed by the army of Porus, one of the kings of India.

The Hydaspes River presented a formidable obstacle. It was swollen by rains, averaged half a mile in width, and was everywhere unfordable. To cross it in the face of the numerically superior and well equipped army of Porus seemed an impossibility.

Alexander first tried to convince Porus that he intended to wait until the floods subsided. To this end he settled his troops into a comfortable camp, and collected large quantities of supplies from the countryside. Porus, however, did not relax his vigilance.

Alexander then proceeded to mislead and confuse his opponent. He built many boats and located them at various points along the river. He embarked and disembarked troops and stores, and made numerous feints at crossing by night. He paraded his troops by the light of camp fires, moved them off into the darkness, made all the noises associated with a night crossing, and then returned to camp without actually attempting the passage.

At first Porus acted with equal energy. After a while, however, both he and his troops tired of responding to these eternal false alarms, and relaxed their vigilance. Alexander had lulled his adversary into a sense of false security. But notice how he did it. He first tried a complete absence of warlike activity. When that failed he turned on so much apparently pointless activity that his opponent ceased to worry about it.

Alexander's reconnaissance had discovered a crossing place about sixteen miles upstream from his camp. During the activity down-river many boats had been built and concealed in the vicinity of the selected crossing point. One stormy night, when darkness, rain and thunder combined to conceal his preparations, Alexander moved his main body by a route well back from the river to the selected point.

Faulty reconnaissance very nearly ruined the whole plan. When the leading troops reached what they thought was the south bank of the river they found themselves on an island, separated from the main shore by a deep channel. After some delay the infantry found a place where they could just manage to wade across. The cavalry swam their horses over. A bridgehead was speedily formed, and strong covering detachments pushed out to the south and west.

Porus, still under the impression that the force embarking opposite Alexander's camp was the Grecian main body, sent a detachment under his son to deal with the crossing up-stream. Alexander promptly wiped out this detachment.

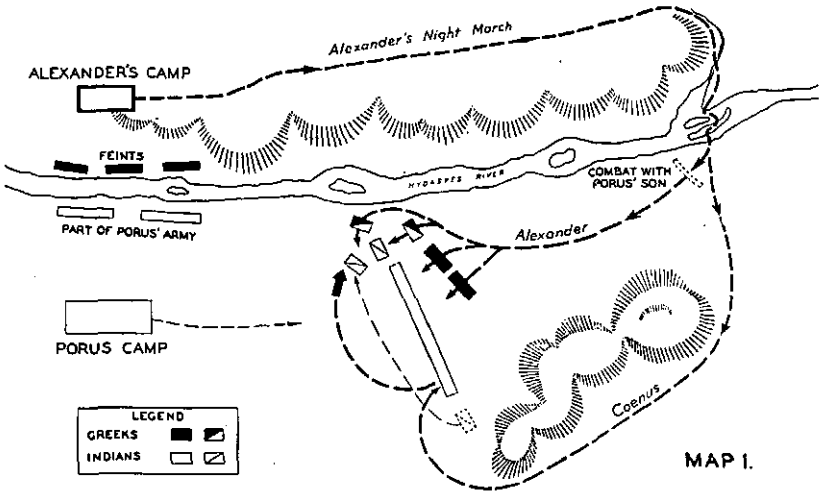
Porus was now really bewildered. Finally he decided to move against Alexander. Leaving a detachment to watch the force preparing to cross in his immediate vicinity, he moved up-stream with his main body. However, he was in such a state of indecision that he gave up all idea of a counter-attack, and drew up his army for a defensive battle on the first suitable piece of ground he came to.

Porus' dispositions are shown in Map 1. In front of his main body of infantry he placed a line of elephants to keep off the Greek cavalry and deal with any foot soldiers who succeeded in reaching them. The elephants were protected by columns of infantry posted in the intervals between them. His cavalry and chariots were placed on either flank.

After careful reconnaissance Alexander realized that his cavalry, the only arm in which he enjoyed superiority, stood no chance against the elephants. He decided, therefore, to smash the cavalry posted on Porus' left, and then fall upon the exposed Indian flank. While this movement was getting under way, he dispatched a force of heavy cavalry under Coenus around the ridge to the south, with orders to attack the right rear and flank of the Indian army.

At the head of his main body of cavalry, and supported by a heavy column of his best infantry, Alexander moved obliquely against Porus' left. The remainder of his army closely threatened the Indian front, but without becoming too heavily engaged with the elephants.

Having neglected to keep any reserve in hand, Porus was forced to attempt to relieve the pressure on his left by bringing over the cavalry from his right. This left the Indian right flank exposed



MAP 1.

to Coenus' attack. He cut it to pieces, then re-organized his force, passed behind the Indian centre, and fell upon the cavalry opposing Alexander. Caught between two attacks, this force was annihilated.

Meanwhile Porus had tried to turn his elephants to attack Alexander's flank. This movement exposed their flanks to the Greek infantry who killed the drivers and wounded the animals. Out of control and maddened with pain, the elephants charged back through their own army and completed its ruin.

Now what have we learnt from this battle? At the very outset we are impressed by the careful planning and preparation which preceded the main crossing. From the time Alexander decided upon his course of action, everything he did was directed towards the attainment of his objective. Everything dovetailed together, from the secret collection of boats near the crossing point to the varied and ceaseless activity designed to throw his adversary's mind into such a state of confusion that he would be incapable of taking decisive action at the critical moment. By mystifying and misleading his opponent Alexander was able to *Surprise* him by getting his main body across the river without opposition.

As soon as his leading troops were across the river Alexander provided for the *Security* of his force by pushing out strong fighting patrols to cover his bridgehead and reconnoitre the enemy position. By the time the main body of his infantry was formed up on the south bank, he had sufficient information to formulate his plan for battle. He gave his adversary no time to recover his poise. By bold *Offensive Action* he immobilized his opponent and pinned him down in a fixed position.

In his conduct of the main attack Alexander demonstrated the application of the principles of—

Concentration of Force, by concentrating the bulk of his cavalry and his best infantry for the decisive attack on the Indian left.

Economy of Force, by using sufficient, but only sufficient, troops to keep the Indian centre in play, and prevent it from interfering with his operations on their left.

In his swift detour to the south and subsequent attack on the Indian right rear Coenus demonstrated the principles of *Mobility*, and *Surprise*. By his rapid re-organization and attack on the rear of the Indians opposing Alexander, he showed great initiative, and demonstrated that he was imbued with the true spirit of *Co-operation*.

The only outstanding flaw in the whole series of actions is the faulty piece of reconnaissance that very nearly wrecked all the carefully prepared arrangements for crossing the river. Presumably Alexander entrusted the task of finding a crossing to a subordinate. By his failure to do his job thoroughly that officer let his commander and the whole army down very badly, and nearly ruined the enterprise. Only luck saved the situation. In war, luck is a very weak reed to depend on. Almost invariably it favours the enemy.

Battle of Kut-al-Amara, 1917

Shortly after the outbreak of World War I in 1914, a British-Indian Expeditionary Force was despatched to Mesopotamia (Iraq) with the object of protecting the oil wells and refineries at the head of the Persian Gulf. This object was attained without much difficulty.

The early successes of the Mesopotamian Expeditionary Force led to an expansion of its original mission. For purely political reasons — a striking military success in the Middle East was at that time highly desirable — the Force was given a task quite beyond its administrative resources. With the utmost gallantry the army fought its way to within a few miles of Baghdad. There it found itself at the end of its

tether, and had to retire to Kut-al-Amara where the Turks succeeded in surrounding it.

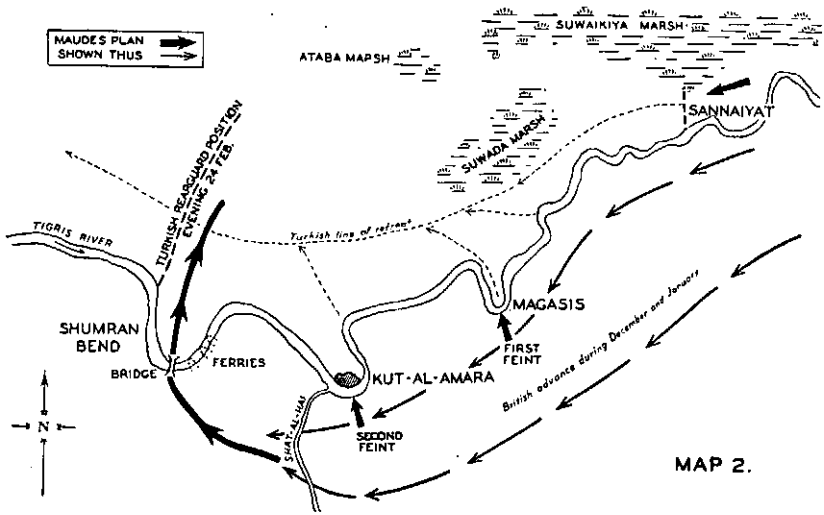
Many gallant but fruitless attempts were made to relieve Kut. These efforts were characterized by incredible muddle and ineptitude all along the line, in the field, in India, and in the United Kingdom. If anyone wants to find out how *not* to make war, in any sphere of responsibility from the Cabinet room to the field, this is the campaign to study.

When the garrison of Kut surrendered there was a great public outcry culminating in a Royal Commission to enquire into the conduct of the campaign. As a result, new commanders and staffs were appointed, and tremendous efforts made to repair the administrative deficiencies.

When General Maude assumed command of the Force in August, 1916, he found that he had inherited a disillusioned army, depressed by failure and bitterly critical of the inefficiency which had caused it so much appalling hardship. His immediate efforts, therefore, were directed towards perfecting the administrative organization to handle the supplies promised him. Concurrently with these measures he took energetic steps to restore morale by providing for the welfare of the troops, and by putting their training on a realistic basis. These preparations for a resumption of the offensive were not finished until early December.

About 15 miles below Kut the Turks held strong positions on both banks of the Tigris, a deep, swift river from 250 to 300 yards wide. (See Map 2.) Their main position at Sannaiyat on the left bank was particularly strong as the river on its right and the impassable Sawaikiya Marsh on its left precluded any possibility of an enveloping movement. Immediately in rear of Sannaiyat were two other marshes, and the whole area was intersected with dry canals and watercuts.

On the right bank the country was much easier, and there was plenty of room for manoeuvre. However, the fact that the only drinkable water was in the Tigris, limited the scope of any enveloping movement by a force not equipped with mechanical transport. Generally the country on both banks was flat and featureless, and offered few facilities for concealment.



MAP 2.

General Maude began operations on the right bank on 18 December, 1916, and by 9 January, 1917, his advanced troops had reached the Shatt-al-Hai. An attempt to cross the Tigris failed, and the Turks showed no signs of giving up their Sannaiyat position. Accordingly Maude now determined to:—

(a) Contain as many Turks as possible between Sannaiyat and Kut;

(b) Cause a dispersion of the enemy by pressing forward on the right bank. This operation would not expose his communications because the Turks had no means of rapidly bridging the river;

(c) Effect a surprise crossing at the Shumran Bend and cut off all the enemy on the left bank downstream of that point.

General Maude knew that the Turks would expect him to attempt a crossing. He did not try to dissuade them, but concentrated on deceiving them about the point selected. To this end, pontoons and boats were assembled in the vicinity of Magisis. The utmost secrecy was preserved about the proposed Shumran crossing. The equipment was kept hidden from the enemy, and technical reconnaissance was carried out under cover of normal patrol activity. No unusual activity at all was permitted near Shumran.

On the morning of 22 February, Maude stepped up his operations against Sannaiyat and very heavy fighting continued throughout the day. That night a raid across the river was made at Magisis. In the morning the right bank at this point looked as though an attempt to throw a bridge across had been frustrated.

The pressure on Sannaiyat was continued throughout the 23rd. That night all the sounds of bridge building were made near Kut-al-Amara. This feint drew off a sizeable force of Turks from the Shumran area. The enemy had fallen into the trap of concluding that the Magisis raid was a hoax and that the Kut feint was the real thing.

Meanwhile final preparations were made at Shumran. Just before dawn the infantry started to cross in pontoons organized in three ferries. As soon as a foothold had been gained the bridge was started, and was finished by 1630 hours.

The Turkish commander reacted by ordering a withdrawal from Sannaiyat, and organizing a force to hold up Maude's troops at Shumran until his retiring columns got clear.

At that stage a lot of things went wrong with the British plans. The force at Sannaiyat failed to maintain its pressure, and permitted the Turkish garrison to withdraw practically unmolested. Congestion and confusion occurred on the approaches to the Shumran bridge. The troops that were across — an infantry division and a cavalry division — showed little enterprise in their efforts to cut the Turkish line of retreat. The cavalry, after taking nearly two hours to cover the two miles from the bridge to the leading infantry, wasted many hours in a dismounted action in which they suffered only negligible casualties. Towards evening they called it a day, and went into bivouac for the night.

The Turkish commander successfully withdrew his force, and organized strong rear-guards to cover its further retirement.

How does this battle compare with Alexander's victory at the Hydaspes?

In his efforts to achieve *Surprise* Maude was faced with a somewhat different problem. Unlike Alexander he could not make his opponent believe that he would not attempt a crossing. The best he could do was to deceive him about the point selected for mounting the enterprise. By the use of stratagems very similar to those employed by Alexander he not only succeeded in concealing his intentions until the last possible moment, but actually brought about a weakening of opposition at the decisive point.

There is, however, a vast difference between the conduct of the two battles. At the Hydaspes all the Greek commanders were thoroughly imbued with the necessity for vigorous *Offensive Action*. Not one of them neglected an opportunity to apply this principle. The two divisions across the Shumran bridge and the force at Sannaiyat seem to have forgotten all about it.

By their failure to exploit their *Mobility*, Maude's cavalry have at least handed down to us some useful lessons. They were encumbered with a lot of impedimenta for which there should be no room in a mobile force. Their leaders lacked the spirit of enterprise and aggression which should animate all mobile troops. There is simply no comparison between their ineptitude and the bold and skilful handling of the Greek cavalry at the Hydaspes.

The lesson is that you cannot make troops truly mobile by simply mounting them on horses, on trucks, or in tanks. Unless they are trained to move hard, fight hard, and live hard they are not worth their place in the team.

Taken by itself the crossing at Shumran is a classic example of how to cross a river. The main points to be noted are:—

(a) The site selected for the bridge enabled the British artillery deployed around the bend on the right bank to bring down converging fire on the defenders in the salient.

(b) The conformation of the ground denied the enemy effective observation over the site.

(c) The thorough preparations beforehand. Ample allowance was made for spare equipment and casualties amongst the bridge builders and ferry operators.

(d) The first crossings were made simultaneously at three different points, thus dividing the enemy's attention.

Unfortunately these excellent arrangements were marred by the failure to provide for proper traffic control on the approaches to the bridge.

In this example we see an excellent plan ruined by faulty execution. The fault does not lie entirely with the subordinate commanders. Some of General Maude's orders lacked precision. Others were delivered to the officers responsible for their execution at a very late stage in the proceedings. Above all, he failed to make his army conscious of the necessity for initiative, drive and determination.

It is not sufficient to make a good plan. All the arrangements necessary for its execution must be perfected to the last detail.

Taken as a whole the best that can be said for this battle is that it jockeyed the Turks out of their Sannaiyat position and opened the road to Baghdad.

Crossing the Rhine, 1945

Long before the units of 21 Army Group reached the Rhine, Field Marshal Montgomery and his staff started work on their plans for crossing the great water obstacle. During the winter 1944-45 a mass of topographical and hydrographical information was collected and collated, whilst the technical problems associated with bridging the river were closely studied.

Fundamentally, the problem facing Montgomery was similar to the one facing Alexander and Maude — how to cross a river in the face of opposition. The conditions affecting the solution of the problem, however, were entirely different.

In the first place it would have to be more or less of a frontal attack. There would be little chance of drawing off the bulk of the opposition to one place while the crossing was made at another. The difficulty of getting the heavy equipment across the wide and deep river precluded the possibility of staging an effective

feint. There would be no chance of persuading the enemy that the Allies did not intend to cross. He knew that they would make the attempt, and was bound to make all possible preparations to oppose them.

Secondly, the size and composition of the forces engaged were very different. Alexander only had to get men and horses across — his soldiers carried all their weapons in their hands, they required no ammunition, and they could live off the country. The most that Maude had to provide for were relatively light horse-drawn guns and vehicles. Montgomery's troops, on the other hand, could not fight without much heavy equipment, and they required an immense quantity of supplies. The passage of this equipment required very strong bridges which, in turn, demanded the provision and assembly at the right places and the right times of vast quantities of heavy engineer stores.

Thirdly, the advent of air power had introduced a factor which was absent from the crossings we have already considered.

Although he could hardly expect to surprise the enemy in terms of space, Montgomery made every effort to surprise him in terms of time and method. By perfecting his plans at a very early stage and pushing forward his preparations with great speed, he hoped to deprive the enemy of the time necessary to make elaborate arrangements to meet his attack.

To ensure that there would be no delay in launching the assault, detailed planning began while the battles for the approaches to the river were still in progress. Two months before the operation took place a Corps Headquarters was placed in reserve, and given the task of working out in detail the highly complicated technique required for the actual assault crossing. Considerable thought and study were given to this problem, and trials and practices were carried out on an appropriate stretch of the River Meuse in order to perfect the battle drill for the assaulting troops.

Great attention was given to the problem of traffic control, both at the crossing points and on all the routes and assembly areas for the troops and the immense quantities of stores and equipment. Between the 8th and 23rd March, 60,000 tons of ammunition, 30,000 tons of engineer equipment, and 28,000 tons of other stores, in addition to daily requirements, were moved into the very restricted assembly areas.

Detachments of the Royal Navy were brought overland to operate the ferries of the leading assault troops.

Final preparations on the river bank were hidden behind a dense smoke screen along a front of fifty miles.

A tremendous concentration of artillery was provided to cover the crossing. Every available gun that could be got into position was allotted a task.

Immediately after the assault crossings it was planned to drop airborne troops to distract the enemy and disrupt his arrangements for defence.

The programme for air co-operation included the maintenance of air superiority over the assault areas and dropping zones, the provision of close support to the ground troops, and the prevention of enemy movement into and within the battle area.

During the three days prior to the assault, sustained bombing attacks were carried out with the object of reducing the enemy's capacity to fight, hindering his defensive preparations, and disrupting his communications. The Air Force units allotted to this role flew 16,000 sorties and dropped 49,000 tons of bombs.

The operation was a complete success. There was no major breakdown. The assault was delivered with such drive and strength that it overwhelmed the enemy and gave him no chance to recover his balance.

The outstanding lesson of the Battle of the Rhine is the application of the principles of *Concentration, Co-operation* and *Administration*.

Concentration was achieved through the tremendous volume of fire delivered from the ground and from the air, and by the weight and drive of the assault.

Co-operation was achieved on a grand scale. All the arms and services of the ground troops, the navy and the air forces, were welded into a closely knit team.

Very great care was taken to plan and control every detail of *Administration*. Nothing was left to chance. Every forseeable detail was provided for. In contrast to the Battle of Kut-al-Amara, the elaborate arrangements for traffic control on the approaches and on the crossings should be particularly noted.

Although it was impossible to deceive the enemy about the intention to cross, every effort was made to *Surprise* him by the time and method of attack. The use of continuous smoke screens to conceal the final preparations, and the employment of airborne troops in close proximity to the crossing points, were important factors in the application of this principle. By comparing the three battles under discussion it will be seen that the ways of achieving surprise are numerous and varied.

The conditions under which the Battle of the Rhine was fought left little scope for manoeuvre, or for the exercise of *Mobility* in the sense in which the term is commonly understood. In another sense, however, the application of the principle of *Mobility* was demonstrated by the speed with which the attack was mounted, and by the drive and rapidity of the ruthless pursuit that followed.

Conclusion

In the preceding paragraphs three similar operations, each of which occurred at a different period of history and military development, have been discussed in outline. Even this cursory examination has disclosed striking similarities in the principles and doctrines which govern the conduct of such operations. A pattern has been established. Not a stereotyped pattern exactly similar in all respects, but one depicting three different designs woven upon the framework of the basic principles. Closer study would reveal many more similarities and differences than it has been possible to mention in this paper.

It is by study conducted along the lines herein suggested that the soldier builds up his knowledge of war. The whole of history is open to us, a vast reservoir of accumulated knowledge and experience.

"Virtuous motives, tramelled by inertia and inexperience, are no match for armed and resolute wickedness. A sincere love of peace is no excuse for muddling hundreds of millions of humble folk into total war."

— Winston Churchill in "The Gathering Storm".

TRAINING FOR WAR IN THE RUSSIAN ARMY

Translated and condensed at the Command and Staff College, USA, from an article by General Niessel in "Revue de Defense Nationale", France.

IN all countries, efforts are being made to draw all possible lessons from the recent war. Nowhere is this being done with more application than in the USSR. This work was begun even before the conclusion of hostilities. This matter is of particular interest because the operations of the Soviet army have been divulged in no other source than the Soviet press.

Military Journals

The Voennaya Misl (Military Thought), which appears monthly with a circulation of 15,000 copies, is intended for the cadres (commands and staffs) of divisions and large units. It is under the direction of the Chief of the General Staff for the study of matters pertaining to military theory and ideology, strategic problems, organization of armed forces, combination of the efforts of the different arms, training of the officers, heritage of Russian military leaders, and foreign armies and their war experiences.

The Voennii Vestnik (Military Messenger), is intended for officers up to and including the grade of colonel. It appears twice a month with an issue of 50,000 copies, under the direction of the Inspector General of Infantry. In this review are studied the theory and practice of combat, co-ordination of the efforts of all the arms, military education, tactical training and the employment of fire, organization, tactics, technical matters, and the experiences of foreign armies. This review also deals with the training and life of officers. Political education occupies a large place in it.

Krasnaia Zvezda (Red Star), which is very widely distributed among all military forces, completes the principal publications and deals with the same subjects as the other two. There are few issues of this paper that do not contain several articles dealing with the lessons of the recent war as well as with training. It deals abundantly with political education of the Army. Each number begins with an unsigned editorial of official tone which often deals with preparation for war.

There are, in addition, special arms reviews and numerous periodicals issued by military districts or administrative units. All these publications concur in the impartation of military instruction and the development of the political ideas of the army, which task is especially fulfilled by Krasnoarmeets (the Red Army Man), published by the Central Political Organization of the Army. We find here opinions on strategic and tactical concepts, methods of military education, political instruction, and maintenance of high morale.

From the Military Review USA.

Strategy and Tactics

The high command participates actively in this phase of instruction. Articles written by marshals and colonel-generals are frequent. The greater part come from major-generals or officers of field grade, but many young officers make their opinions known. The subject most frequently dealt with is offensive combat against a position strongly organized in depth. This leads to discussion of close co-operation between Aviation, Artillery, Armour, and self-propelled anti-tank guns with Infantry. Contrary to pre-war concepts, the leading role still belongs to the Infantry. Colonel-General Berzarine affirms this emphatically in an article entitled: "Infantry and its Role in Combat." Similar studies have been presented by Colonel-Generals Chanchibadze and Galitski.

Many authors state that it is an error to believe that tanks suffice for assuring the break through of an enemy front. The combination, "Infantry and tanks," is often studied in detail, as well as employment of self-propelled anti-tank or anti-aircraft guns which are able (if not prevented by their special missions) to co-operate usefully in artillery support. Tank actions must be powerfully prepared by artillery and aviation, and closely accompanied or preceded by infantry. In certain cases, tanks charged with special missions carried groups of infantrymen whose mission was to protect them from the anti-tank defense of the enemy. Aviation has played a large part in the preparation of attacks, and in breaking up counter-attacks. A great deal is also expected of tanks and self-propelled anti-tank guns held in reserve for this latter purpose.

Artillery

German Aviation was never completely dominated by the Russians. Both Soviet and German Artillery are agreed in attributing the German defeats at Moscow and Stalingrad to the numerical superiority of the Soviet Artillery. In major attacks, the latter engaged an average of 200 or more guns and mortars per kilometer of front. The mastery of Soviet Artillery in counter-battery action permitted its employing a fourth or more of its guns in direct aimed fire at short ranges. The action of these guns became, at the same time, more rapid, powerful and economical of ammunition. In this connection, articles by Colonel-General Khokhlov (Artillery) and Colonel-Professor Nikiforov, contain considerable amounts of statistical data on employment of Artillery. For the battle of Berlin, Marshal Zhukov had at his disposal 22,000 guns. On the occasion of the recapture of Sevastopol, the Russian Artillery engaged an average of forty-three direct-fire pieces per kilometer of attack front. This role of artillery would be worthy of special study.

Several articles devoted to the conduct of troops after a deep penetration bring out the point that armour does not obtain decisive results unless accompanied by cavalry or motorized infantry with reconnaissance and effective aerial support. Deep penetrations and pursuit of enemy troops in retreat must lead to the annihilation of the latter.

We should note the abundant equipment of the infantry: heavy machine guns for ground and anti-aircraft use, mortars, regimental artillery pieces and anti-tank guns and rifles. In addition, attack forces have had at their disposal groups of direct support division artillery, placed for given combat operations under the orders of the commander of the operation with the designation of "commander of all arms." The commander is most frequently the officer in command of the infantry unit to be supported.

The support of the artillery was reinforced in the army corps and armies by the addition to large units of powerful artillery formations (brigades and divisions) to which automobile traction or complete motorization had imparted a mobility that permitted rapid concentration at great distances. Artillery command has shown itself to be very

flexible, while direct support artillery formations are under the immediate orders of the commander in charge of the execution of a certain combat operation. We observe, thus, the officer in command of the artillery of an infantry regiment having all the direct support artillery temporarily under his orders. On the other hand, the mortars of several infantry regiments have sometimes been placed, during this phase, under the orders of a staff officer of the divisional artillery, as well as all or part of the regimental guns.

Air Support

Colonel-General Rudenko (Air Force) has, in Krasnaia Zvezda, a very interesting series of articles concerning the combined action of aviation with ground forces, based on the needs of the latter rather than the convenience of the Air Forces. He approves the dissatisfaction of ground forces with fighter aviation which should have operated for the benefit of the former. The Soviet fighters were determined to attack the German fighters. But during this time, German bombers inflicted severe losses on Russian troops. The trouble lay in insufficient liaison between the aviation and ground command.

Cavalry

On the matter of strategic and tactical instruction, let us call attention to an article by Colonel-General Gorodovikov on "Cavalry in Battle" (Voennii Vestnik). This arm, at the beginning of the war, counted some 200,000 horses distributed among some sixty divisions. While participating in rear guard action, it executed raids against the German rear and provided aid for partisan organizations. Later it took part, in conjunction with armoured and motorized forces, in deep penetration movements and the encirclement of German troops which had been outflanked or which were being pursued. According to General Hawkins (American Cavalry Journal, August 1945), Marshal Zhukov declared that one of the causes of the German defeats in Russia was lack of cavalry. Among the most audacious operations of the Soviet Cavalry was the raid of General Sokolov in January 1943, which penetrated 200 kilometers behind the German front, destroying supply bases and large garrisons. Neither snow nor mud was able to stop the cavalry.

Methods of Training and Instruction

Many articles have been devoted to this subject, particularly a number of editorials in Krasnaia Zvezda of semi-official tone. Colonel-General Gorbatov occupied himself with the question of training and instruction of the Infantry in an article in Voennii Vestnik followed in the same issue by a more detailed article devoted to the same subject by a lieutenant colonel. Colonel-General Gorbatov begins by stating a well known principle: "Troops should learn only what they have need for in war, and only in the manner required in war." He recognizes that there are frequent gaps in the instruction of cadres, especially junior and non-commissioned officers. These result partly from the fact that advancement has been rapid and has not always permitted newly promoted personnel to gain complete knowledge of regulations. But it is also due to the fact that regulations are not sufficiently precise on the formations to be assumed, distances and intervals to be observed, and conditions relative to the execution of rushes. We find, as in many of the other studies devoted to methods of training and instruction, a tendency to be schematic in spite of the affirmation that there should be no excessively rigid rules binding the initiative of those putting them into execution. He recognizes how difficult it is in peace-time exercises to get those engaged in them to take the proper account of fire effects. There should be numerous umpires on guard against the development of unlikely situations.

Military Training and Education of Cadres

Advice to officers is packed with methods for self-instruction; increasing intellectual, physical and moral worth; and instructing their subordinates. General officers maintain a supervision over training, and participate in it with their staffs. Advanced training is given in the military academies and technical schools. Trips are prescribed, as well as joint tactical exercises on the map and on the ground for all staffs including regiments, and it is specified that the officers of the services of the rear are to engage in similar exercises.

Officer Training

Constant and careful study of the regulations must serve as the basis for the development of the personal aptitudes of officers, and this requires a personal effort on their part. They must all carry on studies of a military nature in subjects assigned to them. It is also desired that they should develop their general knowledge. A perfect knowledge of the Russian language is indispensable, for a man's education is judged by the way in which he uses his language. Generalissimo Stalin wrote, it is said: "If a man is not able to express his thoughts with precision, it is because they are incoherent." Much other knowledge is required of an officer: mathematics, general and military history, geography, topography, and knowledge of a technical nature. In addition to this, officers must develop their education by reading along economic, political and even literary and artistic lines.

Krasnaia Zvezda often contains information on subjects wholly foreign to military training: economic achievements, conditions in countries occupied by Soviet troops, technical subjects, voyages and exploration. Study of the languages of foreign armies is highly recommended.

The officer, as well as the soldier, must train himself physically by the practice of sports, and especially junior officers must be capable of serving as models for their men. The fact alone of being an officer does not raise one above criticism: officers must always be ready to listen to the observations of their superiors or even their comrades. They must ceaselessly labour to be equal to their task.

As we examined methods of instruction, we perceived the great emphasis placed on developing in officers a realization of the possibilities of employing arms other than their own. The expression, "officer capable of commanding all arms," recurs frequently. The entire training of officers appears to have this as its aim. Several articles indicate that it is not enough for an officer to have been brave in battle, or even for him to be well educated, but he must be both polished and tactful. It is disgusting to see officers with crude qualities of voice or careless or dirty attire, ignorant of the proper way to conduct themselves at table or toward their comrades or persons outside the army. The officer must not forget that the tendency of the public would be to generalize the bad impression created. A good attitude is even more indispensable in the case of occupational forces outside the limits of the Soviet frontiers.

The desire is to so orientate training and education in the case of student officer schools that young officers will be able to take charge of the tactical training of their men as soon as they reach their regiments. Stress is placed on the necessity of sending students to spend some time in troop formations rather than much time in garrison duty and reviews during their training and education.

It is recommended that very "stiff" training courses be established in the schools. Many articles deal with young officers who have finally reached their troop formations after leaving school, the manner in which commanders and officers receive these young men, the way they are acquainted with the habits and traditions of the formations, and their orientation on the qualities or weaknesses

of the non-commissioned officers that have come under their orders.

NCO Training

Great importance is attached to the training of non-commissioned officers and the retention in the ranks of those who are making the army their career. The desire would be to render them capable of taking the place of 2nd Lieutenants. All methods of instruction emphasize this point. In order to increase their prestige, it frequently happens that some of them are mentioned in Krasnaia Zvezda for their talent as instructors, or their pictures are printed. "The 'mladchie komandiri' (junior leaders)," says this journal, "are the backbone of the army. If the non-commissioned officer loves and understands his profession, if he has acquired possession of the experiences of war, who is better able to train and instruct young soldiers more rapidly than he?"

Maintenance of the Army's Morale

Great attention is given to the maintenance of army morale. The evocation of the military traditions of the old Russian army, of the memory of Suvarov and Kutusof, recalls former glories of which the present generation must show itself the worthy heir. The successes of the Red Army during the years of the civil war, the great victories of World War II are extolled. Decorations and medals are widely distributed. Krasnaia Zvezda publishes in almost every number names and pictures of officers, non-commissioned officers and men who have distinguished themselves. Certain exploits win for their authors the title of "Hero of the Soviet Union," and this title may be acquired a number of times. Certain conditions permit a soldier or a unit being designated as "of the guard." These individuals or units are proud of their traditions and guard them carefully. Special honours are accorded the parents of certain soldiers who have died on the field of honour. In some units, pains are taken to write to the parents of those who have obtained recompenses for the purpose of announcing to them the good news.

The Soviet government maintains this attitude through honorific, political and material advantages widely granted to personnel of the cadres (particularly the members of the high command), and through intense propaganda efforts. The vast population of the USSR renders the problem of recruiting an easy one. Although it is composed of numerous races which differ in language, customs, and manners, the army is rendered homogeneous by means of its close bond with the communist party and the use of Russian as the language of command and service. It will constitute, therefore, in the future, as in the struggle which has just come to an end, a decisive factor on which the foreign policy of the USSR plans firmly to depend.

"No army can in the full sense be kept up-to-date. This means that in war-time evolution will be extremely rapid. Consequently the army which is mentally better prepared to meet tactical changes will have an enormous advantage over all others."

— Major-General J. F. C. Fuller.

Is The ARMY Wrong---

Or Are YOU?

Contributed by an officer whose duties bring him in contact with a large number of officers of the Regular Army

WHEN the war finished in 1945 I was faced with a difficult personal problem. It was not an uncommon one, and many have faced one more difficult. The question was—should I leave the Regular Army and go into business? During the war I had been extremely lucky, in that I had had accelerated promotion and the pleasure of always serving under excellent senior officers.

I had a couple of near misses, plus a few scrapes with others upon which, looking back, I placed too much importance. One is apt to do that in the Army, and looking back I consider it was due to boredom, or not enough to do. One shouldn't have time to reflect upon the supposed badness of others, it is so confoundedly wasteful.

To return to my problem. I had been offered three jobs (by different people) all of which were in excess of my salary and with excellent prospects. On the other hand, my prospects in the Army were indefinite. Regular Army pay had not been adjusted to current costs of living, pensions were inadequate, and the adjustment of peacetime ranks, too, were indefinite. In addition, much loose and ill informed conjecture was rampant. My reasons for considering leaving the Army were:—

(a) I had a wife and children and I desired permanency of abode which the Army, naturally, could not offer.

(b) I wished to give my children a good schooling, plus, if they wished, a university career, which once again the Army pay at the time did not permit.

My wife and I considered the matter for some time, carefully weighing all the pros and cons. Eventually I decided to take my chance with the Army for the following reasons:—

(a) I felt that the Army had treated me very well, and to it I owed a considerable moral obligation.

(b) Although I didn't realize it, I definitely possessed a strong spirit of service to my country.

(c) I would definitely not be happy in the search for "profit" alone.

My reflections also caused me to consider deeply the good points of the Army, which I considered to be as follows:—

(a) One was working for an ideal—"one's country."

(b) The good fellowship.

(c) The influence for good which one could exert if one tried.

(d) The congenial atmosphere and conditions of one's employment.

I wonder if Regular Officers do reflect upon these advantages. Too often one hears grousing about the disadvantages of soldiering, i.e.,

(a) Indeterminacy of appointment.

(b) Changes of abode.

(c) The continued retention in the services of what one considers to be "dead wood," the useless, the time servers.

(d) The poor public prestige of the Army in peace.

There is no doubt that (a) and (b) to the married man are most worrying, especially those with children of school age, plus the difficulty of obtaining accommodation in view of the general post-war housing shortage. Nevertheless, it must always be an "accepted" part of soldiering, and one knows this when one adopts the Army as a career. On the other hand, one sees new faces and new places, and I think in the end that is good for the soul.

(c) This is a vexed question. Most junior officers do not realize that it is not easy either morally or in practice to retire an officer, who in most cases has given long and faithful service to the Army, although such service may be by no means brilliant. We all can't be brilliant. This man generally has a wife and family the same as anyone else, and further, he is generally too old to begin a fresh career. It may well be that he can be kept on a little longer to give him the chance of qualifying for a higher pension, or to obtain some other employment to augment his pension.

Instead of being critical the younger officer should be thankful to see that the Army cares for its own, and to remember the old saying, "There but for the Grace of God, stand I."

The reputed poor public prestige of the Army in Australia in peace has been the subject of idle talk in messes and homes as long as I can remember. This talk gave me a slight pain then, and it gives me a bigger one now. Prestige is obtained by the Army's effort, and that means everyone, and not by the fact that the Army exists, as such. One's own personal prestige depends upon one's own ability, reliability and general character. If that is high, well, what else matters. After all, a man's comfort lies in his conscience. If we all remember this, the Army will be better, and so will its general name with the public.

Now, one might well say that I have so far stressed only the requirements of the officer, and what about the obligations of the Army to its personnel. The general policy of the Army is guided by its senior officers, which no doubt some of you will be in the future.

To my mind these obligations include:—

(a) Good leadership and the maintenance of a high morale.

(b) Insistence upon good work.

(c) The careful consideration of the personal welfare of all ranks of the Army.

I do not propose to discuss any further the question of good leadership and good work, as these are self-evident factors. As regards one aspect of personal welfare, I wonder how many officers realize the tremendous amount of consideration which is given, say, to the question of appointments. As a case in point, in my present appointment, I personally find that one of my greatest worries is the unavoidable movement of officers between the various States. As a basic principle every factor is taken into consideration to obviate domestic upsets, i.e., the availability of housing, interference with schooling, the forthcoming "happy event." I am confident that this same consideration is general.

There is one regrettable tendency in Army gossip which has always made me irate, and that is the tendency to indulge in malicious ill informed talk. How many times in a mess have you heard the defamatory rather than the approbatory. Isn't it easier and more comforting to discuss, if you must, the good points rather than the bad, particularly when unbeknown to yourself you may be the subject of a similar discussion in the other corner. I have

tried hard to determine why some people only like discussing personalities, and have reluctantly come to the conclusion that it is generally the trait of an idle and small-minded man. One should remember that to think well is to act well.

The younger officers of today should remember the advantages of today, as against the disadvantages of yesterday. Firstly, they have had the opportunity of proving themselves in time of war. Secondly, in most cases they have had accelerated promotion, even if only in a temporary rank. Thirdly, they have benefited by an increased pay code and pension benefits and, lastly, they have been fortunate in missing out the years of uncertainty with inadequate pay that existed between the years of 1920-1938.

NEW AMERICAN TANK

Published details of the new American medium M46 tank suggest that it embodies improvements which will give it greater speed, increased reliability and more manoeuvrability than the present standard M26 model.

The new tank has been named the "General Patton" in honour of the great American armoured cavalry leader.

A compact, air-cooled, twelve-cylinder engine delivers 810 horse-power and gives the tank a speed of 30 miles an hour.

A new gearing arrangement has eliminated the relatively complicated controls used in older type tanks and has substituted a single "wobble-stick" control combining the functions of gear shifting and steering. It is claimed that this arrangement enables the driver to go directly from high speed forward to reverse without stopping by simply pulling back the "wobble-stick".

A waterproofed electrical system shields all circuits and, with special intake and exhaust stacks added, the "General Patton" is capable of fording streams with the engine submerged.

The armament comprises a 90mm, high velocity gun and three machine guns.

THE TRAINING FILM

Written for the Australian Army Journal by
The Directorate of Military Training, AHQ

WHILST the value of the training film as an aid to instruction is probably appreciated by all officers, experience shows that it is not always used to the best advantage.

Basically, many of the faults apparent in the use being made of training films arise from the fact that films are, naturally, associated with entertainment. From this sub-conscious association of ideas it is all too easy for an instructor to permit his students to view a film under the impression that they are being given a little relaxation from the mental and physical exertion inseparable from good instruction.

Every training film produced is intended to teach a definite lesson or series of lessons. Each lesson, in turn, has a definite object, and a definite place in the sequence of training designed to improve the students' proficiency. It follows, therefore, that a training film should not be used merely to fill in a dull evening, or as a stop gap on a wet afternoon. When a training film is used it should be introduced into the sequence of events as naturally and as neatly as an LMG is produced when the syllabus requires it. Therefore, the use of training films should be provided for when planning the syllabus, and all the necessary advance arrangements made for their production at the right time and place.

To obtain the best results from our training films it is necessary to appreciate the difference in technique required in using the different types of films — Factual, Motivation and Documentary.

The Factual Film, where the subject matter is more or less a substitute for actual physical demonstration such as the mechanism of an internal combustion engine or series of drill movements, must be presented in a manner which ensures that the students absorb the lessons to be taught. This can be achieved by showing the film in sequences of not less than two or three minutes and not more than ten. Prior to the filming of each sequence announce questions to be asked on the subject matter to be shown. Then show the sequence, order "lights up", ask the questions and discuss them. Continue in a similar manner with the remaining sequences. Conclude with a complete screening of the film, straight through, with the instructor making a commentary on the main lessons to be taught.

Motivation and Documentary films can be treated similarly by a verbal introduction and explanation of the object by the instructor, the showing of the film, and then a class discussion. Even Documentary films with a high entertainment value should be treated in this manner, and made a definite part of the general training scheme.

It is essential to remember that the use of training films requires as much forethought and preparation by the instructor as the use of any other training aid.

Further information on the correct use of training films is contained in the manual, "The Principles and Practice of Good Instruction," which is available in all units.