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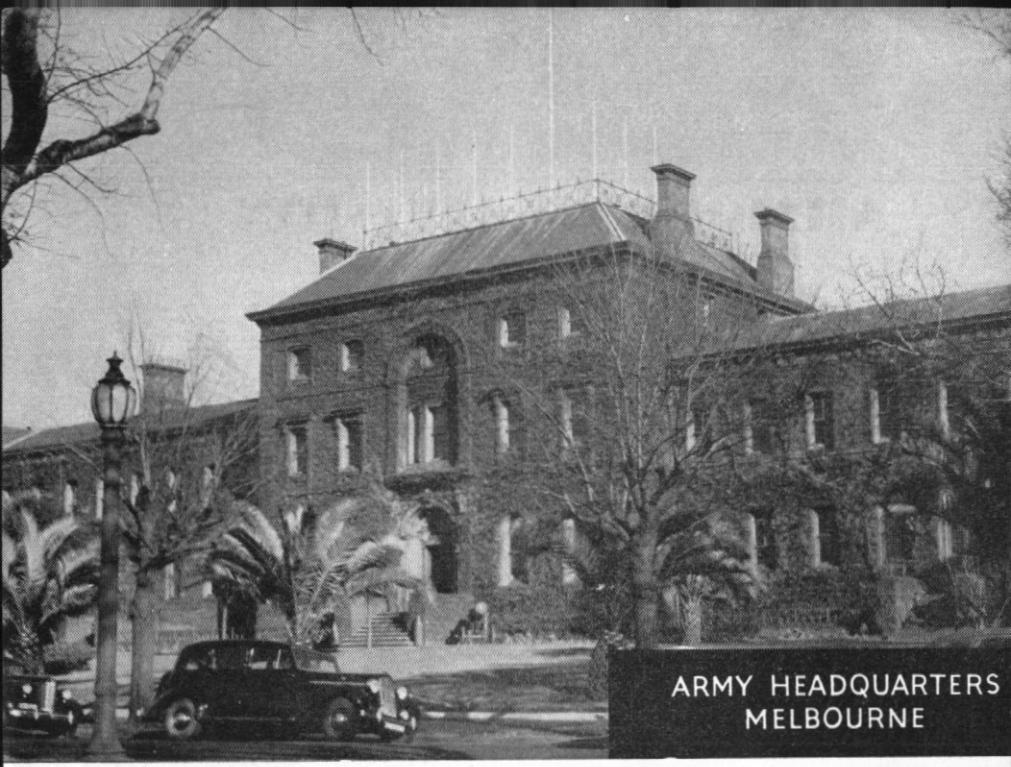

ARMY HEADQUARTERS
MELBOURNE

# AUSTRALIAN ARMY JOURNAL

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# ARMOURED DIVISION
# NEW MODEL

Major C. J. Miles,
Royal Australian Armoured Corps.

A STUDY of the armoured division of today immediately reveals a basic lack of balance in view of the fact that it was designed primarily for mobile offensive operations. It is an armoured division in name only. Rather should we call it a mechanized or composite division as there are four major infantry units, not including the motor battalion which is normally decentralised to armoured units during offensive operations, to balance four major armoured units—the four armoured regiments. As a result we are often faced with the rather ludicrous alternatives of leading with tanks or three ton lorries.

The outline organization of the present armoured division is shown in Figure 1 on page 10.

What then is wrong with the armoured division? It served us well during the last war. That is true, but it appears to me that it was only able to serve us in this way because:—

(a) In the later stages of the war we had a very high degree of air superiority and could thus use roads with impunity, and

(b) The enemy was considerate enough to oppose us with an organization not unlike our own.

To me the main defects seem to be:—

(a) There are too few tanks in the division.

(b) The division is too road-bound.

(c) It is often difficult for the divisional commander to form a reserve.

(d) There is no readily available means of overcoming the greatest obstacles to tanks—minefields and waterways.

Let us examine each of these defects in turn and see whether there is any ready solution.

There are too few tanks? Well that is easily put right, let us have more armoured regiments. But do we really require more tanks?

To answer that question I should first like to examine the main roles of an armoured division. To my mind they are:—

- To exploit success by completing the break-out battle and striking deep into the enemy's territory with the aim of destroying his reserves, headquarters and administrative installations, and cutting his communications. The overall result of success will be to prevent the enemy from stabilizing his front, and eventually to destroy his forces.

- When the situation is reversed armoured divisions should be used to prevent the above happening to our own forces. They must check and then drive back the enemy's armoured spearheads so as to allow the infantry divisions to re-organize and occupy firm positions.

In either case we shall have to fight off the enemy's armour. He who has the strongest armoured forces will surely prevail. If our armoured divisions are to contain such a low proportion of tanks as they do now then we are building expensive and complicated formations that must be defeated in mobile war by any power that cares to equip its armoured divisions with a full set of teeth.

Naturally there are other tasks that an armoured division can perform, such as defence, but if the armoured division is unsuited to mobile war against an enemy with a wealth of tanks then it has no other reason for its being.

If we are to have more tanks, then how many more? The absurdity of an armoured division fighting its battles from three ton lorries is only equalled by that of an armoured division consisting entirely of armoured regiments and the necessary services to keep them in the field. The need for a balance between infantry and armour is clear, the question is rather what is the correct balance for a division designed for mobile war. Perhaps instead of four to four, six to three would provide a better balance. I shall examine possible groupings later and these should give a reasonable guide as to the correct proportions.

The next aspect that I wish to discuss is my contention that the division is too road-bound. Many writers have discussed this in the past, prominent amongst them being Fuller, De Gaulle, and Liddel-Hart. Their writings speak with an authority that I could never match. However, two factors are obvious:—

(a) A commander's freedom of action must be limited continuously if he is forced to maintain his force over roads. His choice of approaches and freedom to bypass centres of communication are curtailed, and he must expend much of his strength in clearing and securing a road line of communication.

(b) With the present scale of transport required to maintain armoured formations a road line of communication is exceptionally vulnerable to air attack.

It follows, therefore, that a far larger proportion of vehicles in the division should be reasonably independent of roads and thus either half-tracked or fully tracked, the latter for preference. In general I should say that all fighting vehicles and those vehicles necessary for their daily replenishment should be tracked. To apply this principle to the existing division would mean that, in adition to the present

tracked vehicles, the following are also necessary:—

(a) In armoured regiments—A1 and A2 echelons and light aid detachments.

(b) In infantry and motor battalions — fighting, command, and troop carrying vehicles, A echelon, and, for motor battalions, light aid detachments.

(c) The necessary troop carrying, command, and load carrying vehicles to enable artillery and engineers to work in close harmony with the armour and infantry they support.

(d) A proportion of RAASC vehicles necessary to form mobile commodity points or establish composite points to support the fighting units.

(e) A proportion of field ambulance vehicles required to establish casualty collecting posts and evacuate casualties from units to advanced dressing stations.

(f) All second-line recovery vehicles.

The types of tracked vehicle necessary will depend naturally on their role, but the following appear to be the main requirements:—

(a) For fighting—tanks.

(b) For reconnaisance — a light tracked reconnaissance vehicle.

(c) As a command or troop carrying vehicle—an armoured personnel carrier.

(d) For load carrying—a fully tracked unarmoured load carrier probably on the lines of an armoured personnel carrier.

(e) Special vehicles—ambulances, recovery vehicles, machinery vehicles, etc.

One of the most difficult problems that faces a divisional commander is how to form a reserve once he has committed both his brigades. Any reserve must be an ad hoc one created from such units as are not actively engaged in the immediate battle. For example, it might consist of the anti-tank regiment plus portions of the motor battalion and some armour, possibly a regiment. It may be commanded by a brigade second in command with a staff improvised from one of the unit headquarters. Such an arrangement is obviously undesirable. The neatest solution to this problem would appear to be a return to the proven triangular formation. This would also fit my suggested six-three ratio of armour to infantry—two armoured brigades each of three regiments and an infantry brigade of three battalions.

One of the virtues ascribed to the familiar two-brigade organisation is that it is flexible and facilitates a grouping to fit almost any situation. Broadly the alternatives are:—

To lead with a predominantly armoured brigade followed by a predominantly infantry brigade in open country suitable to tanks.

To lead with a predominantly infantry brigade followed by a predominantly armoured brigade in more enclosed country or when there are a great number of obstacles to movement of armour.

To lead with two brigades of approximately equal strength of armour and infantry followed by an ad hoc reserve.

In the first two cases the leading brigade is suitably organised for the task ahead, but the reserve, being a residual brigade, is entirely unsuited to the conditions that dictated the organisation of the leading brigade. This may not matter if the reserve is only required to pass through the leading brigade when conditions have altered, but otherwise its organisation may be entirely unsuitable. In the third case I presume the situation is such that the division is required to advance quickly on a broad front. If conditions are favourable for such an advance then there is probably too much infantry in each brigade, leading to the formation of armoured regiment/infantry battalion groups—surely the most cumbersome unit group ever forced upon an army. Apart from this neither brigade has sufficient armour, and the so-called reserve is little more than an attempt to pay lip service to the principle of having a reserve and is unlikely to be able to influence the situation on either brigade front.

With the three-brigade organisation, not only do we have a more practical ratio of tanks to infantry, but we facilitate the correct grouping under the conditions prevailing at the time. If a much higher ratio of infantry to tanks is necessary, then either an independent infantry brigade should be added to the division, or, more probably, the task should be done by an infantry division supported by tanks from an independent armoured brigade.

A recent decision in Britain has been to replace the anti-tank regiment in the infantry division by what is virtually an armoured regiment known as the Divisional Regiment RAC. It is therefore logical that a similar change should take place in armoured divisions. This is a change of which I heartily approve. The division that I am sponsoring will include such a regiment. This still further weights the balance in favour of armour within the division. The main purpose of the regiment is to support that portion of the division which is predominantly infantry.

Some possible groupings and the reasons for them appear in Table 1 on page 9.

The above groupings assume that there are two motor battalions in the division. They are part and parcel of an armoured brigade and in mobile operations their companies normally accompany their affiliated armoured regiments. The motor battalion has proved its worth over and over again and should not be dropped from the division. As there are two armoured brigades, two motor battalions must appear in the divisional organisation, although they may be reduced in size to fit the smaller brigades in which they serve.

I suggest that the following changes should be made to the organisation of the motor battalion:—

(a) The number of motor companies should be reduced to three.

(b) Scout platoons of seven carriers should be reduced to machine gun sections of three carriers.

(c) As the divisional anti-tank regiment is to go, motor companies should have some form of anti-tank weapon of their own (other than short-range ones). I suggest a section of

two guns. Otherwise tanks will be tied down to their defence.

(d) The supporting weapons of the company should be grouped into a "support platoon" consisting of a machine gun section, a mortar section, and an anti-tank section.

My final criticism of the present division is that it has no integral means of overcoming its greatest obstacles — minefields and waterways.

A minefield is often based on an improved natural obstacle. In mobile operations an armoured division may meet such an obstacle on many occasions. The usual result is that it is held up on a one-troop

| Serial | Grouping. | | |
|---|---|---|---|
| | Forward | Reserve | Conditions |
| 1 | Two brigades—<br>each—<br>Three regiments,<br>One motor battalion | One brigade<br>Three battalions,<br>One regiment | An all-out pursuit in open country. The infantry brigade is mainly to provide a firm base for the armoured brigades. |
| 2 | Two brigades—<br>each—<br>Two (or three) regiments,<br>One battalion,<br>One motor battalion (less a company) | One brigade<br>Three (or two) regiments,<br>One battalion,<br>Two (or one) motor companies | A somewhat similar grouping to serial 1, but more infantry is required forward due to the country being somewhat more enclosed, and the enemy resistance slightly stiffer. A powerful reserve is retained which can either relieve, reinforce, or pass through forward brigades. Alternatively it can form a firm base. |
| 3 | One brigade<br>Two (or three) regiments,<br>One battalion,<br>One motor battalion | Two brigades—<br>each—<br>Two (or three) regiments,<br>One battalion,<br>One motor battalion | Pre-supposes somewhat restricted terrain suitable for one brigade only. A powerful reserve is retained for use when the situation changes.<br>Alternatively the reserve might be divided into two brigades — one predominantly armoured and one infantry. |
| 4 | One brigade<br>Three battalions,<br>One regiment | Two brigades—<br>each—<br>Three regiments,<br>One motor battalion | Such a grouping might be used when some obstacle has to be breached or an enclosed area captured in order to restore mobility to the armour. |

Table 1.

# OUTLINE ORGANIZATION OF PRESENT ARMOURED DIVISION

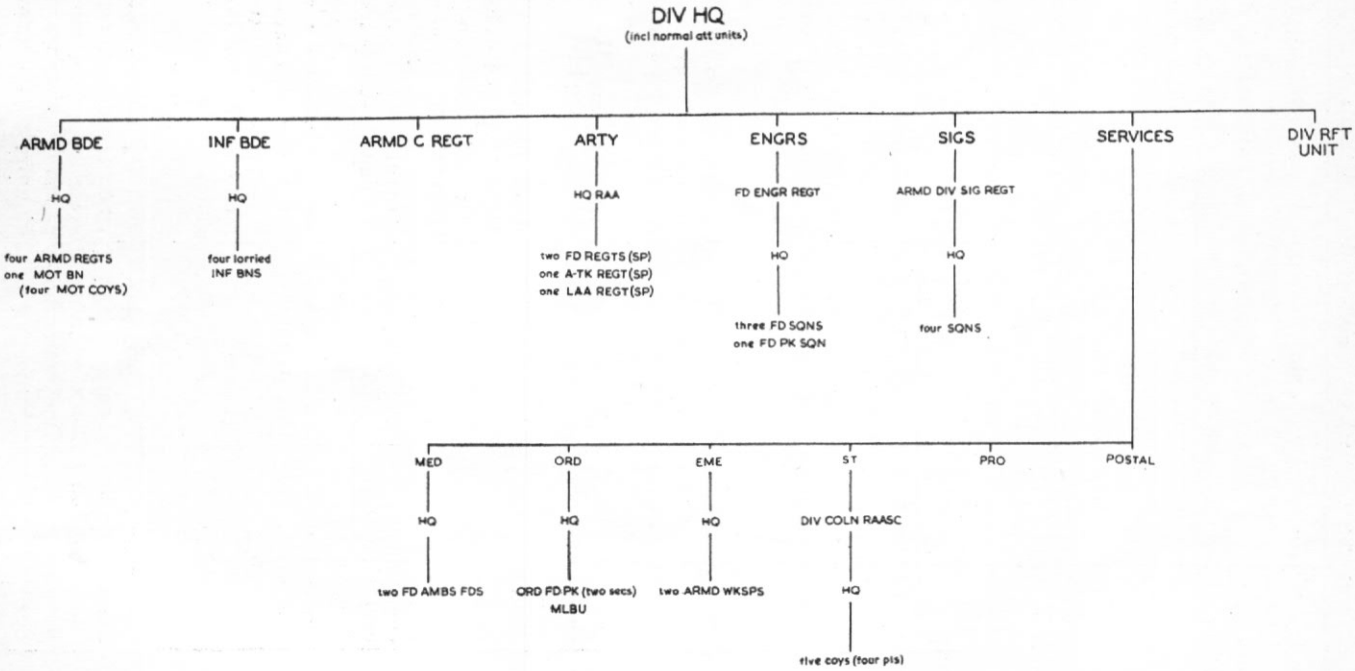


Figure 1.

# OUTLINE ORGANIZATION OF NEW MODEL ARMOURED DIVISION

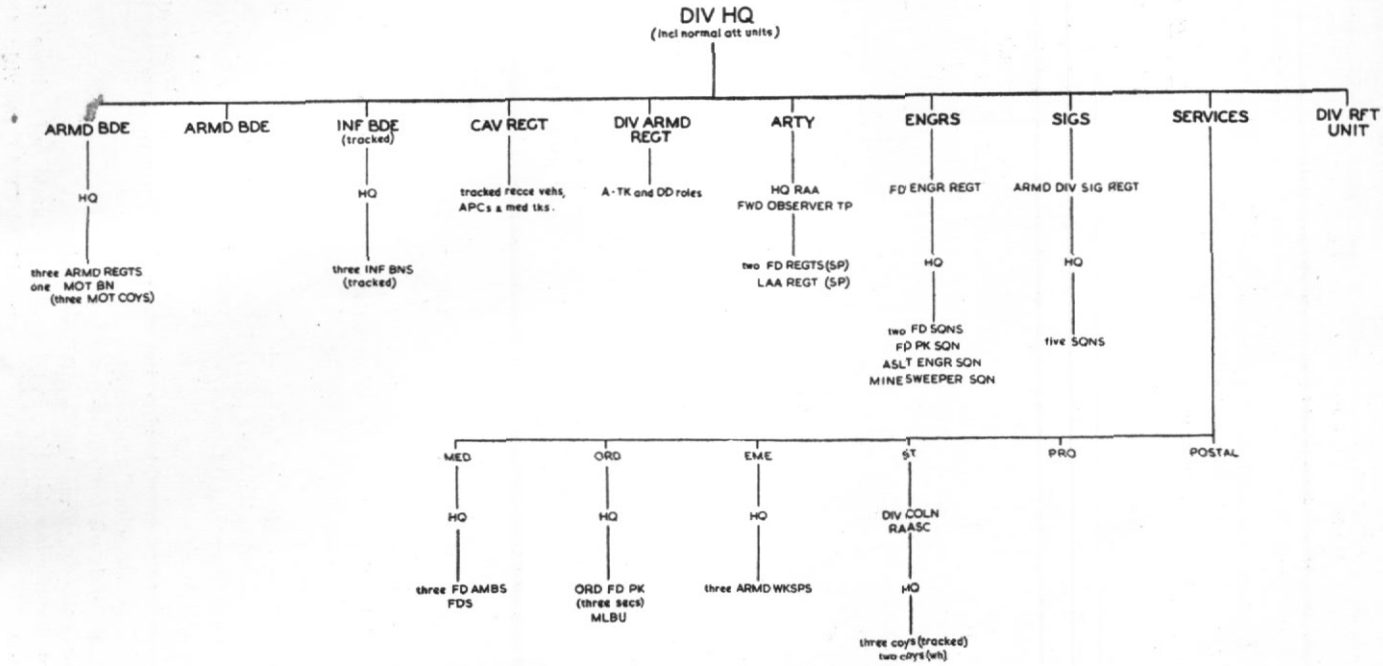


Figure 2.

front. Although these obstacles may be neither greatly developed nor strongly held, they present a serious obstacle to a division that is both relatively road-bound and is without such specialised armour as minesweepers and assault engineers. It is true that such specialised armour can be allotted to the division, but its efficiency depends upon the degree of co-operation between it and the remainder of the division. Such efficiency should be more easily obtained if it is an integral part of the division. I suggest, therefore, that a mine-sweeper squadron and an assault engineer squadron should be added to the divisional field engineer regiment. The addition of these two sub-units should enable one field squadron to be dropped from the regiment.

Waterways present an allied problem. Infantry must cross and establish a bridgehead, and they must quickly be supported by tanks to help beat off the inevitable counter-attack and to assist in enlarging the bridgehead. To halt the advance, while assault equipment is brought forward and prepared, will often mean losing a chance to make a quick crossing. Therefore:—

(a) Armoured personnel carriers should be fitted with flotation gear that takes little time to prepare for use.

(b) DD tanks should be included within the division—the divisional regiment could possibly be a DD regiment.

(c) Minesweepers should also be DD so as to clear minefields on the far bank (near one too if necessary) once the exits have been cleared by hand means.

The result would be an "armoured river crossing" closely akin to the familiar armoured breaching operation. Surely this is a logical step.

In subsequent paragraphs I propose to outline the effects on the organisation of the division of the changes I have outlined.

**Armour.**

Two brigades each of three regiments with an additional multi-purpose divisional regiment. A total of seven regiments instead of the familiar four. F, A1 and A2 echelons to be entirely tracked with the possible exception of scout cars and jeeps, provided it is found that their cross-country performance is adequate.

**Armoured Car Regiment.**

This regiment should be re-named as either a reconnaissance regiment or a cavalry regiment for preference, as it has many tasks other than that of reconnaissance.

Armoured cars have no place in an all-tracked division. They should be replaced either by light tanks or light - tracked reconnaissance vehicles. I rather favour the latter as the reconnaissance units of most powers include medium tanks and it is not reasonable to expect light tanks to fight it out with medium tanks. (We have tried it in the past, goodness knows!) We may as well be content with a pure reconnaissance vehicle. I suggest that the heavy troops should give way to medium tank troops. We should then have an organisation more akin to the American cavalry regiment (light), which has much to commend it.

**Infantry.**

A brigade of three battalions would seem to provide the neces-

sary standard infantry. The normal organisation should be retained, but in addition to the infantry carriers used to carry machine guns and mortars, and to tow anti-tank guns, the followed tracked vehicles should be provided:—

Command vehicles
Armoured ambulances
Armoured personnel carriers (integral in the battalion)
Unarmoured load carriers,

so as to ensure that the whole of F and A echelons are tracked.

Due to the increase in the number of vehicles belonging to the battalion, a light-aid detachment should be attached to each battalion.

**Motor Battalion.**

As there are two armoured brigades, two motor battalions will be needed. They should be of three instead of four companies to fit the smaller brigades. Companies should contain a support platoon as previously mentioned. The type of transport will be similar to that of a standard battalion.

**Artillery.**

The gun power of the division has been considerably increased by the increase in the number of armoured regiments. It should not, therefore, be necessary to augment the divisional field artillery. Whilst I admit that a neater solution would be to increase the number of field regiments to three I think that it would be unjustified. A serious difficulty would arise in the provision of liaison and observation for the third brigade. This could probably be overcome by adding a forward observer troop to headquarters RAA. This troop could provide the necessary observation for the third brigade should it be required to pass through the other brigades, when the field regiments would presumably have been deployed in direct support of those brigades.

The disappearance of the anti-tank regiment has already been foreshadowed by its disappearance from the infantry division.

It would be desirable to mount light anti-aircraft weapons on a tracked vehicle so that the regiment

| Gains. | Losses |
|---|---|
| One brigade headquarters. | Infantry battalion |
| Three armoured regiments | Anti-tank regiment |
| One motor battalion (smaller than the present one) | Field squadron |
| Minesweeper squadron | RAASC company (troop carrying) |
| Assault engineer squadron | |
| Signal squadron | |
| Field ambulance | |
| Armoured workshop | |
| Forward observer troop | |
| RASC company (armoured divisional transport) | |
| Section ordnance field park | |

Table 2.

could conform to the movement of the rest of the division.

**Engineers.**

One field squadron should be replaced by an assault engineer squadron and a mine-sweeper squadron. The loss of a field squadron would be compensated for by the additions to the regiment.

**Signals.**

The addition of an extra armoured brigade will mean the addition of another signal squadron to the divisional signal regiment.

**Medical.**

An additional field ambulance will have to be formed. At least a proportion of each field ambulance should be tracked to enable casualty collecting posts to be deployed in support of the fighting troops.

**Supply and Transport.**

An additional load-carrying company will probably be necessary. Three companies, at least, should be tracked. Provision of integral transport for infantry would obviate the need for a troop carrying company and so leave the total number of companies at five.

**Electrical and Mechanical Engineers.**

An additional armoured workshop will be needed, and second-line recovery units should be tracked.

The above constitute the main changes in the present division that I think necessary to give it the required power, balance, and flexibility needed in modern war. Table 2, on page 13, summarizes the gains and losses of units of the new division as against the present one.

This should bring the overall strength of the division to something approximating to that of an infantry division, but instead of a half-baked compromise we would have a full-blooded armoured division.

# Post Mortems

## on

# Tactical Exercises

Adapted from notes published in the
Infantry Bulletin, UK.

FULL value can be obtained from a tactical exercise only if a properly-run conference, at which the main lessons are brought out, is held afterwards. If this conference is to be successful its conduct requires as much care, preparation and forethought as does the exercise itself. All too often the full value of an exercise is lost because the conference has not been planned in advance, because it has been conducted in a perfunctory manner, or because it has been held under conditions unsuitable for close attention and mental alertness.

There are, of course, several different ways of running a conference, and leaders will naturally adopt whatever system they find gives the best results. However, the method outlined in the following paragraphs has been found effective by many people. In it the platoon in an attack is used as an example, but the method is applicable to any type of operation, and to companies and battalions as well as platoons.

Actually, at the conclusion of an exercise there should be two conferences. The first is a conference between the director and the umpires, and it must take place on the ground immediately the exercise is over. The object of this meeting is to sift the umpires' notes, arrange the criticism of the exercise and determine details of the method to be followed at the second conference, when the results and lessons of the exercise are discussed with the troops who carried it out.

### Sifting Umpires' Notes.

The brief notes given under various sub-headings in this section, while avoiding the detail which would necessarily be applicable to a certain piece of ground and not to another, can readily be adapted to serve as:—

(a) An aide-memoire for umpires.

(b) A guide to assist in sifting umpires' notes.

(c) A framework for the conduct

of the main conference by the director of the exercise.

*Criticism.*

Did the platoon achieve its object?

Whether the platoon succeeded or failed, the examination in detail should show what factors produced this result. These will be the lessons of the exercise.

*Battle Procedure.*

Was time lost? If so, at what stages—through whose fault? How could loss of time and energy have been avoided?

Was efficiency lost through lack of forethought for equipment, ammunition, transport, food, water?

Briefing.—(If done by platoon commander)—As for orders, see orders and fire plan (below).

*Advance to Contact.*

In the light of the object, balance the importance of speed against that of protection/caution.

Control — how maintained and what formation used, and what information passed.

*First Contact.*

Did section commander continue to press forward until enemy fire became effective?

Did he use available cover intelligently?

On being forced to seek cover, did he at once seize initiative by opening fire and/or working round a flank?

Did he use rifle and Bren groups to work forward mutually supporting each other?

If enemy position was located and was not visible to platoon commander, did section commander pass back information?

*Platoon Deployment.*

The object, at this stage, is to gain without undue loss of time sufficient information to justify launching at least a platoon attack. If speed is essential the object will be to brush aside minor opposition and, without hesitation, force the enemy to disclose his position, committing the platoon in order to do so if necessary.

Did platoon commander himself seize initiative on gaining contact? If so, did he commit his platoon before gaining sufficient information to make a sound plan?

*Orders and Fire Plan.*

Were the orders of each commander inspiring, unambiguous, simple and understood?

Did fire plan cover these points:—

Who was to fire, what kind of ammunition, at what target, on what signal, for what purpose (destroy, neutralize, blind), for how long, and how it was to end or to be controlled?

When a Bren group is detailed to support by fire, orders may also be needed to cover the numbers of magazines they may fire, and the signal and route for rejoining sections.

If time permitted and support from outside platoon resources was available, was it called for and intelligently used?

Was enough time allowed for issue of orders by section commanders?

*Forming Up, Approach and Assault.*

Choice of FUP, line of approach; were supporting LMGs positioned so

as to allow fire support to continue until assault reached objective?

If surprise was possible was it gained? How could it have been gained? Deception? Use of mortar?

Was reserve section positioned so as to fulfil its role as reserve?

Did platoon commander personally lead assault?

Did he ensure that assault sections were fully ready before the asault went in?

Were extensions of five yards between men maintained during exposed move?

Was doubling reduced to the necessary minimum?

Was co-ordination of assault with support successful?

Were previously unlocated positions promptly dealt with? Was reserve correctly used?

Was assault delivered with maximum shock effect of surprise, bayonets and fire, and momentum maintained throughout assault?

Was objective correctly chosen, in light of subsequent events?

Was objective promptly and fully cleared and success reported?

*Re-organization.*

Did original choice of re-organization positions call for alteration? Did platoon commander make immediate personal reconnaissance of all positions and effectively insure himself against immediate counter attack by infantry and/or tanks? If so, by what means—patrol, mines, PIAT, R.T. link with RAA and RAAC through Coy. HQ.

If digging was possible at once, was it begun as soon as positions approved by platoon commander (who will have personally sited guns with his eye at ground level)? Were men allowed to remove equipment to dig?

Did platoon commander remember his task of gaining and passing back as much information as possible, especially concerning enemy flanks?

*Conclusion.*

It will be noticed that there is here sufficient scope for the teaching of many lessons. The object will be *defeated unless the scope is limited* to the teaching of two or three of them. The exercise will, of course, have been set with these in mind, and they must be given due emphasis at the post mortem.

**The Main Conference.**

Everyone must be perfectly clear about the object of holding a conference with the troops who took part in the exercise. The object is to extract the lessons of the exercise and drive them home to all who participated.

It is best to hold the main conference on the ground immediately *after the exercise*, but bad weather or other factors may make it necessary to have it back in baracks or camp. In such a case a well-prepared sand or cloth model of the ground, or at the worst a good-sized wall map, *must be made*. In any event there should be a minimum of delay between the exercise and the conference.

Wherever the conference is held it is important that everyone should be comfortable. People cannot be expected to be attentive in a biting wind or a broiling sun.

There are two methods of conducting a conference. Either the director himself can do all the talking or he can act as a chairman to control a general discussion. Generally speaking, the first method is more suitable when the director is a good deal more senior and experienced than the leaders taking part in the exercise, while the second method is best when the director's rank and experience approximates to those of the other officers involved. In any case discussion must be very carefully controlled if the main lessons are to be brought out in the time available.

The officer running the conference must:—

(a) Be clear about object of the exercise.

(b) Be clear about the main lessons he wants to bring out.

(c) Be clear about what exactly did happen.

(d) Decide who is going to say what.

The actual discussion is best conducted by first deciding whether the platoon achieved its object and then by working through each stage of the exercise as follows:—

(a) Advance to contact.

(b) First contact. Action of leading section.

(c) Platoon deployment.

(d) Orders and fire plan.

(e) Forming up, approach and assault.

(f) Re-organization.

The discussion at each stage must be carefully controlled.

Bring out the main lessons first, and when it is clear that they have been understood, work through the minor ones. Always bring out the good points as well as the bad.

The general rules which should be adhered to when running conferences are:—

(a) Keep the interest going.

(b) Make everyone speak up, clearly and audibly.

(c) If a question is badly stated, restate it clearly for all to hear.

(d) Don't normally express your own views until the end of each stage, then sum up.

(e) Toss questions back for the men to answer, then give the correct answer.

(f) Keep the discussion clear and to the point, don't let it draw out into a long "waffle."

(g) Umpires with sub-units do not require to give the whole account about what their sub-units did, but only to mention what is relevant to bring out the lessons.

(h) Give a really good summary of the lessons learnt.

(i) Criticism must be helpful, constructive and encouraging.

# OPERATION "OVERLOOK"

Lieutenant-Colonel J. G. C. Waldron, DSO, OBE.,
The Gloucestershire Regiment.

THE keen student of military history often finds it necessary to compare the recorded notes of one historian with the views and diaries of others. In this way he is able to estimate the wisdom of otherwise of various decisions and the actions which followed them. Often he will find that the knowledge gained after the event puts quite a different complexion on decisions taken with only the knowledge possessed at the time.

Readers of the article "The Logistical Planning of Operation Overlord," in the July edition of the Australian Army Journal, will have noted some forthright comments by Lieutenant-Colonel Osmanski on the conduct of 21 Army Group operations in the period September-November, 1944, and the Spring of 1945. The gist of these comments is a condemnation of Field Marshall Montgomery, on administrative grounds, for failing to achieve the early opening of Antwerp as a port.

Whilst it is refreshing to find a historian who, unlike so many of his contemporaries, condemns the Field Marshal for getting on with the battle and not for watching his logistic tail too closely, it is well to examine the facts to determine the extent to which even this criticism is justified.

Naturally the student turns to see what Field Marshal Montgomery has to say on the subject in his book "Normandy to the Baltic."

In discussing "The development of allied strategy north of the Seine," (1) Lord Montgomery records his views of the "narrow front" and "broad front" argument. He considered that a factor of over-riding importance was the necessity "to keep the enemy on the run straight through to the Rhine, and "bounce" our way across that river before the enemy succeeded in reforming a front to opopse us . . .(2).

He visualized "two feasible axes along which such a thrust into Germany could be mounted. The first was the northern axis through Belgium to the Rhine, crossing the river north of the industrial region. . . . The alternative . . . was through Metz and the Saar area, leading into central Germany." (2).

1. "Normandy to the Baltic," by Field Marshal The Viscount Montgomery of Alamein, K.G., G.C.B., D.S.O., Chapter Eleven.

2. Ibid. page 119.

Whilst he favoured the first of these as likely to bring more decisive results one gathers that he would have preferred the second—an all-American effort — to the "broad front" policy which the Supreme Commander decided upon. This incidentally belies any suggestion that his main concern was to enhance British prestige by being first into Germany. He makes it clear also that the Supreme Commander's decision to go ahead on the "broad front" policy was based on his (the Supreme Commander's) "conclusion that it would not be feasible immediately to concentrate adequate administrative resources to carry us in sufficient strength across the Rhine and deep into Germany." (3).

Lieutenant-Colonel Osmanski refers to Field Marshal Montgomery's "inclination to disregard SHAEF directives," that he give highest operational priority to the clearing of the Scheldt with the object of opening Antwerp as a port.

Discussing the issue of detailed orders for the conduct of the advance north of the Seine, Lord Montgomery notes that "the immediate tasks confronting 21 Army Group were the destruction of the enemy in north-east France, the clearance of the Pas de Calais with its "V" bomb sites, the capture of air-fields in Belgium and the opening of the port of Antwerp." (4). He also records that "General Eisenhower's orders were that the Allied Armies should line up along the River Rhine, establishing bridgeheads wherever possible and that operations would not be developed further east until the port of Antwerp was opened and functioning." (5). This shows a clear appreciation of the limits imposed on future operations by the non-availability of the port.

A compromise had to be made here. On the one hand lay the necessity for clearing the Scheldt and opening Antwerp; on the other lay the desirability, if not necessity, of "bouncing" a crossing quickly over the Rhine before the German armies had time to reform and defend it strongly.

Lord Montgomery considered the latter of more immediate importance and says that "The Supreme Commander agreed with this conception of the development of my operations." (6). That this was so would appear to be born out by the further observation that "on 12 September, General Bedell Smith visited me on behalf of the Supreme Commander and, after discussing the situation, undertook to provide us with an increased daily air lift together with some American truck companies, in order to speed up our preparations." (7).

It is hard to imagine that the Supreme Commander would provide two American Airborne Divisions and considerable administrative assistance to enable the Field Marshal to carry out an operation which violated the priorities of SHAEF directives. Certainly it seems quite clear that the importance of opening Antwerp as a port was ever-present in Lord Montgomery's mind.

Possibly the reason for Lieutenant-

3. Ibid. pages 120/121.
4. Ibid. page 123.
5. Ibid. page 121.
6. Ibid. page 122.
7. Ibid. page 132.

Colonel Osmanski's belief that the 21 Army Group's logistical planners "did not appreciate the great need for Antwerp and its proffer of general benefit to the Allies once the US Armies could base their maintenance on it" lies in his lack of appreciation of the strategical and tactical problems involved.

Surely it would be hard to find a more masterly example of understatement than Lieutenant-Colonel Osmanski's ". . . the port had been captured intact in late September and it remained only (sic!) to clear the islands of the Scheldt of scattered German units and to sweep the mines from the approach channels in order to begin operation of the port at a large import figure."

The Germans knew the importance of Antwerp to the Allies and accordingly left the Scheldt and north and north-east of Antwerp strongly garrisoned and cleverly defended. The story of its clearance reads more like a description of clearing Okinawa than the facile operation Lieutenant-Colonel Osmanski suggests.

The mine-sweeping problem in the Estuary was one of the most difficult the Navy met in the war, and involved the use of "frogmen" to "delouse" mines lying under several feet of mud. Finally, Lieutenant-Colonel Osmanski makes no mention of the enemy having subjected Antwerp to a prolonged and extremely heavy V1 and V2 attack.

Planners of strategy are constantly reminded of the necessity to ponder the administrative feasibility of their plans. Perhaps this was a case of reminding the administrative planners of the tactical difficulties and the strategic prizes.

There appears to be no justification for the comment that British logistical reserves across and to the east of the Rhine "were miserably inadequate" and that "the British would have been embarrassed to find themselves unable logistically to support an operation into that country (Denmark) to mop up the residual German units there."

It was always anticipated that, once the allies had got as far as Bremen and Hamburg, the war was virtually over. The pre-arranged "post-war plans" allotted Bremen to the US Armies as a maintenance port, and hence the British formations were followed up by some US troops, who were to be ready to open the port after it had been captured. It is not known if these units helped logistically. The writer, who was there, was not aware at his low level, of any logistic snags east of the Rhine, and when the war finished for him on the Baltic, 21 Army Group apparently had everything it wanted.

Field Marshal Montgomery describes the situation early in May as follows: "The countryside north of the Elbe was now packed with a mass of German soldiery and refugees, fleeing from the allied advance and from the Russians. It could now be said that the enemy had abandoned the fight and, apart from small groups of fanatics, nothing more than token resistance was to be expected from the German armed forces south of the Kiel Canal." (8).

The enemy surrender came when

8. Ibid. page 219.

it did because the German army was defeated. Certainly there is nothing to suggest that Lord Montgomery, by clearing Antwerp before advancing to the Rhine or by devoting more effort to accumulating logistic resources east of the Rhine, could have advanced the date of surrender.

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**Infantry Tie.**

Infantrymen will be interested to learn that an "Infantry Tie" is being produced for the Royal Australian Infantry Corps. The colour arrangement for the tie is narrow stripes of scarlet and white (the Infantry colours) alternated between broader stripes of rifle green (always associated with Infantry) and black to give a balance. Colours are arranged diagonally. Eligibility to wear the tie is restricted to all ranks of the Royal Australian Infantry Corps and Officers on the Reserve and Retired Lists of this Corps.

# MASS DESTRUCTION WEAPONS

Major G. A. Johnston, Army Branch, Department of Supply.

### Introduction.

Since the atomic bomb attacks on Hiroshima and Nagasaki in 1945, the press has devoted a great deal of space to keeping the world informed of the development of mass destruction weapons and prophesying the effect on human life if they should be used in large numbers in another war; indeed the volume of articles makes it difficult to get a clear picture of what the weapons can do, without the preparation of some form of summary. The subject is too vast to allow full consideration in a short article, but an attempt will be made to sift the "wheat from the chaff" and to give a plain statement of the capabilities of the weapons, together with some of the reasons why the Powers are considering their use in addition to the more conventional weapons employed during World War II.

### What are Mass Destruction Weapons?

In this group, we may include any weapon or material capable of being used as a weapon which will produce mass casualties of personnel, structures or economic resources for a relatively small expenditure of military effort. Examples of such weapons are atomic bombs, hydrogen bombs and biological or chemical agents.

The "mass destruction" principle is not new. Throughout history there are many instances of the corpses of men and animals being used to contaminate the drinking water of the opposing armies in an endeavour to create epidemics of disease (biological warfare), while the use of Greek Fire and sulphur fumes in attempts to burn and asphyxiate the garrisons of besieged fortresses was one of the earliest known forms of chemical warfare. However, the unparalleled effort of the war years, which concentrated years of nuclear physical research into a short period and resulted in the development of the atomic bomb with its terrific destruction of lives and property, broadened previous conceptions of mass destruction weapons, and stimulated defence research throughout the world in an effort to provide a counter-threat.

### Will Mass Destruction Weapons Replace Conventional Land Armaments?

Like many articles in everyday use, weapons of war developed to meet a particular need outlive their usefulness and, in turn, are superseded by others more efficient. The

change to a new weapon may be dictated by improved methods of defence, greater mobility of targets, or more efficient enemy weapons. We see the tank designer endeavouring to build tanks with armour strong enough to protect the crew against the increasing efficiency of anti-tank guns, while other designers produce guns and guided missiles which will replace present A.A. equipments and more than compensate for the increased operating heights and speeds of modern aircraft. This contest between attacking and defensive weapons often continues till a small gain in the efficiency of one or the other is only obtained at a high cost either in the mobility or complexity of the equipment. This point has almost been reached with some conventional armaments and, together with the economic strain imposed on a nation by long wars, has led the Powers to seek weapons which they hope will shorten the duration of future conflicts. Such a result is likely to be attained if the economic life of an enemy nation can be paralysed by the use of weapons of mass destruction against his key industries and urban populations.

The development of the atomic bomb during the last war has given the world a weapon which is vastly more efficient in this respect than any hitherto considered. Apart from the damage to life and property produced by the bomb, it has stimulated research into the whole field of mass destruction weapons. Military scientists of the world are busily engaged in developing more efficient atomic bombs, biological weapons and chemical substances in the hope that they will act as a deterrent to any "have not" nations which are likely to consider engaging in hostilities against the nation by which they are employed. Should a Power already in possession of a mass destruction weapon resort to war, the use of these armaments against its enemy's homeland in the early stages of the conflict may cause such havoc that the enemy may be unable to supply his field forces and eventually be forced to capitulate.

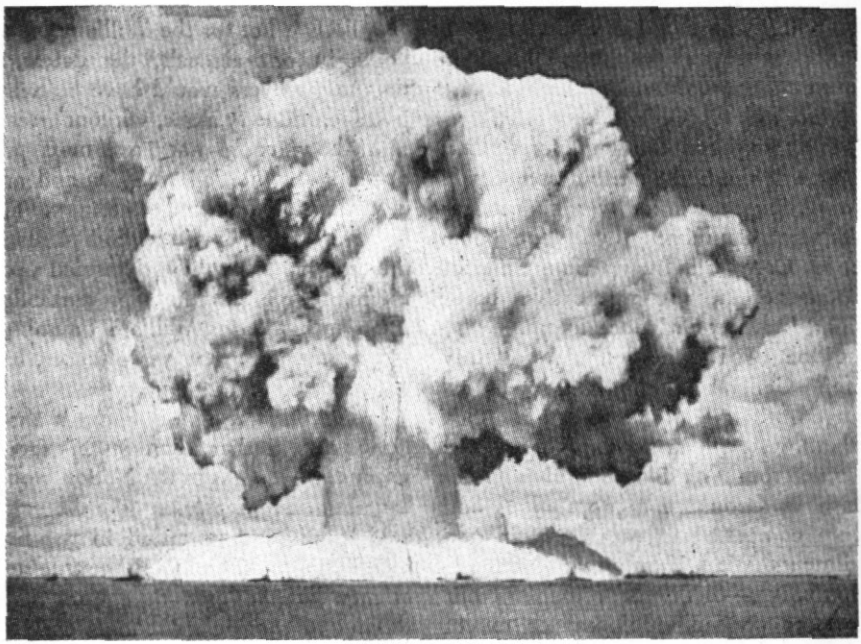
We will see later that the characteristics or cost of weapons of this type will not allow them to be used economically against troops or military installations in the field at present, except where the latter form concentrated targets such as in undispersed base areas. Where their tactical use is practicable, efficient defensive measures will probably reduce their effectiveness. Should the use of improved mass destruction weapons in a tactical role ever become general, they are unlikely to be substitutes for field forces in the occupation of territory, nor is it likely that they will be capable of destroying a mobile enemy operating in well-dispersed formations. The ordinary soldier with his ordinary weapons will still be required for these roles, although his task may be made easier by the use of such supporting weapons to remove obstacles.

### Characteristics of Mass Destruction Weapons.

Since we can infer from the preceding paragraphs that the development of mass destruction armaments will continue side by side with the conventional weapons and not at their expense, let us examine the characteristics of each of the more generally known types.

**Atomic Bombs.**

The casualty effect of this weapon is produced firstly by blast, secondly by the terrific heat released during the explosion, thirdly by the radioactive products produced, and fourthly by the very penetrating X-rays released. The bomb may be air-burst as at Hiroshima or detonated under water.



At Hiroshima the atomic bomb completely destroyed an area of which the radius from the point of detonation was about one and a quarter miles. However, everything to a radius of two miles was blasted with some burning and between two and three miles from the point of burst the buildings were about half destroyed. Thus the total area of destruction covered about four square miles and the area of damage extended over some twenty-seven square miles. In hilly country the effects are likely to be reduced due to deflection of the blast and shielding of the surrounding country from radiation. It is now believed that permanent damage to the human body from the radiation produced by air-burst bombs is not likely to be so widespread as was formerly believed.

When an atomic bomb is air-burst the full casualty effects of the blast, the heat released and the radioactive products of the explosion are felt, whereas if the bomb is detonated under water, the heat effects and a proportion of the blast are likely to be reduced. Huge masses of radioactive water are

thrown into the air to fall on and contaminate buildings and ships over a large area, while the tidal wave produced is big enough to cause large vessels to founder, and cause great destruction in nearby ports.

The manufacture of atomic bombs is attended with such technical difficulties that only nations which are capable of the great industrial effort necessary to produce the fissionable type of uranium or plutonium which forms the basis of the bomb can consider its manufacture. The very high cost of production per bomb will prevent the smaller nations producing the weapon without completely upsetting their economy.

Summarising the advantages and limitations of the weapon, we find:

(i) The atomic bomb is a true mass destruction weapon, the efficiency of which has already been proved.

(ii) The high cost per bomb limits its use to highly industrialized nations, and its employment to key targets.

(iii) It is uneconomical to use against well-dispersed field forces and such forces will still be required to carry out the major tasks of war.

(iv) Should the target be a large city or industrial area, a concentrated base installation, a fleet in harbour or a large convoy, the atomic bomb is probably the most efficient weapon of destruction where structural damage plus casualty effect is desired.

**Biological Warfare.**

During World War II, many nations experimented with germ warfare, but such a high degree of secrecy was imposed that little information of the results of their efforts can be obtained.

It is believed, however, that it will eventually be possible to spray solutions containing disease organisms from aircraft, or even explode their spores or seeds in suitable bombs with the object of infecting personnel with whom the germs come in contact, or causing epidemics among the human or animal population of an enemy country. All disease organisms are not suitable for this purpose; germs are temperamental and few of the many varieties known to science can remain active under the conditions of storage and use likely to be met with on service. More and more is being discovered about methods of combating the more deadly diseases and checking their transmission from one person to another, while in the course of research, many compounds are being produced which will reduce their effectiveness or render them valueless as B.W. agents.

Should scientists be successful in producing an effective biological weapon, it is believed that it would produce casualties on a scale comparable with the atomic bomb, but without causing the damage to property which can be expected as a result of the use of the latter. The manufacture of such a weapon would be within the economic and technical capacity of any small nation with biological laboratory facilities.

Dramatic lethal effects should not be expected from all B.W. agents; some organisms thought to be suitable for use in warfare will produce these, but the majority give rise to debilitating diseases of long or short

duration from which the individual affected generally recovers. The weapon lends itself to sabotage methods as certain disease organisms can be mixed with foodstuffs or cosmetics and exported, perhaps through a neutral source, to enemy countries. It is not known if B.W. could be used tactically, but it seems unlikely, as disease knows no frontiers. However, if the user could take elaborate measures to protect his own troops, perhaps by prophylactic injections, it might prevent them contracting a disease used against the enemy forces, and so enable biological agents to be used tactically.

From the above discussion, we see the characteristics of the weapon render it most effective against large civilian targets and our summary of the advantages and limitations of the atomic bomb largely applies to B.W. also, except that the insidious nature of disease introduces a morale effect, while no structural damage results from its use. The morale effect can be overcome by training, discipline and confidence in the protective equipment which would be provided in event of B.W. becoming a serious threat.

**Chemical Warfare.**

Chemical warfare agents were the first mass-destruction weapons to be used in modern times. Used by the German armies against the Allies in the 1914-18 war, they could have had a decisive effect on the outcome of that conflict if the Germans had had ready sufficient quantities of chemical agents and troops to follow up the first attack. However, these were not available, so the C.W. operations of that war developed into a slugging match with a high total of gas casualties, but with no great advantage to either side.

Preparations were made by both sides for the use of C.W. in World War 11. Large stocks of chemical weapons and defensive equipment were accumulated, but were never used in combat. The agents which were prepared for use in the 1939-45 war were very similar to those used in the 1914-18 war, mustard gas and phosgene being given pride of place as persistent and non-persistent agents respectively. Great improvements were made in methods of dissemination; the advent of an air spraying technique, which was later used to lay large smoke screens from aircraft and the development of German rocket propelled gas weapons, are two examples. During the course of the war, attempts to develop improved chemical agents were continuous and resulted in the German production of "nerve gas." It is believed that the "nerve gas" is likely to be more efficient than any chemical substance hitherto considered, since it is very difficult to detect and extremely lethal when inhaled, or if the liquid comes in contact with the skin.

Undoubtedly, the use of efficient C.W. agents is possible in the future, but the development of more efficient detectors and protective equipment goes hand in hand with the development of new agents and thus reduces surprise effect and casualty rate. Chemical weapons are capable of tactical use as well as use against civilian populations, but cannot produce casualties on the same scale at atomic or biological weapons, therefore it is considered a comparatively inefficient mass-des-

truction weapon if judged by modern standards.

Chemical warfare weapons depend for effect on their insidiousness and the ability of the gas to reach places protected by cover from shells and bullets. The capacity of the persistent gases to contaminate ground sufficiently to prevent its occupation by troops is also useful tactically, although tests have proved that troops can occupy such areas for short periods and few casualties from blister gas will result. The effects of the lethal gases can be greatly reduced by good gas discipline and the provision of efficient detectors and protective equipment.

**Protection and Countermeasures.**

We have briefly examined the capabilities and limitations of each major type of mass destruction weapon and now must consider what means can be used to counter such weapons or reduce their casualty effect. No defensive measures can be considered adequate unless a serious attempt is made to reduce vulnerability. In principle, this involves dispersion of population, secondary industries and large military supply and base installations. The advantages of dispersion were shown by the percentage of people killed at varying distances from the centre of the atomic bomb explosions in Japan. When allowance has been made for the better constructed buildings and more efficient rescue services in a city like London, it is estimated that with the type of bomb used against Japan, 90 per cent. of the casualties would be fatal at 500 yards from the centre, whereas at 1,500 yards fatalities would be reduced to about 30 per cent. These percentages will, of course, vary with the weapon employed and with biological and chemical weapons in accordance with the agent used. It is realised that the application of dispersion principles to modern communities is fraught with difficulties which are related to the location of power and transport facilities and the provision of raw materials for industry, but the effects of the new weapons are likely to be so far reaching that this drastic measure with its attendant difficulties may have to be faced.

The need for building up means for a strong counter offensive with similar types of weapons seems obvious and this, together with the appropriate medical and rescue services and dispersion of industry throughout the British Commonwealth, would be the backbone of defence against mass-destruction weapons.

**Conclusion.**

It seems obvious that the research necessary to bring new mass-destruction weapons into being must ultimately provide a counter to the biological and chemical forms of mass-destruction attack since workers engaged in research with biological or chemical agents must be protected against their effects. This does not apply to new forms of atomic weapons as research workers have not, so far, been subjected to the hazards of nearby atomic explosions; indeed all precautions have been taken to prevent this danger. Even so, while research work on any type of offensive weapon is active, parallel research on countermeasures takes place, so we can expect that ultimately a means of countering the atomic bomb, or at least greatly reducing its effectiveness, will be produced. However,

let us not forget that these new forms of warfare are in their infancy, and that they can be made still more effective by improving the means of getting them to their target. It may be possible in the future to use a long-range guided rocket with an atomic or biological warhead, and thus obviate the necessity for large-scale strategical bombing by conventional aircraft.

Finally, our examination of the capabilities of mass-destruction weapons leads us to the conclusion that these undoubtedly have a place in the arsenal of weapons for total warfare, but, with the exception of chemical agents, because of their characteristics, cost and in some cases, the difficulties associated with their production, they are unlikely to be employed in their present form against the targets afforded by a field formation or the advanced supply systems of an army in the field.

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**"The nation today needs men who think in terms of service to their country and not in terms of their country's debt to them."**

*General Omar N. Bradley, U.S.A.*

# *FUNNY . . . but I'm Serious !*

Lieutenant-Colonel L. J. Loughran,
Australian Staff Corps.

**"Die! I thought I'd laugh."**

*—Mr. Plant, Undertaker.*

**"Every man—no matter how sternly serious, no matter how utterly unbending, no matter how petulantly ponderous—thinks he has a sense of humour. This is the first law of non-gravity."**

*—Loughran.*

IF you have ever taken a serious interest in sport you will realize the importance of relaxation. I don't mean by that the importance of going to bed early on Friday night when you have a match on Saturday. I mean the importance of relaxing *whilst* you are playing. The ability to relax correctly is so fundamental to success that coaches spend long periods patiently training promising athletes in the art. They know from experience that tension is the enemy of timing and the father of fatigue.

In the mental field relaxation is just as important as in the physical. Again, this does not mean that we should relax before or after we work, it means that we should practice relaxation *whilst* we work. In that way we avoid tension and we keep our minds alert.

A sense of humour is usually a symptom of correct mental relaxation and the lack of it not infrequently leads to breakdown. It is easy to spot the would-be sportsman who is too tense. It is equally easy to spot the man who looks at his work through morose-coloured glasses, who mistakes seriousness for sanity and levity for lunacy. He has probably stipulated in his will that he is to be buried in a conventional coffin, for fear someone will try to plant him in a gay, plastic model.

I suppose the way best calculated to make the average Australian stand up and snort brimstone would be to suggest that Australians lack a sense of humour. I wouldn't blame him because I don't think Australians are completely humourless. Admittedly they laugh loud and long at vaudeville and radio shows whose gags brought delighted roars of approval when they were first put over at the Colosseum, but this only

proves that the Australian has a wonderful capacity for re-digesting the same old corn year in year out. It is, in fact, a pointer to his wonderful powers of endurance.

The Australian Army, however, seems to take an aggressive pride in keeping itself purged of all semblance of humour. A fairly damning criticism is to say of someone: "He has a sense of humour not altogether in keeping with his rank." The inference is that each rank carries with it an approved grade of humour and the idea is to be less and less amused and amusing the higher you go. Many people appear to comply with this unwritten order without any effort.

It seems to me, however, that the really damning criticism should be: "He has a sense of seriousness which casts a constant shadow on those about him. His lack of ability to relax mentally would certainly cause him to crack under pressure, and he'll probably crack anyhow. In fact there are times when I wonder if he is not already cracked."

This queer outlook of the Australian Army springs from an ill-founded notion that one cannot be humourous and efficient at the same time. Such a notion is, of course, no more logical than a suggestion that one cannot be serious and inefficient at the same time. As someone once remarked: "People who are too busy to laugh are too busy."

If we are going to standardize with Britain let us start by standardizing on this matter. The British, whom many Australians think of as rather staid, never deny anyone the right to levity when it achieves the desired result.

In the Middle East I saw a copy of a British General Staff Instruction issued somewhere in Abyssinia. Part of it read approximately as follows:

> "Reports have been received that Italians have been dressing up in baboon skins and photographing our positions. In future all baboons will be closely observed to see whether or not they are carrying cameras. Any that are will be brought to this Headquarters for questioning. Should there be any doubt as to whether they are baboons or Italians they should be examined from the rear."

Can you imagine that instruction emanating from an Australian headquarters?

When Admiral Sommerville, then commanding the Mediterranean Fleet, received a second order of knighthood a fellow admiral signalled him: "Congratulations. Fancy twice a knight at your age."

Can you imagine a similar signal defiling Army communications channels?

The British rate their sense of humour highly and consider it an important factor in morale. They claim, in fact, that it accounts to a large extent for the British ability to go on "taking it" for a little longer than more serious-minded nations.

If this is so can the Australian Army afford to neglect, much less condemn, this vital quality?

I am not suggesting that Army Headquarters should become a sort of super "McCackie Mansion," or the Army a vast vaudeville circuit. I am merely uttering a plea to encourage a lighter touch when it serves the purpose. I am not

asking to see the walls of Finance Branch rocking with laughter as someone decides whether or not the commander of a "Duck" can claim Shipboard Allowance, or to see "Q" Branch splitting at the seams when approving "Corn, pop, 1½ ozs." as an alternative to "Corn, sweet, 2 ozs." on the ration scale.

What I would like to see is a more cheerful, a more human approach to the serious business of making an army function. Churchill endorses such an approach in affairs of State; so does Trumen, so does Menzies. In fact, nearly all public men, no matter how serious their tasks, either utilize their own gift for humour or pay someone to do it for them. Apparently they think it does some good.

If I may coin a phrase, I concur.

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**"There does not exist and never has existed an art of war which was something other than the methodical study of military history."**

*General Sir Frederick Maurice.*

***A Comparison***

# RUSSIAN - AMERICAN - BRITISH FIELD ARMIES

Major S. J. Watson, RE.

### Introduction.

The Second World War reduced the Great Powers of the world to two in number—the USA and Russia. Though the world was once big enough for many Great Powers to live peaceably together, it is now too small for two to do so when their social and political outlooks are radically divergent. There is no compromise possible between communism and democracy. Lying between, Britain cannot escape being drawn in the orbit of one or the other when war begins. It is therefore opportune to compare the armed forces of the three nations.

It is proposed to examine this subject under three main headings:

(a) The background to military policy in Britain, the USA and Russia, as affected by:
  (i) Geographical position.
  (ii) Historical traditions.
  (iii) Racial characteristics.
  (iv) Economic and industrial resources.
  (v) Responsibilities toward Allies or Empire.

(b) Features of the manpower and equipment of British, American and Russian field armies.

(c) Against the above background, the probable handling of these armed forces in relation to the principles of war.

*From Army Quarterly, April, 1950, United Kingdom.*

### The Background.

**Britain.**

"Utterly unwarlike, they outlast everybody else when war comes:" American Ambassador in London, 1916.

Britain's traditional strategy dates from when the discovery of the New World shifted the economic and therefore the political axis of Europe to the Atlantic coastline. Geographically, she was then at the centre of gravity of the civilized world.

For the next four hundred years Britain's strength lay in her sea power, which enabled her to:—

(a) Exert economic pressure against her rivals by piracy and blockade.

(b) Colonize an overseas empire.

(c) Preserve her island as a firm base secure from invasion.

(d) Transport and maintain her armies in overseas theatres of war, and switch them at will to diversionary operations elsewhere.

Unlike Continental powers, whose long land frontiers called for large and often cumbersome land forces to defend them, Britain kept her army small and flexible. By itself this force had no pretensions of rivalling Continental armies by weight of numbers, but aimed rather at swaying the balance of power to the side of Britain's chosen allies by the use of mobility and surprise. Through sea power Britain was assured of the overall initiative, since any tactical defeats on land were sure to be redressed by the fleet's strategic pressure against the economy of her enemies.

There was thus engendered a confidence in ultimate victory which has enabled the British soldier to:—

(a) Sustain setbacks and hardships with a peculiar equanimity and sense of humour.

(b) Refuse obstinately to envisage the consequence of defeat.

(c) Outlast his enemies by sheer tenacity of purpose.

Britain is by tradition an unmilitary nation, insofar as war came to be regarded not as a struggle for survival, but rather as a science which offered all the excitement of fox-hunting and only five-and-seventy per cent. more of the danger. This attitude perhaps explains:—

(a) Britain's emphasis on the "rules of the game" as promulgated by the Hague Convention.

(b) The Englishman's humane regard for the lives and welfare of his own soldiers, and reluctance to foster personal enmity towards his enemies.

(c) The eagerness for "de-militarization" once war is over.

(d) The unpopularity of conscription in peace-time, though it is cheerfully accepted as a war-time necessity.

Such sentiments appear strange in modern war against totalitarian states. They were more appropriate to the role of policing the Empire.

Imperial policing has, from the time of the East India Company, enabled Britain to combine in a worthy and constructive cause:—

(a) The training of her leaders and the exercise of her soldiers.

(b) Long experience of overseas campaigns in varying climates.

(c) Knowledge of conducting sea-borne operations.

But the very success of these expeditions has probably led to undue conservatism in military development. It is only after exhaustive trials and prolonged deliberation that new weapons or new techniques in war are finally adopted; there is thus a danger that some foreign power may meanwhile have put the same ideas into practice on a formidable scale.

Another deterrent to military development is the need for economy.

In striking the balance between the two extremes of having an industry with no fighting services to defend it or having fighting services with nothing worth defending, the following factors weigh against the armed forces:—

(a) Impoverished by the wholesale contribution of industry to the last war, Britain must now concentrate on the return to peace-time production in order to get overseas markets for her goods.

(b) The cost of the armed forces, including their allocations of manpower and industrial resources, is an insurance premium which in peace-time the average citizen is loath to pay.

(c) Because the votes of the peace-time forces are unlikely to sway election results, politicians in a democratic country often pay undue attention to the more popular peace-time suggestions of disarmament and appeasement.

Britain has entered the last two wars with inadequate fighting services under-equipped, and it has taken many months to convert peace-time industry to war-time needs. The equipping of these services therefore presents a most difficult problem to the planning staffs, since they are seldom sure where they stand in regard to public opinion—and, in a democracy, public opinion elects the Government which controls the purse-strings.

Britain is not self-supporting. The Empire has hitherto provided, in whole or in part:—

(a) Raw materials from which are manufactured the equipment economically necessary in peace-time, and the weapons militarily vital in war.

(b) Foodstuffs which British agriculture does not produce in quantities sufficient to support the population.

(c) Oil, which, with the development of the internal combustion engine, has become more vital to Britain than her native coal.

The delivery of these commodities depends on Britain's ability to keep open her lines of communication with the Empire.

The problem of Empire security is complex. The Empire is widely dispersed, but largely lacks the industrial capacity to equip its armed forces and is open to defeat in detail. Britain has so concentrated her industry and population as to present a most vulnerable target to weapons of mass destruction. No equivalent problem confronts either the USA or Russia. Each Dominion of the Empire has its own policy, and these various policies may not favour a prearranged defence scheme or a centralized defence organization. No Dominion is bound to enter a war in which Britain is engaged, still less to dispose its military forces in accordance with the wishes of Whitehall. No such latitude is desired by any of the United States of America, nor is it likely to be granted to any member of the Union of Soviet Socialist Republics. As Cyril Falls has written in "The Question of Defence:" "Russia is strategically interested in Rumania, not for the sake of Rumania, but because she looks upon that country as a buffer state or outpost of her own . . . But into England's re-

lations with New Zealand there enters another element, far from purely strategic. Britain desires to provide security for New Zealand for its own sake; New Zealand is part of the Empire."

**The USA.**

> "Our country has become so democratic that the mere popular opinion of any town or village runs above the law."—General Sherman.

The USA is a young nation, founded by European peoples fleeing from seventeenth-century tyranny and persecutions, which is specifically — and uniquely — dedicated to the proposition that all men are created equal. Separated from Europe and Asia by thousands of miles of ocean, the Government has always had the time to frame its policies on the basis of argued reasoning within the framework of a written constitution. Thus, historical tradition has evolved the theory of democracy and geographical position has enabled this theory to be put into practice.

Like Britain, the USA is not a military nation. The two main reasons are:—

(a) Geographical isolation together with economic self-sufficiency have hitherto dispensed with the need for formulating an international strategy. The young American nation is, as a whole, more likely to react to an affront to national dignity than to a threat to national security.

(b) The regular armed forces have never fought to bring wealth or empire to the nation, nor before 1941 did they stand between the nation and unconditional defeat. In the eyes of a young democracy, accustomed to judge by results, the glamour of West Point has taken second place to the glamour of Wall Street.

This outlook does not favour an aggressive military policy or conscription in peace-time; nor is the rigid constitution suited to deploy the nation quickly for war.

American military traditions do not go back beyond the Civil War, which took place within living memory. But from that remarkable campaign, at the start of which soldiers fought with muzzle-loading muskets and generals returned to the colours from civilian life, emerge four basic lessons:—

(a) The importance of what Liddell Hart calls the "indirect approach" by mobile forces vindicated by:

  (i) Grant's thrust against the enemy lines of communication at Vicksburg.

  (ii) Sherman's operations against Confederate industry and communications on his "march to the sea."

(b) The vital influence of logistics on strategy, demonstrated by Haupt and MacCallum—the founders of "movements and transportation."

(c) The need for a mutual understanding between the politicians and the commanders—emphasized all too late by Jackson's resignation.

(d) The increased efficiency achieved by decentralization to

subordinate commanders. One of Grant's directives to Sherman reads: "I do not propose to lay down for you a plan of campaign, but simply to lay down the work it is desirable to have done, and leave you to execute it in your own way."

All these lessons are equally applicable today, and an army with traditions founded on this teaching is fundamentally sound in its approach to the problems of modern war.

The USA is a self-sufficing land mass enjoying the following advantages:—

(a) Rich natural resources (though, like Russia, the USA looks to the Middle East for supplementary oil supplies).

(b) An agriculture which can support the population.

(c) A population which could support strong armed forces in peace-time without serious dislocation of the national economy.

(d) A comprehensive system of road and rail communications.

(e) An industrial potential which:

(i) Is undamaged by war-time enemy action.

(ii) Was never completely converted to war-time production.

(iii) Does not offer such concentrated targets as the industrial centres of England.

Not only can the USA afford to have her armed forces fully equipped before the next war starts, but any inferior or obsolescent items of equipment could quickly be replaced. The only military disadvantage of American labour-saving and mass-production methods is that the average soldier may become too "gadget-minded" and find difficulty in improvising if deprived of mechanical aids.

As compared with an Englishman, an American shows only a few, but significant differences:—

(a) He is emotionally more volatile, due to:—

(i) The mixture of races from which he is recently descended.

(ii) His higher nervous tention, resulting from the faster tempo of American daily life.

(b) He is more likely to regard his war-time enemies as personal enemies, due to the influence of the personal — and often unscrupulous—rivalries in American "big business."

(c) As a citizen of a young nation, he is likely to prefer to make his own mistakes and to learn from them, rather than to accept advice based on other people's experience.

Unlike Britain, the USA has never experienced prolonged and heavy air attacks. It is known that the American soldier has fought bravely and competently while his family was safe, but it is not certain whether, after the destruction of his home, his loyalty to his country will prove as strong as the more personal loyalty to his family. The Civil War showed that Sherman's "march to the sea" set these loyalties in opposition, and thereby broke the

wills of the fighting soldiers. Today it is possible that the American soldier might be unbalanced, at least temporarily, by heavy attacks against his homeland coupled with insidious propaganda. The enemy will certainly try to exploit his advantage decisively before the Americans have time to regain their poise.

**Russia.**

> "Everybody has always underrated the Russians. They keep their own secrets alike from foe and friends." — Churchill: 23 April, 1943.

Like the USA Russia is inhabited by peoples of different racial origins who share a common citizenship. Russia's national characteristics and military traditions have two main sources:—

(a) The Turco-Mongols from Asia, who swept into Europe in the twelfth century.

(b) The true Russians from Eurasia. who, from the fifteenth century onwards, pushed their way back into Asia.

These are the two predominant races among the 200 million inhabitants of the USSR today.

The Mongols are nomads, because of their constant search for pasturage in a territory which imposes few restrictions on mobility; they are also a warlike race, because their migrations have brought them into frequent conflict with other tribes and peoples. The true Russians have fought continuously for 500 years, pushing out the boundaries of their frontierless principality until they reached some line of natural defence. Operating on interior lines, whenever they were checked in one direction they could stop and try again elsewhere. Thus the traditional policy of Russia is in the following sequence:—

(a) Expansion on the following lines:—

  (i) Geographical, to the next natural frontier.

  (ii) Racial, through the Pan-Slav movement.

  (iii) Ideological, by means of the Comintern.

(b) A check, for example from German land-power or from Japanese sea-power.

(c) A change of direction or of policy, as when Molotov made the pact with Germany on 24 August, 1939.

Long years of war have bred in the Russians a profound distrust of their neighbours, particularly of those whose superior standard of living and industrial tradition appear as a constant menace to Russia's more primitive organizations. The Russians are a warlike and not an industrial race. All Russians readily accept the teaching that it was the Red Army which saved their country and at the same time won the war for the English and Americans; it is therefore an honour to be a soldier.

History and environment give the Russian soldier the following characteristics:—

(a) Self-reliance and resource in improvisation.

(b) A standard of fieldcraft, by night especially, which is far superior to that of British and American townsmen.

(c) Physical toughness and bravery, which enable him to sur-

vive the worst conditions of battle and climate with the minimum of food, clothing and shelter.

(d) Ready acceptance of death both for himself and his enemies, for whom he is taught to foster a ruthless and personal hatred undiluted by Christian scruples.

(e) An overall patriotism and loyalty to Stalin reaching religious fervour.

(f) A lack of experience of overseas operations.

Russia has no convenient anti-tank obstacle like the Atlantic Ocean or the English Channel, and has therefore no time to formulate policy, on democratic lines, in the face of real or supposed aggression. The Russians are used to authoritarian government backed by secret police. The Czars and the Okhrana found it necessary because the people had no education; the Politburo and the MVD find it necessary to ensure that the people's education follows the "party line." The government of the State and the command of the armed forces are therefore rigidly centralized and carefully screened at all levels by the MVD; local initiative is neither trusted nor encouraged. Thus the keynote of military discipline is the unquestioning obedience of orders, even though subordinates are seldom briefed sufficiently to understand the reason for any particular incident in a campaign. Officers display a high standard of leadership, but the low level of their education does not fit them easily for the intricacies of staff work and administration.

Russia resembles the USA in the following:—

(a) Russia is a self-supporting land mass rich in natural resources.

(b) Russia's agriculture can support the population.

(c) Russia's industrial centres are widely dispersed and not so vulnerable as those in England.

(d) Russia's industrial potential is capable of equipping the present armed forces to 1945 scales.

Russia differs from the USA and from Britain in that:—

(e) Russia has no industrial tradition and lacks trained technicians.

(f) Russia's present road and rail communications are not adequate to link industrial output with the armed forces deployed for war. In Russia there are only 0.7 miles of railway per 100 square miles of territory, compared with 8.3 miles in the USA and 21.5 miles in Great Britain.

Like Britain, Russia's factories and communications were extensively damaged during the last war, though the effect of this was reduced by transferring the main industries to beyond the Urals and by importing lease-lend and satellite plant and machinery.

Unlike Britain or America, Russia appears to show little interest in overseas markets. The Government is able at any time to allocate industrial resources to the armed forces and to ensure that the people accept any consequent shortage of consumer goods.

During the next ten years the strategic policy in Russian industry is likely to aim at:—

(a) The build-up of a reserve of warlike equipment sufficient to cover the general mobilization of the Red Army.

(b) The extension and improvement of road and rail communications linking industrial centres with probable zones of operations.

(c) The training of competent technicians, particularly in radar and nuclear physics.

Meanwhile the Russians will concentrate on:—

(d) Serviceability of equipment achieved through standardization of design and simplicity of construction.

(e) Improvisation, based on ruthless exploitation of local resources and the manual dexterity of the Russian soldier.

**Features of the Field Armies of England, The USA and Russia.**

**Non-Divisional Troops.**

*The Higher Command.*—In England the Chiefs-of-Staff of the three Services are separately responsible to the Government. In the USA the Chairman of the Chiefs-of-Staff is responsible to the Government for all three Services. In Russia the head of the MVS Unified Command of the three Services is himself a Minister of State; moreover, under him the supply and administrative directorates of all three Services are grouped in a single organization called the "Rear of the Armed Services." Thus, instead of three separate Services, each with its own channels to civil industry and manpower, Russia can be said to have integrated her war effort under two main headings:—

(i) The Armed Forces as one entity.

(ii) The Rear, which includes the mobilization and direction of civil industry and manpower.

These are supported on the home front by the MVD; and behind the enemy's front by the Fifth Column, which may also include partisan bands.

*Higher Formations.*—The field armies of all three nations are flexibly composed of divisions grouped according to operational requirements. For example, typical wartime armies might be composed as shown in Table 1.

Russian army groupings may be expected to be somewhat similar. The Russian "Fronts" of the 1939-45

| Nation | No. of Corps | Corps Components | Total Divisions |
|---|---|---|---|
| Britain . . | 3 | Three infantry divisions or two infantry divisions + one armoured division. | 9 |
| USA . . . | 3 | Three infantry divisions + one armoured division. | 12 |

Table 1.

war roughly corresponded to the American and British Army Groups. All the above formations have additional support and administrative units incorporated under corps or army command. Indications of the comparative peace-time strength of the armies of the three nations are given in the following figures quoted from the 1949 edition of Whitaker's Almanac:—

| | |
|---|---|
| England, as at 7 July, 1948, | 530,700 |
| USA, as at 1 June, 1948 | 542,000 |
| Russia; peace-time annual intake exceeds . . . . . | 1,250,000 |

**Divisional Troops.**

*General.*—England, the USA and Russia assess their relative fighting strengths in terms of divisions, since the division is the basic formation in which all arms and services are found. Both Russia and the USA incorporate organically under one command the elements of manoeuvre, fire support and administration down to regimental level. For example, in the US infantry regiment are included a tank company, heavy mortar company and medical company; in British practice, these elements are grouped separately and attached in support of units as and when required. Similarly, there is no tank component organic to the British infantry division, but an independent armoured brigade is normally available on a scale of one to each infantry division. The airborne divisions of the three nations are not here considered in detail, since they are basicly infantry divisions employed in a special role. Mention was made during the last war of Russian "artillery division," but these are merely ad hoc formations of Army troops.

*Man-power.*—In total man-power, the British Divisions are the largest and the Russian divisions are the smallest. It was recently disclosed in the RUSI Journal[1] that Russian divisions are roughly equivalent to enlarged British brigades; they therefore show their direct descent from the "toumans" of Jenghis Khan, which were self-contained formations of 10,000 men. On the proportional basis of fighting troops to the total divisional strength, the order of the three nations is directly reversed, though there is no great disparity between the percentages of man-power absorbed in formation headquarters. The essential difference in man-power grouping lies therefore in the size of the administrative tails.

*Fighting Units and Equipment.* — Table 2, on page 42, summarizes the main differences in the allocation of weapons and equipment to the divisions of the three nations.

It is of interest to note that German commanders on the Eastern Front have testified that Russian tanks, though crudely finished, proved most effective in battle. The famous JS tank has as one of its features three machine guns, one of which fires from the rear of the turret; but it also has a weakness in the slow rate of fire of its main 122-mm. armament, for which it carries only 28 rounds.

*Administrative Units.* — Divisional workshops are proportional to the amount of divisional equipment. In American divisions, maintenance and repair is the responsibility of each service for its own equipment, whereas in British divisions the repair effort is concentrated in REME

[1]*See article "The Soviet Armed Forces," in RUSI Journal, November,* 1949.

first-line workshops; this accounts for the main difference in the size of administrative tails. The Russian organization is primarily concerned with recovery in forward areas; field repairs are mainly the replacement of complete assemblies rather than repairs to individual components.

The strength of Russian divisional repair units is 75 per cent. greater than that of their medical units, whereas the British divisional RAMC strength outnumbers the REME strength. It is not therefore surprising that, of the thirteen ration scales adopted in the Soviet Army from 1941-45, the highest was for soldiers in the front line and the lowest was for those in hospital.

None of the three nations has produced an administrative vehicle for cross-country use, though the American "Armoured Utility Vehicles" come nearest to this category.

**The Handling of the Armed Forces of England, the USA and Russia in Relation to the Principles of War.**

"An Army springs from national life and is not imposed upon it; it therefore has the habits and

| Item | Britain | U.S.A. | Russia |
|---|---|---|---|
| ARTILLERY | Preponderance of field artillery. Emphasis on rapid and accurate fire of small projectiles. | Preponderance of heavy howitzers and heavy mortars on wheeled mountings. Emphasis on weight of projectiles. Mobile rocket launchers. | |
| | No rockets. | All anti-tank fire provided by tank armaments. | Tank armaments used primarily against personnel. All guns can fire in anti-tank role. |
| | Anti-tank firepower reinforced by tank armaments. | | Weak in LAA, but use 12.7 mm. AA LMG's. |
| TANKS | One type of capital tank for all purposes. | Light tanks for reconnaissance | |
| | Slower than all US and Russian tanks. | Medium tanks. Heavy tanks. | |
| | Outgunned by all heavy tanks. | All outgunned by Russian heavy tanks. | Low silhouettes. Small reserve of horsepower. |
| ENGINEERS | Fully-equipped and highly trained. | | |
| | Assault engineers grouped as Army or GHQ troops. | Assault engineers included in divisions. | Lack of technical training offset by skilful improvisation. No assault engineers as such. |
| SMALL ARMS | LMG is basis of small-arms firepower. | | |
| | Only 4 MMG's per battalion. | MMG's used at company level. | |
| | Bolt magazine rifle is basic personal weapon. | High proportion of automatic firearms carried as personal weapons. | |
| | No problem in SAA supply. | Numerous types of small arms liable to complicate ammunition supply. | All soldiers trained to use captured enemy weapons if own ammunition supply fails. |
| SIGNALS | Large number of wireless sets. | | |
| | | Teletypewriters included in divisional equipment. | Reliance on line communications laid in pre-planned arteries. |
| VEHICLES | Large numbers of vehicles and/or trailers. | | Some rifle division transport horse-drawn. |
| | Limited use of armoured personnel carriers. | Extensive use of armoured utility vehicles. No carriers, armed cars, or motorcycles. | No equivalent to armoured personnel carriers |
| | | Use of jeeps for mobile reconnaisance. | Use of motor-cycles for mobile reconnaissance. |
| | Most vehicles organic to units. | Extensive use of pool transport. | |

Table 2.

takes the fashions prevalent among the civil population."—From "The Pattern of War," by Lieut-General Sir Francis Tuker.

**Maintenance of the Aim and Co-operation.**

(a) The authoritarian government of Russia has three advantages over the democracies of Britain and the USA:—

(i) The decision to go to war and the subsequent direction of the war are decided without reference to the people through debates in Parliament or Senate.

(ii) There is virtual integration of political and military policy.

(iii) Russia's aim is not likely to be affected by the requirements of Allies. The Satellite States are expected to obey orders from Moscow.

(b) In Britain and the USA it must be expected that:—

(i) Considerable weight will be given to public opinion. During the last war it proved desirable in England, and essential in the USA for higher commanders to "get a good press." As Liddell Hart wrote in "The British way of Warfare," "Only an absolute ruler, firmly in the saddle, can hope to maintain unswervingly the military ideal of the 'armed forces objective.' The strategist who is the servant of a democratic government has less rein. Dependent on the support and confidence of his employers, he has to work within a narrower margin of time and cost."

(ii) There will often be divergencies between military and civil aims.

(iii) Due consideration must be given to allies, despite difficulties in co-operating with them. This was well illustrated by Eisenhower's dealings with Giraud and De Gaulle.

**Maintenance of Morale.**

(a) The following quotations give the attitude of the world's most eminent commanders on the subject of morale and welfare:—

(i) *British.* — "Montgomery understood the 'civilian army' as few before him. The rigid old discipline was not enforced. Human weaknesses were fully appreciated and the man's lot made as easy for him as possible. This is why he was so lenient as regards dress, and why a certain amount of 'personal commandeering'—technically I suppose it might be called 'looting'—was winked at." (From "Operation Victory," by Major-General de Guingand.)

(ii) *American.*—"Attention to the individual is the key to success, particularly because American man-power is not only our most precious commodity—it will, in any global war, always be in short supply." (From "Crusade in Europe," by General Eisenhower.)

(iii) *Russian.*—"Marshal Zhukov showed little interest in measures that I thought . . . should be taken to protect the foot-soldier. The Russians viewed measures to protect the individual against fatigue and wounds as possibly too costly. Great victories, they seemed to think, inevitably require huge casualties." (From "Crusade in Europe," by General Eisenhower.)

(b) In British and American units considerable care is devoted to the welfare of the individual; from this is developed an intelligent and corporate team spirit.

Morale may be impaired by:—

(i) Attacks against the homeland.

(ii) Heavy battle casualties.

(iii) Interruption of the lines of communication, with consequent shortage of supplies and amenities.

(c) The Russians depend for the upkeep of morale upon overall success, regardless of individual privation or suffering; only obvious and irrevocable failure is likely to impair it.

**Offensive Action.**

(a) Characteristic offensive action by Russian armed forces is:—

(i) Local or general attacks backed by the full weight of supporting arms to breach and eventually encircle enemy dispositions.

(ii) Local counter-attacks by infantry against a successful thrust by the enemy, to make him commit his reserves.

(iii) Large-scale counter-attacks by armour against the enemy's spearhead, as soon as his lines of communication are stretched and his reserves committed.

(iv) Incessant attacks by guerillas or airborne troops against the enemy's lines of communication to force him to commit fighting formations to garrison and escort duties.

(v) Practical "last-man, last-round" policy if surrounded.

(b) Britain and the USA will presumably start future wars on the strategic defensive, relying initially on their flexibility to conduct tactical offensives wherever local superiority can be achieved. It will at all times be vital to prevent or defeat the enemy's reconnaissance, and so deny him the information required for planning his own offensives. Once their armies have established a firm base from which to operate, they will certainly take and maintain the overall offensive with the same determination as the Russians, though not with the same ruthlessness.

**Security.**

(a) The seas, which have hitherto given Britain and the USA security from invasion, entail long and often insecure lines of communication. Furthermore, Britain's concentrations of industry and population are most vulnerable to air attack. There is consequently a tendency to over-insure against administrative interruptions, which makes base installations ponderous and

static. Potential menaces to security are:—

(i) Attacks, especially by submarines, against sea lines of communication.

(ii) Air attacks against base areas and the homeland.

(iii) Propaganda aimed to split Allied nations.

Protection of bases and communications will absorb the greater part of the initial war effort of Britain and the USA

(b) Russia is more secure, being self-sufficient; but is nevertheless open to:—

(i) Air attacks against base areas and inland communications.

(ii) Propaganda to encourage separatist movements in satellite countries.

**Concentration and Economy of Force.**

(a) The Russians are fully alive to the advantages of concentrating against the enemy a local superiority in armour and man-power. Such concentrations may well achieve some penetration. Defensive techniques must therefore aim at:—

(i) Siting self-contained localities in depth, prepared to fight on if temporarily surrounded.

(ii) Keeping a strong force for deliberate counter-attack.

(iii) Achieving proficiency in handling small arms, so as to kill the enemy as economically as possible.

(b) If Britain and America are eventually to counter concentrations of man-power by concentrations of material, they must practise true economy of force by suppressing their national tendencies to:—

(i) Squander resources in unprofitable side-shows, as, for example, in the Aegean in 1944.

(ii) Kill an enemy by calling down the impersonal fire of artillery rather than by personally shooting him with a rifle.

**Surprise.**

Russia is likely to achieve surprise by:—

(a) The intensity and direction of attack.

(b) Exploitation of the characteristics of the Russian soldier in:—

(i) Night attacks and infiltration both by tanks and infantry.

(ii) Use of large-scale deception and camouflage.

(iii) Attacks launched over apparently unsuitable ground and under rigorous climatic conditions.

(iv) Continuing to fight on in the face of appalling casualties.

Britain and America can, particularly with the aid of sea-power, achieve surprise in the direction of their attacks and the concentration of their equipment. They can also make use of their higher standards of education to produce sound deception plans and to forestall surprise by the enemy by training all ranks to be "intelligence-minded." Perhaps, too, Russian recklessness may itself be surprised by dogged determination, as happened in Finland in 1939, and, more recently, as the result of the Berlin airlift.

**Flexibility.**

(a) Inflexibility is the main Russian failing in battle. It is due to:—

(i) A rigid battle plan, leaving no initiative to subordinates.

(ii) Lack of efficient wireless communications.

(iii) The consequent need for higher commanders to control the battle well forward, which may lead them to be swayed unduly by events in their immediate vicinity.

(iv) Fear of the consequences of failure, leading to persistence in forlorn attacks and to encirclement in defence.

On their lines of communication, however, the single organization controlling the rear services avoids duplication and affords a greater flexibility in the use of equipment and supplies.

(b) In contrast, the British and Americans achieve considerable flexibility in battle, due to their more developed staff work and better wireless communications; but their rear services are far less flexible because of the multiplicity of their equipment. In quest of mobility they have allocated thousands of road-bound vehicles to their divisions, together with the complementary repair and supply organizations to keep them running. To achieve tactical mobility on roadless steppes in winter weather, it may well be quicker to march.

**Administration.**

(a) The dependence of British and American armies on their bases and lines of communication is due to their:—

(i) High degree of mechanization, requiring guaranteed supplies of fuel.

(ii) Generous ration scales, including luxury items such as cigarettes.

(iii) Emphasis on saving life at the overall expense of manpower (by putting, for example, three extra men in the administrative area to maintain a machine which replaces one man in the fighting line).

(iv) Administration and documentation of each man as an individual.

(b) The Russians are less dependent on their supply system because they:—

(i) Are less mechanized.

(ii) Exploit the frugality of their soldiers, accustomed to low standards of living, by making them live off the land.

(iii) Fight on their own continent (though their shortage of motor transport makes them correspondingly dependent on more vulnerable railways and waterways).

(iv) Rely on the capture of enemy dumps and equipment, which their soldiers are trained to use.

(v) Have no system of personal documentation for soldiers below the rank of major.

Like all modern armies, Russia is becoming increasingly dependent on her lines of communication; for though their soldiers can fight for days without food, their vehicles become useless without fuel; unlike horses, vehicles cannot themselves be eaten as food. The Russians may

thus become sentitive to attacks against their administrative areas and may also find considerable difficulty in advancing over territory where a "scorched earth" policy has been systematically applied.

**Conclusions.**

Britain and the USA are devoted to a social and political order based upon individual liberty and human dignity; Russia is a totalitarian State under the absolute direction of a few men. The Russians, by their past traditions and present way of life, show the main characteristics of natural fighters; during the course of a war they are likely to develop quickly into excellent soldiers. England and the USA are unmilitary nations. Their cadres of regular servicemen come to war with a good background of peace-time regimental soldiering and a sound knowledge of staff procedure; it requires many months of war to make them into fighters. The Russians can surmount setbacks in war with their enormous reserves of man-power and the Americans can survive loss of equipment thanks to their immense industrial potential. The British cannot afford any rash expenditure either of men or material, and for this reason their staff work may often seem over-elaborate and their safeguards cumbersome.

The field armies of Britain, the USA and Russia are basicly similar, and their divisions are hard-hitting and mobile. None has superiority or weakness in any arm or weapon, which is, in itself, likely to prove decisive. Each is equipped in accordance with available industrial resources, and adapted to the national, political and moral character.

Each nation handles its armed forces according to national characteristics.

(a) Russia's strength comes from:—

(i) The inherent advantages of dictatorship for rapid initial deployment in war, and maintenance of the aim unencumbered by allies.

(ii) Potentialities for achieving surprise.

(iii) Opportunities, as an aggressor, for immediate offensive action.

(iv) Facilities for concentration from interior lines.

(v) Willingness to accept administrative interruption and man-power casualties.

Her weaknesses are:—

(vi) Inflexibility in battle.

(vii) Shortage of technicians to operate and maintain the more complex forms of war equipment.

Her predominant characteristics are boldness, toughness and ruthlessness in all phases of war.

(b) The strength of Britain and America lies in:—

(i) The reserves of American industry, and consequent acceptance of losses of equipment in the interests of speed.

(ii) Flexibility in battle.

Their weaknesses are:—

(iii) Slow deployment for war, and the limitations imposed by the need to ship war equipment to theatres overseas.

(iv) Difficulties in co-operation with Allies.

(v) Tendency to be tied to inflexible lines of communication, aggravated by over-insurance against administrative interruption.

(vi) Emphasis on saving lives at the overall expense of manpower.

Their predominant characteristics are the USA's spectacular and often volatile enterprise — especially in attack; and Britain's level and often unspectacular determination — especially in defence.

Fundamentally, Britain and the USA assess the cost of war in terms of human lives; Russia in terms of the overall drain on the nation over a period of years.