

# WARFARE AND THE FUTURE

by MAJOR GENERAL J. F. C. FULLER

**T**HERE have been only two great revolutions which have radically changed the organization of armies. The first followed the adoption of the horse as a military animal, and the second the introduction of the internal combustion engine as a military machine.

Before the advent of the horse, city and village militias were organized in phalangial order—that is, into an inarticulated line of men six or more ranks deep, and as fighting consisted in push of pikes, victory depended upon choice of ground and endurance. Because the strength of a phalanx lay in its men maintaining a wall-like front, actions were purely frontal; manœuvring was virtually impossible and so was pursuit. Even more important, because supply depended upon portage, it was exceedingly difficult to maintain an army for any length of time in the field; therefore rapid wars of conquest, as known in later ages, were impracticable, and in consequence wars were little more than raids restricted to clashes between neighbouring city states.

The introduction of the horse, in about 2000 B.C., not only completely revolutionized this primitive warfare but also the character of war

itself. First, it radically changed the supply system of armies, for the horse can carry or haul far more than a man, and what is even more important, unlike man, it can normally live off the country. The first great change was, therefore, the extension of the range of action of armies. Secondly, by using the chariot as a means of human conveyance it enabled troops to be brought in a state of freshness on to the battlefield and massed at tactically advantageous points. Thirdly, when the horse was used to mount the soldier upon—which took place long after chariots were introduced—an arm was created which could operate either independently of or in co-operation with infantry and which eventually evolved into two main types, heavy cavalry for shock action and light for reconnaissance and pursuit.

Though these developments covered many centuries, they finally led to a radical change in organization. The old infantry army of pre-horse days, geared to human muscular power both for fighting and supply, was replaced by an army geared to the muscular power of the horse. Not only was range of action increased, but the introduction of cavalry led to the birth of tactics—ability to reconnoitre, charge, manœuvre, reinforce, and pursue. Arising out of this emerged a new factor, power to surprise, and therefore attack of an enemy morally as well as physically. In all this the point to note is that the adoption of the horse led to the

development of a totally different army—a horse-powered in place of a man-powered organization.

With the introduction of the internal combustion engine, which could supplement or replace horsepower by mechanical power of a vastly higher ratio, the same evolution was to be expected. And had this been grasped at the opening of the present century, when the motor car was in its infancy and the aeroplane was born, a hypothetical chart could have been drawn showing—very imperfectly though it would have been—the probable influences of the internal combustion engine on military organization. From it could have been learnt what changes were likely to be needed in order to enhance the power of armies; what could be done, and—as important—what could not be done as things actually were, and lastly what steps should be taken in order to render them possible.

Though no such chart was made, and the changes which so vast an increase of motive power would effect were left to circumstances to dictate, changes nevertheless closely followed those which had arisen after the horse was adopted. The first was the rapid replacement of the draught-horse by the lorry, not only in order to supply troops in the field, but also to meet the ever-increasing demands for artillery ammunition. In fact, the great artillery battles of World War I would have been impossible without mechanical transport. The second was the use of the lorry for troop move-

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ments, which became increasingly frequent during the above war, and normal in the next. The third was the introduction of the tank, armoured mechanical cavalry, of which two main types were designed, a heavy tank for assault and a light for reconnaissance and pursuit. And the fourth, an enormous increase in opportunity and ability to effect surprise.

Here we have the main ingredients of what may be called a "motorized army"—that is, an army organized round the internal combustion engine. In greater part, such an organization was visualized within two months of tanks first taking the field. In the memorandum entitled, "A Tank Army," Major (now Lieut.-General Sir Giffard) Martel opened his study by stating: "Unless this war ends in a disarmament and a temporary universal peace, there can be little doubt that the present unarmoured and unprotected soldier will cease to exist and a tank army will take his place. A present-day army could never fight an army consisting of, say, 2,000 tanks."

Two years later, when the war ended, such an army was almost in being. Not only was the Allied plan of operation for 1919 based on tanks supplied by cross-country tractors, but the following tracked vehicles were either in existence or were being built: self-propelled guns, supply tanks, salvage tanks, armoured infantry carriers, mine exploding tanks, bridging tanks, engineering and sig-

nal tanks: in fact, the main ingredients of a fully motorized army. So convinced was I myself that the internal combustion engine would revolutionize military organization that, in 1922, I wrote: "In the next great war we may expect tactical organization to proceed . . . at enormous speed, if muscle be replaced by petrol . . . weapons will become more and more powerful, protection more and more mobile, mobility more and more speedy, and morale, safeguarded by these three, more and more firm. What does this mean? It means that no army will organize for a twenty-round contest, but instead . . . in such a manner that it can deliver . . . a knock-out blow as soon as possible after the first round opens. An army inferior to its opponent in numbers but superior in mobility will stand every chance of knocking out its adversary before he can even step into the arena."

Years later, in 1936, when again considering this subject, I wrote ". . . even under existing circumstances, it is possible for mechanized arms to overrun a country such as France, Germany, or Poland in a fortnight."

Although in the last war this prediction was dramatically fulfilled, during it a fully motorized army was never created, armies remaining largely in their chariot stage. Even so elementary a question as whether there should be one or two types of tanks was still being debated when the war ended. This was due to confused thinking, arising out of the

inability of the soldiers to realize that an army should be organized around the prime motive power of its day.

Let me here recapitulate in slightly different form. A man is not a weapon, he is a one-tenth horse-power creature who can carry weapons or a load, and as long as he is the sole means of carrying weapons or loads, he is the prime mover. Similarly with the horse, it is not a weapon, it is an animal approximately ten times as powerful as man. It can carry a man and his weapons and haul a weapon or a cart. As long as a more powerful motive force does not exist, the horse remains the prime mover. Lastly, as regards the tank, it is not a weapon—nor incidentally is an aeroplane. It is an armoured, self-propelled cross-country vehicle many times more powerful and less vulnerable than the horse. As long as it maintains its supremacy it cannot be other than the prime mover.

Had the soldier before the last war looked upon an army as a complex machine instead of as a bagful of war tools, he would not only have built tanks but also bullet-proof cross-country supply vehicles. He would not have decided to haul his guns with tractors, but would have mounted them on bullet-proof machines, and he would have moved his infantry in bullet-proof carriers instead of in lorries. In short, he would have built his army around the petrol engine, armour, and the caterpillar track, as armies of old were built around the horse, body armour,

and the wheel. True, in the last war many of these changes did materialize, but only through force of circumstances and not in accord with an organized pattern—a blueprint of a fully motorized army.

Now it is not my intention in this study to elaborate such a point, for the simple reason that I do not possess the requisite technical and administrative knowledge to do so. Instead, it is to examine certain tank problems which, in my opinion, have an important bearing on future warfare, and which may possibly assist the would-be army designer in devising a fully motorized army.

The problems I have in mind stem logically from those which arose after the horse first became a military animal, and though I will omit increased radius of action, which is now so apparent that to examine it would be platitudinous, I will consider the remaining four: surprise, supply, co-ordination, and independent action. After which I will examine three special problems—war with Russia, night operations, and the influence of atomic weapons on armoured mobility.

*Surprise.*—How to effect surprise is the basic problem in tank warfare, and one which in peace time is apt to be overlooked, and therefore in war time to become doubly conspicuous.

After the battle of the Somme in 1916, when tanks first took the field, we were told that it was a mistake to have used them because there were not sufficient to warrant success and their surprise effect was consequently lost. After the battle of Cambrai the following year, in which tanks played a decisive part, we were told that a similar surprise could never again be repeated. Of course surprise was not lost and of course it could be repeated, and could not fail to be as long as tank armour rendered rifle and machine-gun fire ineffective. That anti-tank weapons modify tank surprise is obvious, but they cannot annihilate it, because the main power of the tank does not rest in its armour and weapons but in the paralysing effect its *mobility* has on the enemy's mind.

In Poland in 1939 the effect of the German armoured assault was im-

mediate, for within forty-eight hours of the initial attack the Polish G.H.Q. was paralysed, whereupon the body of the Polish army fell to pieces. This sudden collapse was not only due to the unmechanized state of the Polish army but, as may be seen in the next great assault on the Netherlands and France, to correct tank tactics, for in May, 1940, the French had greater numbers of tanks than the Germans, as well as tanks of a superior quality.

In this second German invasion a British staff officer, at the time serving in France, on 19th May wrote: "The Panzers still drive about at their own sweet will . . . with no main body behind them. No infantry within sixty miles, just motor cyclists and tanks . . . News that the Panzers are in Amiens. This is like some ridiculous nightmare. . . . The Germans have taken every risk—criminally foolish risks—they have got away with it . . . they have done everything that should not be done by orthodox, book-trained, stereotyped soldiers, and they have made no mistake. The French General Staff have been paralysed by this unorthodox war of movement. The fluid conditions prevailing are not dealt with in the text-books, and the 1914 brains of the French generals responsible for formulating the plans of the Allied armies are incapable of functioning in this astonishing layout."

#### **Stop Those Tanks!**

Not only were the French G.H.Q. surprised, but also the German, for on several occasions during the assault à *outrance* General Guderian was ordered to halt his tanks so that the infantry might catch up!

In this case it may be said that the French tactical collapse was due to faulty tank organization. Though this defect certainly contributed to German success, in the battle of Tunis in 1943, when the British and Americans were at clinch with the Germans and Italians, identical results are to be seen. At the time of the final Axis collapse a British war correspondent wrote: "Our tanks roared past German airfields, workshops, petrol and ammunition dumps, and gun positions. They did not stop to

take prisoners—things had gone far beyond that. If a comet had rushed down the road it could hardly have made a greater impression . . . the German generals gave up giving orders since they were completely out of touch . . . in a contagion of doubt and fear the German Army turned tail . . . and became a rabble.

Again, it was the same in 1944 during the invasion of Normandy, when tanks were called upon to operate in a difficult terrain and were faced by numerous and powerful anti-tank weapons. In August, when General Patton broke through at Avranches and set out on his headlong advance, this is what we read: "Halt for nothing" was the guiding principle of the armoured columns. . . . Forward patrols [of armour] shot up everything, batteries, headquarters, strongpoints. . . . Disorganization robbed them [the Germans] of both a plan and the means to carry it out."

Surprise was as potent in 1944 as in 1939 or in 1917; therefore we may conclude that it will remain so, though the means of effecting it will have to be modified, not only according with the terrain but also with reference to the anti-tank weapons tanks will be called upon to face.

What does all this point to? That whatever tank organization is elaborated in the future, it will be defective unless it permits of violent surprise, and the violence of surprise will in the future, as in the past, be in direct ratio to the mobility tanks are able to develop and maintain.

*Supply.*—The above logically introduces the problem of logistics, that branch of the art of war which embraces transport and supply and which constitutes the basis of strategy and tactics. Because, as Napoleon truly said, "an army marches on its stomach," it follows that unless the speed of its supply services is greater than or equal to that of its fighting arms, the latter cannot make the most of their mobility.

Two examples taken from the last war suffice to illustrate this: namely, the initial German Russian campaign and the 1914 Allied campaign in France.

In the first the Germans were faced

by a very different problem from the one they had to solve in France. The depth of Russia was immensely greater, and whereas in France road and rail communications were plentiful and good, in Russia they were few and indifferent. Added to this on account of climate—rain, frost, and thaw—the season of mobile operations in Russia was restricted to between the months of June and October.

To win the campaign was possible were Moscow occupied before the autumn rains set in, because Moscow is the hub of the entire Russian rail system, and once gained, the supply of the Russian armies would be so crippled that a knock-out blow might have been struck in 1942. The logistical problem was, therefore, how to cross a distance of some 800 operational miles in three months.

As in France, the campaign was opened with an armoured assault, which was so rapid that in twenty-four days some 500 miles were traversed and Smolensk reached. Could this speed of advance have been maintained, there is little doubt that Moscow would have been occupied early in September. Why was it not maintained? Setting aside Hitler's faulty strategy, the answer is, because of the breakdown of the German supply system. The armoured divisions were not fed by cross-country supply columns, but depended on lorry transport which was tied to the roads, and in rainy weather was restricted to the main roads—few in number—because the secondary roads were at once converted into rivers of mud. Further, the motorized infantry divisions, also lorry borne, could not keep pace with the armoured divisions, which neither could nor were intended to hold ground.

After 10th October, General Guderian writes: "The next few weeks were dominated by mud. Wheeled vehicles could only advance with the help of tracked vehicles," and "these latter, having to perform tasks for which they were not intended, rapidly wore out." Also he informs us that "corduroy roads had to be laboriously laid for miles on end in order to ensure that the troops received even the limited supplies available. The

strength of the advancing units was dependent less on the number of men than on the amount of petrol on hand to keep them going." Lastly, when winter came, "in order to start the engines of the tanks, fires had to be lit beneath them. Fuel was freezing on occasions and the oil became viscous."

The second example is very different, because distance was less, roads good, and climate normal Western Europe summer weather.

### **Logistics and Strategy**

On 31st July, 1944, General Patton's Third Army broke through the German left flank at Avranches, after which the speed of its advance was such that a supply crisis began to develop. When on 17th August, the Third Army neared the Seine, General Eisenhower informs us that "truck transportation became utterly inadequate to cope with the situation," and, in consequence, aircraft had to be withdrawn from the newly created First Allied Airborne Army as well as from the Strategic Bombing Force in order to supply Patton with 1,000 tons of petrol daily, a figure which soon had to be doubled. "This type of last-minute planning," comments General Martel, "is not the way to organize these vitally important administrative arrangements in fast mobile warfare."

Why did the crisis take hold? The answer is, because air power had been so fully exploited strategically and tactically that, when supremacy in the air was assured, it was found that its administrative possibilities had been overlooked. In fact, it had not been grasped that, because the aeroplane can dispense with roads and because it is the most mobile vehicle in existence, it is the ideal supply transporter when cost does not enter the question. Had fewer bombers been built, and in their stead had General Eisenhower had at his call, say, 2,000 flying four-ton tankers, there need have been no pause west of the Rhine; in which case the high probability is that Berlin would have been entered by the Allied powers long before Christmas.

The following, therefore, are the

two most important lessons to be learnt and applied before another war engulfs us: (1) Because armoured forces move on tracks, their supply vehicles must do the same. And (2) because in highly mobile operations road, rail, and cross-country supply may not prove sufficient, organized aerial supply columns must be at hand to feed the chase at a moment's notice.

Granted power to surprise and means to supply armoured forces, I will next turn to the question of tank co-operation and independent action, which are best considered conjointly.

*Co-operation and Independent Action.*—During the last war, and mainly on the insistence of Field-Marshal Montgomery, it was decided that a dual-purpose tank was all that was needed—that is, a tank which equally well can co-operate with infantry and work independently.

This conception, due to confused thinking, was quite unknown to the original tank designers, who worked on the principle that a heavy, slow-moving tank would be required to co-operate with infantry and a lighter and faster one to co-operate with cavalry. What, at the time, was not appreciated was that, though heavy tanks and infantry could co-operate, as they successfully did at the battles of Cambrai and Amiens, on account of the vulnerability of the horse, light tanks could not effectively do so with cavalry. What they could do, however, was to replace cavalry altogether.

Between the two wars this replacement was made—our cavalry regiments were converted into tank regiments and equipped with medium tanks. But during this change-over, mainly because of its cost, the heavy assault tank faded out of the picture until 1938, when it was resurrected in the form of the Infantry Tank and organized in Army Tank Brigades. At about the same time the faster tanks became known as Cruisers and were formed into armoured divisions. The main differences between these two types were that, whereas the Infantry Tank had a maximum speed of 15 m.p.h. and was protected by armour varying from 78 mm. to 65 mm. in thickness, the speed of the

Cruiser was 28 m.p.h. with armour varying between 40 mm. and 20 mm. Both were armed with a 2-pdr. gun.

Meanwhile, late in the field, in order to guarantee the greatest output of tanks, the Germans concentrated on two main models, the Pz. Kw. III and Pz. Kw. IV (a close support tank). Both were medium machines with a speed of about 20 m.p.h. the armour of the one varying from 50 mm. to 30 mm. and of the others from 30 mm. to 20 mm. The first was armed with a 50 mm. gun and the second with a 75 mm. With these machines, supported by a large number of six and nine ton light tanks, the Germans overran Poland and France in 1939 and 1940.

It was in the second of these campaigns that the British Infantry tanks, under General Martel, proved their worth. Of their action on 21st May, 1940, he writes: "This attack was just the type of action for which the infantry tank was intended. There was no case of a long move round a flank for which cruiser tanks are needed. . . . His tanks [German] were knocked out quite easily," whereas some of our tanks "were hit fifteen times without having any effect on the tank or the crew. When a tank can advance and ignore the fire of the enemy anti-tank guns, a great moral effect is produced. Such a tank dominates the battlefield."

The obvious lesson of this action, that in close-fighting armour and gun power and not speed are the decisive factors, was but partially appreciated by the Germans. Though they reinforced their armour, they continued to use Mark III's and IV's until in Russia, in November, 1941, they came up against the Russian T.34 cruiser tanks. These machines were more heavily armoured and gunned, and against them the German 37-mm. anti-tank gun proved ineffective. "The result," writes General Guderian, "was a panic."

From then on the battle of the types steadily passed from its independent cavalry to its co-operative infantry phase. We produced the Churchill Infantry Tank with armour varying from 90 mm. to 75 mm., and the Germans the Panther and Tiger,

the one with from 100 mm. to 45 mm. of armour, and the other with 102 mm. to 62 mm. Of the value of these infantry tanks two examples suffice: the break-through at the battle of El Alamein in 1942, and the fighting in Normandy in 1944.

In the first, which was a battle of assault against a prepared position, the cruiser tanks used—namely, the American Grant and Sherman—were not sufficiently armoured, and in consequence suffered heavy casualties. "There is no doubt," writes General Martel, "that if a brigade of Churchill tanks had been available, they could have overcome . . . [the] 50-mm. anti-tank guns quite easily." Actually, only four Churchill tanks were used in this battle. "All . . . were struck many times by 50-mm. anti-tank guns, and there was only one penetration."

#### Battle of Types

Of the fighting in Normandy, Martel says: "The German Panther tank showed its superiority against our Cromwell tank [cruiser] . . . by having heavier armour in front and a more powerful gun. The ground in Normandy was so enclosed that head-on fighting between tanks was a common occurrence and an advantage to the Panther tank . . . Our Shermans and Cromwells were no match for them and our Churchills were only a little better. What we wanted in this type of warfare was the new design of really heavy infantry tank which we had always asked for, but this was not available. Future operations however, showed that the Panthers were equally unable to hold up our armoured divisions [cruisers] when it became a war of movement in open spaces."

The conclusions to be drawn from these two examples, and others could be added, are that, whereas in position warfare armour and gun dominate, in mobile warfare it is speed which does so. This truism, which should never have been lost sight of, has now been accepted, for our present policy is to build three main types of tank, a cruiser, an infantry tank, and a light tank. Therefore, in idea, we are approximately back to where

we were in 1916-18, and can design for the future on the proved logic of the past.

*War with Russia.*—This being so, our tank problem is no longer a question of types; instead it is one of proportion between types *vis-à-vis* Russia, our most formidable potential enemy; and the answer must be sought in the tactics and organizations of the Russian Army. What are the facts?

The first is, that the power of the Russian army derives from its mass, and not from its mobility: it is a quantity army and as such it stands unrivalled. The second is, in order to prevent congestion of supply, mass compels movement over a wide front. And the third, which logically springs from the second, is that Russian offensives are nearly always launched on extensive fronts. They may be compared to inundations which peter out against stubborn resistance and flow through at weak points. They seek the lowest tactical levels, and normally are, therefore, slow and percolative.

Like all past Oriental armies, the Russian is composed of two categories of troops, a *corps d'élite* and an armed horde. The first is *par excellence* the fighting instrument; the horde is secondary to it, and should the enemy's resistance be negligible, is the occupying instrument which, by flooding over the territories conquered by the first, holds them in submission by terror.

The existing *corps d'élite* is composed of heavy tanks and picked infantry working in close combination. The horde, of infantry, cossacks, etc., largely depends for supply on horse-drawn vehicles. Though in dry weather the expanses of Russia enable horse transport to move across country, in the highly cultivated and urbanized areas of Central and Western Europe, many of which are also mountainous, masses of horse-drawn vehicles are road-blockers.

Because both categories of troops have to be supplied, it follows that the greater the horde the more complex becomes the supply of the *corps d'élite*. Therefore, that the Achilles heel of the latter is to be sought in

its supply system. Today this holds good more so than in the past, because petrol-fed vehicles cannot live on the land; throughout they have to be supplied from the rear.

Without supply—particularly petrol and oil—the Russian *corps d'élite* becomes inoperative. Therefore the problem is, not how to defeat it by superior strength, but by superior tactics: (1) How to slow down the *corps d'élite* by an elastic frontal resistance, and (2) how to break through the Russian front at selected points and paralyse the communications in rear of it. Otherwise put, how to cut the *corps d'élite* off from its supply.

So far as tanks are concerned, the first of these operations demands machines which can deal with the heaviest Russian tank, also powerful self-propelled artillery and large numbers of mobile anti-tank weapons. The second demands tanks of the highest mobility as well as motorized infantry. Both should be supported by powerful tactical air forces.

It may be said that the Russians will be able to establish so formidable a battlefield that a break-through, such as witnessed in France both in 1940 and 1944, is no longer possible. But it should not be overlooked that at the opening of a war conditions are generally more fluid than later on. The reason is that the sudden change over from peace to war is followed by an experimental tactical period in which no one from commander-in-chief to private soldier is certain of himself and in which friction is prevalent until operations are run in. The psychology of an untried army differs from that of a salted one, and though, when a war is well ground in, setbacks appear at their true value, at the opening of a war they are apt to be exaggerated. Thus, for instance, should the Russian armies, on taking the field, suddenly suffer an unexpected reverse, its effect, not only on their leaders and their masters in the Kremlin, but also on the satellite and subjugated peoples, might well prove catastrophic.

To repeat the tank tactics of the last war, whether on the lines of Guderian in 1940 or of Patton in 1944,

is not sufficient, for copies seldom equal originals. Something novel and surprising is, therefore, needed.

*Night Operations.*—Today the only tactical field which remains largely unexploited is night fighting. Once armies went into winter quarters and cut down their operational year by six months. Still armies go into night quarters and cut down their operational day by twelve hours. When are soldiers going to tumble to it that an army which can fight round the clock has a hundred per cent. advantage over one which can fight only half-way round it?

#### Night Into Day

This problem was tackled before the last war and led to the invention of the C.D.L., a tank fitted with a powerful projector of special design emitting a fan-shaped, flickering beam of light which illuminated a wide field and dazzled the eye. The projector was protected in such a way that it could not be put out of action by anything less than a direct hit with a shell which could penetrate five inches of armour.

The purpose of this weapon was to solve the problem of night fighting on a large and organized scale, enabling an attack to be carried out more methodically and rapidly than during daylight, and far more economically and securely; for whereas the field over which the attacker advanced was brilliantly illuminated, all the defender was able to see was a wide expanse of dazzling light which obscured everything behind it, and which was so brilliant that it rendered aimed fire by eye impossible.

That the C.D.L. was considered of value is proved by the fact that two brigades of C.D.Ls., one of three battalions and the other of two, were raised in England, as well as two Armoured Groups, each of three battalions, in America. Nevertheless, though prior to D Day (6th June, 1944), the 1st (C.D.L.) Tank Brigade and the 10th (C.D.L.) Armoured Group were fully mobilized and ready to proceed overseas, so little interest was taken in the new weapon that it was not until 11th August that the first of these formations was

landed in France, the second following eleven days later. Even then, instead of being used in the operations following on the break-through of the U. S. Third Army, operations in which the Germans could seldom move except under cover at night, the six battalions were never moved forward from their disembarkation camps and were gradually disbanded, as were the rest.

Though the C.D.Ls. have long vanished on the scrap heaps, the idea of turning night into day still offers endless tactical possibilities, the most obvious being the ability to break through an enemy's front under cover of darkness and put *blitzkrieg* into pyjamas. If in the last war the French generals were paralysed by the German tanks in broad daylight, what would have been their state of mind had it been possible for the latter to operate even more freely during the night than during the day, and thereby establish a round-the-clock *blitzkrieg*? Transfer this possibility to the situation now facing us, and a solution to the problem of how the Russian front can be penetrated and its rear services thrown into panic becomes apparent. Thus we return to the basic tank problem—surprise.

*Atomic Warfare.*—Lastly, as regards atomic weapons, what influence will they have on the tank? One thing is certain, their introduction will enhance the value of mobility, because rapid dispersions and concentrations, such as can be effected with cross-country vehicles, will become doubly necessary. Further, as the 1951 tests in Nevada have shown, armoured vehicles are more immune to blast, heat, and radiation than unarmoured. Therefore, of all forces armoured ones are the least vulnerable on the atomic battlefield.

The deductions to be drawn from this are that, in future warfare, armies should not only be armoured but, in order that they may be able to disperse and concentrate with extreme rapidity, they must be capable of developing a far higher mobility than in the past. On this question Major Lamar McFadden Prosser writes:\*

\*"Armor," Vol. LXI, No. 1, January-February, 1952.

"Forces must concentrate only at the critical moment of action and disperse rapidly thereafter. At this critical moment, and only then, should the force offer a profitable target for atomic weapons. The swiftness of the concentration must introduce the element of SURPRISE and so reduce the danger of atomic annihilation."

Further, he adds: "All now seems to hinge on mobility. The speed of manoeuvre now demanded may require that all ground forces be mounted. The assembling of regiments of foot soldiers is much too time-consuming and would certainly reduce the possibility of surprise and increase the time of vulnerability. To mount the infantry in trucks (so-called motorized divisions) is to remain road-bound, and this would be fatal. The answer seems to be tracked vehicles. Whether or not these vehicles should also be armoured, introduces problems too numerous to be settled without experimentation. But that all troops will be mounted in tracked vehicles appears to be inevitable."

Thus we reach the summit of the second great revolution in the organization of armies.

*Conclusions.*—Finally, what does all this point to? That, though tactical essentials remain constant, unceasing readjustments of means have to be made in order to meet the changing conditions of war. The soldier has still to hit, to guard, and to move; he has still to endure, to be supplied, and to surprise. New weapons do not change these things, but how to effect them always changes.

Fear of the atomic bomb may abolish war by making it appear too unprofitable to wage; but as long as wars continue, though this annihilating weapon will change methods, it can no more change the essentials of tactics than did the discovery of gunpowder. The soldier will go on hitting, guarding, and moving. Without endurance he will be unnerved; without munitions and food he cannot fight, and surprise will remain for him his staunchest friend and most deadly foe.

Though the roots of future warfare are hidden in the past, the plant of war must be cultivated creatively. No stereotyped copying is likely to succeed. Victory is to be sought in the imagination.

# War-Making Powers

by CAPTAIN EDWARD J. ROXBURY, JR.

*Against the background of a United Nations action in Korea and truce team operations at several critical trouble spots in the world, the international body's legal structure for military action to preserve the peace is a matter of great interest. Can the UN order out forces against an aggressor?*

**I**N April 1945, with the flush of victory permeating the United Nations, a meeting was held in San Francisco to write the charter for a new world organization. This organization was to include all "peace-loving" nations of the world, and these nations were to work together to ensure the peace. This new world peace body was enthusiastically accepted by the majority of the people of the United States.

In 1919, President Wilson had brought back from Paris the covenant for a similar organization, boldly titled the League of Nations. This country had turned its back on it. There was no less a desire for universal peace than in 1945, but indifference born of the long war, suspicion of foreigners, a fear of commitments, and, perhaps most of all, domestic politics kept the United States out of the League of Nations. Senator Borah expressed a widely held view in a debate in the Senate concerning the approval of the League, when he said, "there are some things in this world more to be

desired than peace, and one of them is the unembarrassed and unhampered and untrammled political independence of this republic. If peace cannot be had without our surrendering that freedom of action, then I am not for peace."

In 1919, rejection; in 1945, almost universal acceptance. A recital of the reasons for this change is neither necessary nor pertinent. But what is remarkable is that in either case acceptance or rejection by the majority of the people of the United States was largely based on the same misunderstanding of the role of these world bodies. The misconception as to the actual amount of power possessed by these organizations was the cause of this misunderstanding.

The League of Nations and the United Nations have been called "super-governments"; they have been likened to our Congress or the British Parliament. They have been characterized as law-making bodies which would impinge upon our sovereignty and lay down rules for the governing of the world. In both cases these definitions were to a great extent believed. This belief was a large factor in turning the United States away from the League of Nations in 1919. In 1945, perhaps believing that "un-

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