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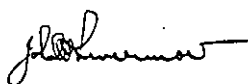
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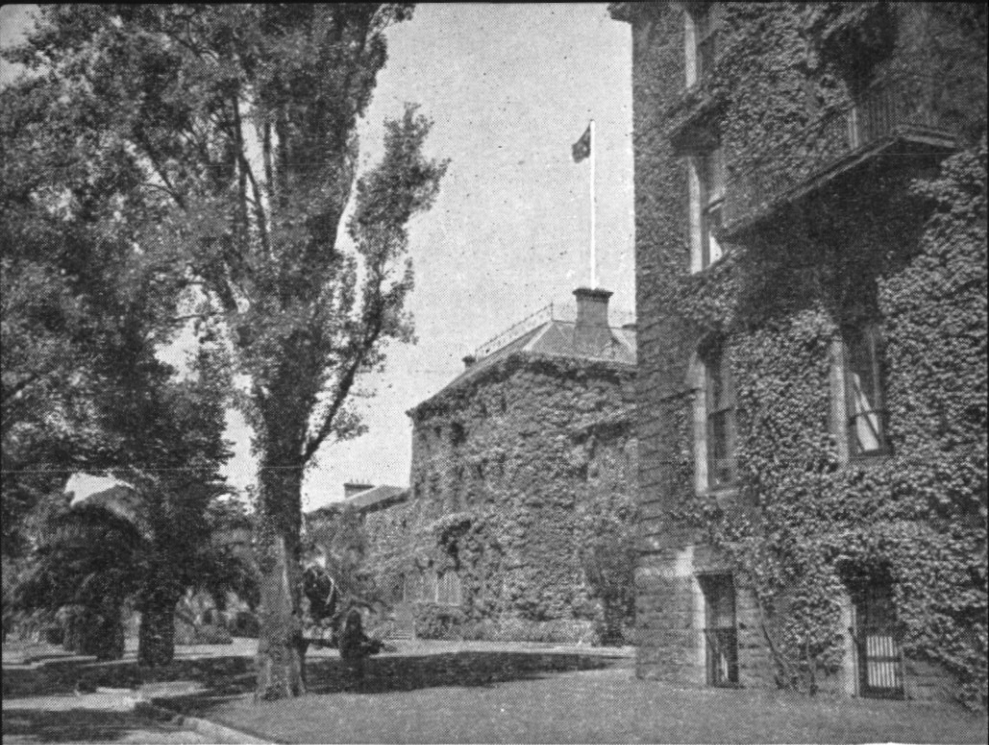
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REVOLUTION

in the

MILITARY PROFESSION

Lieutenant-Colonel A. Green, RAASC

"The ideal officer must be afraid of nothing—not even of a new idea."

—Field Marshal Wavell.

Feudal Basis of Military Privilege.

It is obvious that Field Marshal Wavell, who acquired his military training and reputation in an irreproachably orthodox school fostered no illusions about the inherently conservative nature of his profession. The roots of these consistently reactionary traits, and of many current practices and habits of thought, lie in the feudal origins of contemporary military tradition. It is relevant to recall that there are very few battalion commanders serving who were not originally selected and trained for a predominantly mounted and horse-drawn Army. During their comparatively short careers these officers have experienced the immense transition, through mechanization of armies and modernization of weapons, into the new era of air superiority and mass destruction. While it may be astonishing to the layman that any virtue can still be imagined in the

military precepts of the horse-and-buggy era, that is in fact the case.

The professional soldier draws deeply on these feudal traditions of chivalry and prestige which once flourished in an atmosphere of Christian humanitarianism and primitive military techniques. Within the stratified social structure of mediaeval Europe the soldier undertook his specific martial functions and was rewarded with aristocratic status. These privileges and perquisites of the knight transcended mere cash considerations. The select caste, in its turn, reciprocated by perpetuating the narrow but necessary virtues of courage, loyalty and esprit de corps. These were the primary virtues of the horse and foot soldier.

These characteristics and prerogatives of the soldier were so ingrained as to survive the Age of Reason and the Industrial Revolution. Despite any apparent anachronism they contrived to co-exist with strategic rail-

way systems and the great levees en masse of the 19th Century. Indeed efficient regular cadres inspired their conscript masses with much of the traditional spirit of their profession, which was alien to the environment of urban populations. This influence was most marked in Britain and Germany, but permeated other armies to some degree.

It is not surprising that conventional soldiers, unlike their brothers in industry, preferred the military arts rather than the sciences, despite their growing dependence on the latter. The ideal military commander became the military philosopher, albeit of proven intellectual capacity and leadership. Scientific method was tolerated rather than encouraged in higher commanders until the most recent times. An intelligent modern critic of war, Sir Francis Taker, was still able to glory, in the post-atomic era, in the predominance of infantry generals in World War II. This is typical of the cult of the regimental soldier, opposed to the specialist.

The Malady.

Now every thoughtful soldier is painfully aware of profound changes affecting the practise of his profession. A general malaise exists, easy to detect, but hard to diagnose. It may be reflected in a nostalgic regard for "the good old days" in older men, and a growing discontent and impatience among young soldiers. While it is hard to attribute the trouble to any single cause, some blame the professional depression on the vagaries of economic inflation, others ascribe it to post-war fatigue and disillusion. In fact the fundamental causes lie deep within the traditional origins of the profession itself.

The professional crisis is primarily technical and political. The greatest factor affecting the army, in common with all the fighting services is scientific development, which appears to have reached a climax in its military and political effects. The enormous increase in destructive forces available to modern powers has produced frightening demands upon the material and human resources of nations. Therefore the citizen is no longer a stranger to the concepts of modern warfare. The ubiquitous press and the military critic serve to bring military matters within the scope of the layman, whose ancestors confidently left such affairs to their generals and their mercenaries. Armies have multiplied in size, from the brigade size of Rome, through the division strength of Wellington in the Peninsula, to the great Army Groups and Fronts of 1939-45. Every able-bodied citizen, irrespective of sex, is a potential soldier. Consequently neither the public nor its politicians are content to leave strategy or tactics to professional soldiers; and the distinction accorded to the profession of arms has diminished.

This involvement of the public in military affairs has been further accentuated by the movement of the battle area forward, beyond the clashing advanced elements and back into the hitherto inviolate populous areas, once remote from war. Urban populations, such as those of Warsaw, London, and Stalingrad in the last war, could not be divorced from uniformed soldiery in the physical consequences of war, and in fact became full participants. Partisan guerilla armies

were the logical growth from this fact.

Thus the soldier ceases to be the feudal nominee of the civilian, to fight his national wars and seek his reward in pay, prestige, and possibly, plunder. The direction of war has passed into the hands of politicians and scientists. The explosions of Hiroshima, Nagasaki and Eni Wetok have lifted the military scientist from the Back Room to the Front Page; and Ludendorff's concept of Total War has developed beyond recognition, and, to his detriment, beyond the control of the soldier.

While these cataclysms have affected the world, the military profession has become an exacting one. The higher direction of three-dimensional operations calls for detailed planning and meticulous co-ordination. The subordinate techniques of using and maintaining modern equipment and electronic aids are equally as complex as any encountered in industry. Although the plain combat soldier has remained the basis of the team he has become utterly dependent on the new specialists to keep him fighting. Thus the soldier faces increasing demands, with decreasing recognition.

The Symptoms.

One of the most dramatic illustrations of the decline in military prestige which has followed the rise of the scientist-engineer is seen in the trials of military war criminals. For hundreds of years the persons of defeated military commanders had been sacrosanct. Surrendered generals were protected from their conquerors by the laws and usages of war—a traditional law. The rise of International Law, coupled with

political dominance even of the theatre of war, submitted the soldier, rightly or wrongly, to the tribunals of the victors. Here indeed was a final coup de grace to feudal privilege!

The professional revolution has inflicted its most irritating effects upon the personal life of the regular officer, in social and economic changes. Bereft of that singular prestige which his profession erstwhile enjoyed the modern soldier finds himself at a distinct disadvantage. In a highly competitive and materialistic society he stands barely on a par with the efficient artisan and below the successful small business man. It is not contended that this is an injustice. It is also true that the soldier should not be motivated solely by mercenary considerations, nor has his profession ever been lucrative. Loss of the officer's former perquisites, such as the services of horse and batman, both outmoded, increase the discrimination. The lower ranks have relatively improved their lot, and rightly so. In social acknowledgment, as in pecuniary reward, only the most successful or fortunate soldier ranks with the well-paid learned professions such as medicine; which demonstrates the subtle contrasting transformation of both professions since the time of the barber-surgeon. This is neither an accidental nor a temporary phase. It is a direct reflection of the technological metamorphosis of society.

The military results of these changes are aggravated by the failure of military thought and education to keep pace with scientific progress at each successive stage. The culmination of this disparity of thought is seen in the

almost neutral state of current conventional international military theory and practice compared with the dynamics of science. This is due to the static nature of the military art before 1945. The principles of war were sacred and immutable. The soldier was saved from doubt by reference to such axioms as the principle of concentration, and the build-up. The weapons of mass destruction appear to reverse such concepts, just as the mathematicians have destroyed our schoolday illusions about parallel straight lines that never meet and the conservation of mass. Concentration now lies in the weapon, not the organization. A converse virtue lies in dispersal of forces and resources. The build-up begins at the atomic pile, and not at the base depot.

Thus the average soldier is ill-prepared and equipped to meet the dilemma of his profession and his civilization. In face of the overwhelming evidence, a conventional but unrealistic effort to ignore progress must inevitably prove disastrous. Ultra-progressive oversimplification, leading to the wholesale relegation of conventional weapons and methods is not feasible, since in many cases the new weapons are not yet ready to our hand. An obvious course of compromise offers some comfort and supplies a breathing space. It is paradoxical that when national, nay global, survival is at stake the place of the conventional military machine in the scheme of affairs is itself in doubt.

The regular soldier has to live and train, justifying his existence to himself and to the world, under this threatening shadow of obsolescence. This major factor, coupled with the economic and social factors discussed

earlier, discourages new entrants to the profession and disheartens many of the old members. Constant reference in USA, UK and Australia to the unattractiveness of the military career, despite increased inducements, all point to this fact. The diminishing prospect of realising a worthwhile professional aspiration must dissuade all but the most determined, and possibly least thoughtful, aspirants.

The Cure.

Having established the fact that something is wrong with a military career, this consideration would be incomplete without an appraisal of antidotes. If there is an antidote it may take the form of a cure, or of a palliative for a chronic condition.

The dominant, distinguishing feature of human activity is thought: and the main re-adjustment to technical development must be a mental one. Subsequent reforms will proceed from this basis. It is clear from a study of military essays, examination papers and conversations, that apparently normal officers do not respond to the challenge of such topics as ABC Warfare, and the potentialities of guided missiles. Some quite successful soldiers affect to despise such fields as fit only for oily-handed technicians and "boffins." This is manifestly the philosophy of the ostrich, to ignore the realities of military science, presumably because they are incomprehensible.

It is clear that the old privileged days of the soldier will never return. Improvement of his conditions can only be trained by a realistic adjustment to scientific progress. This process begins in the education of the young officer and soldier and continues in the re-education of his

seniors. It must aim to produce the military scientist and specialist, equal in qualifications, quality and status, to his civilian counterparts. Already this is beginning to take effect through technical staff training and university studies for the Army, but this type of soldier is in a very small minority, and speaks with a faint voice in army counsels. Moreover his standing is low; as witness the electronic technician who must begin as a soldier of high IQ and must undergo a thorough technical training of from five to ten years, yet rates lower than a subaltern of a year's service in the official estimation of the Army.

Admittedly it is not possible to herald the professional revolution by damning all old soldiers and consigning conventional equipments to limbo. The times are so critical that we cling to every available aid for defence. The real failing is in adjustment of training and equipment to reality and lies in unimaginative treatment of the army's role. The amount of time and energy devoted to realistic ABC Warfare training, for example, appears negligible.

If the Army reforms its thought and methods: then the civil population may be expected to bestow complementary rewards and privileges. Equipment is a difficult question, since it depends on political and economic factors. The possession of an atomic war industry producing atomic projectiles can restore reality in thought and action. In the case of a spacious, underpopulated country like Australia it can redress the strategic balance which is at present so unfavourable. Above all the presence in the establishment of atomic artillery and mis-

siles would restore the public's confidence in its army.

Similarly in organization there is scope for rational and progressive reform. The public can derive little confidence in its fighting services when it sees the profound issue of unification of the services reduced to undignified partisan politics and arguments based on emotion rather than reason. If consideration of logistics, strategy, and tactics, demand partial or complete unification of the armed forces, then the public is entitled to have it. Ultimately the serviceman must gain, from a more integrated service with broader horizons. At the same time the prestige of a unified force would be paramount in the community.

In a yet wider field there is scope for more integration between the army and the civil population. This lies in the perplexing field of static and passive defence. The problems which arise for the civil administration under conditions of mass destruction call for massive organizations and resources, if a nation is not to succumb at the outset of war. Here the Army can offer an effective reserve to supplement the self-help which is essential in such matters. In affording such facilities the Army would earn the gratitude and recognition of the public.

If the Army continues to ignore the professional revolution which is already a fait accompli, it will forfeit that relic of respect which it has retained, and will ultimately fail in its task. Salvation lies in reforming its habits of thought, and modernizing its equipment and methods. It will then follow that the "officer and scientist" will redeem the lost prestige of "the officer and gentleman."

THE IMPONDERABLES IN WAR

Translated and condensed by the Military Review from an article in "Allgemeine Schweizerische Militarzeitschrift," Switzerland.

THE scene is a field trip of the War Academy in 1938. The class stands at the first conference point in the terrain. The Blue commander is describing the assembly of his troops: ". . . and at this high-way intersection here before us, there is now appearing the lead elements of the right regiment."

"No!" says the director, "so far nothing is to be seen of the regiment, near nor far!"

The Blue commander answers: "The regiment was to leave 'A' at 0200 hours. From there to here it is 12 miles. The men make 2.4 miles an hour. If everything went right, the regiment would normally be here now."

Thereupon, the War Academy Commandant who was present said, "It is *normal* in war when things do *not* go right!" That was short and clear. It relieved the director of the need for justification and stifled the unspoken objections of the students.

An imponderable—some unforeseeable delay or disturbance of the planned development of an operation—had occurred. As Clausewitz wrote about this subject:

"Thus, in war, due to the influence of countless minor circumstances which, on paper can never be regarded as pertinent, everything is toned down, and one finds himself far short of his goal Is there now no moderating oil for this imponderable? Only one, and this one oil is not available at pleasure to the field marshal or the army: it is *experience* in war on the part of the army."

Training.

In the training of every army, the imponderables—as a means for creating conditions as they are actually encountered in war—should play a prominent role. This doubtless would contribute much toward familiarizing future commanders with the realities of battle. To be able to imagine the actual occurrences of a military operation so that one is able to reproduce them in a fairly accurate manner in words is of course, an art. However, even a master in this domain is an amateur in comparison with the ingenuity of the goddess of chance. What would the pupils and supervisors of an instructor say if he, in peacetime training, made use of

assumptions such as we have experienced in war? A few examples of such assumptions follow.

A Tactical Exercise.

By evening an infantry division, with both its flanks protected, which is in pursuit of an enemy, has reached an area some 9.5 miles north of a river which flows across its path of advance. The division has only one good highway at its disposal. This crosses the river in village "M." There, the division is to force a crossing the following day and take possession of the bridge which, it is hoped, will be found intact.

By dawn of the following day, the reconnaissance unit learns that the enemy has withdrawn. The division immediately plunges after him, giving orders to the leading regiment to take "M" and to form a bridgehead.

When the regiment advancing along the highway, reaches a point about a mile and a quarter from that part of the village which is north of the river, the movement stops. There is no sound of fighting ahead. A report from the reconnaissance forces which are approaching the river farther to the west, states that the north bank is clear of the enemy but the south bank is rather strongly occupied. Soon afterward, the following report from the leading battalion reaches the regimental commander: "Village of 'M' apparently clear of enemy forces. Further advance on highway impossible as it is blocked by abandoned enemy teams and their vehicles. We cannot get off the highway because of the terrain. Request engineers be sent forward as quickly as possible to clear highway."

The regimental commander, who has just been joined by the division

commander says. "I am going ahead immediately," and climbs into his all-terrain vehicle and rushes away—the division commander follows him.

After a short distance, they run on to the battalion commander who is accompanied by the problem director.

The following had taken place between the problem director and the battalion commander. When the battalion on the route of advance had reached a point about 1 mile from the northern edge of "M," the director said: "You can go no farther. As far ahead as you can see the highway is blocked with tangled, horse-drawn columns. Not even individual mounted men are able to get through. One can get through only on foot. The battalion cannot leave the highway. The highway is bordered on both sides by canals some 33 yards wide and 1½ to 2 yards deep."

Blocked Roads.

The battalion commander looks at the map, and says: "Close to the bridge there is a highway leading west out of the village. These columns here before me which, seemingly, no longer wish to fight, are being barred from the village in order that the way to the bridge may be open."

The director replied, "There is something else I have forgotten: there are no troops with those columns ahead of us—only the vehicles with the teams."

The battalion commander questioned, "May I ask how many columns there are here?"

The director answered, "Oh, some-

thing like 26 batteries with supporting troops."

The battalion commander said, "I do not believe I understood you correctly."

The director answered, "Twenty-six batteries."

The tactical exercise ended with the statement that although there was no enemy in the village, the division entered it with its first vehicle after a delay of four hours, which was the amount of time it would take, according to the director, to get the abandoned teams and their vehicles off the highway. Four hours would have sufficed for the enemy to have established a solid defence on the south bank of the river. The division did not get across the river that day. That was what the director had wished.

After the critique, a senior officer spoke concerning the conduct of the problem: "It goes without saying, that the director is sovereign in his assumptions, but I recommend that they be kept somewhere within the bounds of possibility; otherwise it might develop that the troops will not take these problems seriously any longer."

Case History.

However, the situation described above was an actual case from war, which the author has clothed in the guise of a tactical exercise. Actually, it happened, in all its details, to the 44th German Infantry Division on June 10, 1940, when it attempted to force a crossing over the Oise at Pont St. Maxence just as the director had described it.

The imponderable lay in the bridge. It caused the German division a day's delay. For the French adver-

sary, it was still more serious for he lost all the artillery belonging to two divisions because the bridge was blown up without regard for the forces which had to use it when the first German reconnaissance forces appeared at the Oise at dawn.

Rivers and Bridges.

Generally speaking, rivers and bridges are a common cause of imponderables. Of 25 river crossings during combat, in which bridge building, or the possession or demolition of existing bridges was required, the author saw 12 in which the intended course of the operation was decisively upset, because of the imponderable which occurred.

The famous case of Remagen was not unusual—only the reaction of the Supreme Command to the imponderable was unusual.

The cause of imponderables—as far as these are the consequence of human insufficiencies—resides, in the majority of cases, in the domain of the transmission of information, orders, and reports.

Typical Case.

The campaign against the Soviet Union is typical. The LII Army Corps, Seventeenth Army, was in pursuit eastward between the Dniester and the Bug, and was to cross the Bug at Ladyshin. For this purpose, a bridge column from the Seventeenth Army was placed at its disposal.

On June 25, 1941, the advance battalion of the German 101st Infantry Division found an undestroyed bridge north of Ladyshin and toward evening of this day formed a small bridgehead north of the Bug. The 101st Division had, thus, a bridge and could have gotten

along without the bridge column if there had not been another river, the Ssod, to cross a few miles beyond the Bug. Whether the employment of a bridge column was necessary for the crossing had to be ascertained as quickly as possible. A notice to this effect was received by the 101st Division in the afternoon. Army pressed the division for the return of the bridge column if it were not needed.

On the morning of the 26th, the 101st Division reported, that the Ssod was 5.5 to 11 yards wide. The Corps reconnaissance squadron reported that the Ssod was 11 to 16.5 yards wide at the point of its junction with the Bug. The Corps had doubts and requested a check by the Division. Toward noon it received the report that the Ssod was 11 to 16.5 yards wide. A bridge column was not necessary. It remained at the disposal of the Seventeenth Army approximately 6.2 miles back of Ladyshin.

At noon, the Army Commander went to the Division and, at about 1800 hours, on the way back, went past Corps headquarters.

"The 101st maintains that the Ssod is only from 11 to 16.5 yards wide. I regard that as very improbable. I have ordered the Division to check this report again, because I should not like, when we have again made the bridge column available to the Army Group, to find out that the Division needs it."

River Crossing.

In the evening report, the 101st Division again repeated its previous statements concerning the Ssod. Around 2200 hours, the Army Commander called and gave the infor-

mation that the bridge column had now departed for other employment.

On July 27, the Corps planned to continue its advance over the Ssod. The Division set out at dawn. The first report of the 101st Division was as follows:

"East bank of the Ssod strongly occupied by the enemy. Stream 66 yards wide. Crossing with own means not possible. Necessary that bridge equipment be sent."

The LII Army Corps lost one day in its advance eastward. Soon after this, however, it gained a day in an operation for which a longer time had been allotted. These are the normal incidents of war which, not even for an hour, run according to plan.

The repeatedly false information concerning the width of the Ssod, will undoubtedly be looked upon as just plain bungling, not as an imponderable.

Human Element.

Clausewitz stated that:

"The battalion continues to be composed of a number of men banded together, of whom, when fate wills it so, even the most inconsequential of them is able to bring about a halt or some other irregularity."

The very frequent cause of the imponderable is simply human insufficiency, such as misunderstandings, errors, and oversights. Other psychic defects also may influence combat operations unfavourably, as the desire for fame, lack of discipline, and cowardice.

In such cases, one cannot speak of imponderables—in such events, they are delinquencies.

The consequences of imponderables are, in the reality of battle, not

as great as they occasionally appear to be in the headquarters of the higher command or as one may picture them in postwar descriptions and hypothetical studies.

To be sure, they may have far-reaching consequences, but this is the exception. In theory, catastrophes would very often have been avoided and victories won if this or that incident had not occurred. Probably we shall read, some day, that the German armies were unable to seize possession of the oilfields of the Caucasus because a train load of fuel, destined for the First Armoured Army, was set on fire between Taganrog and Rostov by a Soviet gunboat about 15 August, 1942.

Even in the winter of 1942-43, I heard it said that the Sixth Army was surrounded at Stalingrad only because a large number of the tanks of the 22nd Armoured Division had the rubber insulation of the electric cables gnawed through by mice. This unit went into the battle with so few tanks that success was denied it in the counter-attack.

Conclusions of this sort are erroneous to begin with for the reason that their authors, in the consequences of the imponderables, assume a "normal course of events" and do not take into consideration that the imponderable is neither a thing that happens but once, nor the fact that there are also fortunate occurrences in war which compensate for the unfortunate ones.

Unit Reaction.

Finally, the units themselves, being living groups, not only possess high regenerative power but also great capacity for overcoming the imponderables without either the

orders or the help of the higher commands being required. This constructive peculiarity of the units is largely dependent on the initiative of the lower commanders and also of the men themselves. They react spontaneously, on the basis of the occurrence itself. Only a unit which, as a result of over-fatigue, over-exertion, or decimation, has lost its normal capacity for reaction, is predisposed to more serious consequences in the event of an unusual occurrence. Nevertheless, there are, among the multitude of individuals constituting a living group of this magnitude, enough men of quick reaction to enable the group to overcome the unforeseeable events.

The Commander.

The reaction of the commander is often one of the weightiest consequences of the imponderable.

In the case of the senior commander who learns of the event in an indirect manner, matters are different. He does not experience the imponderable itself, only its consequences in most cases, and his judgment of the event will be a function of the seriousness of these. His reaction does not derive spontaneously and naturally from reality, but is the product of his power of imagination. The less a commander is capable of correctly imagining realities that he himself is not experiencing at the moment, the more he is in danger of reacting improperly.

If the imponderable can be a test of the worth of a troop unit, it can unquestionably be one of the worth of a commander.

How the commander reacts to unforeseen difficulties is more revealing and, at times, unfortunately,

weightier in consequences, than one would be inclined to believe.

Essentially, three types of reactions are to be distinguished: the commander, of the first type, who immediately calls for the responsible person; of the second type, who requests aid of a higher echelon; and of the third type, who ascertains what he can do to compensate for the disadvantageous consequences of the imponderable or even to prevent them, then acts.

Not until everything has been done to overcome the difficulty that has arisen with his own means, will the good commander think of investigating the original cause of the event.

Weak Commanders.

The commander of average worth thinks first of the responsible party and of the help he may be able to get from his neighbour or the superior echelon. "The call for help is the most primitive form of command!" one of the keenest-minded chiefs of staff of the last war once remarked. Nothing more need be added to this.

We should pause a bit and consider the "cry for the guilty person." This is often the mark of the most dangerous type of commander—of the erudite, militarily gifted man without character, who is so difficult to render harmless. Defects of character reveal themselves but slowly, and are not recognized when the situation is dominated by considerations of a military character.

The commander who, in case of an imponderable, first calls for the guilty party, will usually reveal by this action that he is trying to push the responsibility for the occurrence off on to some other person. Just

as Hitler did when he, after the encirclement of the Sixth Army, threw General Heim into prison or, after the crossing of the Remagen Bridge by the Americans, had the bridge commander shot. The cry for the guilty party as loudest reaction to an imponderable, first of all, dams up the spring of truth. Naturally, the event will be investigated—for, as a rule, they are very instructive. But he who believes that through the fixing of the blame, he will benefit his unit in any way from the standpoint of instruction, is still ignorant of the nature of war.

River Width.

In the case of those repeated, but incorrect, reports concerning the width of the Ssod, it never occurred to the Corps headquarters or the Army, to search out the party who was to blame. A search for the guilty party would not have brought correct information concerning the width of the stream, any more than their repeated requests for this information did.

The Corps headquarters, however, was more interested in the cause. One of its officers sought information on this subject from the unit concerned, immediately after the crossing of the river—not as an investigator sent out by the higher command, but as a friend of the men. He reached the unit at a moment of success, hence at a time when persons are more likely to be willing to admit a past mistake. It turned out that the reconnaissance forces, because of enemy fire, had had to seek shelter some 50 yards from the stream, hence had not got close to its bank. Seen from this angle, the stream looked narrow to them and this impression was

heightened by the fact that a growth of rushes occupied a band in the water along both sides of the stream. The Corps headquarters made no suggestive reproof, but reported the occurrence, together with causes and results, in a form that awakened the interest of the unit.

Conclusion.

Human insufficiencies cannot be included in the concept of "blame." Through the punishment of a guilty person or through censorious and reproving allusions to existing regulations, imponderables will not be eliminated. Only one thing is helpful—the dissemination of the lesson in such a way that the lessons taught by the event will arouse interest.

But to bring the matter of blame before the unit, will turn the latter's attention in the case only to the guilty party. War experience, as one of the principal factors in the fighting value of a unit, falls short when personal matters are placed in the foreground, when *what happened* should have been of the greatest importance.

It is clear that the situation differs when we have to deal with misdemeanours rather than insufficiencies. When the imponderables constitute the rule with a unit, rather than the exception there must be no delay in giving the unit a new commander.

Only the incompetent person is continually in a jam.

The only guide to a man is his conscience; the only shield to his memory is the rectitude and sincerity of his actions. It is very imprudent to walk through life without this shield, because we are so often mocked by the failure of our hopes and the upsetting of our calculations. But with this shield, however the fates may play, we march always in the ranks of honour.

—Winston Churchill.

The Atomic Weapon

Brigadier F. S. Reid, CBE

SINCE the announcement by the Soviet that Russia had mastered the production of the hydrogen bomb, atom, hydrogen and even cobalt bombs have been much in the news, and the time seems appropriate for a consideration of the potentialities and the effects of these weapons. The remarks which follow are based on a layman's knowledge gained at varying intervals over the past few years from articles, discussions and lectures, and are an attempt to put the atomic weapon in a reasonable perspective, and view it from a military angle rather than from that of civil defence which is the case in most articles. Little that is authoritative or informative has appeared in the press or in magazines about the hydrogen or the cobalt bomb and so in this paper only the atomic weapon will be considered. The term weapon is used as the atomic bomb is not the only way in which an atomic explosion can be engineered at the desired time and at the desired place. There are also atomic shells and atomic rockets.

Following on the dropping of the first two atomic bombs, there was an immediate popular impression that here was an all-powerful destructive bomb of such potentialities that whole cities were liable to be annihilated and whole countries crippled at a single blow. Any ten-

dency to such exaggerated views was immediately corrected, so far as his audience was concerned, by the war office scientist who remarked 24 hours after the Hiroshima explosion, "Do not talk about the atomic bomb, but about the new explosive."

There was nevertheless a good deal of hysterical writing and discussion at that time, and the terrors of an atomic explosion were used by various agencies in articles and in films for their own ends: for example, by certain religious bodies to call the world to repentance before it was too late, and by pacifists with leftist leanings to undermine the will of the democracies to resist aggression. It is only a month or two since there appeared in our press a report of a "horror" film which was being produced in Japan and which would portray very vividly all the more harrowing scenes of the atomic attack on that country. It was implied that the backers of this film had connections with Soviet Russia and so clearly the main object of this film is to frighten the Far Eastern peoples so that they will be disinclined to back a policy which might lead to a conflict with a great and powerful nation possessed of these "terrible" weapons. But fear is a bad counsellor, and a poor reason for avoiding one's duty; the proper course is to face up to the danger, and assess its true potentialities with a view

—From the Ceylon Army Journal.

to taking suitable action to minimise its effects, and so to be able to fight on even should the weapon be used against one.

Characteristics of an Atomic Explosion.

There will be no attempt to go into the scientific processes which bring about and take place at an atomic explosion, except to say that the breaking up of an atom, which at one time was thought to be the smallest indivisible particle of matter lets loose an immense amount of energy.

This release of energy manifests itself in four main ways: in light, in heat, in blast and in radioactivity—the emission of gamma rays and neutrons (but the latter may be ignored for our purposes). The term gamma is merely a Greek word for the letter "g" and is the adjective which has been agreed by scientists to describe the particular rays which are energised at the atomic explosion and so distinguish these rays from other rays such as "X" rays to which they are similar except in strength, being much more powerful than them.

Of the above four major products of an atomic explosion, light is under no circumstances deadly: light is the fastest traveller and none travels further. For that we have to be very thankful, as will be shown later. The heat wave travels at the same speed as light, and lasts only about three seconds, whereas the gamma rays, travelling at the speed of the heat wave, are emitted over several seconds. They are most dangerous during the first second, when 50 per cent. of the dosage is delivered, thereafter the delivery falls off to practically nil at the end of ten seconds. However, where

the explosion has taken place near (within 2,000 ft. of) the ground, or on or in the ground, pieces of earth, dust, etc., are made radioactive. These substances then continue to give off gamma rays for days and even weeks and months depending on the proximity of the atomic explosion.

At the time of the first atomic explosion, the size of bomb used was both the maximum and the minimum—maximum because no larger bomb could at that time be carried by aircraft over the long distances that normally would be involved and minimum because the bomb represented the smallest container which could hold all the various constituents which were necessary to bring about an atomic explosion. Under these circumstances it is possible to be precise about the effects of atomic explosions at various ranges from ground zero, which is the term used for the point on the ground immediately below (or above) the point of explosion. The height of the explosion above or below ground zero produces varying effects, about which it is also possible to be reasonably precise. The Hiroshima bomb is known as the 20 kilo-ton bomb—a bomb which produces much the same explosive effect as 20,000 tons of TNT high explosive.

Within the last year atomic shells have been fired successfully in experiments. We also have news of atomic rockets being tried out at the Woomera range in Australia, and now there is a recent newspaper report that six atomic guns have been delivered to the United States forces in Western Germany. The atomic gun is of a calibre of 280 mm. (11.2 in.). The atomic shell must therefore be a smaller affair than the

20 KT bomb we have been considering. But it is not safe to assume that the effect produced will be much less, if less at all, as the energy to be released is still that produced at the break-up of an atom. Whether a more powerful atomic explosion than that of the 20 KT bomb can be produced is an open question. There is therefore every reason to base our consideration on the known effects of the 20 KT bomb.

The Effect of the 20 KT Bomb.

Studies to date have mainly been related to the effects of an atomic bomb exploding over a city; these may be summarized as shown in Table A.

In the above table it has not been thought necessary to differentiate between the various types of lethal effects arising from an atomic explo-

sion as in a modern city or built-up area the greatest threat to life comes from the physical destruction of buildings and falling debris and from fire rather than from those aspects of the atomic explosion which in the abstract are the most terrifying, namely, the radiations and the heat flash. Special buildings and dugouts designed to enable persons to survive unharmed even at ground zero must, of course, be built of suitable material and have sufficient thickness of walls and roof to prevent all lethal rays penetrating into the interior of the structure.

After the above brief and rather over-simplified examination of the effect of a 20 KT atomic explosion over a modern city, we now turn to consider in more detail the effect on individuals in open country—the situation in which soldiers are more

Distance from ground zero. Yds.	Extent of destruction.	Counter Measures possible.	Remarks.
1,000	Virtually complete.	Provision of special reinforced concrete buildings and dug-outs.	Those in these should escape all effects.
1,000-2,000	Severe to buildings and houses, but those in them should escape except for injuries arising from falling debris, etc.	Provision of last war surface type air raid shelters.	In this zone no more than 10% of personnel should be killed or wounded.
2,000-3,500	Minor damage to buildings and houses, e.g., windows blown in and tiles off roofs.	Take cover in buildings, etc.	Casualties in this zone negligible.
Beyond 3,500	No ill effects.	—	—

Table A.

likely to find themselves. It is proposed to build up the picture of these effects by considering in the first instance a soldier standing or walking in the open at various ranges from ground zero—an individual who has neither the protection of strong buildings, nor is subject to the hazards which arise from buildings collapsing and going on fire.

It is now necessary not only to deal with each of the various lethal effects separately, but to consider their characteristics, their speed of movement, the build-up of their effects, their duration, etc.

(a) **Light Flash.**—The first indication of the explosion of an atomic weapon is a blinding flash of light, and as light travels the fastest of all agencies this indication will reach individuals at all ranges from ground zero simultaneously. The light flash is NOT lethal: it is, however, blinding in that any person looking at the point of explosion will be temporarily blinded for anything up to 20 minutes. The light flash is so brilliant that the darkest of dark glasses are of no protection from this risk. On the other hand, a person looking elsewhere than at the point of explosion will not be blinded any more than one is momentarily blinded if one looks into the mid-day sun.

(b) **Heat Flash.**—This travels at a rate comparable to light and lasts for two to three seconds but 75 per cent. of its intensity is received in the first half second. On a clear day lethal burns may be received up to 3,000 yards but in a European winter with thick fog this distance may be reduced to as little as 200 yards. The main protection against lethal burns is clothing. European battle dress will prevent burning at 2,000

yards and beyond, but unfortunately for us tropical clothing will be set alight up to 2,600 yards. On the other hand there is much shade in Ceylon and even a leaf at the range of 2,000 yards from the ground zero will remain in being long enough to prevent the area cast by its shadow being burnt before the leaf itself is shrivelled up and burnt.

(c) **Gamma Rays.**—These also travel at a rate comparable with that of light. They are emitted over a period, 50 per cent. of the total dosage in the first second of the explosion and most of the balance in the next nine seconds. Gamma rays dissipate rapidly in air, and are reduced in strength when passing through material of any sort. They are measured in ROENTGEN. Initially about 10,000 R are emitted; at 1,000 yards from ground zero this number has dropped to 2,500 R and at 2,000 yards to under 100R. Six hundred R is a certain fatal dose but the human body can take 100 R without disability, and only above 200 R does one enter the serious disability and possible fatal dose zone.

A feature of the gamma ray dosage is that once having received a certain dosage the individual loses that dosage very slowly, at rather less than half a roentgen per day. Doses are therefore for practical purposes cumulative, and once a person is known to have received a dose of say 100 R, which is not harmful in itself, every possible care must be taken to avoid picking up a further dosage. The number of roentgen absorbed can be discovered by the use of an instrument called the "Dosimeter," which is small and light and can be carried in the pocket.

It is therefore possible to enter or pass through a radio-active area for limited periods provided the dosage received does not reach a critical number. It is also comforting to know that it has now been established as a result of following up the case histories of survivors of the Hiroshima and Nagasaki attacks, that those who receive heavy dosages of gamma rays but survive, recover completely and that there are no lasting ill effects.

From the above it will be seen that a soldier standing in the open at the time of an atomic explosion at 1,000 yards from ground zero and continuing so to stand will certainly be killed:

- (a) By the heat flash.
- (b) By an over-dose (2,500 R) of gamma rays.

The same man standing at 2,000 yards from ground zero if wearing thick clothing will sustain severe burns only on the exposed portions of his body, for which he will have to have immediate medical treatment: if wearing tropical clothing, his clothes will be set on fire. He will also receive about 100 R of gamma rays, which is a critical number, and does not allow of his receiving many more without being a casualty of some kind. These effects would be minimised, if the soldier were to throw himself instantly flat on his face on the ground, tucking his hands under his body or by curling himself up into the smallest compass possible, thus exposing the minimum surface to receive the heat waves and gamma rays. Even a minor undulation on the ground would, if made use of, reduce still further the effects. At 3,000 yards from ground zero our man will receive light

burns only on the exposed parts of his body. At 4,000 yards from ground zero he can stand an interested spectator of the whole performance with no ill effects other than temporary blinding if looking directly at the point of explosion.

Let us now take the simple precaution of providing our soldier with a slit trench of 6 ft. in depth: let him still be standing in the open, but beside his trench and let him be an alert man, who simultaneously with the flash jumps to the bottom of his trench. Let us say the action takes half a second and let us review the results:

(a) The man at 1,000 yards will receive about 60 per cent. of the heat flash, which is still lethal, but a light mist combined with his agility may save him, but unfortunately he cannot escape receiving in that half-second less than 600 roentgen which is a certain fatal dose but will not be so immediately. If he is a stout-hearted, very brave man he will be able to and will fight on from his slit trench for some hours.

(b) The man at 2,000 yards is in a very different position—he will receive little more than 20 per cent. of the heat flash and so will have no ill effects from that cause, other than possibly mild burns on the exposed portions of his body and will receive under 50 R.

(c) The soldier at 3,000 yards will escape even slight burns.

(d) The man at 4,000 yards need not move but probably will, and would be wise to do so as he will not be able to judge his distance from ground zero with any hope of such nice accuracy.

If our men are all in their slit

trenches, with steel helmeted heads only exposed at the time of the flash and they duck to the bottom of their trenches on the flash they will all, even the man at 1,000 yards, escape any ill effects from the atomic explosion of which they have been such close witnesses; that is unless the shock pushes the walls of the trench in and they are smothered by earth. Ensure therefore that slit trenches are strongly revetted.

So much for a brief consideration of the immediate effects of an atomic explosion on the flesh and blood soldier. Now let us consider the likely effects on material. The main damage to equipment and vehicles will arise from blast, although damage to delicate instruments such as dial sights, wireless sets will be caused by heat. Up to 800 yards from ground zero all vehicles in the open will be destroyed and up to 2,000 yards many will be put out of action by severe damage. Tanks may be overturned at 700 yards from ground zero. Gun ammunition will be thrown about and many rounds will be rendered unstable and so unsafe to fire. A careful check of all disturbed rounds will have to be made before they can be accepted as serviceable.

Now we have a broad, simple picture of the menace and so of certain possibilities of foiling or minimising that menace. Remember we must always keep before us the tactical aim of not only enabling our soldier to fight another day, but to enable as many as possible of them to do so immediately, as the atom bomb we are considering has been dropped by the enemy to further his offensive operations, which will certainly follow hard on its heels.

Lessons.

The main lesson to further our aim which is beginning to show up is a very old one. It is to dig, to dig fast and deep and revet well against the shock wave. Dig in not only the men but the vehicles, the guns and all delicate equipment, and having dug add overhead cover which should be of, or of the equivalent of, 18 inches of earth. But it would appear better still to escape being atom bombed at all by avoiding being in an obvious atomic target, or by not presenting an atomic target to the enemy. So let us now consider what is a worthwhile atomic target and some other aspects of this problem.

Atomic weapons are very expensive both in money and in man-hours and will always remain so. They will therefore never be plentiful and expendable in the way that field artillery shells are when the supply position is good and so the occasions to use atomic weapons will be chosen with care, and the number of occasions on which they may be used will be controlled.

The explosion of an atomic bomb may be expected to produce a circular area of total destruction of 800 yards radius immediately below ground zero. On the normal battlefield in a defensive position it is unlikely to find more than a battalion in an area of this size. A battalion can hardly be considered a worthwhile target, but the attacker's aim in using the atomic weapon might be to produce a gap in his enemy's defences in order to ensure a break-through rather than to destroy a given number of the defenders. But one atom bomb will hardly achieve a large enough neutralized area to enable a major

break-in to go through and more than one atomic explosion is likely to be required. This again calls for special consideration as to whether a result commensurate with the cost is likely to be achieved. In order to get a picture in our minds of the size of the area we are considering, visualize a 1,000 yards range, look the same distance in the opposite direction and to the right and to the left. The area is not so vast when viewed on the ground in open country, and clearly does not permit of any major degree of inaccuracy if the chosen target is to be properly dealt with.

The full scale of destruction will only be achieved in flat country. High mountains and deep, steep sided valleys reduce by defilade the area of total destruction, particularly if the burst is near the ground. Mountainous country therefore is in general unfavourable for the use of the atomic weapon. Heavily forested flat country is one of the more unpleasant areas to be in if liable to atom bombing. A forest fire is almost certain to be started and many casualties will be caused from falling timber, which will also block roads and tracks and destroy telephone and telegraph wires carried above ground. But once again the slit trench gives a good degree of protection against these dangers.

As troops on the defensive are likely to be comparatively thin on the ground, and there must inevitably be a degree of concentration before an attack is launched, there would appear to be more likelihood of worthwhile atomic targets being presented in the forward combat zone by the attacker than by the defender. Except for break-through targets when certain neutralization rather than large scale destruction of men and material will be the aim,

atomic targets to be chosen by the attacker would appear likely to be deeper in the combat zone—main headquarters areas, artillery areas, airfields and communication and maintenance centres.

Conclusion.

As the Ceylon Army will not have at its disposal for any purpose any atomic weapons for at least a decade or two, our first experience of atomic weapons is likely to be that of the receiver. Conclusions will therefore be drawn as for a defender without any atomic weapons at his disposal. The first is the concern of commanders, but the rest are applicable to every individual officer and man.

- (a) Avoid presenting a worthwhile target.
- (b) Always dig in and dig deep (6 feet)—provide overhead cover (18 inches of earth) if possible.
- (c) To dig deep without efficient revetting is only to exchange one hazard for another.
- (d) In the open at an atomic flash get instantly to the bottom of the nearest cover. If no cover is to hand, fall flat on the face; arms under body.
- (e) After 15 seconds resume your battle position, task or function.
- (f) In defence, take immediate steps to close the 1½ to 2 mile gap which will be centred round ground zero.
- (g) Do NOT assume the receipt of a severe or fatal dosage of gamma rays until confirmed scientifically but fight on as long as you are able.
- (h) Avoid known radio-active areas, unless essential to enter, when this should be done under dosage control by dosimeter.

- (i) In choosing HQ admin. and concentration areas make full use of natural features, such as folds in ground, valleys, high cliffs, etc., to get maximum protection from the effects of any atomic explosion.

Lastly know the threats, know how best to counter them, and take the proper steps to do so, with speed, with efficiency, and with cool confidence.

Postscript.

Since preparing the article on Atomic Weapons which appears in this copy of the Army Journal, we have had President Eisenhower's momentous address to the General Assembly of the United Nations on December 8.

In case all readers have not seen the text of that speech it is necessary that I should repeat here the following statements of fact which President Eisenhower made:

- (a) Since the first atomic test explosion on July 16, 1945, the United States has carried out 43 atomic test explosions.
- (b) Atomic bombs today are 25 times as powerful as those used in 1945.
- (c) The hydrogen bomb brings about an explosion which is in the range of millions of tons of TNT high explosive equivalent.
- (d) The USA has today a stockpile of atomic weapons which exceeds by many times the explosive equivalent of all the bombs and all the shells that were dropped or fired in the whole of World War II.
- (e) The USA has, however, no monopoly of knowledge in this field.

These certainly are stupendous

figures and would appear at first sight to nullify all the points made and the yardstick given in my article. I think, however, that although the present day atomic bomb is 25 times as powerful as the 20 KT bomb used as the yardstick in my article, the destructive effect will not be 25 times as great. As an example, for 1,000 yards from ground zero there is almost total destruction now, so in that area the additional power is very largely wasted. It is rather the case of using a steam hammer to kill a fly instead of using a fly swatter. Of course the extent of total destruction from ground zero will be much greater, but it will almost certainly not be 25 times greater. But we shall have to await further details before being more precise.

The President naturally did not tell the world what proportion of the US stockpile of atomic bombs, etc., is of the Hiroshima type of bomb and what of the present day type of atomic bomb. In any case our enemies, whoever they may turn out to be, will undoubtedly make use of all atomic bombs, etc., in their possession and not only the latest types—so we may still meet an atomic explosion of the 20 KT type. Further, the defensive measures to be taken in the field against the modern atomic bomb cannot vary very much from those recommended in the article. Whether they will be effective or not will depend on—

- (i) Distance from ground zero.
- (ii) The type of atomic weapon used.

There is therefore no more reason now than there was in 1945 to throw one's hand in and say there can be no effective measures against this new peril.

MARXISM - COMMUNISM RELATIONSHIPS - PART I

MARX

Lieutenant N. G. Maloy, BEc, AASA,
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THIS series will be presented in three parts, entitled "Marx," "Revolution and Proletarian Dictatorship" and "Recent USSR Aspects," respectively.

Volumes have been written on Marx's theories, but only pertinent aspects have been drawn upon here. These aspects have been condensed in order to maintain a balance between theory, and Communism as practised in the USSR, because knowledge of that country's activities is restricted by the existence of the "iron curtain."

This enquiry is not designed to be all-embracing; it raises contentious matter which it is hoped will promote further enquiry.

Karl Marx.

Karl Marx was born of an upper middle-class Jewish family in Trier, Germany, in 1818. He studied at the universities of Bonn and Berlin; later edited newspapers in Germany and France, and was exiled from both countries because of his revolutionary views. He ultimately made London his home, where he remained for 33 years before his death.

Whilst in London he was financially maintained by his friend and collaborator, and co-author of the Communist Manifesto, Friedrich Engels, a Manchester textile manufacturer. The high esteem in which Engels held the work of Marx prompted him to provide finance in order that Marx could devote his entire time to research and writing.

Historical Materialism and Dialectics.

Marx believed that history was an exact science and, because of this, future developments could be foretold. He maintained that man's mind and its creations (religious, cultural, legal and other institutions) depended fundamentally on economic causes and that the progress of society could be worked out in accordance with the dialectical principle, i.e., the logic of development by conflict and contrast.

Briefly stated, the principle of dialectics is that each condition in its development calls forth its negation—or antithesis. The antithesis in turn calls forth its negation, i.e., the "negation of the negation"—

or synthesis. He uses this type of reasoning in an endeavour to show that the progress of society is natural from feudalism (the original condition), through Capitalism (the negation) to Socialism (the negation of the negation). For Marx each internal contradiction in the dialectical process gave rise to a higher form of society, and the necessary product of historical development was Socialism.

His contention that man's creations are dependent on economic causes presupposes that productive forces develop themselves automatically. True, men must feed and clothe themselves before they can undertake political or religious activities, and this physical necessity plays a greater part the more primitive a community is. But with the advance of civilization man's desires play an increasing role and it is these desires which determine production, and not vice versa.

In making Socialism his final synthesis, in his dialectical process of society, he does not appear to envisage that changed conditions may put yet another dialectical process into operation giving rise to still a higher form of society.¹ Also in accepting that each contradiction in the process gives rise to a higher form of society he overlooks the fact that history has been as much a story of dissolution and decay, as that of construction.

The Class Struggle.

The State.

The State existed for Marx because class struggles existed, and he

thought that once the classless society was achieved there would be no further need for the State.

He contended that social classes were formed by the economic relationships of members of society to the means of production, and in any capitalistic society these economic relationships must eventually result in only two classes; one class consisting of those who are owners of the means of production and the other of those who are employed by those owners of the capital goods, i.e. a propertyless class. The state existed, then, merely to serve the ruling class and to protect its ownership of the means of production, i.e., it was "the executive committee of the bourgeoisie."²

Exploitation Theory.

Marx believed that labour was the sole source of value and used it to present a theory of surplus value (the profit of the capitalist). He represented this as the degree of exploitation of the worker by the employer. To him history was a tale of class struggles—struggles between employer and employed, bourgeoisie and proletariat—with increasing exploitation by the bourgeoisie and increasing misery for the worker.

Because of competition capitalists would be forced to accumulate capital, in the form of labour-saving devices, to increase output. With this accumulation the weaker capitalists would be driven into the ranks of the proletariat and thus capital would be concentrated in fewer hands. Monopolies would develop and because of the increased ranks of the workers, further exploitation could be exercised with

1. This is not an acceptance on my part, of the dialectical principle as applied to social development. It is merely used to show the weakness of Marx's use of the principle.

2. Communist Manifesto — Marx and Engels.

resultant increasing misery for the workers. At this point the proletariat would unite for their own protection and overthrow the exploiters by violent revolution. But, where competition rules, with the greater supply of labour than the demand for it, the law of Supply and Demand would explain the "increasing misery of the worker" without the introduction of any exploitation theory. Marx answers this objection by saying the market is never free, but the conditions under which people compete is determined by the way in which property is distributed in the community. Those who have property can bring a certain element of compulsion over those who have no property therefore you cannot have a free contract between employer and employee. But would not Trade Unionism favour the workers' bargaining powers?

Marx said that labour "(variable capital)" earned profit "(surplus value)" but not machinery, etc. "(constant capital)"; but he also said that the introduction of labour-saving devices leaves more time for the earning of profit, as it would then take less time for the worker to earn his subsistence wage. But how can an increase in constant capital both increase and decrease profit at the same time? Also, this contention that businesses using more labour would produce more profit is unacceptable, as under competition, profits tend to be equal throughout an industry irrespective of the number of workers involved.

No Harmony of Interest.

The liberal thought that the interests of worker and employer were the same was attacked by Marx. He says that this harmony of interest cannot exist but is merely

a myth propagated by the ruling class to mislead the less initiated. However, manager-worker co-operation operates in non-communistic societies and the feeling exists that it is in the interest of the worker for industrial prosperity to rule, as it is also in the interests of the owners of the means of production. This springs from the contention that "the larger the cake the larger the slice each may have."

Lastly he was against the division of labour, as it implied an unequal distribution of labour and its products. In his world everybody must do everything for himself.³

The Dictatorship of the Proletariat.

Marx thought there would be a transitional period after the revolution (brought on by the increasing exploitation of the workers) in which some aspects of the state, as it existed, would be required to be maintained. This transitional period was called "the dictatorship of proletariat."⁴

During this period the state would begin to "wither away" as the former bourgeoisie consciousness was gradually expelled. With the complete expulsion of this consciousness, only one class would remain—the proletariat—and therefore the need for the state would no longer exist.

Conclusion.

At this stage Marxism may briefly be restated as follows. It is believed that materialistic economic forces

3. Quite a lot of space has been given to this theoretical section in an endeavour to show the falsity of the premises on which Marx based his theory of class exploitation which ultimately gives rise to violent revolution.
4. The USSR claim that this is the period which is now being experienced in that country.

alone control history; that these economic forces manifest themselves in class struggles between employers and employed, which must inevitably lead to bloodshed. After this violent revolution and the overthrow of the exploiters, social justice can be dispensed by the proletariat in dictatorship during a transitional period, after which it would be followed by a stateless society.

In the following parts of this series these concepts will be compared and contrasted with Communism as it exists in general, and as it exists in particular in the USSR.

In conclusion, in justice, it must be stated that Marx was conscientious in his beliefs (even if mistaken) and this is borne out by the fact that he and his lifelong friend, Engels, were both members of the bourgeoisie, the class which they sought to overthrow in the interests of society. However, as Carew-Hunt says, "He failed to see there might be other ways of dealing with the problem than by revolution and that he himself had provided one of the most effective of these by calling upon the workers to unite," e.g., through Trade Union Movements.⁵

5. The Theory and Practice of Communism—Carew-Hunt.

There is no more valuable subordinate than the man to whom you can give a piece of work and then forget it, in the confident expectation that the next time it is brought to your attention it will come in the form of a report that the thing has been done. When this self-reliant quality is joined to executive power, loyalty and common sense, the result is a man whom you can trust.

On the other hand, there is no greater nuisance to a man heavily burdened with the direction of affairs than the weak-backed assistant who is continually trying to get his chief to do his work for him on the feeble plea that he thought the chief would like to decide this or that himself. The man to whom an executive is most grateful, the man whom he will work hardest and value most, is the man who accepts responsibility willingly.

THE WEAPONS OF THE WEST

VERSUS

THE MANPOWER OF THE EAST

Translated and digested by the Military Review from an article by Lieutenant-Colonel F. O. Miksche in "Revue de Defense Nationale," France.

THE "unconditional surrender" of Germany upset the balance of forces in Europe; that of Japan the balance of forces in Asia. In both cases, the power of our former enemies was destroyed, but their hegemony has been replaced by a dangerous Soviet imperialism.

Up until 1918, Europe was, from the geopolitical point of view, divided into three great regions: western, central, and eastern. On Central Europe, which comprised Germany and Austria-Hungary, devolved the role of maintaining the balance between the East and the West. However, since that time, Central Europe has practically disappeared; the Danubian Empire has been destroyed; its nations were Balkanized by the treaties of 1918-20; and Germany was excessively weakened in 1945—whence the loss of balance and a Europe divided into only two spheres: the East and the West.

In the two world conflicts, hatred overruled the sensible reason of statesmen; after the wars propa-

ganda became the foundation of official policy. "To be or not to be: that is the question"—the great problem which confronts Western civilization today.

War or peace: this is the alternative that we are facing today, but, paradoxically there is almost no difference between these two terms.

Let us suppose that agreement has been reached with the East which the West has been desiring so greatly. In the present state of affairs that would mean the domination of Communism over Eastern and Central Europe and over a very large part of Asia. In other words, it would mean a recognition of the *status quo*. Would it be possible for Europe to survive, out of balance as it is, under the suffocating weight of a pan-Slavic empire extending from the Elbe and the Danube to Hong Kong?

If Europe were lost, what would be the fate of America, isolated and alone as it would be in the midst of a Communistic world?

General Observations.

A third world war would place facing one another two forces which present the greatest contrast, not only in their social structures but also in the majority of other respects. The East (the Soviet Union and her satellites) is isolated, geopolitically, between the Baltic, the Arctic Ocean, and the Pacific. As for the Western powers, they have absolute control over the great sea routes and, consequently, over the principal routes followed by world commerce. The Soviet Union and her satellites form, geopolitically, a compact mass, while the Western powers are dispersed and separated from one another by vast oceans and, what is worse, by different views with respect to a number of vital points. Economically and technically more advanced than the East, this should be a guarantee that in the long run the West would retain the initiative, not only on the sea but also in the air. On the other hand, the East, although technically the weaker, would dominate in point of numbers. Therefore, a third world war would be fought between a geographically isolated, great land power and a coalition of more developed air and naval powers. From these contrasts may be deduced the main strategic characteristics of an eventual clash between the East and the West.

The Soviets would have to make use of their numerical superiority for the seizure of naval, land, and air bases from the Western powers, with Gibraltar and Suez as strategic objectives for the purpose of closing the Mediterranean and expelling the allies from it. This manifestly offensive strategy would, nevertheless, in the end, end in de-

fensive action. Whatever may be the expansive force of the East, once its armies have reached the coast, it has exhausted its possibilities of offensive action; it cannot reach a strategic decision. Numerical superiority permits only the occupation of a country; it cannot ensure control of the sea or the air, both of which would be essential for final victory.

Inferior in numbers but more advanced in the matter of production, the Western powers would be controlled by wholly different considerations. Their strategy would be based, of necessity, on their technical superiority and their superiority in the way of material. Would that suffice, however, for gaining the decision? Air bombardments, as extensive as they may be, cannot halt an invasion of Europe by the Soviet Union and her satellites. Air attacks cannot lead to anything definite unless they are followed by attacks on the ground. It is only then that the effect of the relatively short paralysis caused by the air bombardment may be converted into definite results by the permanent occupation of the terrain. Otherwise, there is the chance that at least a part of the damage will be repaired. Strategic air operations have, therefore, little chance of producing an immediate effect; their result would be, above all, the slow destruction of the enemy's power of production, which would be felt on the field of battle only after a considerable lapse of time. In the battle of giants, as a third world war would be, the destruction of the enemy's power of production might take years. The occupation of Western Europe by the Communist armies could be accom-

plished in a matter of but two or three months.

The idea that a Soviet invasion could be stopped by means of small, powerfully motorized armies is likewise to be cast aside as devoid of realism. It is inconceivable that vast spaces, doubtless entire continents, could be defended or conquered by machines. Imagine a hunter armed with a modern automatic rifle and 500 rounds of ammunition attacked in a jungle by 50 natives. Theoretically, he should be able to annihilate all of them. However, it is not possible for him to draw a bead on all of them simultaneously. Therefore, after having put 20 of them out of the way, he could be brought down by the twenty-first.

A war between the East and the West would, doubtless, take the form of a bitter struggle between masses of human beings as well as production capabilities. However, there are limits to everything. To what degree can technical superiority compensate for numerical inferiority, or technical inferiority be compensated for by numerical superiority? No one can say with certainty. However, the fact must not be lost that strategy not only has concrete and tangible factors which must be taken into account, but also imponderable psychological factors.

The Battle of Production.

World War II developed the economic and industrial power of America to a point previously unknown, from which resulted an advance which no other nation would be able to equal in our times. Half of the total production of the world comes, at the present time,

from the industries of the United States. In case of war, this capacity would be complemented by that of the British Commonwealth and of Western Europe. Let us not forget, however, that one cannot trust Soviet statistics, for they are compiled with a view to propaganda rather than to economic documentation. This is what gives rise to the great differences of opinion in the case of Western experts with regard to the accomplishments of the Soviet Union—some tend to overestimate while others tend to underestimate. If we accept as a basis the Soviet war production figures which were published in 1945, we see that the Soviets realized a fourth of the combined production of the Anglo-American industries, and we have every reason to believe that this result has not been greatly exceeded; on the contrary, it is possible that they have just been reached—the statistics of 1945 having been greatly exaggerated. Matters would be different if the Soviet Union succeeded in dominating the whole of Europe. What the position of the Soviet Union would be in that case is difficult to say. We may, however, obtain an approximate idea of it. Let us take as a guide the results of the German economy during World War II. At that time, the Reich was exploiting the industrial capacity of the whole of Europe, and the troops of Hitler occupied the territories which, in the event of another war, would probably fall into the hands of the Soviets. It would clearly be an error to suppose that the Soviets could exceed what the Germans did. They could not flatter themselves to the extent of assuming they would be able to rival the organizational capacity

MAXIMUM ANNUAL PRODUCTION DURING WORLD WAR II.

	Aircraft	Tanks
United States	96,370	29,500
British Commonwealth	33,398	22,819
Soviet Union	30,000(?)	30,000(?)
Germany	39,807	19,002

FIGURE 1.

demonstrated by the industrial chiefs of the Third Reich. We shall not be far off, however, if we estimate that a Europe occupied by the Soviets could attain 50 per cent. of the production capacity of the German war economy. What would the combined Soviet and European industries produce then, and how would they compare with the production of the Anglo-American industries?

Let us take, for example, the two most important strategic weapons: aircraft and tanks. The maximum annual production during World War II was as shown in Figure 1.

If we consider the production figures from the point of view of an eventual conflict between the East and the West, we must add half of the German production to that of the Soviet Union and compare this total with the combined Anglo-American production. We shall then obtain something like that shown in Figure 2.

Theoretically, according to these data, the West would have an annual production of around 130,000 planes as opposed to about 50,000 for the East. Moreover, the West would produce more than 52,000 tanks as opposed to some 39,500 for the East. An analysis of the other branches of industry would doubtless give results more unfavourable for the Soviets. This would be the case particularly with precision

production, which is far more developed in the West. The fact of the matter is that these specialties are the weak point of Soviet production. It is also important to note that the products of Soviet industry are usually of a lower quality than those of the European countries. As regards quantity alone, we can come fairly close to the truth if we say, in a general way, that Soviet production—which, at the beginning, would not exceed a fourth of that of the Anglo-Americans—could, by systematic exploitation of industrial resources of occupied Europe, be raised to a third or a half of the Anglo-American figure. This would make the Soviet Union a substantially more powerful enemy than Germany.

These comparisons lead us, logically enough, to the problem of the material effects of aerial warfare on the battle of production. Among the Anglo-American industries, only the British would be threatened seriously by the Soviets; those of the United States and Canada are out of the practical range of Soviet aviation. What would be, with respect to aerial attacks, the strategic position of the industrial regions situated in the interior of the Soviet Union and of those working for the East, elsewhere, on the assumption that the Red Army succeeded in obtaining possession of Western Europe? Let us examine, first, the

case of the Soviet industrial districts. Three factors make it difficult to paralyze them completely:

1. One of the most important characteristics of the Soviet economic system is its decentralization: aerial bombardments cannot give rapid results unless they are conducted in an intensive form against concentrated industrial zones.

2. The longer the distances to be traversed, the harder the aerial war is to conduct. The danger from anti-aircraft defence increases and the continuity of attacks is harder to maintain. In the case of an aerial war against the Soviet Union, the distances from the Middle East to the industrial districts of the Urals are 1,500 to 2,000 miles. The same distance exists from the British Isles to Moscow. It is possible that the atom bomb will change all that, but no one, not even its inventors, can say this for certain. The launching of an atomic war would be, moreover, extremely risky for the Western powers. It is constantly repeated that America now has bombs much more powerful than those which she used against Japan, and that the Soviet Union is far behind

in the field of atomic research. However, this argument is without any value! The Hiroshima bomb was much more powerful than is necessary in practice. The capital point is that the Soviet Union is able to produce these bombs. Such bombs would suffice for destroying the very centralized British industries and for making possible raids which would devastate important urban centres of America. The destruction of Europe is the price we would have to pay for an atomic war by the Americans. The tactical employment of these weapons would, perhaps, change matters a bit. However, here again we have a big question mark: would not the employment of these weapons move the Soviets to reply by the strategic employment of these weapons?

3. An aerial war, like any other war, is ineffective unless the objective that has to be reached is reached at the time required; hence, a properly functioning intelligence service is indispensable. What is our situation as regards this matter? For 30 years, the Soviet Union has been hermetically closed to the rest of the world, as was Tibet in the past. In the aerial war against

POTENTIAL PRODUCTION IN THE EVENT OF WORLD WAR III.

	Aircraft	Tanks
Western Powers:		
United States	96,370	29,500
British Commonwealth	33,398	22,819
Total	129,768	52,319
Eastern Powers:		
Soviet Union	30,000(?)	30,000(?)
50 per cent. of the German production	19,903	9,501
Total	49,903	39,501

FIGURE 2

Germany, the intelligence service was relatively easy to manage. Years of business relations with European countries made it possible to know everything about the German industrial set-up. An aerial war against the Soviet Union, however, would not be so simple.

In Central and Western Europe, which could one day be occupied by the Soviets, the problem presents a very different aspect. These industrial regions are situated closer to the British Isles, which would be called upon once more to play their traditional role of a great aircraft carrier. The shorter flying distances would ease the task of maintaining the concentrated continuity of action, and the centralized economic structure of Western Europe is one more guarantee of success in attacks.

The Continental production would be of far too great an importance to the Soviets for them to expose it to such risks. As has already been stated, the industrial zones of the Continent would have the important function of complementing the productive capacity of the Soviet Union in such precision fields as optics, radio technology, and ball bearings, and it is, therefore, very probable that they would be transferred from Europe into the depths of the Soviet Union. This transfer could not be effected without difficulties, but back of the shelter of the Urals the various manufactories would not only be protected against air attacks, but they would be much closer to their sources of supply.

If the Soviets adopted such a strategy, a third world war would witness the establishment of two great arsenals: America for the West, Siberia for the East. However it may be, it would be a mis-

take to expect rapid and decisive results from an aerial war. The productional curve of the Soviet Union would only show a tendency to drop slowly. The Soviets could get along for a long time with the war material left from 1945 or taken as booty. The West has destroyed its own and closed down the majority of its war industries; the Soviets have continued to manufacture war material. Everything considered, it seems as though the productional battle between the East and the West would be of long duration.

The Battle of Numbers.

The Soviet Union has 193 million inhabitants; her satellites, 80 million; and adding the 440 million Chinese Communists, we have a total of 713 million. On the other hand, the total population of the United States, the British Commonwealth, and Western Europe amounts to about 850 million.

It is difficult to tell which side certain nations would be on in a future war, while others, such as Germany, may be divided in their allegiance. If the European Continent were totally invaded by the Soviets, its 170 million inhabitants would enter into the orbit of the East.

A general analysis such as this can give only a very superficial view of the problem, and it would be erroneous to attack such a problem by the aid of a diagram. However, it is certain, in any case, that any future war will necessarily assume the form of an intercontinental civil war, in which the two camps will each have their adherents. Moreover, each country, according to its race, its geographic position, and its

economic wealth, will differ in military value. It is preferable, therefore, to tabulate numerical strength on the following basis:

1. Fighting forces.
2. Productional forces; that is, forces important from the point of view of war economy, industry, or agriculture.
3. Populations less useful for war industries or agriculture.

Let us consider the fighting forces of the East. According to German sources, the Soviet Army, in 1943, comprised 409 divisions, plus 138 armoured brigades, 179 independent infantry brigades, and 85 armoured regiments. Let us convert the armoured brigades, the infantry brigades and the armoured regiments into divisions of three brigades or regiments: the total may thus be estimated as 543 divisions for World War II. During the first year of the war, the Soviets alone possessed 250 horse-drawn infantry divisions, 150 motorized infantry divisions, 100 armoured or mechanized divisions, 10 airborne divisions (it is questionable whether they had transport planes for all airborne divisions), and 20 artillery divisions.

They were able also to assemble an air force of 15 to 20 fleets, comprising 18,000 to 25,000 planes.

In the last war, the Soviet Union mobilized around 30 million men and 3 million women. It is to be noted that the population of the Soviet Union ceaselessly increases at an average of 3 million yearly, or 8,000 a day—a figure almost equal to the combined growth of the remainder of Europe. Therefore, it appears that the war losses of the Soviet Union have already been repaired.

To the 543 divisions of the Red Army, let us add the 74 divisions of the European satellites and the 100 divisions of the Chinese Communists: the fighting strength of the East then would exceed a theoretical total of 717 divisions, about 1 division for every million inhabitants. Let us note the fact that the normal Soviet divisions are small; they comprise but 10,300 men, while the average strength of the Western division runs from 15,000 to 18,000 men.

Would the Soviet Union have the means for supplying such a mass with modern weapons and for supplying it with the necessary means to keep it in battle? It is more than problematical.

Combat Value.

During the war, the propaganda relative to the combat value of the Red Army was without end. It is time to regard things in their correct perspective, casting aside all the exaggerations brought about by propaganda. Words do not suffice for this. We shall base our observations on facts more worthy of trust. Let us compare what the Red Army and the *Wehrmacht*, respectively, did for reaching firm conclusions with regard to so important a point.

The war between Germany and the Soviet Union brought together two nations, one of which had close to 200 million inhabitants, and the other 80 million inhabitants. Proportionately, the Third Reich mobilized 325 divisions and the Soviet Union 543 divisions. Of the 325 German divisions, only 190 were engaged on the Eastern front, the rest being tied down in occupied territories. The greatest number of

divisions under the orders of the German General Staff in the East was 240, counting the Italians, Finns, Rumanians, Hungarians, and other contingents. A number of these formations, of course, had to watch over the enormously extended hinterland, which equalled the combined areas of England, France, and Italy. The fact is also to be taken into account that the *Wehrmacht*, after the beginning of 1943, fought almost without air cover and was able to keep its units up to only about two-thirds their normal strength. We shall hardly be in error, therefore, in saying that the Soviets possessed a numerical

German industry was undergoing the violent bombardments of the allied air forces. The claim that the Soviets lost a greater part of their production capacity as a result of the German irruption does not change our estimations: according to Soviet statistics, production in the USSR was steadily increased and, in certain branches, if we are to believe the official Soviet archives in the matter, the Red Army must have had superiority in point of equipment over the *Wehrmacht*. However, there is, in all this, something which does not ring true: either the Soviet statistics are inaccurate, or the combat value of the

COMPARISON OF GERMAN AND SOVIET PRODUCTION.

	Aircraft	1942	1943	1944
Soviet Union		8,000	18,000	30,000
Germany		15,557	25,537	39,807
Tanks and Armoured Vehicles				
Soviet Union		20,000	30,000	30,000
Germany		6,180	12,063	19,002

FIGURE 3.

strength of about three to one in comparison with the Germans.

Let us pass on now to the problem of equipment. The oft repeated assertion that the Soviets had to fight against the whole of the European war potential merits examination. Figure 3 furnishes interesting elements of comparison between the respective productions of the German and Soviet war industries.

The German General Staff had to divide its war production, as well as its forces, between several theatres of operation. The *Luftwaffe*, for example, had to divide itself between the East and the West, while

Soviet troops has been over-estimated—perhaps both.

Contrary to what is claimed by the Communist propaganda with regard to the high deeds of the Red Army during the last war, it can be established that, in comparison with the *Wehrmacht*, the Soviet forces proved inferior. However, the German forces, although they always gave a good account of themselves, even when outnumbered three or four to one, could not, in spite of their qualitative superiority, obtain victory over an enemy with crushing economic superiority. The same was true as regards the Finnish-

Russian War. The numerous lakes and the dense forests which characterized this part of Northern Europe prevented the Soviets from deploying their enormous armies. They were, therefore, obliged to fight with numerical equality with the Finns, which brought out clearly their inferiority. Afterward, the Communists the world over claimed that the Soviet defeats were only a "military ruse," destined for hiding from the Germans the formidable strength of the Red Army. It goes without saying that this is a poorly conceived joke.

Can one bank on the armies of the satellites in Europe? The Soviet Union is not without some doubts with regard to this matter, as well as, to a certain extent, on the trust she can place in the Red Army itself. It is no secret that, in the Baltic countries, in the Ukraine, and in many another region, the German troops were hailed as liberators; and this feeling was only modified later—and not always out of love for the Communist regime—as a result of the senseless frenzy of the SS troops and the pitiful requisitions inflicted on the peasants. However, in spite of all that, during the war, a Russian army was organized by the Germans: it comprised nearly 500,000 men, all anti-Communist, principally Ukrainian, White Russian, and Tartar origin. It must not be forgotten, either, that in the last war the Soviets were fighting against an almost traditional enemy. Therefore, one is justified in wondering whether the Russian people, in a war against Western nations, would give evidence of the same endurance and the same force of will that they showed against the Germans.

Let us call attention especially to the fact that the Germans did not owe their defeat to the Soviet resistance alone, but in large measure to the absurdity of their own strategy. It was necessary to fight the Soviets in Poland, in White Russia, in the Ukraine, and in the western regions of the Soviet Union. The farther one went into the steppes, the longer the line of communications became and the more the front was extended. We shall leave the task to others of deciding how the Battle of Stalingrad would have turned out if Hitler, in addition to his 190 divisions engaged in the East, had been free to draw on the 135 other divisions stationed in occupied territories. Some 50 divisions, by way of reinforcement, would no doubt have made all the difference in the world in a struggle between two nations, one of which possessed 80 million inhabitants and the other 200 million inhabitants. In 1945, the Red Army was already showing signs of demoralization. .

In spite of all the factors that have been mentioned, it will not be wise to underestimate the danger which today threatens the West. Whatever may be the morale of the Soviets, an army which does not find itself faced with serious resistance (and that would be the case with the Soviets in Europe at the present hour) does not need to fear demoralization, at least not during the first phases of a war.

The true value of the satellite peoples of the East resides less in their utilization as combatants than as workers. The German and Czech nations, which are of a high technical development, joined with France, Belgium, and Holland, could, in case the Soviets invaded the

whole of Europe, furnish millions of mechanics, fitters, radio specialists, and other skilled artisans which are so sadly lacking in the Soviet Union. From the Danube countries, which are advanced from the point of view of agriculture, the Soviets could, at the same time, draw large contingents of farm personnel. Hitler furnished an example of this by employing 8 million foreign workers in the service of the Third Reich. In reality, the Soviet Union could, militarily or economically, exploit all the nations within its sphere of influence; only a few primitive Asiatic peoples would not be, for ethnological reasons, of any use for war.

How does the problem of manpower appear in the case of the Western nations? During the last war, the United States mobilized some 11 million men, of which only about 8 million could be incorporated into the Army or Air Forces. If a more intensive mobilization were undertaken in the United States, it would probably affect production.

Altogether, the United States furnished 97 divisions, and the British Commonwealth, 67; that is, a total of 164 divisions for the Anglo-American ground forces.

This was a singularly meagre result, if one considers the vast populations of these world powers. How is this to be explained? A large proportion of the peoples who make up the British Commonwealth are inapt for ethnological reasons for any military utilization or for utilization in connection with the war economy. This is especially the case with the dark races. India, with its population of several hundred

million, furnished only 16 divisions, and the British colonies no more than 2. As a matter of fact, the British Commonwealth can count on only the 75 million inhabitants of the British Isles and the white races of its Dominions.

Mobilization in a Third War.

The object of the Atlantic Pact is to organize the defence of Europe, an enterprise comparable to that of the construction of a dyke for preventing an inundation. In order to calculate accurately its length and its breadth, we must first know the volume of the water and the pressure to be held. There is no doubt but that the Soviet Union would be able, during the first six weeks of a future conflict, to commit about 130 divisions in Western Europe alone. Within six more months, this number could be increased by 70 additional divisions. Even then, the Soviets would have sufficient forces to operate with powerful armies in Scandinavia and in the Balkans, as well as in the Middle East and the Far East. In addition, we must count on from 60 to 65 satellite divisions. Moreover, the Soviets could commit about 10,000 planes in the operations in Europe.

Today, as in the past, the Soviet Union could begin her mobilization several weeks before the opening of hostilities, especially in the eastern and central regions of the country. It should be remembered that at the time of World War I, the Siberian garrisons were in a "state of alert" as early as April, 1914. Before the opening of hostilities between Germany and the Soviet Union in the last war, the troops of the Red Army between the Baltic and the Black

Sea comprised 118 infantry divisions, 40 motorized divisions, and 40 independent armoured brigades, or a total of some 151 divisions. In the spring of 1940, the Red Army was composed of around 223 divisions, and, let it be noted, was maintained at this level at a time when the Soviet Union was not yet at war, but only in a state of alert. Her approximate mobilization capacity would probably be as follows:

Z-day (the beginning of mobilization, not of hostilities): 175 divisions of the permanent Army; Z-day plus 42: 100 additional divisions, or 275 divisions; and Z-day plus 180: 100 additional divisions, or 375 divisions.

The distribution of the Soviet divisions, complemented by those of the satellite countries, would be possibly about as follows:

Z-day. — Central and Western Europe: 90 Soviet, 10 Polish, 5 Czech; against Scandinavia: 15 Soviet; the Balkan Peninsula: 10 Rumanian, 5 Hungarian, 5 Bulgarian; Caucasus and Turkestan: 20 Soviet; Far East and Siberia, 30 Soviet; and in the interior of the Soviet Union: 20 Soviet divisions—making a total of 175 Soviet and 35 satellite divisions.

Z-day plus 42.—Western Europe: 130 Soviet, 20 Polish, 10 Czech; against Scandinavia: 20 Soviet; the Balkan Peninsula: 20 Soviet, 15 Rumanian, 8 Hungarian, 7 Bulgarian; Caucasus and Turkestan: 50 Soviet; Far East and Siberia: 30 Soviet; and in the interior of the Soviet Union: 25 Soviet divisions—making a total of 275 Soviet and 60 satellite divisions.

Z-day plus 180.—Western Europe: 200 Soviet, 25 Polish, 14 Czech; against Scandinavia: 30 Soviet; the

Balkan Peninsula: 20 Soviet, 20 Rumanian, 8 Hungarian, 7 Bulgarian; Caucasus and Turkestan: 60 Soviet; Far East and Siberia: 30 Soviet; and in the interior of the Soviet Union: 35 Soviet divisions—making a total of 375 Soviet and 74 satellite divisions.

These figures are purely hypothetical, but they are based, nonetheless, on well-founded information. Such a deployment of forces is quite within the reach of the Soviet Union, and we have presented it in order to impart an idea of the scope of the task which this implies.

The opinion is often expressed that the Soviets would not be capable of invading Europe because of the difficulties they would encounter in attempting to supply such a mass of men. This opinion merits examination. As long as there is no engagement of arms in Western Europe, there will be no great battles—the principal cause of the consumption of material in great quantities. According to the reports, large reserves of provisions and fuel have been accumulated in the satellite countries which are destined to serve as advanced bases.

Moreover, the Communist forces have the habit of living off the country, and their supply problems are, consequently, simpler than those of the Western armies. In addition, as regards material, it is to be supposed that the material of the 543 wartime divisions was carefully stored at the conclusion of hostilities, and will permit the equipping, with it, of at least 250 divisions. Moreover, the weapons taken from the Germans and the Japanese could equip 50 additional divisions.

Modern weapons have been manufactured almost without interruption in the Soviet Union since the end of the last conflict, while, during the same time, the West has dismantled its war factories and destroyed, or permitted to rust, most of the weapons it used during the war.

Of what size should the armies of the Atlantic nations be to defend, successfully, Western Europe? Certainly our forces would not need to be as large as those of the East, in view of our qualitative superiority. However, it must not be forgotten that the front, extending from Holland to the Adriatic, would have a length of nearly 750 miles. We will not be able to hold it unless we can dominate it in time as well as in space over its entire length. This would require not only sufficient men to man the front, but also forces to control the long lines of communication and the vast hinterland undermined by the Communists. Figure 4 provides an estimate of the number of troops necessary for this task.

Will the nations of Western Europe be capable of such an effort? Is it possible to proclaim there a general mobilization as in the case of the last two conflicts? Just as the hinterland of the Soviets would not be at all certain of the desired response in case of war, we also would have to count on the presence of strong fifth columns—and nothing can be as dangerous as the infiltration of hostile elements into the ranks of our armies.

In the light of these considerations it is clear that without a full and equal participation of Germany, the defence of Western Europe is strategically impossible, to say

nothing of offensive strategy which would be required to bring about decisive results. Slowly, too slowly at a pace more hesitating than sure the Atlantic nations are beginning to realize this important fact. How many hard lessons will we need however, before we do something about it? The re-establishment of a German Army must be effected without any moral or material restrictions—or it should not be re-established at all. Human nature being what it is, as long as we distrust Germany she will distrust the allies, and we cannot expect to meet with any great military ardour on her part under the orders of persons whom she regards as dangerous or unworthy of confidence. There is only one argument which militates against German re-armament; there is no sense to the others. The important argument against German re-armament is that if it were accomplished it would furnish the Kremlin with a *casus belli*.

Conclusions.

In the event of a Soviet invasion of Western Europe, American intervention in the land battle would not be effective for at least three months. Even at that time, it could be only on a limited scale, because a very considerable portion of the American forces, as well as those of Great Britain, would be held down in the Asiatic theatres of operation. If the Anglo-American divisions (and here we can assume a total of 164 divisions, based on World War II figures) have to be divided between these different theatres (Western Europe, Middle East, and Far East), we could not count on more than 50 or 60 divisions for the defence of Western Europe—a wholly inade-

quate figure for a task which requires at least 120 to 150 divisions. Any strategic offensive against the Soviet Union would be out of the question without a minimum of 300 divisions deployed successively in space and time over a period of at least three years.

Some 200 divisions would be required in Europe; 50 in the Middle East; and 50 between Southeast Asia and the Far East. The Germans took a chance with 240 divisions and got only as far as Stalingrad. It follows, then, that only the countries of Western Europe would be able to tip the scales in favour of the Anglo-American countries.

This leads us to the strategic importance of Western Europe, which, whatever be the present height of its morale, retains, nevertheless, a decisive military value. As we have seen, the important question for the West is that of fighting forces, while for the East it is that of specialized productional labour. If the Anglo-American powers can defend

Europe, that would not only give them the forces required, but also an infinitely more favourable position for winning the battle of production, since they would thereby block the Soviets from the exploitation of many an important industrial region. The loss of the whole of Europe probably would have as its result the prolongation of the war for years. In the absence of fighting forces, the question may be asked whether it would ever be possible to arrive at a decision.

There exists a dangerous tendency toward attaching too much weight to the industrial capacity of the United States—an enormous potential, it is agreed, but a potential concerning which both Europeans and Americans themselves seem to have an exaggerated idea. Everything has its limits, even the productional capacity of the New World, as limitless as it may seem at first view. It is not possible, as many persons are ready to believe, to put 10 tanks or planes in the

TROOPS NECESSARY FOR THE DEFENCE OF WESTERN EUROPE.

Country	Available in 3 Weeks		Available in 3 Months	
	Divisions	Planes	Divisions	Planes
United States	7	A combined	20	A combined
British Commonwealth	10	strength of	15	strength of
France	40	6,000 planes	60	10,000 planes
Belgium	6		8	
Holland	6		8	
Italy	20		30	
Norway	3		3	
Denmark	2		2	
Total	94*	6,000	146*	10,000

* Based on the strength of Soviet divisions, the figures listed would be equivalent, respectively, to 144 and 294 Soviet divisions.

FIGURE 4.

battle for every two that the Soviets produce. It is very probable that the proportions would be much less favourable for us. Moreover, the Soviet Union is, from the point of view of industry as well as numbers, a much more dangerous enemy than was Germany.

Let us hope that the close co-operation of the great European nations—England, France, Germany, and Italy—will soon be a reality. It is the only policy that can save Europe. Our statesmen must bear in mind that the stronger the European armies are the less chance

there will be of war, and, if war proves inevitable, the greater the chances will be of winning it rapidly.

In spite of the serious warnings given by this article, may I remark that pessimism is not my line? However, I feel obligated to tell the truth. We must all realize that we are passing through a delicate, not to say perilous, phase of our history. We are living in apocalyptic days, in which it is not the effort of some few individuals that will save us, but the sincere co-operation and collaboration of all.

It seems somehow criminal to some people to change their minds. There is nothing wrong with telling people one thing today and something else tomorrow: we change, and the world changes. Many things which were true yesterday are not so today.

It is a sign of our vitality to own that we have changed our opinion, indicating that we are wiser than we were. He is, indeed, a wise man who keeps his mind open so that he recognizes important changes.

People with closed minds are prejudiced in favour of yesterday's thoughts. They resent having to question and re-examine their attitudes and ideas; still more do they resent it when others raise questions. Emerson dismissed such people in this way: "A foolish consistency is the hobgoblin of little minds, adored by little statesmen and philosophers and divines."

—The Royal Bank of Canada Monthly Letter.

PHYSICAL FITNESS IN THE ARMY

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AUSTRALIA is beginning active preparation for staging the Olympic Games at Melbourne in 1956 and as time goes on we may expect rising public interest in this event. It is appropriate to recall that the ancient Greeks developed the original Olympic Games with the primary object of improving the physical fitness of their peoples. The social and sporting aspects of the event were secondary, though important, considerations. Since nearly all male Greeks were soldiers as well as citizens, the Olympic Games tended to raise the physical efficiency of Greek armies.

That the Greeks did consider the military value of the Games is shown by the conditions of the pentathlon contest, introduced in the twenty-third Olympiad in 708 B.C. In this event the athletes competed in running, jumping, throwing the javelin and wrestling, all of which were important attributes of the soldiers of those days. This event was the forerunner of the modern pentathlon, in which the contestant is assumed to be a soldier on a mission during the course of which he must ride a horse from 2500 to 5000 metres over various obstacles, run 4000 metres, swim 300 metres and engage

in fencing and pistol shooting contests with other entrants. Even though the modern soldier is not usually required to ride a horse, the other conditions of the contest can still be taken as a measure of individual fitness for war.

The ancient Greeks originated the vaulting horse to train their warriors to mount their steeds with speed, skill and agility. The art of javelin throwing was encouraged as good training for war. The accent on physical efficiency was strongly stressed while the Roman Empire was at its height. The sculpture of those days inspired athletic endeavour to physical efficiency.

In more recent times Ling from Sweden founded the comparatively modern Swedish drill system of exercise, a system which consisted of rather static exercise inclined to be fatiguing, but from an army point of view valuable for teaching large bodies of troops to respond to words of command. Many armies of the world eagerly adopted this system. Unfortunately, the Ling system had its limitations and did not allow its devotees to reach a high standard as quickly as is desirable. A more rhythmic system of exercise developed from the Ling system and

with the universities of the world accepting physical education as a science, the evolution of physical education proceeded to the present system. Physical education is now recognised as a science that cannot be mastered in a few weeks, and its teachers are required to undergo a comprehensive training in theory and practice.

The present system as formulated by the British Army is excellent, and comparable with the best principles used by any country in the world. It aims at cultivating all the desirable physical qualities most suitable to a soldier for his particular corps. Its correct application will attain the most suitable combination of physical qualities necessary for a soldier's own corps. It is a reminder that although trained brains are necessary for the design of modern war machines, trained bodies are necessary for their operation.

Physical efficiency or fitness is not great endurance, great strength or any one single quality, but a harmonious combination of flexibility, strength, agility, speed, dexterity and posture. It would be quite conceivable to have a long distance runner too weak to carry equipment up a steep hill, or a champion axeman unable to jump a ditch. Minor injuries in the form of sprained ankles, strained muscles and even hernias are often caused amongst athletes by insufficient attention to all the essential requirements of physical training. When these conditions occur amongst athletes, how much more important it is to have the physical training programme of a soldier properly conducted so that all aspects of physical education receive attention in their proper perspective. A combination of

physical qualities must be attained for fitness.

The human body is without doubt the most complicated and versatile machine in the world. Proof of versatility and power of recovery is seen by the way it survives the abuse we give it in our ignorance. The widespread abuse given to the human body is so general that life insurance firms accept as normal the fact that the average person gains at least one stone in body weight between the ages of twenty-five and forty-five. Yet there is no physiological reason why we should gain one stone in body weight between these ages. In the Services, avoidable sickness and injury account for a larger percentage of casualties than enemy action. Despite the medical standard required on enlistment, a large percentage of members develop digestive ailments, joint weaknesses in ankles, feet and knees, hernias, and a host of conditions which begin as postural weaknesses and develop to become serious disabilities requiring medical and surgical attention. Closer attention of physical training activities would institute preventive measures against many disabilities whilst raising the general physical efficiency of all members, as long as supervision is sufficiently skilled.

We all know that on the outbreak of World War II, it took approximately two years before it was possible to cater adequately for the physical efficiency of the Army. Many good instructors were enlisted but took some time to adapt themselves to Service conditions. The system then in use could not produce results as speedily as the present system. Much equipment was sub-standard and considerably

restricted the work. In some cases equipment was lying idle and became broken, and some could not be used as insufficient competent instructors were available. Instructors did not belong to one particular corps, but were seconded from various corps, and consequently they lost opportunities for promotion within their own corps. This, of course, did not encourage any but the extreme enthusiast to concentrate on physical training.

It is axiomatic that physical efficiency is conducive to mental alertness and efficiency. Unfortunately, few individuals have the self-discipline necessary to improve their own physical efficiency voluntarily, although they are fully convinced of the value of systematic exercise. The weakness of our own human nature so often overrules common sense. Stimulation from an official source is necessary to most of us to force us to take advantage of the benefits of physical training, not only from an army point of view, but also from a national viewpoint.

Need we be indifferent to the advice of Socrates thousands of years ago when he said—"No citizen has a right to be an amateur ('Amateur' here means 'novice') in the matter of physical training; it is a part of his profession as a citizen to keep himself in good condition, ready to serve his state at a moment's notice. Finally, what a disgrace it is for a man to grow old without ever seeing the beauty and strength of which his body is capable. And in all the uses of the body it is of great importance to

be in as high a state of physical efficiency as possible. Why, even in the process of thinking, in which the use of the body seems to be reduced to a minimum, it is a matter of common knowledge that grave mistakes may often be traced to bad health."

The kind of physical fitness Socrates had in mind is not simply a matter of appearance. While a flabby man is undoubtedly not in good condition, it does not follow that a lean, alert-looking man is physically fit in the military sense. His appearance may be due to an accident of nature or a spartan diet, while the development of the muscles necessary for the efficient performance of his duties may have been entirely neglected. Nor will violent exertion necessarily produce physical fitness, though it may produce the appearance of fitness.

True physical fitness the sort of fitness the Army requires, can be achieved only by regular training under an efficient instructor. It follows that the first steps in making the Army physically fit for war, and keeping it in that happy state, are:

- (a) An awareness on the part of all commanders of their responsibility for seeing that all personnel under their command are physically fit in the sense discussed in this article.
 - (b) The provision of sufficient instructors.
 - (c) The provision of sufficient time for physical training in all training syllabi and daily activity programmes.
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