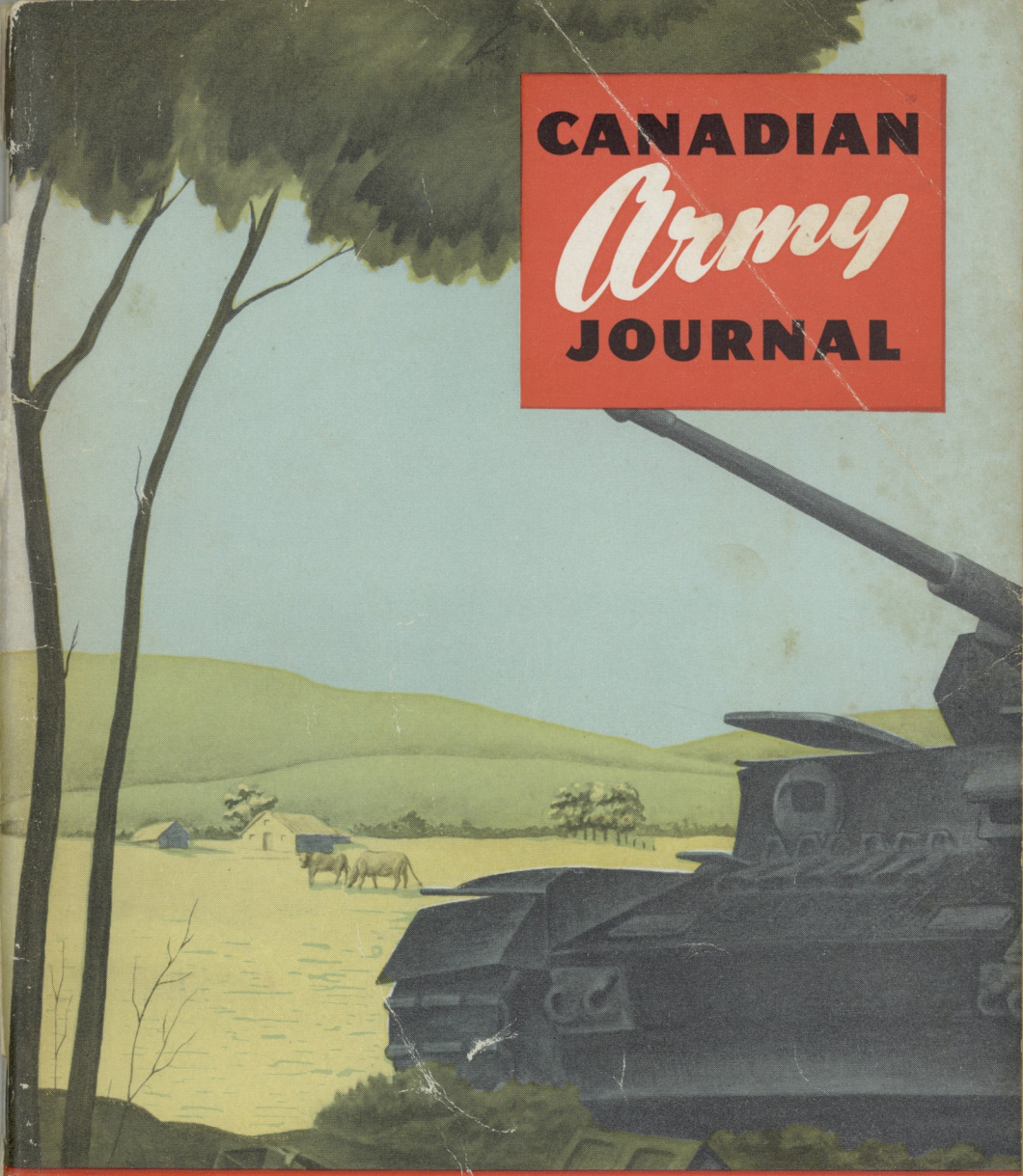
CANADIAN Army JOURNAL



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CANADIAN Army JOURNAL

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The Cover

A grim relic of an earlier day: a destroyed German tank broods over a pastoral scene in France today.

The object of the Canadian Army Journal, which is published by the Directorate of Military Training under authority of the Chief of the General Staff, is to provide officers of the Active, Reserve and Supplementary Reserve Forces with information designed to keep them abreast of current military trends and topics, and to stimulate interest in current military affairs.

PUBLICITY FOR THE ARMY

By
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The matter of Public Relations, in the average Army unit, leaves a great deal to be desired. From coast to coast, in Canada, Army units display considerable ignorance of the great value of publicity, particularly in matters of recruiting and morale.

It is rather startling to discover that almost universally, Commanders of units who may make good use of publicity in business, ignore it almost completely in the army.

The reason, of course, is easy to find. Being schooled in military matters — many in the old school — commanders are still instilled with the pre-war army policy on newspaper publicity—"answer 'no comment' to everything." This idea just won't work in these days of highly developed public relations in government, business and industry. Today, a company rises or falls on the strength of its public relations. So it is with the Army, too!

A good example of bad public relations is the very name of our Citizen Army—the *Reserve* Army* It is difficult to imagine a title more negative in meaning. Can you blame the masses of young active Canadians for not wanting to join an organization whose very name indicates a group "just sitting around in case they are needed." The United States was wiser in their choice of the name "National Guard" which has a decidedly positive ring.

The best example of this ignorance of even the basic principles of advertising, is the opposition of Army units to the idea of "Army Week." In Canada, we accept the idea of Fire Prevention Week, Mothers' Day and even National Onion Week —each designed to educate national thinking along certain lines. But almost universally, units have opposed Army Week, mostly because it does not bring a flood of recruits after each Army Week parade.

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* *Reserve Force is the correct nomenclature.*—Editor.

At several Army conferences which this writer has attended, Army Week has been criticized for this reason. Also, commanders of units have condemned advertising because "that $75 advertisement which we ran last spring didn't bring us one recruit." It is difficult, in these days of high-powered advertising, to understand such an attitude with respect to the value of advertising and publicity.

Army Week was never designed to fill the recruiting offices with recruits each day during Army Week. Publicity just doesn't work that way. But many recruits which units do get—months, perhaps even years later—are "softened-up" and mentally conditioned by Army Week activities. The value of this special week of Army display and special parading lies in educating the public mind to Army matters. Even children—the potential recruits of tomorrow—are educated favourably in this way. Are the dictators of the world, masters in the art of propaganda, the only people permitted to use advertising for the benefit of the Army?

Propaganda is now a weapon of war. Note how the armies of the so-called backward countries enter conquered territory accompanied by sound trucks—generously plastered with photos of their esteemed leaders. Our Army Week convoy posters should be even more effective in this country where the masses can all read.

Unit commanders cannot be expected to conduct a programme of national advertising for the Army, of course. But locally he can and must exploit every advertising media at his command to tell the story of his unit constantly to every member of the community. Citizens will not be attracted to the best possible regiment unless they know about it. They can only know about it through advertising of one kind or another.

The best advertising, of course, comes from within the Army unit itself. If the regiment is reasonably efficient, members bring their friends into the unit as a matter of course. Various schemes involving rewards for recruits brought in have been implemented by some units with varying degrees of success. New men obtained by this method are usually excellent recruits, but the field is definitely limited. The majority of the public must be reached by other means—usually the press and radio.

If radio and newspaper advertising can sell soap, cigarettes and laxatives, it can certainly sell a good product like the Canadian Army.

A single advertisement in the newspaper or a single radio programme is largely wasted effort. It is repetition that counts! Better a small advertisement once a week than a large one once a year, is the rule. A constant repetition of the unit's name is

essential for success. People turn naturally to products or companies whose name comes naturally to mind, and a recruit naturally joins the unit which has made the greatest impression on him. If you allow the movie house or the roller rink's advertising to overshadow your Army advertising, you can logically expect to find your prospective recruit there.

Observe the working of advertising for the soap and tobacco companies. They probably make the fullest use of advertising to get their product across to the buying public. Note the constant repetition of catch phrases and slogans. The message is hammered home again and again until the head swims. Often the repetition is sickening—but it pays off. Stand in a busy shopping centre and observe the products people buy. The answer is obvious.

This does not mean that every regimental commander should rush out and hire a trio to do singing commercials. Far from it. The same principles which sell soap will also sell the Army, but the technique is necessarily different. Besides, most good advertising available to Army units need not be hired—it's free!

Newspaper editors and the editors of radio newsrooms are hungry for news, particularly news of a local nature. Keep them supplied with details of unit activity and they will keep the name of your regiment constantly before the public. Invite their reporters and photographers to your training exercises, special parades and presentations and you will get the best possible advertising —free of charge.

Ask any editor what news is, and he will answer "people" every time. People, and their activities, make up most of the news appearing in the paper. The Army, being composed essentially of people, is a rich field for news stories. Names of new enlistments, promotion lists, transfers, etc., all make welcome news for any paper. News of schemes, exercises, annual camps and special parades are all news.

Births, marriages and deaths are news, too — especially to the women readers. After all, half the population is composed of women. Don't overlook them, they are the mothers of our potential recruits! Any wedding in the regiment can rate a photo on the social page, complete with a reference or two to the unit concerned.

The Sunday magazine section of your home-town paper is a good field for unit advertising. Any editor will be pleased to run a single or double spread of pictures showing your reserve or active soldiers busy at their various trades. In this way you can usually get several hundred dollars worth of publicity absolutely free.

Be sure to make full use of your

regimental crest, motto, slogan or colours. They identify your unit in the eyes of the public. Remember the symbols of the various Canadian War Loan drives? Be sure to hammer home your unit insignia in the same manner, first to your unit personnel, secondly to the people of the community. Be sure that any greeting cards, invitations or trophies given out bear the regimental insignia. Also be sure to display it in the messes, on the walls of the armouries and on the drums of the band, if the regiment boasts one.

The policy of giving trophies for good attendance, for bringing in recruits, for marksmanship and for proficiency in training is an excellent one. It pays dividends in many ways. Firstly it is an incentive to encourage good work. Secondly, the presentation of the trophies is a good opportunity for unit publicity. Be sure that the reporters and photographers are on hand when they are given out. The trophies, if carefully chosen, continue to advertise the regiment, years after presentation. Medals and scrolls have the poorest advertising value, crested polo shirts, engraved ash trays or inscribed wall plaques, the best.

All the advertising material, written or material, issued by the regiment must be carefully chosen, as bad publicity can ruin a CO and his unit very quickly. For this reason, each unit commander must be responsible for regimental publicity himself, even if the detail work is left to subordinates. The important matter of security is also kept under close control in this way.

A good Public Relations Officer, plus a wise policy on publicity and public relations, will pay big dividends in recruits and public supporters for any Reserve Force unit. This combination, combined with a well organized and highly trained unit will produce miracles over a short period of time. For a well filled parade ground *tomorrow* be sure that in your unit you put publicity to work *today!*

Is It True Today?

"Nobody in the British army ever reads a regulation or an order as if it were to be a guide for his conduct, or in any other manner than an as amusing novel; and the consequence is that when complicated arrangements are to be carried into execution (and in this country the poverty of its resources renders them all complicated), every gentleman proceeds according to his fancy; and then when it is found that the arrangement fails (as it must fail if the order is not strictly obeyed), they come upon me to set matters to rights, and thus my labour is increased tenfold."—*Wellington.*

SOVIET MILITARY ORGANIZATION

IV: Military Service and Training*

The Soviet Union has geared its entire military and civil structure for rapid mobilization—whether it be open or secret, general or partial mobilization. Not only do the plans embrace the call-up of all reservists but even farm horses and tractors are tagged for M-day. As a nation, the USSR follows the old Cossack tradition of being prepared—men, women and teen-agers all—to saddle horses and ride forth from the villages in military formation.

In keeping with this total preparedness, all male citizens who reach their nineteenth birthday are subject to conscription. Unless they possess special qualifications, all male conscripts enter the military service as privates. Only men over 50 years of age and those judged to be physically unfit are exempt from military service. However, physical standards vary widely according to the urgency of the situation. Those under arrest, exiled or deprived of suffrage rights are normally excluded by law; but during World War II the Soviets drew hundreds of thousands of combat and service troops out of their prison labour camps. There is a generous and enlightened policy of deferment for scientists, teachers, technicians and such artists as movie actors since these specialists are in chronic short supply in the Soviet Union.

Qualified women are conscripted in wartime. Even in World War I Russia had a women's combat infantry battalion. In World War II Soviet women were assigned as traffic control, medical, veterinary and service personnel. In addition, many were accepted for combat units on a voluntary basis. Approximately 2,000,000 women between the ages of 18 and 25 wore the Soviet Army uniform. In war-threatened areas everyone, including adolescents, women and old men, may be mobilized. During the early months of World War II, hastily organized divisions of factory workers were thrown into the breach and sacrificed in the defence of Leningrad and Moscow while reserve units were being readied for the counter-offensive.

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* *This series is reprinted by courtesy of the* Army Information Digest (*U.S.*). *The illustrations were also supplied by the* Digest.—Editor.

The military indoctrination of the Soviet recruit begins long before he is called up for active service. No other country in the world has such an intensive and all-inclusive programme of military training. The average Soviet citizen lives his entire life in an atmosphere of military semi-alert. Small children in school learn their history from a martial-Marxist point of view. The words "front", "offensive", "struggle" and "objective" are used to describe many non-military activities. The Russian Pioneer—counterpart of the Boy Scout—is taught such skills as rifle marksmanship and anti-tank tactics.

Pre-conscription training also is provided in voluntary societies for assistance to the armed forces (the DOSARM, DOSFLOT or DOSAV) under sponsorship of the Army, Navy or Air Force. In these organizations millions of young civilians learn such military skills as parachute jumping, chemical warfare, skiing, first aid and pilot training. If his

U.S. Army Photograph

Traffic control is one of the specialized tasks performed by women in the Soviet Army.

formal education extends beyond the seventh grade, the Soviet citizen will have spent several hundred hours in pre-military training prior to active service.

The conscript fulfills his military obligations in peacetime by serving on active duty or by entering the reserve. Active duty involves induction into the standing army whereas direct assignment to a reserve unit obligates the new reservist to perform periodic training with troops.

Periods of active duty ranging from two to five years are prescribed by law, but men are often retained well beyond the date they become legally eligible for release. After World War II, men were released in blocks of age groups with the eldest being demobilized first. Certain specialists, however, were held in uniform and tens of thousands who had been deferred during the war were called up in 1946 and 1947 to serve their term in the army. Reserve officers are being held on active duty indefinitely, with the release of officers being carried out on an individual basis.

Civilian technicians and experts of various types pass into and out of the army with little more formality than donning or doffing the uniform.

The Russian recruit spends an average of two to three years on active duty and then is released to the reserves. As a reservist he receives annual refresher training and is subject to recall at any time until he reaches 50 years of age; beyond that age he may be directed to serve in the home defence units in an emergency. This soldier training provides an immediately available manpower pool capable of providing an army of many millions of trained men at any time.

The Soviet reserve system divides all fit men into two categories—those who have had active duty training and those who have not. In addition to this grouping in terms of thoroughness of training, reservists are classified according to age. The first class includes men up through 35 years of age who are required to take frequent refresher training. The second class includes the next ten years' classes while the third is made up of men from 46 through 50. Thus the trained reserves of the first class—those up through age 35—constitute the bulk of the immediately effective potential available for mobilization into combat units.

Technically, any reservist or conscript who has completed his term of service may volunteer for extended active duty, but in practice usually only non-commissioned officers are accepted. Women specialists such as translators, doctors, switchboard operators and the like may volunteer, and young men may be accepted as

volunteers before they are called up for active duty.

The law states that only citizens of the Soviet Union may volunteer for the Soviet Army, but there have been exceptions. In World War II, Polish, Czech, Yugoslav and French volunteer units served in the Soviet Army. These units served in a capacity similar to the American and British-sponsored Free French, Free Polish and other allied military forces. Foreigners' eligibility for military service with the Soviet Army is determined by political factors—not by any hard and fast rule.

Conscripts are initially assigned on the basis of their educational qualifications, civilian skills, political reliability and physical characteristics according to the requirements of the service. The Soviet Air Force and Navy receive a higher type of conscript than the Army, while within the Army the technical arms and services have the pick of the crop. The graduate of a ten-year school (high school) is likely to be selected for non-commissioned officer training. Drivers, of whom the Army always has a shortage, are assigned to motorized or transport units. The politically unreliable conscripts from the Baltic regions (many of whom have little affection for the Russians or for Communism) are assigned to service units or to the infantry in spite of skills that might normally qualify them for specialized assignment.

The Army exploits the natural skills and background of certain ethnic or regional groups. Cossacks make excellent cavalry-men. Caucasians are usually assigned to mountain units. Siberians are likely to serve with ski troops.

As his training progresses the soldier acquires a military occupational specialty. His later assignments are governed by merit, existing vacancies and, in the case of non-commissioned officer canditades, successful completion of the nine-month training course.

More officers graduate from the numerous officer candidate schools than the Army can absorb. As a result, competition is keen and an officer's career remains on a probationary basis until he reaches field grade. As an officer rises in rank, political reliability progressively becomes a more important factor in selection for promotion. Seniority—especially in the field grades and among generals—is of comparatively little significance. The great majority of Soviet Army officers are Communist Party members or affiliates.

Status as a "reservist" or "regular" means nothing in determining an officer's career. There is no single academy graduating "regular" officers and there is no distinction among components.

Officers' careers follow a planned

rotation among school, troop duty and staff assignments. The various arms and services administer the affairs of their officers at the medium and higher levels. In the lower echelons this is accomplished by commanders exercising limited authority in this sphere.

Through the highest military academy which is operated directly by the General Staff, the Soviet High Command is able to guide the selection and training of outstanding officers who are hand-picked for duty with the General Staff.

In the Army, as elsewhere in the Soviet Union, the class distinctions that the 1917 revolutionaries sought to abolish have now come back with a vengeance. A Soviet marshal receives more then 110 times the pay of a private. Furthermore, the Soviet conscript receives no furloughs except in an emergency. Even though it is tax exempt, the pay of the Soviet soldier amounts only to pin money. However, he is provided with clothing, food and shelter and certain modest allowances may be paid to his family.

While pay differences are great, the the real class distinction lies in the extra privileges granted officers. For instance, Army officers have special commissary privileges—a vitally important factor in the Soviet Union. In 1944, for example, one Moscow department store was divided into three floors or sections, the first of which was open to the public. The second floor, displaying additional items and food, catered to officers only, while the top floor sold its stock of luxuries only to Heroes of the Soviet Union and ballet dancers.

Base pay is augmented by bonuses to paratroopers, to combat flight personnel in the Air Force and—during war—to combat ground troops. These categories receive approximately 50 per cent. extra pay. Officers are paid various bonuses over base pay, depending on their assignment, with additional pay accompanying extra responsibility and extra technical skill.

Technically, Soviet soldiers are discharged or furloughed to the reserves by age class, from the oldest downward, but in many instances military personnel are discharged at the convenience of the government. Disabled servicemen are eligible for pensions, the degree of disability determining the amount of compensation. A completely disabled conscript soldier receives a pension equivalent to his last civilian wage. If he is killed in action his family will receive a lesser amount.

A soldier may retire on a pension of 50 per cent. of his base pay after 25 years' service, with an additional three per cent. for each year he serves beyond 25 years. Extra service credit is given those who fought in the

1917 Revolution and Civil War or who served in the submarine or other hazardous branches.

Generals are retired at 90 per cent. of base pay; field officers at 80 to 90 per cent., depending on length of service. Company grade officers who leave the service are normally not retired but are transferred to the reserve.

Throughout his military service, the Russian Soldier is subjected to a rigorous training regimen whose doctrine has been keynoted by the Soviet leaders. The Soviet press has attributed the following maxim to Lenin: "The very essence of the military profession requires that an army, even though it be a victorious army, as soon as hostilities are over, submit to hard but profitable training for fear of being outdistanced."

Stalin, who since the close of World War II has given his personal attention to Soviet Army training, recently stated, "The entire training of the army is to be based on the skillful use of experience of the war. This experience should also be thoroughly utilized for the theoretical education of officers."

Lessons of World War II are being applied in all Soviet Army training. The Army conscripts a large number of Soviet citizens annually and fully integrates them into the ground forces. The average Russian soldier may not have the technical background of the Western soldier, but extensive training is probably reducing this handicap. Soviet infantry training teaches recruits sound basic doctrine and provides opportunities for peak physical conditioning.

Army training—carried on six full days a week—is intensive, continuous and realistic. Live ammunition is issued during field exercises and actual combat conditions are so closely simulated that training accidents are accepted as a matter of course.

Military training, like every type of education within the Soviet Union, is accompanied by a constant programme of political orientation. Communist Party members within each military unit are organized as a group which decides minor matters of conduct. Meetings are held for discussion of the Marxist-Leninist doctrine. According to Party doctrine, the special function of the Communists within the ranks is to stir enthusiasm among other soldiers and in time of war, to set an example of courage and devotion to duty. Recruits and regular soldiers receive daily lectures on such topics as Soviet history, Communist theory, the embellished story of Stalin's life and the Soviet interpretation of domestic and international issues.

The Soviet Army's annual training cycle is based on a progressive schedule. Conscripts usually enter

service in October and receive rudimentary training at the reception centre. By December they are assigned to units. Since new recruits comprise only 25 to 30 per cent. of the regular units they are fully integrated and receive the benefit of association with experienced troops. The first training period, from January to March, is devoted to physical conditioning, development of combat capabilities, small unit tactics, weapon training, range practice, construction and improvement of training facilities and class instruction. Emphasis is placed on the preparation of the individual and of the platoon for spring training.

The next phase, April through July, begins with company and battalion exercises and concludes with regimental exercises. In this period the Army concentrates on the consolidation of the ranks into unified combat teams. The August through September phase is organized around the division manoeuvres.

The high point of Soviet Army training occurs during the October and November army manoeuvres. All arms—including tanks, infantry, artillery, rocket and close-support aircraft plus the specialist arms—are combined in full-scale and realistic tactical problems under conditions simulating actual warfare.

Elaborate critiques are held at the

Tank men such as these staff the mechanized units of the Soviet Army.

conclusion of these manoeuvres. Approved solutions to the various problems are given by the senior commanders and by General Staff observers from Moscow. Detailed correction is conducted by junior officers and non-commissioned officers in the ranks.

The entire training programme is designed to produce efficient, hard-hitting, rugged soldiers, integrated into well-organized cohesive combat units. By the end of his first year the recruit is familiar with his weapons and knows how to employ them to good advantage. He is conditioned to live ammunition and is inured to near-combat field exercises. His physical condition is excellent and requires very little of the elaborate care common in Western armies. On manoeuvres he rolls up in his blanket (which is actually his coat) under a bush at night or joins his poncho with that of a comrade to make a small tent. In the morning, if conditions permit, he has a hot breakfast and is given a large chunk of black bread. Otherwise his only hot meal of the day is a bowl of borsch in the evening. His peasant background permits an easy transition to field conditions and his stolid nature quickly adjusts to military routine.

In his first year he has received training in basic military subjects and individual tactical infantry training. He has received detailed instruction in attack, defence and reconnaissance. He also has demonstrated his ability in field problems dealing with such basic operations as use of cover, routes of advance, camouflage, field-craft, weapon handling and gun drill. Many soldiers have received instruction in sniper skills, use of artillery and special weapons.

Technical training is inferior to that achieved by Western armies although normal running repairs, maintenance and care of weapons and equipment is relatively good. Technological knowledge in the USSR is lower than that in countries west of the "Iron Curtain." This factor has prevented the spread of technical competence in the Soviet Army. State educational establishments and the armed forces training programme are being pressed to overcome this weakness.

Throughout his course of training the Soviet soldier is strongly stamped with a harsh type of discipline. The salute is now required at all times. Furloughs, passes and recreational facilities are limited and go only to those whose record is nearly perfect. Those committing even slight infractions of discipline are severely punished. Outside the USSR association with foreigners is forbidden. Off-duty time throughout the Soviet Army is strictly and unfailingly supervised.

The training of non-commissioned

U.S. Army Photograph

Rugged outdoor training prepares the Russian soldier to meet the test of battle.

officers is receiving greater attention today than was the case in the pre-World War II Soviet Army. Gradually there has been an approach to the professional point of view familiar to Western armies, namely, that top-ranking non-commissioned officers are the "backbone of the army." Present disciplinary regulations allow the non-commissioned officers to administer minor punishments up to three days of restriction. In tactical operations they are being given responsibilities commensurate with those in Western armies, such as command of infantry platoons or the operation of artillery auxiliary observation posts. In the post-war army a Soviet non-commissioned officer must have a minimum of a seventh-grade education. The most promising may compete to attend a three-year officer candidate school course.

The top priority element of non-commissioned officer instruction, in the Communist view, is political education. Those who were not good Marxists before being made non-commissioned officers must become so.

The technical and command training of Soviet non-commissioned officers is normally the responsibility of the line regiments and divisions which operate training units for this purpose. Courses of approximately nine months' duration are given in a variety of subjects applicable to the respective branches of service. The infantry course, for example, includes political training, small unit tactical instruction, the handling and firing of small arms and field engineering. Potential non-commissioned officers are well-grounded in communications, defence against gas, aircraft recognition and artillery support. They also receive some instruction in unit supply and administration and army regulations.

The typical Soviet non-commissioned officer is a hard, Communist-indoctrinated individual who obeys orders promptly. He has good staying power and his morale is usually good.

The Soviet officer corps represents a selection from the large World War II army. Most have World War II experience now being supplemented by extensive theoretical training. The officer class as a whole has growing prestige in the state and is rapidly becoming professionalized. A definite distinction is made between officers and enlisted men. Military courtesy is emphasized and rigidly observed.

The extensive combat experience of most officers permits greater time to be devoted to theoretical training. Instead of the one-year courses common in Western armies the Soviet officer usually has two- or three-year courses in the various schools and academies. Meanwhile constant participation in annual field training and manoeuvres provides opportunity for the application of theoretical training.

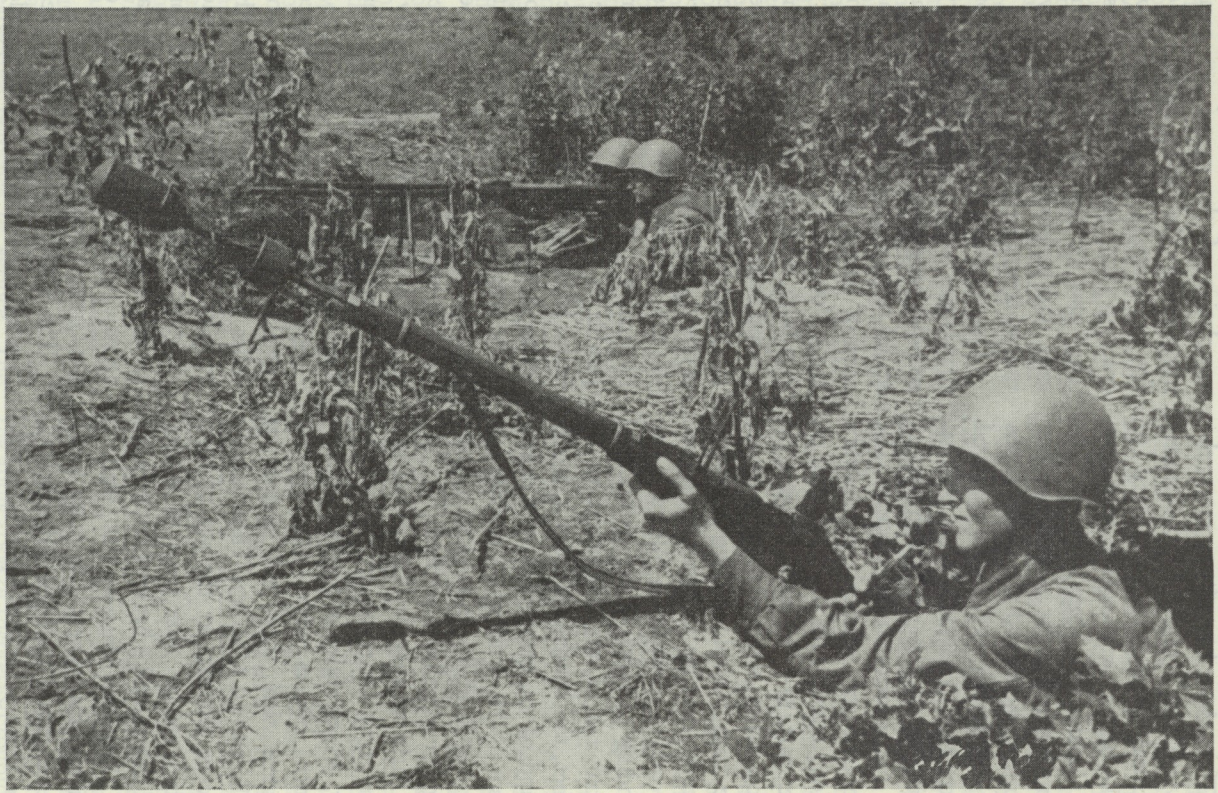
Throughout his military career the Soviet officer is exposed to continuous political propaganda calculated to make him an enthusiastic supporter of Communism. Even so he is constantly watched by his commanders, brother officers and the secret police for any departures from the approved Party line. Considerations of political reliability continue to weigh heavily in the promotion of officers. The problems of political unreliability among officers and the reluctance on the part of the Soviet regime to decentralize responsibilities have in the past tended to stifle initiative. Present doctrine and training as well as added perquisites of rank are tending to increase the professional attributes of the officer group. In effect, the training induces a double standard of compromising Communism with military principle. It stresses flexibility in military matters, rigidity in political matters.

Early training is Suvorov schools may now be reducing the problem by so carefully indoctrinating potential officers with loyalty to the regime that they will emerge as fully-trained Marxists. These schools accept students at the age of nine. They receive nine years of general education and a heavy indoctrination of Leninism-Marxism, as well as military discipline and training. Graduates attend officer candidate schools for three years and upon successful completion of the course are commissioned in the Soviet Army. The first graduates of this system are now entering the junior officer ranks. They may be expected to be politically unimpeachable and adequately-trained company officers.

The complex of officer education that begins with military preparatory schools progresses through various stages of professional training to the apex of Soviet military instruction, the Voroshilov Higher Military Academy, which is comparable to the United States National War College. At present there are a large number of officer candidates schools conducted by the various arms and services. By analogy, these schools are comparable to a blending of the United States Military Academy and a United States Army officer candidate school. Each arm and service operates its own academy, which offers courses roughly equivalent to the advanced courses of the United States Army's branch schools at Fort Benning, Fort Sill or Fort Knox.

Specialized training in ordnance, signal, medical, quartermaster and other services is supervised by the training section of the senior headquarters of the arm or service concerned and is co-ordinated by an agency within the headquarters of the Ground Forces.

The USSR provides suitable theatres for the training of troops under



U.S. Army Photograph

Soviet soldiers are taught the use of the rifle anti-tank grenade (front) and the anti-tank rifle (rear).

special conditions of climate and terrain and considerable emphasis is placed on such training. The Caucasus, the Tadzhikistan Mountains, the Central Asian Desert, the swamps and forest of the Pripet Marshes and the tundra country of the northern latitudes provide diversified manoeuvre areas. More particularly, the Soviets take full advantage of the training facilities in Europe to adapt their troops to modern continental warfare as well. Training at all levels has been conducted in Germany and Austria throughout the Soviet occupation zones.

In the Soviet Army training programme, a paramount consideration of Soviet policy becomes apparent—to make military training a potent force in developing to maximum readiness every segment and stratum of the total population of the USSR and to utilize military force or the threat thereof in implementing the will of the Soviet regime throughout the world. Certainly, the Soviet Army today is a well-trained, adequately-led and politically-controlled military machine.

(*To be continued*)

WATER FOG

High-pressure water fog fire extinguishing systems are effective in killing "spill fires" of gasoline on a concrete test slab, it has been determined at the Army Engineer and Development Laboratories at Fort Belvoir, Va., where recent tests have just been completed. High-pressure equipment was found to be four times as effective as low-pressure units.

In these tests, the superiority of high-pressure over low-pressure fog was established, with somewhat less notable but equally significant results, at low rates of discharge. Average extinguishment time at 15 gallons per minute was 26 seconds for 1,500 pounds pressure, and 52 seconds for 100 pounds pressure.

Using high-pressure nozzles especially constructed to deliver 35 gallons of fog per minute at 1,500 pounds per square inch pressure, fire fighters succeeded in extinguishing a series of 10 test fires in an average of 9 seconds. Pressures this high, however, make handling the nozzle difficult. Subsequent tests using 500 to 1,000 pounds nozzle pressure gave average extinguishing time of 13 and 10 seconds, respectively.

Principal advantage of water fog in combatting fire is that of water economy, the engineers assert. This is an important consideration in military fire-fighting equipment for use where water is scarce.—*Science News Letter* (U.S.).

A POTENT FACTOR IN WAR

SURPRISE

By
MAJOR E. A. COOLEN, RCA, CANADIAN ARMY STAFF,
WASHINGTON, D.C. *

Part 1

The unexpected works a tremendous influence on any undertaking. Surprise is psychological in essence: its success lies in man's inability to react effectively to the confused situation which results when he is confronted with an unanticipated event or is forced to take an unconsidered action. In war, therefore, surprise is one of the most vital elements.

The study of military surprise is a vast subject. This paper will deal with only one aspect of war—the land battle. It must be realized, of course, that surprise is no less vital to the proper use of air and sea power.

The Proof of History

The soldier, more than any other professional man, must spend a good deal of the present studying the past. Except in war, the young officer cannot actually practise his technique: only by assessing objectively the actions of the great commanders of the past can he develop the art of generalship. He must assimilate the lessons of the campaigns as they are applicable to modern equipment and techniques. Such a study of military history reveals how vital a part the element of surprise has always played in war.

In our survey, we will not isolate the most remarkable instances of surprise. Rather we will demonstrate how the technique of using surprise has been developed through the centuries by the most notable commanders, each in turn adding to the concept to attain surprise in the particular conditions of his day.

It is Epaminondas of Thebes who is credited with infusing mobility into the fixed mass that was used in Grecian days to gain decisions on the battlefield. In battle order, this mass was an unwieldy body of light infantry and archers approximating in numbers a modern division and drawn up in depth. It is incredible that any effective mobility could be

**The author wrote this essay during the Spring of 1950, at which time he was serving as a Resident Staff Officer at St. Francis Cancer University, Antagonish, N.S. He entered it in the Bertrand Stewart Prize Essay Competition, which is sponsored by* The Army Quarterly *in the United Kingdom.*—Editor.

coupled with such a force. Yet Epaminondas noted that, in battle, the tendency of this mass was to shift to the right. This movement resulted from the fact that each soldier carried his shield in his left hand and, in an endeavour to protect the exposed portion of his body behind the extended shield of his comrade, moved instinctively to his right. This inclination developed the main conflicts on the wings. As a result of his observation, Epaminondas placed the greater part of his best men on the left. He thinned his right wing, leaving it just strong enough to contain the enemy centre and left wing. Then, with his superior force on his left wing, he attacked obliquely the enemy right. This enabled him to defeat the enemy force in detail. Thus the Theban Commander coupled mass with velocity to produce the first military formula, M(mass) × V(velocity) = S(surprise).

Epaminondas improved this newfound mobility and combined it with deception to defeat the Spartans in his last battle. One Spartan force was located at Sparta, the other a hundred miles north at Mantinea. Epaminondas placed his force at Tegea, ten miles to the south of Mantinea. The southern enemy force set off on a circumfluent march in an attempt to unite with the force at Mantinea. Epaminondas shrewdly appreciated the value of the capital, Sparta, as a military objective, and under the cover of darkness, set out to attack it. He was prevented from delivering the attack as the Spartans, allegedly warned by a Theban deserter, doubled back to protect their city. It is possible that early history is inaccurate in this regard and that the Theban move towards Sparta was all part of a plan to prevent the opposing forces from effecting a concentration. In any case, Epaminondas turned his attention to the force encamped at Mantinea. As he drew near, the commander at Mantinea formed his troops up in battle order to face the direct approach of the Thebans. Epaminondas, when a short march away from the town, moved his force obliquely to the left, and the enemy commander, in confused fashion, sought to reorganize to meet the expected attack on his right wing. However, the Theban General halted his troops and made ostentatious preparations for encamping. This ruse lulled the garrison commander into following suit. But behind this pretense Epaminondas completed plans for the attack. On a given signal, the Theban Army rushed down on the unprepared enemy and won a swift and brilliant victory, dulled only by the fall of their General.

The technique of Epaminondas was adopted and developed by Philip of

Macedon and his son, Alexander. The limited mobility of the day provided a degree of surprise in direct proportion to the audacity and ingenuity of the commander. We need not elaborate on the successes gained by Alexander through these qualities and by this principle.

As the struggle for ascendancy shifted to the West, Rome and Carthage became the contestants for the control of the Mediterranean sea lanes. The most notable commander in this period was the eventual loser of the Second Punic War—Hannibal. He was a unique soldier for his time: to him surprise was an essential part of any engagement, and he would go to extreme lengths to attain it. In this synoptic review, we will recall only one, and likely the most famous battle of his two decades of almost continuous campaigning.

Following successes in northern Italy, Hannibal went into winter quarters at Bologna. The Roman commanders took advantage of this respite to plan and rearrange their forces in anticipation of Hannibal's continued march on Rome in the spring. Two major Roman forces were therefore located at what are now Rimini and Arezzo to block the main approaches to Rome. Hannibal, however, was not idle during the winter. Through information from the northern natives and extensive reconnaissance, he discovered a roundabout route to the west of Arezzo that would bring him out in the rear of the Romans there. This route, however, meant crossing a large marshland that in the spring of the year would be a major water obstacle. The Roman commanders must have known of this route and concluded that the spring thaw would restrict Hannibal to the normal approaches. True to his genius, the Carthaginian set about to do the unexpected.

On breaking winter quarters in Bologna, he undertook to pass through the swollen marshes. Hannibal drove his men to make forced marches for four days over a route completely under water. The hazards of the march claimed many men and animals, but the depleted and fatigued force finally emerged in the rear of the Romans still encamped at Arezzo. Hannibal then made what appeared to be a pointless decision. Instead of attacking the Romans whom he had circumvented, he led his army south towards Rome. He appreciated that the Romans would have to follow him. The Roman commander, vexed at his unkind fate, did just that.

Meanwhile, Hannibal's fertile mind produced a plan that would give his tired forces an advantage. It developed into the greatest ambush in history.

He continued to press on ahead. On reaching the narrow defile leading to Lake Trasimene, he deployed most

of his troops in the foothills that studded the area, and sent only a decoy detachment on towards Rome. Cloaked by an early morning mist that clung to the low ground, his soldiers lay hidden until the imprudent Roman commander had led his forces well into the defile. On a signal, the Carthaginians fell upon the Romans from the front and rear. The Romans, still in marching order, were literally slaughtered. This ambush was no small feat when it is considered that an entire army was hidden on the ground and that the Romans numbered thirty thousand of whom only one-fifth escaped with their lives. In directing the deployment, Hannibal had to tax himself to the limit: illness had so weakened him that he had to be carried on an improvised stretcher. This single exploit is outstanding evidence of the decisive effect that is possible when subtle methods are employed and of the courageous determination required to carry out such undertakings.

Similarly, Julius Caesar, by keeping the morale of his troops at a high level, was able to make great demands on them. There is a constant conflict between the spiritual and physical nature of man. The physical nature completes the concrete act only insofar as the spiritual nature contributes its dynamic force. If the spiritual output is low, an incomplete action will result. The state of man's spiritual nature has been aptly termed "morale". To Caesar, this was a vital consideration.

The limited mobility of the foot-soldier compelled the commander to undertake extended forced marches to achieve surprise. These marches tried the soldiers severely. But Caesar had that intangible quality which characterizes all great leaders—an attraction for the respect and devotion of his troops. He used this faculty to exact stupendous effort from them and provide the mobility to execute his plans with speed and daring. A keen sense of time and space enabled him to make full use of his power of manoeuvre.

There was one other psychological key that Caesar used to open the way to success. He studied the commander opposing him. By getting into the mind of his opponent and understanding his process of logic, he could forecast the sequence of events and make his plans accordingly. His accurate estimate of Pompey turned what looked like certain defeat in Greece into a decisive victory, culminating in the battle of Pharsalus.

Pompey repulsed Caesar in his effort to capture the seaport of Dyrrachium. Outnumbered and restricted in manoeuvre, Caesar was forced to take a fresh view of the situation. He decided to move his forces rapidly eastward into Mace-

donia to threaten the enemy force garrisoned at Pharsalus. Pompey, mentally frustrated, was forced to abandon his secure base in order to hurry to the aid of his detachment. Caesar reached the fortifications first but declined to attack. Instead he awaited the arrival of Pompey with his numerically superior force, realizing that these circumstances would exert a psychological pressure which would induce a direct attack. This Pompey did, and again Caesar was able to overcome a superior force by expert manoeuvring. Caesar's appreciation that the "mental battle" must be won before physical victory can be concluded is perhaps his greatest contribution to the art of war.

Over the ages the development of the art of war was sporadic. With the coming of the Goths, the cavalry became the main arm. Centuries later the infantryman was restored to his proper prominence. The weapons of war were gradually improved. Various revolutionary arms, such as the long bow of the Fourteenth Century, became dominant and retarded the advance of military science. Only experience could provide means of counterbalancing the weapons and fitting them into their proper role—often by changes in tactics, as in our own day, the advent of the machine gun helped bring about the dull tactics of the war of 1914–18. In fact, the development of the art of war is one of long, barren periods followed by concentrated years of progress under the occasional great military thinker. One such reformer was Gustavus Adolphus of Sweden, who introduced such sweeping changes that his era has been dubbed the renaissance of military science.

By organizing his army into battalions, Gustavus introduced a new suppleness into fighting formations and improved their mobility. Instead of contracting for the services of mercenary cannoneers before the battle, as was the custom, Gustavus included artillery as an integral part of his battalions. These self-contained units made a more skilful use of ground possible. With these reforms, the ground on which the fire-fight was to take place took on an increased importance. Unfortunately, subsequent generations were not capable of applying the refinements developed by Adolphus. Wars became a sequence of manoeuvres, each side trying to gain a decision by feints rather than fighting. It was not until the Eighteenth Century that further enlightenment was cast on the art of war by a disciple of Adolphus, Marlborough.

Marlborough, who started a brilliant career with an ignominious stay in the Tower of London, lived at a time when war was developing into a sort of gentleman's sport. Although he possessed the skill of a great

commander, he had to emphasize the necessity for offensive thinking in order to apply his talent. He held that the object of war was to kill your enemy, not to play with him. Marlborough thus brightened a somewhat dull period by combining aggressiveness with subtlety.

Queen Anne recognized his potential. He was released from confinement and made Commander-in-Chief of the coalition forces that were preparing to oppose the Franco-Spanish bid for European domination.

On assuming command, he found large French forces assembled in Flanders on a broad front. The left flank was anchored on the port of Antwerp and the right wing extended to the river Meuse. Behind this screen, the main army under Boufflers was marching towards the Rhine. The Dutch, allied with the English, foresaw an invasion of the Netherlands, and concluded that the defence line behind the Mass river should be reinforced. Marlborough persuaded them that the best course was to remove the threat to invasion. On this premise he was permitted to prepare his arrangements.

Marlborough devised an audacious plan based on speed and vision. He intended to invade France along the Moselle valley, turn the right flank of the French covering force, and, by cutting off their line of retreat, force them to do battle while they were hamstrung with the confusion of an unexpected approach. Paris was to be next. When Boufflers was informed of the allied invasion, he hustled back to reduce the threat to Paris and the stage was set for a decisive victory. Unfortunately, the Dutch commanders played an important role in the piece. Satisfied with the obvious collapse of the French plans for invasion, they stubbornly refused to follow up their initial advantage. Had the covering force been defeated, the physically tired and spiritually demoralized army under Boufflers might have offered little resistance. As it was, Marlborough's plan, brilliantly conceived, was illogically aborted by his Dutch deputies.

Several times this great English officer was to have his plans fall short by the perverse action of his Dutch generals. On one occasion—the capture of Donauworth—haste impelled him to put in a direct attack. He won a victory which he himself described as having "*coûté un peu cher*", indicating in a negative fashion the value of surprise.

Operations in Bavaria united Marlborough with a kindred spirit, Prince Eugene of Savoy. In this partnership, he was able to wage against the French the aggressive type of war he favoured.

Marlborough was not above a simple ruse. In the battle of Oudenarde such an artifice proved to be a

coup de grâce. Eugene was meeting stiff resistance on the left. In an effort to loosen the French formation, Marlborough disengaged a large cavalry force and sent it around the right wing to threaten the French rear. Likely with the hope of creating a degree of confusion before he ordered the charge, he had his drummers beat out the French retreat. The French soldiers reacted in depth. The movement proved contagious, and soon the French forces were quitting the field in complete disorder. Thus a ruse, incredibly simple, paved the way for a devastating victory.

Many such examples of surprise could be drawn from history; we have made an arbitrary selection of a few. In the study of military history one fact is significant: only those commanders who combined ability with daring and exploited the possibilities of surprise in war achieved enduring fame.

But does surprise appear to be so important in the more complex warfare of today and the still more complex warfare which we can envisage for the future?

We can answer in the affirmative, for three reasons:

1. The very nature of war ensures the importance of surprise.

2. In fact, surprise was of considerable importance in the most recent of wars.

3. Anticipated developments emphasize its importance in the future.

The Nature of Modern War

The science of war can be reduced to four basic elements:

- Political Strategy
- Military Strategy
- Tactics
- Technical Developments

Within the square of this framework the whole pattern of war may be worked, though it is true that the passage from one era to another has placed a shifting emphasis on different elements. At one time the political side required little attention; at another the technical side became stabilized; at still another, technical advancements restricted the adjoining sides of strategy and tactics. Nevertheless, this framework has persisted, until today each side is supporting the warp and the woof of military science with an increased tension.

For the purpose of our study we may define these concepts as follows:

Political Strategy:—Political action conforming with a nation's defence policy. (The concept therefore has a dual nature).

Military Strategy:—The large-scale arrangements for conflict after war has been declared, including the movement and control of troops out of contact with the enemy.

Tactics:—The manipulation and deployment of troops in contact with the enemy.

Technical Developments: — Scientific advancement to ensure that existing weapons are not outmoded. Only by attention to these four factors can a nation prevent being surprised and, if war begins, quickly achieve surprise itself.

Political Strategy

A sound defence policy compels a nation to complete arrangements in peace that will facilitate an efficient transition to a state of war. These arrangements must be the joint responsibility of the statesman and the soldier. A nation's plan at this stage must include arrangements for the mobilization and training of troops; thoughtful development of roads, railways and inland waterways; a watchful control of the country's industrial growth to ensure that each industry is fitted into the plan for war economy; and finally, political agreement with countries holding sympathetic views. These plans will be the life-blood of forces in the field should war occur. Consequently, they must be capable of rapid development and planned expansion at a rate calculated to keep ahead of a worsening political situation. The Allied nations failed to develop such a defence policy during the years of peace that followed Versailles.

Despite the severe restrictions of the Versailles Treaty, the kernel of German militarism was not broken. Under the direction of professional Prussian generals, deceit was practised and arrangements were gradually advanced. All privates in the army were trained to officer standard, so that in a few years the German Army was capable of startling the world. When the discontented German people found leadership under Adolph Hitler, the general's dream of a German state was regenerated under an extremely nationalistic and imperialist policy. The army was gradually mechanized. The navy was strengthened by secret submarine construction. Under the guise of a large civil air fleet, the air force was perfected in its military aspects until the time was ripe to transfer it to military control. The rearmament programme was secretly pursued until, in 1935, Hitler was in a position to announce to the world that Germany had finally crumpled up "that scrap of paper."

The stunning impact of the Russo-German Non-Aggression Pact of 1939 left the democratic nations agape. Men in high office realized too late that the stage was set for vicious action by a state reared for war.

With Russia isolated, Germany contravened a Non-Agression Pact signed in 1934 and battered a surprised Poland into submission in less than a month. This initiation of a "divide and conquer" policy was undertaken without a formal de-

claration of war, which is a further indication of the extent to which an unprincipled aggressor will go to take an initial advantage.

The entire world was astounded at the swiftness of the German victory. At the time, Poland's army was the fifth largest in all Europe. Although caught off guard, the Poles fought valiantly. But superior forces, new equipment and new tactics combined with initial errors in Polish troop deployment to make a quick German victory inevitable. A proud people lost their freedom, which subsequent Allied victory failed to return.

Hitler's future ally was not inactive in the field of political strategy. Japan had given her signature to the Nine Powers Pact of 1921, which guaranteed China's independence and integrity. With France, Britain and the United States, Japan was co-signer of the Four Powers Pact of 1921. Each member promised to respect the others property in the Pacific. The democratic powers confidently foresaw generations of peace.

However, opposing forces were active in Japan. Militarists, humiliated by their government's agreement to limit Japan's naval power to a ratio inferior to America's and Britain's, succeeded in gaining control and began to conduct Japanese policy along imperialistic channels. They began in 1931 with the seizure of Manchuria, which gave Japan a lodgement area on the Chinese mainland. Quickly repudiating the treaties limiting Japan's naval power, they set about to rearm. Strategic islands in the Pacific were fortified. Aircraft carriers and battleships were constructed in Pacific hideaways. Japan surreptitiously mustered the strength to wage a continuous but undeclared war on China in the years that followed without dissipating military resources intended for use against other nations.

War came to the Pacific with suddenness and devastation similar to those in Europe. It was not by chance that a Sunday, a day of worship and rest for the Christian world, was chosen for the surprise attack. Even while Japanese envoys were presenting American officials with paper tokens of their love of peace, the anchored fleet at Pearl Harbour was being bombed by the Japanese Air Force. Five battleships, three destroyers, a minelayer and a target vessel were sunk; most of the aircraft at the base were destroyed; over three thousand Americans were listed as killed or missing and more than a thousand wounded. The United States had sustained a blow of the first magnitude.

Reflecting on these events that heralded the Second Great War, no one can deny that surprise in the field of political strategy provided

the aggressor nations with initial advantages that were extremely difficult to overcome. While the use of such surprise may be foreign to democratic thinking, its existence must be realized. The only feasible counter-measure is a sound defence policy based on proper statesman-soldier co-ordination.

Military Strategy

Complementing political strategy is military strategy. This consists of mapping out the broad courses which it is proposed to follow in war. It is still the joint province of the statesman and the soldier. The statesman controls the resources of materials and manpower; the soldier relates the most efficacious use of these to the geography of the areas concerned. Only in concert will the soundest plans be evolved. In modern war a lack of cohesion would mean disaster.

The Second World War offers a ready illustration of this statesman-soldier union. A Joint Chiefs of Staff Committee was set up; it consisted of the top military and government experts of the Allied countries. Its effectivemess can be illustrated by its decisions, some of which were:

(a) Germany was declared public enemy Number One, to be defeated first.

(b) A cross-channel invasion was accepted as the means of carrying the land war to the Germans, while the Russians were to keep pressure on the Eastern Front.

(c) Arrangements for dealing with Japan were to be left until the defeat of Germany was in sight.

These plans gained a measure of surprise for the Allies. The spirit of co-operation that permitted the United States to suppress her personal cause and agree to contain Japan while fighting Germany was not foreseen by the Axis. This decision effectively stymied the obvious plan of "divide and conquer."

We may illustrate the pressure which Allied military strategy exerted by a review of the 1942 campaign in the Middle East. The importance of the Middle East is universally recognized. There lies the direct sea route to India, via the Mediterranean and the Suez Canal. In the Persian Gulf are some of the richest oil fields in the world. Control of Egypt ties two continents securely together.

Despite British failures in Lybia prior to Alamein, the Germans never reached the Suez. After June, 1941, the German High Command was not able to divert enough supplies and men to this theatre because of the more urgent requirements on the Russian Front. It was then that the visionary makers of Allied strategy saw a chance to strike a decisive blow in Africa. It would be a major undertaking and would likely delay

for a year the intended cross-channel invasion. However, guided by the sound principle of exploiting weakness, the Joint Chiefs of Staff decided to commence the African operation.

This was the plan.

On the night of 23/24 October 1942, a rejuvenated army of "Desert Rats", led by the able Montgomery, attacked under the heaviest artillery concentration in the history of British Arms. Some four thousand miles away, troop convoys left the shelter of American ports. They were followed twenty-four hours later by British convoys, all bound for the shores of North Africa. The combined force, commanded by General Eisenhower, landed troops at Safi and Casablanca on the Atlantic coast and on the northern shores of Africa at Oran and Algiers. This was as deep as they dared venture into Mediterranean waters with air cover uncertain.

This threat to Rommel's Mediterranean supply lines forced him to look to his rear. He was under constant pressure from the British attack. The urgency of the situation forced the German High Command to unconsidered action in a desperate attempt to recover control. Reinforcements were flown into Tunisia at the rate of a thousand per day. The Germans displaced the Italian troops then holding the island of Corsica and utilized their interior sea lanes from Athens and Naples to the shores of Africa.

Under pressure from Eisenhower's forces overland, together with the successful effort at El Alamein, the Germans gave ground. Aided by a fortuitous rain which reduced the mobility of the Eighth Army, Rommel was able to take cover behind the imposing mountain ranges that flank Tunisia. There he managed to stabilize the front and delay his expulsion from Africa until the spring of the following year.

Quick victories followed the African landings, although success was not complete. None the less, this revelation of military strategy caught the Axis unawares. As Winston Churchill put it, these operations were part of a "single political and strategical conception . . . "

The progress of the war on the Russian front also supplied its share of surprises in military strategy.

The fall of France, in June 1940, made it inevitable that Hitler, like the Kaiser, make a "Drang nach Osten." The Russian High Command knew that the German forces were superior in every way. Two things alone favoured Russia—manpower and vast territory. On these, the practical and patient High Command based its military strategy. Painful decisions were made. A systematic withdrawal into the interior, yielding to the pressure of the pincers, was

the order of the day. Nothing was to be left to the invader: the earth was scorched in the wake of the Russian armies, the destruction of industries was underway in the rear. Tremendous preparations were undertaken to ready defensive positions on which the troops could retire in good order. In front of Moscow, a gigantic effort was made by men and women to establish a vast defence line of anti-tank ditches and obstacles. Here the final stand was to be made. The lessons of Poland and China had been well learned.

It is certain that the German High Command did not envisage such long-sightedness by the Russians. A critical examination of the Russo-Finnish war failed to reveal any ingenuity. The Germans could hardly be blamed for being unprepared for such strategy.

Until June, 1941, blitzkrieg tactics had worked well on relatively narrow frontages. Giant pincers could envelope large portions of the opposing forces, join up, and by turning inwards, grind the enemy against the firm base of the pincers. Now Hitler's troops were disposed on a front stretching from the Arctic to the Black Sea, some eighteen hundred miles. The size of the pincers had to increase proportionately to the front. This made the task of joining up the prongs slower and more difficult. The Russians followed the advice offered in the familiar childhood rhyme:

"*For he who fights and runs away,*
May live to fight another day."

The Russians kept slipping out of the pincers.

They rode out the storm, guided by a drastic military strategy that the German Planning Staff had not included in the courses open to the enemy.

Tactics

In considering tactics, we will turn from actual practice to the Principles of War that commanders must apply. Present military thinking is based on the following eight principles:

- The Object
- Maintenance of Morale
- Concentration
- Security
- Offensive Action
- Flexibility
- Administration
- Surprise

These principles are nothing more than rules for the conduct of war as drawn from experience. They cannot be adhered to slavishly but must be applied with a varying emphasis, according to existing conditions. Nor can they be applied *in toto*. In some cases, one principle might oppose another. For example, security might be threatened at times by a desire to maintain offensive action.

But one principle that should never be sacrificed is surprise.

While surprise is listed as a separate principle, it is interesting to see how, in reality, it has a special relation to each of the other principles.

In considering *the object* of any operation, the commander must ask himself. "What is it that I want to do? When he has tested his answer to ensure that it furthers the intention of his superior, he must begin his planning. The next question that will spring to mind is "How?" At this very early stage a consideration of surprise commences.

Every commander appreciates that if he can gain an advantage by an unexpected direction or time of attack, he will be more certain of achieving his object. Since the latter is his real motivation, surprise must be an early consideration.

Field-Marshal Montgomery has often stated that he considers *morale* the greatest single factor in war. This implies keeping your own morale high with victory, the enemy's morale low through failure. Lowering the enemy's morale is just as important as keeping your own troops buoyed up psychologically. This condition connot be brought about by a head-on clash of mass which devastates both sides. Victory, in such an instance, is at the cost of heavy casualties and is not conducive to good morale.

It is against odds that the mettle of a commander is tested. Napoleon was almost invariably outnumbered in battle. The odds were stacked against Montgomery at Alamein. True military genius is the ability to offset physical disadvantages with psychological "weights" and indirect "tugs", and so tip the scale in favour of the smaller force. Even if the physical advantages are with you, this principle still applies, as it will return victory at the cheapest rate. Success keeps morale high; surprise guarantees success.

The principle of *concentration* is a paradox. The ideal application of this principle would permit a commander to bring his total force against a partial enemy group and so defeat his opposition piecemeal. This is rarely possible. A commander must rather think in terms of compelling a dispersal of the enemy force by deploying his own force. Then, if he is clever, he may achieve a relative superiority.

Napoleon said that war can be reduced to a single principle, "being the strongest on a given point." A commander can do this only by imposing his will upon his enemy. A successful application of the principle of concentration will clearly depend upon the effectivemess of the psychological tugs that are applied to the enemy.

To attain complete surprise, good

security is vital. In its broadest sense, security includes all the precautions necessary to prevent the enemy from gaining information about present plans and future intentions. It entails caution in planning, an effort to foresee all possible enemy courses of action. By preparing for them, we will not be caught unawares ourselves. Instead, we will be able to force events to follow the intended pattern. Security and surprise are complementary; surprise cannot exist without security.

It is by *offensive action* that large enveloping movements against the enemy are carried out. Such outflanking manoeuvres will threaten the security of the enemy and frustrate him mentally. For example, the Allied landings in North Africa threatened Rommel's lines of communications, and forced him to keep looking backwards. The demoralizing effect of such a situation is to keep the enemy commander off balance, to divide his attention, in short, to open the way for decisive offensive action.

Offensive action implies a freedom of choice, the power to manoeuvre, the imposition of a commander's will upon his enemy. Underlying the implications is subtlety, the achievement of a decisive result at little cost. Thus the consideration of surprise is a necessary prelude to a successful application of this concept.

In order to exploit the advantage gained by surprise, a commander must pay close attention to the principle of *flexibility*. This principle includes mobility as well as the power of control in action; the ability to move would mean little if a commander lacked facilities to control his detached units.

Mobility in war is a relative factor. A high-speed vehicle may be of little use in the jungle; tracked vehicles cannot attain full mobility in close country. In the worst case, mobility may mean the power to move at all, however slow. Marching infantry may have tremendous mobility under certain conditions. General Stillwell's march through Burma to India is outstanding evidence of this. Therefore, a commander must compare his potential to that of the enemy so that he can utilize his mobility to the best advantage.

Mobility will permit the undertaking of indirect manoeuvres to achieve surprise and to attain concentration at a selected point. The soundness of his organization and the efficiency of his communications will then enable a commander to control these detached units in action. Thus it is evident that a correct consideration of the principle of flexibility is a prerequisite to a surprise manoeuvre.

On the negative side, flexibility must also be fused into the commander's plan. Then, should the

enemy attempt an unanticipated action, corrective measures can be taken without abandoning the operation. Thus the principle of flexibility should not only permit a commander to achieve surprise; it should also afford him a guarantee against being surprised.

More than ever before, modern warfare forces a commander to give full consideration to the vital principle of *administration*. A modern army devours food, ammunition and petrol at an astounding rate. In brief, equipment and reinforcements must be delivered to specified locations when required. This involves intelligent foresight plus an efficient handling and delivery organization.

How does surprise attach itself to this principle? There is a direct relationship between administration and success. "D Day" might have gone down in history as a hideous adventure were it not for the foresight and preparation that permitted the landing of one hundred and thirty thousand personnel and twenty thousand vehicles in the first three days. In all, over a million soldiers, two hundred thousand vehicles, and seven hundred and fifty tons of stores were landed in the first thirty days. To ensure the success of this gigantic task, the Allies secretly prepared the now famous Mulberry and PLUTO.*

* *Pipe-Line Under The Ocean*—Author.

The efficiency of the administrative organization, its capacity to complete its undertakings in the most difficult circumstances, will in itself result in administrative surprise.

On the other hand, a commander planning a daring operation must test its feasibility against the possibility of maintaining the force in action. As in Operation Overlord, the launching of the plan may even have to be delayed until administrative arrangements are completed. The most cunning commander must, in the final analysis, confine himself to objectives within the administrative capacity of his resources. Therefore, the principle of surprise is firmly cemented to the principle of administration.

If war is to remain an art, victories must continue to be won by subtlety in planning, speed in action, indirect manoeuvres and proper emphasis placed on the moral aspect. The annihilation of the enemy is a barbarous interpretation of the true object of war. The full function of war is accomplished with the defeat of the enemy, and this should be achieved at the lowest cost to the nation. Surprise, physical and psychological, is the one principle of war that, influencing all the others, will bring this about.

Technical Developments

In the field of technical developments, the Second Great War occa-

sioned phenomenal advances. It literally became the physicists' war. The magnetic mine was countered by the brilliant Allied Degaussing method. Radar, in its many forms, became common. The Allies bent the German air beam. Duplex-drive tanks floated ashore at Normandy. Guided missiles took the air. Aircraft flew without propellers. The technological zenith was reached with the production and employment of the atomic bomb. Limitations of space permit us to mention only these few examples of surprise and counter-surprise in the technical field.

Our study of the nature of war has adequately demonstrated the potency of surprise. It will be interesting to compare the techniques of the two commanders who mainly influenced modern war and a pre-eminent general of the Second Great War. This comparison will serve to reinforce our conclusion that surprise remains a general's greatest weapon.

Sources of Direct Quotations

Page 28: "*Part of a single strategical and political conception . . .* " *Winston Churchill as quoted in* "A *Concise History of World War II,*" *by Roger W. Shugg and Lt. Col. H. A. DeWeerd, p. 180.*

Page 29: "*For he who fights and runs away,*
May live to fight another day."

From "*The Art of Poetry on a New Plan,*" *by Oliver Goldsmith, Vol. II, p. 147.*

Page 30: "*being the strongest on a given point.*" *Definition of war by Napoleon from* "*Other Mens' Minds,*" *by E. Davies, D.D., p. 609.*

(To be continued)

ANTI-TANK WEAPON

The newest anti-tank weapon, a 105-mm recoilless rifle mounted on a jeep, is now under production, the [U.S.] Army reports. "Unprecedented hitting power" for the infantry, the weapon is not yet in full production nor listed as standard equipment. However, it is expected to serve along side of the 3.5-inch bazooka to "provide the front line combat soldier with the ability to knock out the most potent enemy tank known today."

Another anti-tank gun, the M-27, was previously revealed by the Army as a single-shot, hand-loaded weapon with a range of nearly five miles and capable of firing 10 rounds per minute when handled by a trained crew. —*Marine Corps Gazette (U.S.).*

THE STEEL FIBRE

Major S. T. Appachanna, The Mahratta Light Infantry, in the Military Digest (India)

There comes a moment during the rigours of battle when the toughest soldier sheds his helmet, leans his heavily laden back against a stone or a tree and stares into an endless beyond. From the mortal struggles with the desires of one's flesh ring out the question,—"What is it all for. When will it end"? It may be worth while pondering as to what inner strength the soldier can fall back on, when earth and all that he believed in shimmers like an uneasy mirage. Have the parade square and assault courses steeled him to face this moment? Are the resolute qualities of his officers, the binding of the soldier's oath and the motive of daily bread, sufficient to tide him over the crisis?

Thumbing over the pages of history one fact emerges in clear outline,—that the greatest feats of soldiering were achieved by "fanatics for a cause". It was the unlettered children of the Arabian desert that shattered the armies of the then civilised world and carried their child-like faith in Allah from the Spanish Coast to the China seas. Chanting hymns as they marched, the puritan zeal of Cromwell's Ironsides brooked no defeat. The history of the Mahrattas in India is one more instance of soldiering as a Crusade, where every soldier was wedded to a Cause and the Cause alone reigned supreme. This witnessed the miracle of simple peasants from the rugged hills of Satara and wooded Konkan pitting themselves against the might of the Moghul Empire till it shook and crumbled. From their camp-fires swelled the noble songs of Tukaram and Ramdas. Reaching back to an example where religion was not the motivating force we may dwell on the deeds of devotion of Napoleon's soldiers,—the wounded men that crept away from the hospitals to rejoin their comrades on the eve of a great battle. Maybe hero-worship was the motive force here.

This desultory glimpse into the history of soldiering in the past brings out the lesson that it is the motive of a Crusader in leader and led that achieves those miracles of valour and human endurance that have given some wars the colour of epics. The mystic impulse was always forged by the personality of a leader.

The motives that created revolutions in the past and sent conquering hordes surging to the ends of the earth, the blind worship of a leader—these are losing meaning in this democratic age. The last up-surge of

mediaevalism has perhaps been seen in Hitler's epic gamble for world domination by the Nordic race and Japan's shattered dream of a world subservient to their Mikado.

War has not faded from the horizon of the civilized world though motives and methods have changed. The trials of body and spirit that the soldier has to face are still the same. If devotion to a religion or worship of a leader are time-worn motives, the eternal appeal of some other fervour must be awakened to suffuse the spirit of a soldier, a steel fibre that would prop his soul in the bitterest stress of battle. Love of country may perhaps be the answer. But how often has this not been a mere slogan used in lectures and blazoned in posters. Can this be built up into an all-pervading motive in a soldier's heart,—a passion that would sustain him into braving any peril and sacrifice for the sublime Cause? The answer is truly—'yes'.

The task so far has been to toughen and drill the soldier's body and discipline his mind to act in obedience to his officer and in unison with his comrades for the service of his Country. It would perhaps be a new approach to make a primary object of winning the soldier's heart for the service of the Country even as a prophet won devotees to his creed. The function of his body and mind in this service would, when so sublimated, possibly be moulded in half the time now taken. This is by no means a plan to give a spiritual bent to army training. It is a venturesome suggestion that a new need has arisen for something more than the well-trained and well-paid professional soldiers to fight battles under the rigours of an atomic age. The crusader steeped in the lore of his Country may spur himself to sacrifices before which the mere professional will quail. To him the snow-crested northern mountains gleaming purple and gold at sunset; the music of conch and temple bells mingling with the wash of the three seas at Kanyakumari; the scented rice fields rippling beneath a monsoon breeze; all make a soul pervading religion instead of a mere poet's fantasia.

In the cold light of logic these may seem like the gossamer hues of an Utopian dream. But in the holocaust of blood, fire and steel it is only a dream of things to be, the love of someone or something that stills the weakness of just flesh. Matters like pay and promotion seem like the mocking echoes of an unreal world.

Out of this maze of thought emerge questions as to how this dream bedded in truth may be shaped out for our soldiers. In what pattern could it enrich his imagery and kindle his heart. Has he the geographic consciousness of his country,—its vastness, its mountains and rivers, woven

into the ballads of antiquity? Has he heard of our sages, poets and warriors, or, are they unmeaning tales out of accord with the fever and frenzy of existence in a machine age? When the Mahratta soldier hurls himself into the assault with the cry of "Shiwaji Mahraj Ki Jai", is it a habit, or, is he learned in the breathless history of a prophet and soldier that woke a people to the right to their way of life, till their crusading ardour led them to the far bounds of the Kaveri and the Indus.

Even a casual look into a moulding of the soldiers' life reveals a lack of this essential emotional and spiritual butressing. The danger in this is manifest in General Eisenhower's words (from LIFE Magazine) describing a situation that baffled him:—

> "I remember one time in Africa when we had only four divisions in the field and I was in desperate need of men. I found we had 6,000 men in hospitals in Africa unavailable for combat—and not one of them had suffered a wound. Their emotional stamina and spiritual strength had left them".

Soaring higher on this theme the General says:—

> "Experts sometimes go wrong assessing the strength of a nation. They talk in terms of its military might, its national resources or its wealth. When you come right down to it, the basic strength of a nation is only in its people—in its human resources."

This matter of spiritual strength and emotional stamina play a greater part in the making of a Country's defenders than is sufficiently realized. The first step in the direction of its realization would perhaps be to root out the idea of the "Soldiers' Stuff".

This misunderstanding of the soldiers' need is manifest in the cheap, sex-laden entertainment put across to him, the yellow-backed novels of crime and detection given to him as literature and the sensuous film music given to "lighten" his hours. There is no denying that a vein of . . . sensation is necessary to give a venue to the soldiers' escapist tendencies. But this in entirety gives no emotional and spiritual sustenance to a soldier; nothing to keep his spirit attuned to the supreme sacrifice required of him; no balm to soothe the eternal pang of separation from loved ones, or to bolster his morale in a strange land where colour, manners and customs of the people are alien.

It may be argued that the Indian soldier has a rich religious heritage. This perhaps is true of the soldier of two decades ago when the machine-age had not swamped rural India with its ruthless maxim of "Get on and push to the front". The other factor is that the recruit enrolled and wrapped up in army routine at the most impressionable ages of seventeen and eighteen stands little chance of learning the lore of the country, the folklore of his own province, or the tenets of his religion—in short of being anything except his own adolescent entity.

It therefore devolves on the army to

teach the young potential fighter the heritage he has to fight for,—the sublime motive that transcends all considerations of career, profession and the "go and get" of the work-a-day world. There is no single way to achieving this. Education alone is not the solution as it entails bringing within the sweep of the ordinary soldier's mind the culture, traditions and history of his country, the deeds of its sages and heroes: the glory of its arts. Is it too much to say that the shining epochs of Asoka and Vikramaditya, the songs of Tukaram and Ramdas, the eternal melodies of Tagore and Iqbal, and Vivekananda's stirring message from the Gita should be brought within the reach of every soldier?

The fighting machine has been tolerably easy to produce with adequate attention to parade square and assault course. There looms ahead the supreme task of lighting the spark of its own motive force to this fighting machine till it blazes into a flame that transcends the calamities of fallen leaders or the odds of fighting against superior armament.

This opens an avenue of thought perhaps stifled in the panicky race for jet planes and atomic weapons.

STANDARDIZATION AN OLD PROBLEM

And because we are credibly given to understand that the often and continual altering and changing of the fashion of armes and armours, some countrys and parts of the Kingdome having armours of one fashion, and some of another, do put many of our subjects to a great and unnecessary charge, and more than need requireth, for the avoiding whereof, our will and pleasure is, and wee doe hereby appoint and command, that hereafter there shall be but one uniform fashion of armours of the said common and trayned bands throughout our said Kingdome of England and domynion of Wales, when as any of the said armours shall be supplied and new made and that that form and fashion of armour shall be agreeable to the last and modern fashion lately set downe and appoynted to be used by the lords and others of our Councel of Warre (the patterns whereof are now and shall remayn in the office of our ordinance from tyme to tyme, which is our pleasure likewise concerning gunnes, pikes, and bandaliers whereof patterns are and shall remayn from tyme to tyme in our said office).—*Extract from a commission issued by Charles I in 1631.*

Switzerland

REPORT ON THE ARMY

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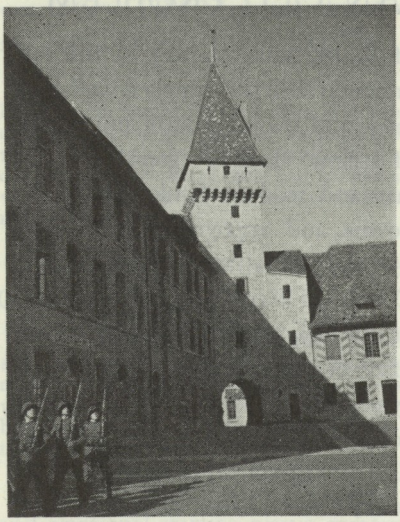
Switzerland does not possess a professional army; however, military service is obligatory. It includes 17 weeks of training at a recruit school for all men when they reach their nineteenth birthday, and an annual recall of 3 weeks until they reach the age of 36 years.

Every citizen who is not on the compulsory retirement list remains subject to mobilization, and keeps his gun, equipment, and uniform in his home. Except for the small cadre of 500 men (300 officers and 200 noncommissioned officers), the only professional military personnel in the country, all citizen-soldiers win their gold braid or stripes during their training at the recruit school or during their annual recalls.



A guard detail marching through the court of honor at the Château du Colombier.

Mobilization Procedure

In case of an imminent threat to Swiss neutrality, the Parliament appoints a general to command the military forces for the duration of the mobilization. This appointment is based on the recommendation of the Chief of the Military Department [equivalent to the Minister of National Defence in Canada], and must be ratified by the Government.

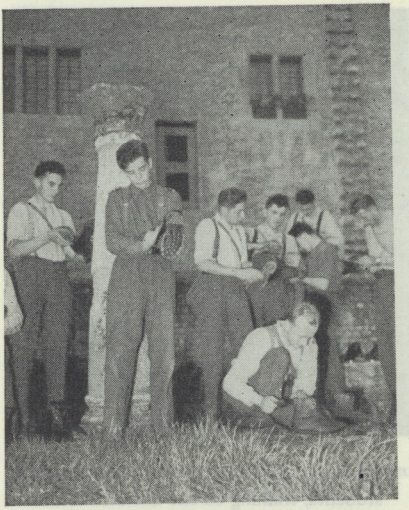
In spite of its small population of 4½ million people, Switzerland is able to assemble an army of 700,00 men, by mobilizing all classes eligible for recall into the service.

Thanks to the dial telephone, which reaches even the most out of the way corners of the country, the men can be assembled at their military depots in less than 12 hours after the proclamation of the mobilization order.

This mobilization is likewise facilitated by the fact that none of the men have to travel more than 12½ miles to reach their assembly centres.

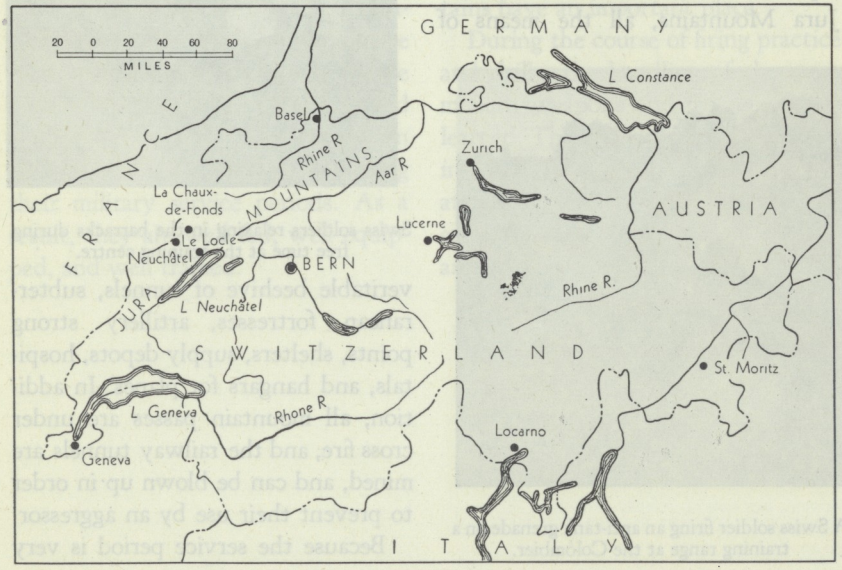
Defence Preparations

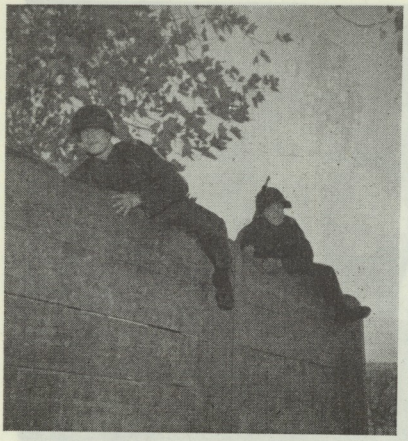
At the present time, the Helvetian Confederacy is making a great effort toward the modernization of its armament. The initiation of a 5-year plan, to begin this year, was aided recently by a greatly augmented military budget. To the Swiss, neutrality is not a synonym for pacifism, for they have always been ready, with all the resources at their command, to defend the integrity of their territory.



Swiss militiamen polishing their shoes in preparation for an inspection at the centre.

An attack from the northeast would first encounter the Rhine River. One coming from the north or from the north-west would have to cross the Jura Mountains. Therefore,





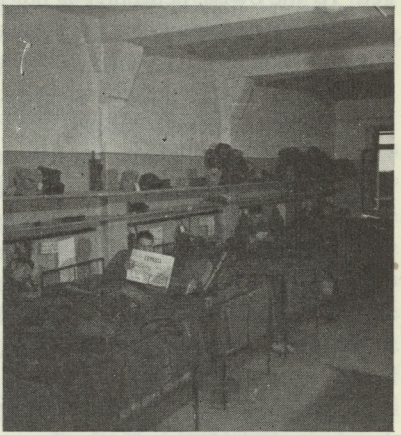
Two militiamen, American watch-making students, training on the obstacle course.

the Swiss strategy, which is neither new nor secret, would consist of putting into action, along the two lines represented by the Rhine and the Jura Mountains, all the means of defence at their disposal. Afterward, these defence forces would fall back, as slowly as possible, to the plateau which extends southward to the foot of the Alps.

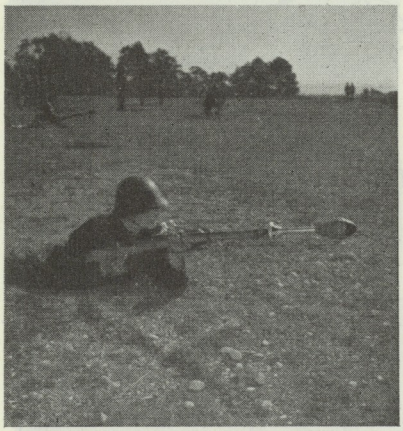
In the case of an attack by forces strong enough to force her to abandon the Jura and the plateau regions, Switzerland would, nevertheless, still hold the master trump of the Alpine Redoubt.

At the present time, the Alps are a veritable beehive of tunnels, subterranean fortresses, artillery strong points, shelters, supply depots, hospitals, and hangars for planes. In addition, all mountain passes are under cross fire, and the railway tunnels are mined, and can be blown up in order to prevent their use by an aggressor.

Because the service period is very



Swiss soldiers relaxing in the barracks during free time at the training centre.



A Swiss soldier firing an anti-tank grenade on a training range at the Colombier.

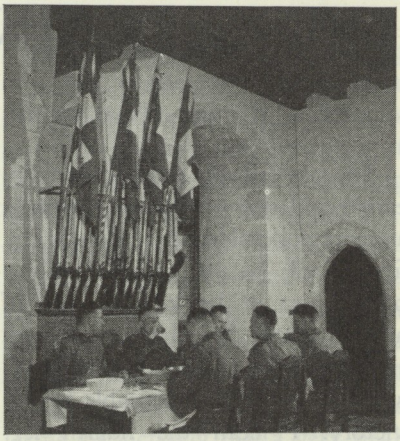
short, it has to be organized in such a manner as to ensure maximum results in the training of the militiamen.

Colombier Training Centre

The Château du Colombier is one of the principal training centres of the Swiss militiamen.

This castle, whose foundations go back to the Roman era, is located near Neuchâtel in the watch manufacturing region of the Jura Mountains. Recruits and men taking refresher training at this centre come from the cities of Le Locale, La Chaux-de-Fonds, and St. Imier, as well as from the wooded valleys of the Jura. Because of their common patriotic interests and trades, generally watch making, there is an atmosphere of good comradeship.

The medieval Château du Colombier has been modernized with the latest conveniences in order to reduce fatigue duties to a minimum and ensure that the officers and their men have the maximum in comforts during their military service periods. As a result, they are well fed, well equipped, and well trained.



A corner of the officers' mess at the Château du Colombier training centre.

In this mountainous country, where movements are often difficult, physical culture, sports, and even activities connected with existence in the mountains have an important place.

During the course of firing practice and drills, the handling of the most modern weapons and instruments is learned. The photographs accompanying this article illustrate the daily life at the Château du Colombier and the exercises conducted in its vast drill area.

MOUNTAIN WARFARE

By
THE RIGHT HON. L. S. AMERY, C.H.*

You may ask why should mountaineering and skiing be more especially a sport for soldiers? I would say, first of all, because more than any other sport it develops the use of an instrument by which most wars have been won in the past, and which still remains an indispensable key to victory. I mean the human leg. Mountaineering and skiing are not, as the illustrations, and even the text, of books on the subject might imply, mainly a matter of hanging on by fingertips and toes to wrinkles and crevices on perpendicular precipices or, in the case of skiing, whizzing at 60 miles an hour down icy racing tracks. Nine-tenths of all mountaineering, as of skiing as opposed to ski-racing, is in fact uphill walking or downhill walking. It is true it is walking of a rather special kind. The mountain walk is a walk which is essentially done entirely from the knee upwards. The muscles of the foot and of the calf are not nearly strong enough to stand the continued strain of a long climb. In the mountain walk the leg below the knee serves simply as a prop while the foot is flexibly, I might almost say limply, adjusted to the conformation of the ground. It is that mountain walk which is the secret of the peculiar easy movement, the instinctive assured balance and the long enduring power of the experienced mountaineer. On steep rocks the mountain walk is no doubt supplemented by a modicum of help from the hands, but only on the really most difficult pitches does anything in the nature of sheer pulling up by the arms play any important part. On ice and snow the ice axe may serve to cut steps and to steady the balance, but the walk is essentially the same, and so it is in climbing on skis, though with the added effort of shuffling our skis forward.

It is, above all, a sport which calls for endurance, and that endurance is needed by the soldier in war is a matter on which I need hardly dwell. It means not only long hours, but very uncertain hours. In our English hills no doubt most climbs

A well-known British statesman and writer, the author has had wide experience in mountain climbing, including an attempt on Mount Robson and the ascent of another peak in the Canadian Rockies—Mount Amery—which was named for him since he was the first to make the ascent. This article is condensed from a lecture entitled "Climbing and Mountaineering" which he delivered at the Royal United Service Institution (Great Britain). It is reprinted from The Journal of the Royal Artillery.—Editor.

can be comfortably done within the daylight hours. But in the Alps very few serious climbs can be done in less than twelve hours, and in view of what may happen in the day it is generally wise to begin any time between midnight and three or four in the morning; in other words, the preparation for a dawn attack tends to be very much the same in mountaineering as in war. And, of course, a long climb, even in the Alps, may be protracted by circumstances to anything up to 18 and 24 hours. The longest actual continuing climbing I have ever done myself, which was on new ground in the Rockies, was 30 hours with 2 hours rest at the end of the second day. My last long climb was two peaks in the Alps of just under 14,000 feet consecutively with some eight to ten hours between: 30 hours climbing out of 40. That was just before the war. Of course, you may also be forced to bivouac, to lie out on rocks which can be extremely uncomfortable as you try to shift your body from side to side during the night . . . That may be intentional. The bivouac can also be unintentional, and it makes a lot of difference how tough you are and how prepared to stand up to the cold and discomfort possibly of two nights out in the open in hard frost, or perhaps even in snow or rain. All these are things which the soldier has to face in time of war whether he likes it or not.

Another thing that I think climbing or skiing teaches one, even better perhaps than hunting or stalking, is an eye for country; the discounting of what seems a gentle, undulating surface and reckoning that it may contain deep ravines and folds of ground, which add hours to what looks like an easy walk. It teaches an eye for cover. If one has ever been on a mountainside when a cascade of stones has come rolling down, one learns instinctively that a very small fold in the ground may afford admirable cover till the peril is overpast.

Again it teaches individual self-reliance. I know nothing in the world which makes one realize better that one has oneself and nobody else to rely upon than climbing a mountain on one's own; not that anyone should do that without some experience, or attempt to do it on more than a fairly easy mountain to begin with. But it also teaches team-work and by that I mean not the teamwork of large teams, but of little groups of three, four or five working together on a rope. In the conditions of modern war with its dispersal, the importance of little groups working together, the sense of full mutual self-reliance and trust upon their leader is something very important.

Then another aspect that comes to the front in war is what I might call individual logistics. To know how

to plan what one puts into one's rucksack for three or four days of climbing, or perhaps for a longer cross-country expedition, to know that every unnecessary four ounces tells at the end of a long day's up and down climbing, does give you a very good idea of how to balance your weapons, your clothes and your food against each other and get the fullest value from what you can carry on your own back.

But mountaineering also has its element of what I might call higher staff work. The ascent of a mountain, and particularly of an unknown mountain, involves a great deal of planning and thinking out. The most direct line of approach may be by far the most difficult, and a longer, indirect route may lead you up to the only promising ridge which gets you to the top of the mountain. In fact what the Germans call the *Aufmarsch*, in military terms, is a very important element in climbing, particularly if you know of huts on the way or places where you can get some milk from peasants, or any other ways to ease the burden of what you have to carry on your back. Then you come across the tactical difficulties. A ridge may be very easy until you suddenly come to a vertical cut-off of 50 or 100 feet which you cannot possibly crawl up and which may wreck the whole climb, or make a seemingly more difficult climb more advantageous. In any case the best and most carefully worked out time-table and plan may be wrecked by weather or, as I said, by some unforeseen tactical difficulty.

All these things have their bearing on the art of war. Even more, the mountain itself is, in a certain sense, an adversary, one whom you have got to defeat and one who almost invariably, especially a new mountain, has some surprises up his sleeve for you. The extent of actual danger in mountaineering is very often exaggerrated. What is true is that part of the pleasure of mountaineering lies in the fact that, thanks to the skill you have acquired, you are moving in complete safety in circumstances in which an incompetent, unskilled person would be in constant danger of his life. Even so there is an element of danger, and of danger that tests endurance and steadiness under fire. There is the possibility, the greatest danger in mountaineering, of falling stones. There is the possiblity of what looks like a perfectly sound hand-hold coming right away from the face of the mountain with you. There is the danger of your walking apparently safely in your footsteps in hard snow and then discovering that it is really snow loosely bound to an icy slope below, and the whole thing gives way suddenly. There is the danger of an avalanche. But, as I say, it is a danger which should be surmounted and

certainly not unnecessarily incurred. There are, indeed, times and occasions when you must incur an element of danger. It may be essential to cross an iced gully quickly before daybreak; a gully that you know may be swept by avalanche or by falling rocks. I can think of no better test of steadiness under fire than having to cut ice steps in such a gully when the rocks are whizzing past you invisibly but very present by their sound. If you cut ice steps carelessly you doom the party to destruction; if you take too long the chances of one of them being hit by a rock become very much greater.

So I would say that in all these ways climbing, as a sport, affords better training for war than any other. It affords an ideal training for all ranks, whether they belong to units specially trained for mountain warfare or not. I think that officers with some knowledge of mountaineering may be invaluable to ordinary troops if, in an emergency, they have to be taught to do something in the nature of mountain warfare. In the South African War very useful mounted infantry was raised in large numbers from men who had never seen a horse before, with the help of good horsemen as officers. In the last war a man of inspiration and leadership, General Wingate, turned an ordinary infantry battalion very soon into real experts, not only in parachuting, but in jungle warfare. In this connection it is, I think, to be hoped that a recent experiment in short mountaineering courses for picked bodies of Army Cadets may be followed up and become a permanent institution. Only a few hundred no doubt can get that advantage, but a great proportion of them will become keen climbers and spread the love of climbing among their fellows. Indeed, it is most interesting to see the extent to which, in the last few years, mountaineering in our own native hills has caught on among the younger people of all classes. There are now literally hundreds of small climbing clubs over and above the well-known clubs that form part of the British Mountaineering Council.

So much for climbing at large. May I add something more particularly on the subject of mountain warfare, that is to say of land warfare in mountainous country. In that connection may I submit to you a few general considerations by way of background. To begin with may I remind you of a certain essential difference which distinguishes land warfare of all kinds from warfare on the sea or in the air. In sea and air warfare the primary unit, the weapon of defence and target of attack, is the ship or the plane; the fate of the machine decides the fate of the crew. On land the primary unit is still the fighting man, or team of fighting men.

Tank fighting to some extent may perhaps be rather nearer sea and air fighting, and the destruction by bombardment of fortified positions or of trench lines has some analogy to pounding an enemy battleship. But even there the bombardment does not settle the issue; it only paves the way for the combat between individuals.

The other and even greater difference is that the environment of sea and air warfare is substantially the same everywhere and at all times. There are, of course, minor differences due to weather, but no ship or plane is especially designed for fighting in one kind of weather rather than in another. Land warfare, on the other hand, is conditioned all the time by the nature of the ground over which operations are conducted to a degree which, in many cases, really differentiates it into substantially different types of warfare. By differences of ground I mean not only physical configuration, like plain or mountain, but the whole surface texture created by forest, by jungle, by desert, by swamp or by snow. The transport, the equipment, the weapons employed, the tactics in action, all depend on these factors. Troops whose training has not been adapted to operations in a particular type of country are at a very serious disadvantage if the area of operations, or even if part of it, consists of such country.

Hardly less important than the physical configuration or surface of the ground is the scarcity or density of its human population and consequent communications. I remember after the South African War someone brought out a skit on the drill book and on its platitudes, and a passage which sticks in my mind is one which says "Operations will vary according to circumstances. The tactics of the solitary sniper operating in impenetrable forest against an enemy division will differ somewhat from those of an Army Corps operating in the open against a deserted baggage wagon." That embodied a very profound military truth, because the whole of the weapons, tactics, strategy, is profoundly affected by those conditions.

Take, for instance, the war in the west in the First World War. Those were operations conducted in flat or undulating country densely populated and with a close network of roads and railways. This enabled vast movements of masses of troops compared with the width of the front, and these offered obvious targets for weapons of relatively less precision, that is to say weapons aiming not so much at an individual but at a zone; I mean machine guns and artillery. The abundance of communications, on the other hand, afforded facilities for bringing up the vast masses of am-

munition which that kind of tactics required. The weight of fire in its turn drove each side below the surface of the ground. That created a revolution in our artillery tactics. Up till that time the weapon that was most in favour was shrapnel. I remember a friend of mine telling me that he went to the Derby with a German military attaché, and when he saw the crowd streaming away, the attaché could not help saying: "Ach! vot a target for shrapnel." It was very soon found that shrapnel was very little use against men in deep slit trenches and still less use in breaking down the trenches or cutting the wire entanglements. So we turned over to high explosive, but even that was insufficient to break the deadlock of the trenches, and the tank had to be invented, to be followed up by armoured and mechanical transport. You got all that development, of which the German advance in 1940 marked the high level up to date. We do not know whether that is the last word even in warfare in that sort of country. Who knows whether the airborne, parachute-dropped troops seizing an airway, and then air-supplied, may not take the place of the tank break-through? We do not know.

What I would say is that there are many types of country in which the so-called modern methods may be an encumbrance rather than a help. In the snow-covered forests of Finland the Russian mechanized columns, confined to a few roads, proved perfectly helpless against the Finns moving lightly on the surface of the snow on their skis or with light sleighs pony-drawn. They were checked in front, attacked along the whole length, blocked behind and, in many cases, not only paralyzed as fighting units, but literally starved to death. Something not altogether different befell our mechanized forces in Malaya when faced with the Japanese infiltrating through the jungle in small parties on foot, on bicycles, in commandeered canoes, and then setting up road blocks at points best calculated to paralyze our road-bound troops and transport. Korea has seen something very much of the same sort in country often described in the papers as mountainous, but I would rather say hilly than sheer mountainous; at any rate country in which it is not very easy for road-bound troops to move. Again and again the same thing has happened: a whole column with its long train behind it has been paralyzed by the news that transport has been blocked somewhere behind and has set up a retreat, when in fact it was dealing with an enemy whom it could perfectly well have held out against if it had not been so completely dependent upon its transport.

I have given instances of certain types of ground which are sometimes

classed as abnormal. Let me remind you that no ground in war should be regarded as abnormal. All ground should be normal, and I would add that there is nothing more dangerous than the idea of a normal formation. A normal formation, with all its various items required for various purposes, inevitably breeds a tail behind it. What is really wanted is what the Americans designate as a task force, a formation specifically built for the specific purposes it may have to fulfil. Anyhow, mountain country is at least as much a type of its own as sea, and it requires its special tactics, special equipment and special training and, above all, it affords its own special strategical opportunities. It is not, as I indicated earlier, just an area which may occur sometimes and can be avoided. Mountains occupy a very large part of the earth's surface. They very often form the frontiers between nations and, therefore, become an unavoidable zone of warfare.

The feature, from the military point of view, that most distinguishes mountain country is that roads in it are very few, especially in out-of-the-way parts of the world; that they move along the bottom of valleys up passes, or zigzag up steep slopes, all the time commanded from above, and that wheeled and tracked transport in mountain country is strictly speaking road-bound all the time. There can be no advance in mountain country by artillery, by tanks or by transport unless they are preceded by troops who have climbed the heights on foot and have secured command of those heights. Those troops must depend on what they carry on their own backs, supplemented by porters, sometimes perhaps by mules or by supplies dropped from the air. Mountain warfare is warfare primarily conducted on foot with weapons and supplies carried on the human back or dropped by aeroplane. That is its first purpose. It may serve the secondary purpose of opening roads through mountain country in order to secure strategical surprise beyond. The great classical instances are those of Hannibal's and Napoleon's moves through the Alps.

The distinction between winning mountain country in order to pass through it and winning mountain country for its own sake is an important one. What is characteristic of mountain warfare in itself is its extreme dispersal. Only a relatively few troops can climb the heights. They are scattered about, not in regular formations but according as the gullies, the rocks and so on offer cover. Therefore they offer no kind of target to artillery, or even to machine guns. It is not worth while dragging up all the ammunition required for artillery purposes if, as the Boer War once showed us, you are peppering

men dispersed at the rate of two or three to the acre and each of them with a good rock to cover him. The only weapons in mountain country that are really valuable are the rifle and the sharpshooter who is not prepared to shoot unless he is pretty certain to hit his man. In the old days the Boer boy used to be sent out with one bullet and well "whopped" if he did not come back with a dead buck. A little bit of that outlook should be indoctrinated into all mountain fighting.

It means, of course—I know I am talking to artillerymen—that fighting troops in mountain country should never look over their shoulders for artillery preparation or for artillery support. It would psychologically destroy all effective mountain movement if you thought you were dependent on bombardment first. The mountain fighter on foot ought always to regard artillery not as combatants, but as passengers, and the gunners should learn to acquiesce in that role themselves, and wait until they can come through or possibly have a chance of firing at an entrenchment at the top of a mountain pass when almost all the mountain range has been conquered.

On the actual equipment of mountain troops I need say no more than that it is the equipment of the mountaineer; good boots, warm and light clothing and light, portable, nourishing food.

What I would say is that the possiblities of mountain warfare have been enormously increased by the development of aviation. It makes it far easier if you are supported for the purposes of reconnaissance and tactical support, from the air, and still more so if you can have supplies dropped from the air. When you pass through a mountain range the heavy weapons and more abundant supplies can then be dropped on the other side.

There is one point that I think is worth making in connection with mountain warfare. Quite apart from actual training for mountain warfare, it is essential that higher commanders should have some idea when they come across mountain country of what kind of mountain country it is, whether it is country which only highly-trained mountain troops can operate in, or whether it can be easily negotiated by untrained troops led by a few officers with some elementary knowledge of climbing. Even the best maps give very little idea, to those who are not themselves mountaineers, of the kind of surface of mountain country you are up against. What seen foreshortened looks to the untrained eye as a vertical mountain wall may very well offer abundant and perfectly easy approaches by ridges and gullies which any mountaineer would detect at first glance. On the other hand,

what in profile may seem a fairly easy slope may be a formidable mountaineering proposition. A vast steep snow face may be a perfectly safe and easy trudge up, or it may be liable to be swept by avalanches. The gentle glacier slope may conceal a network of impassable crevasses.

In the last war we forced our way at immense cost of munition and lives through a little gap of, I think, seven or eight miles between Cassino Monastery and the sea. To the right of us for 100 miles extended what looked like an impassable mountain wall 6,000 or 7,000 feet high. As a matter of fact they were mountain slopes that could have been perfectly easily ascended everywhere, even by ordinary infantry led by a few men with some slight knowledge of mountain warfare. But it would have involved abandoning the idea of sending artillery to support the troops until the mountains had been scaled. If there had been more knowledge of elementary conditions of mountain warfare I believe we could have turned that position and got to Rome far earlier than we did at far less cost.

Again, if I might say so, to have a few people who can climb up any near peak for observation is worth a good deal, because observation from a fixed point is so much more valuable than that which can be got in the few minutes available while flying. You can study the movements of the enemy easily in that way.

As to the actual training for mountain troops, I think I have really largely covered that by what I have said about mountaineering in general. What is, of course, necessary is that the instincts required in climbing generally have to be correlated to the business of fighting. The mountain fighter will have to think of the routes up a mountain from the point of view of their concealment for the purpose of surprise, think of the actual mountain face when in action from the point of view, not only of ease of ascent, but of cover from fire. In the Boer Wars at Majuba, Nicholson's Nek, Spion Kop, again and again the Boers, with greatly inferior numbers, successfully captured steep mountain heights with the minimum of loss to themselves owing to their skill in taking cover and to our lack of skill in exposing ourselves on the sky-line. The mountain fighter must also acquire the stalker's eye for any movement which may indicate an enemy.

I would sum up the matter by saying that what is required for mountain warfare is complete physical fitness, abstinence, self-reliance, endurance and, of course, not least, the fighting spirit.

If I may now sum up to you these somewhat discursive remarks, I would say that mountain country covers a

large part of the earth's surface. It may in some cases be the necessary, the unavoidable theatre of military operations. But even where it is an optional theatre, those who can include it in their field of military action enjoy a wider range of opportunity, whether for the direct assertion of their fighting superiority, or for achieving surprise over those whose range is limited. Their advantage in fact is analogous to that which is enjoyed by amphibious power over one which can only operate in one element. Those, therefore, who are concerned with the training and equipment of armies can only neglect at their peril studying the conditions of mountain warfare as they affect the training of officers and men and the organization and equipment of the formations assigned to that task. Further, I would suggest that over and above any specialized units, some knowledge of mountain warfare and mountaineering should be diffused throughout the Army, so that it may be free to deal with all possible eventualities.

I would add again that mountaineering itself as a sport affords an ideal all-round training in physical fitness above all in the use of thet indispensable weapon of war, the human leg, an eye for country and individual initiative, resource and self-reliance. In a yet wider sense I might say that the moral qualities needed in mountaineering are also those most essential to the soldier.

A predecessor of mine as President of the Alpine Club, Lord Schuster, once drew a similar parallel in his valedictory to the Club, which I should like to quote. He said: "To aspire to and attempt great achievement and yet to set out on the adventure after forethought with due care and with a due adjustment of ends to means; to endure toil and fatigue and to find the reward rather in the performance than in the accomplishment; not to court adventure for her own bright eyes, but not to shrink from her unduly when she bars the path; and, above all and in all, to preserve a high serenity of mind; these surely are the distinguishing marks of a happy mountaineer, as of a happy warrior. Thus tempered and thus attuned he can go on his way to whatever fate attends him."

A Book Review

REGIMENTS AND UNIFORMS

A book review by Capt. Donald M. A. R. Vince,
General Staff, Army Headquarters, Ottawa*

In these days of re-armament, when everyone aspires to be an armchair admiral or a kitchen table general, any book dealing with the Army is certain to be greeted with interest. But few volumes of this kind will, after reading, be laid down with the mingled nostalgia and satisfaction which Major Barnes' book† evokes. These sentiments are aroused chiefly by the plates. In these, as well as in the text, the author traces the development of the Regiments and Uniforms of the British Army from the Civil War to the Normandy landings. There are twenty-four plates, containing 230 principal figures of soldiers in uniform, all in full colour, all the author's own work. These form the backbone of the book.

Although all the plates reach a high standard of excellence, some are more appealing than others. The portly, pompous General Officer of 1688, obviously irritated, listening skeptically to an officer of William III's *Train of Artillery*, might be a vignette from any army except for the General's scarlet and yellow and the Gunner's blue and orange, both enhanced by gold lace and ostrich feather plume. Then there are the Bandsman of *The Leicestershire Regiment* in 1829, wearing mauve trousers, and the amazing Drum Major from *The Royal Artillery* of 1840, sporting gold lace from the collar of his scarlet coatee to the knees of his sky-blue pantaloons, sprouting splendid blonde mustachios and whiskers, and topped by a bearskin cap full three feet high surmounted by an immense red plume. These two recall the gaiety and gorgeousness of the Age of Elegance. The dull khaki of battledress, a paratrooper's grim face and tommy gun, and the 21st Army Group Patch restore the reader to this bleaker Age of Anarchy.

*The author enlisted in Halifax as a Trumpeter in The N.S.T.C. C.O.T.C. at the age of 11. The youngest student to graduate from Dalhousie University, he was then commissioned in the RCE. He joined the Active Force in 1946 and returned to Dalhousie and McGill for his MA and PhD in Economics and Political Science. He is presently serving at National Defence Headquarters.

†*Major R. M. Barnes*, A History of the Regiments and Uniforms of the British Army, (*London, Seeley, Service and Co., 1950*), *336 pp., xxiv Plates, 4 Appendices, Index*, $7.50.

Major Barnes mentions that the "uniforms in the illustrations are accurate, as far as years of painstaking research can make them." This claim is substantiated by close inspection. Their fidelity to detail can best be appreciated, by using a magnifying glass to bring out each item of weapon, accoutrement, and dress which the artist has so carefully inserted. This accuracy is complemented by the artistic unity of the illustrations. Each plate is drawn—in most cases apparently from contemporary sources—to the same scale, and the figures are arranged in such a way as to make easy comparison between the uniforms of Corps or Periods. This is, in itself, a vast improvement over most publications of a similar type in which the illustrations are generally made up from a mixed gleaning of contemporary prints, pen and ink sketches, formal portraits, segments of battle pieces, etc., which lack comparative value, visual appeal, and often artistic merit.

It is, perhaps, too much to expect that so talented and accurate an artist should be an equally proficient writer. Such versatility cannot be claimed for Major Barnes. Although his detailed notes, in smaller type, which accompany and explain each plate, are incisive and interesting, the actual text, is disconnected and ill-proportioned. In attempting to trace the history of the British Army from the Army of Charles II to the Army of George VI, Major Barnes strings together something that is little more than a loose series of campaign sketches and regimental anecdotes.

It is interesting to know that between 1662 and 1689, long before the United States Navy 'discovered' it, a grey fatigue dress was being issued to the Tangier Regiments, including *The 1st (Royal) Dragoons*, (allied to *The Royal Canadian Dragoons*). We are told how *The Royal Welch Fusiliers* (allied to *The Royal 22e Régiment*) got their 'flash'; how *The Black Watch* (allied to *The Royal Highland Regiment of Canada*) got their red hackle; and why non-commissioned officers of *The Somerset Light Infantry* (allied to *The Royal Hamilton Light Infantry*) wear sashes, as officers once did, over the left shoulder—at Culloden, during Bonnie Prince Charlie's Rebellion of 1745, after all the Somerset's officers became casualties the battalion was led out by its sergeants. And it is agreeable to discover that "The Thin Red Line" was really red—"The madder-red tunics worn by corporals and privates were abolished in 1873, and from then all ranks wore scarlet." These anecdotes, and many others, while informative, constitute a narrative that grows steadily less attractive as it meanders into the Twentieth Century. (The uniforms grow much less attractive too!).

There is little or no attempt to unify the individual cases of regimental *esprit de corps* into a theme, or to relate military dress to contemporary civilian costume, to prevailing social conditions, or to political and military events.

The text, too, as distinct from the detailed notes, contains an occasional error—some of especial interest to Canadians. The Lewis Gun, so familiar to the Canadian infantryman of 1914–1940, was not "designed in Canada." It was invented in 1913 by Isaac Newton Lewis (1858–1931), a United States soldier and inventor. The Canadian *Official History*, by Colonel A. F. Duguid, does not entirely agree with the statement that the first German gas attack at Ypres, in April 1915, "came as such an incapacitating surprise, that it might have enabled them to break through had they followed it up immediately with strong forces."

But these blemishes merely serve to point up the excellence of the plates, and also the value of the appendices. In these Major Barnes has listed the Regiments and details of their lace and facings at three key periods, 1748, 1815, and 1914. These appendices alone would justify the book, as anyone with occasion to do research into such matters will promptly affirm. The fourth appendix is a bibliography of value.

Soldiers wearing uniforms and badges should know why they do so. This book will tell them. Its author asserts:

> Unimaginative people say that all tradition before 1914, or even later, is forgotten, and therefore no longer worthy of study. But actual experience of warfare proves this to be altogether wrong. Every battle from the earliest had its lesson and the great majority of these still apply. Tools and tactics change, but the principles do not; and as regards a regiment, it is more than likely that if it distinguished itself at Minden or Waterloo, it did so again at Alamein or in Normandy, the latest exploits having a definite connection with the successes of former centuries.

In Canada today, when the impending standardization on United States models holds an inevitable, although exaggerated, threat to those fine traditions and customs of Canadian Regiments that stem in unbroken descent from parent British units—traditions which, as General Eisenhower himself declares, create unequalled *esprit de corps* and resultant battle efficiency — any publication which tends to defend and to strengthen these traditions should be encouraged. For these reasons, as well as for its own historical and artistic value, a copy of Major Barnes' *History* should be in every Officers' Mess Anteroom, in every Sergeants' Mess and Regimental Library, and in the homes of those Canadians interested in military affairs.

PHYSICAL AND RECREATIONAL TRAINING

CONDENSED FROM AN ARTICLE BY CAPT. E. BALFOUR IN THE AUSTRALIAN ARMY JOURNAL

Nearly a hundred years ago, in 1860 to be exact, the War Office took the first step to organize physical and recreational training in the British Army. In that year Colonel Hammersmith formed in the United Kingdom the Army Gymnastic Staff with a strength of 12, now known as the 12 apostles. The aim of this staff was the improvement of physical fitness through the German system of gymnastics, sabre fighting and rifle exercises.

In 1879 Swedish and Danish instructors were brought to England to demonstrate Ling's methods of physical training. The methods did not appeal to the Army authorities.

In 1900 many soldiers were in hospital with sprains and heart trouble, and the medical officers blamed the Army Gymnastics Staff for following methods which produced an unduly large number of casualties of this nature. The Swedish instructors were brought back, but their methods were not approved by the Army until 1906, although the Navy and Board of Education had adopted them two years earlier. The Swedish system was used up to 1914, when it was found to be too slow for war needs. The Physical Training School at Aldershot was closed for a time, but was re-opened to train instructors for bayonet fighting, assault training, boxing and team games. The Swedish system came back after the war as there was really nothing to replace it. The physical drill produced excellent results for the really keen individual, but it failed to improve the physical standards of the Army as a whole.

In 1926 Danish methods were tried and a new manual was produced. These methods were used until 1942, and form the basis of the present Basic and Physical Training Tables, which were published in 1944 and are in use throughout the British Army. These tables are designed to:

- Prepare the recruit physically to stand the strain of war.
- Maintain the trained soldier's physical fitness for his particular role in war.
- Assist in the physical rehabilita-

tion of the sick and wounded.

The syllabus provided by the Tables is not designed to produce "muscle men," but to ensure progressive development under the following headings:—

Physical Aspect

The soldier has to be made skilful physically, and the Basic Physical Training Tables contain a careful blending of exercises and activities for this purpose. The harmonious development of the whole body corrects any tendency to one-sided development. A well-balanced muscular development is ensured by including exercises and activities which employ all the main muscle groups.

Mental Aspect

The development of the body assists in the development of the mind through the agency of the body. The performance of a skilled movement is achieved through the delicate co-ordination of the hand, foot, eye and ear, and this entails a conscious and concentrated effort by the brain until by repeated action the movement becomes automatic. The soldier has to acquire as many good automatic habits as possible so that, under the stress of battle, he will carry out many actions automatically, thus freeing the conscious brain to deal with events. Physical training, therefore, is not merely a means of developing physique. It also helps to train and influence the mind.

Moral Aspect

Over 2,000 years ago the Greek historian Polybious wrote: "Of all the forces which are of influence in war, the spirit of the warrior is the most decisive one." The statement still holds good. Although weapons change, the human factor remains constant. The correlation of physical training with skilled performance under war conditions will create interest and inspire self-effort to accept risks. Thus the soldier will acquire confidence in his own fighting efficiency and that of his comrades.

GAMES

Individual and team games and sports have their special values in developing and moulding character. The individual games and sports inculcate self-reliance and intensity of purpose, while team games promote comradeship, mutual trust and the "team spirit." Both team and individual games, by fostering wholehearted co-operation and an unselfish attitude for the good of the side, are of the greatest value in training for war.

Games and physical training should be regarded as complementary to one another. Games cannot take the place of physical training because:—

They do not have the same corrective effects.

They do not promote all-round physical development.

The same systematic and objective results cannot be obtained.

Sufficient space is rarely available for all to play.

Apart from these factors, the greatest drawback to the use of games alone is that the weaker and less-expert performer—the very man who requires exercising—is often discouraged from playing by his lack of proficiency and tends to become a "looker-on."

Conclusion

The importance of preparing the Army physically and mentally to overcome the extremely difficult conditions which will obtain in any future war cannot be over emphasized. The realization of this aim demands an informed and enthusiastic approach to the subject of physical and recreational training. The efforts of the best instructors will be nullified, as they have so often been in the past, unless commanders of all grades give them constant support. The new concept of physical training and its importance to efficiency must be woven into the fabric of our military consciousness and our general training methods long before the next war bursts upon us.

CRASH-RESCUE SET

A tiny sending station that will be catapulted from crashed aircraft—and then be capable of bringing help from hundreds of miles away—is being developed as a joint project by the Army, Navy, and Air Force.

In the event of a crash, the small sending cylinder, which will be carried near the tail section to afford it maximum protection (the vast majority of crashing planes hit on the nose or fuselage), will be thrown out of the plane to a spot about 50 feet away. A trigger mechanism then will release a mechanical system which will right the container. A 20-foot antenna will be raised and a transmitter housed in the cylinder will start sending SOS signals hundreds of miles in all directions over a fixed frequency for 24 hours.

Air Rescue Service radio stations picking up these signals then can determine, by the triangulation method, where the plane went down, and rescue any survivors within a short period of time.

If the plane should ditch on the ocean, the sending set still will operate even if it is completely submerged in water. Gross weight of the final equipment is estimated at about 50 pounds.—*Air Matériel Command (U.S.).*

THE FOURTH ARM OF DEFENCE

By

MAX BARNES, BRITISH JOURNALIST WHO IS ON THE STAFF OF THE "EVENING WORLD" (BRISTOL)*

Led by a V.C. of World War 1, a team of instructors is working in a beautiful country mansion at Falfield, in Gloucestershire, England, training the vital fourth arm of defence in case of another war.

The Home Office Civil Defence School at Eastwood Park, Falfield, is one of three Civil Defence technical training schools in Britain turning out qualified instructors who, in turn, train recruits in their own areas.

Since this school opened in 1949 it has trained about 1,400 instructors. They have come not only from Britain but from the Commonwealth and from other overseas countries.

The School, under its Commandant, Brigadier A. M. Toye, V.C., is divided into two wings. In the General Wing 30 students are taught the latest scientific methods of combatting high explosive missiles, the atom bomb and biological and chemical warfare. In the Rescue Wing students go through more strenuous training in basic and full rescue methods.

Strolling through the magnificent grounds of this West Country mansion it comes as a shock to discover suddenly stretching before you a blitz-shattered village as it would appear after a pounding from aerial bombs. Houses lean at crazy angles with their walls and roofs gone. Furniture reduced to matchwood is wedged under fallen ceilings. In one house the walls are still standing but they are rent with enormous cracks. Around these tottering walls, the rescue squad gets first-hand information on how to shore up a dangerous building.

Blitz Realism

Under each of these "blitzed" houses run secret tunnels entered by a hidden trapdoor. The "casualties"—members of the school staff—use these tunnels to reach their positions. On the night of the big exercise the walls of this stricken village are thrown into bold relief against the night sky by the glow from a score of fires. As the rescue squad jumps from its rescue vehicle and runs up the village street, more incendiary bombs explode. Gun cotton ignited by the school staff adds to realistic air-raid effects.

**This article was supplied to the* Canadian Army Journal *by the United Kingdom Information Office, Ottawa.*—Editor.

UKIO Photograph

Practice at Britain's Civil Defence Training Schools is extremely realistic. In this picture, taken in a "blitzed village", the chief rescuer checks the equipment of a member of the squad before "rescue" work begins.

The men in denims and tin hats dash to get the first of the fires under control. With these safely checked, they turn to their most important duty—saving human lives. In one badly blitzed house, a "casualty" shouts for help. The squad finds him lying in bed but as the rescuers climb up to him, the bedroom floor collapses. It has been specially hinged and the supports are blown away to complicate things for the students.

The men move methodically along the battered street on their rescue mission. A moan coming from deep under an immense pile of rubble catches the leader's ear. He calls for silence and bends to listen again. The "casualty" is located and the difficult task of bringing him out "alive" from under the rubble starts.

At the other end of the village a vast pile of rubble stretches, surmounted by the twisted remains of blitzed motor vehicles. It is channeled underneath by tunnels blocked at intervals by the remains of reinforced concrete. Members of the squad don breathing apparatus and wriggle underground with oxy-acetylene torches to cut a pathway.

A shed here contains eight cubicles, each of them representing a section of a collapsed building. In each of the

cubicles a dummy is pinned under the weight of falling masonry of different types. It is the job of the students to extricate them.

Reducing Danger of Radio-Activity

Back in the contrasting calm of a lecture theatre the atom instructor demonstrates an ingenious range of instruments perfected by scientists to reduce the danger of radio-activity after an atom bomb has exploded.

With one of these, the compact dose-rate meter, a portable instrument which can be slung across the shoulders in a knapsack, the students are taught how to test for radio-activity. A reading on the monitor dial is checked with a slide rule and at a glance the student can tell how long it is safe to remain in a "hot" area.

Another metering instrument no larger than a fountain-pen is also demonstrated. By holding it to the eye, the students note the movements of a coarse thread across a scale. This indicates the amount of gamma ray dosage received.

Half a dozen students who have come from an area where an "atomic bomb" has burst, walk past the largest of the radiation metering instruments. This recently perfected machine emits a high pitched note when danger in the shape of radio-activity approaches.

As the students file past the instrument it leaps into life. The instructor runs a detecting rod attached to the metering instrument over the clothing of one of the students. The high pitched note given off grows more intense and the instructor quickly locates the tiny metal cylinder containing harmless radio-active particles which the student has hidden in his waistcoat pocket.

UKIO Photograph

The instrument this Civil Defence worker is carrying detects and measures the rate of radio-activity in the atmosphere. This picture was taken at one of Britain's three Civil Defence Technical Training Schools.

Dust particles so small that they are invisible to the naked eye become charged with radio-activity after an atomic attack, explains the instructor. This instrument would be used to carry out big-scale checks of people exposed to danger. All victims pinpointed by it would be immediately

TEST DESERT CLOTHING

Specially-designed Army desert clothing will be tested under severe hot weather conditions at Yuma, Ariz., during the remainder of the summer. Average daily maximum temperatures of 106 degrees are expected during July and August at Yuma, where peak temperatures of 120 degrees have been recorded in midsummer.

Experimental clothing to be tested includes a long-visored cotton cap and cotton head cloth; loose-fitting cotton jacket, trousers, and underwear; suspenders, wool cushion-sole socks, and tropical combat boots with nylon uppers and ventilating insoles.

The cap, jacket, and trousers are made of a relatively thick, but loosely woven fabric. Last summer's tests indicated that this design assisted body cooling by promoting sweat evaporation and at the same time protecting the skin from abrasion or heat injury from contact with sand or rocks, which attain temperatures as high as 160 degrees.

The studies at Death Valley last summer demonstrated that better protection is afforded in hot desert areas by clothing that covers the entire body, rather than abbreviated garments such as quarter-sleeve shirts and shorts. Loose clothing, it was found, tends to insulate the wearer from the air which is hotter than the body and also helps to block out heat radiated from the terrain.—*Army-Navy-Air Force Journal* (U.S.).

(*Continued from preceding page*)

THE FOURTH ARM OF DEFENCE

stripped, scrubbed with soap and water and checked again to ensure that all danger had gone.

Students at Falfield have light, airy lecture rooms and neatly furnished individual sleeping quarters. Each wing is divided into syndicates of ten students to help give an individual note.

After their training the students answer a questionnaire on their own reactions to the horrors of atomic war fare. Their answers, in writing and anonymous, are sent to Home Office experts working on the question of morale, evacuation and other problems. One thing is quite clear—full knowledge of the bomb and the modern methods taught at Falfield to combat its effects are giving a big boast to morale.

SELF-PROPELLED BRIDGES

LT. COL. R. B. RIGG IN THE MAGAZINE, ARMOR (U.S.)

War on the ground has really not been modernized. Machines have made easier some of the tasks, but bridging a river in battle, for example, is still a hazardous operation. An army can always safely assume that in its advancing path the bridges will be destroyed. Rebridging operations are one of the bottlenecks of battle progress and pursuit. Scientific tools have been unevenly applied to war if we note the ultra-modern progress of air and anti-air combat as compared with ground warfare. Our present technique of constructing bridges under fire is little changed from that of Napoleon's era, except that a larger amount of firepower can be more accurately directed at the bridgehead by the enemy.

It is time that some imagination be applied to the problems of bridging terrain obstacles under fire. The infantryman and the tanker, not to mention the engineer, ought to be able to enjoy the battle luxury of an ultra-quickly constructed bridge, built from only one side of the river. With the instruments and equipment presently available we can improve the hasty bridge technique to increase the speed of construction, to lessen the casualties of a bridgehead, and to project a bridge to a bank we do not occupy.

This is not to outline any finished solutions, nor is it believed that the ideas here are as simple to apply as they are to promote on paper. But small rivers and streams can be spanned from the near shore without a large number of men exposing themselves to fire, if JATO* devices are employed. With development and experiment, self-propelled or rocket-launched bridges may well become realities.

Two means of launching bridges are suggested. For light bridges, the principle would be to fire a special anchor, trailing light cables, into the far bank, and, on the suspension system so created, complete a light bridge. The anchor would be propelled by a JATO-like device, and would vary in size with the type of the bridge.

For pontoon bridges, a special JATO-propelled pontoons would be fired into or onto the far shore, and subsequent pontoons similarly projected would lock into the lead one which would be trailing a cable to guide the others. The bridge would

* *Jet assisted take-off.*

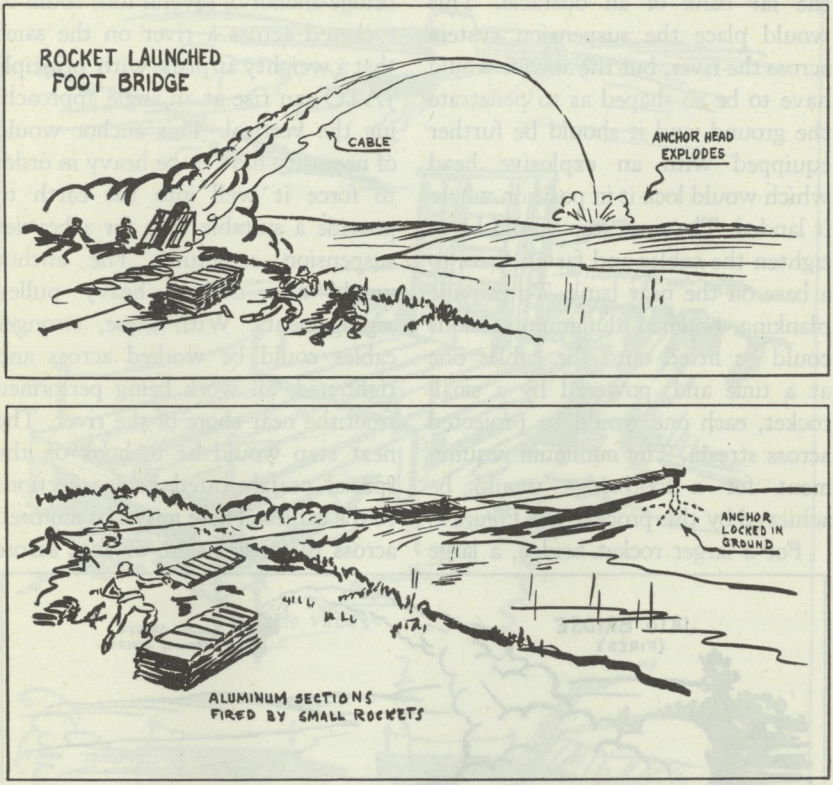


FIG. 1

be formed by a series of joined pontoons. This would be for armoured vehicles.

These spans would not result in ideal bridges, but their components could be prefabricated so as to permit final assembly of the bridge to be made with the utmost speed. Both types of bridges would be constructed almost mechanically, with the engineers working on the near shore only. Infantry and armour would cross a finished bridge to form and expand a bridgehead. Tactically, it would be necessary to protect the bridge anchors on the far bank from enemy infantry and armour, but this is not an insurmountable difficulty.

For a rocket-launched footbridge, a "T"-shaped anchor connected to light cables could be JATO-fired and dropped in a mortar-like trajectory on

the far bank of an obstacle. This would place the suspension system across the river, but the anchor would have to be so shaped as to penetrate the ground, and it should be further equipped with an explosive head which would lock it in position where it landed. The next step would be to tighten the cables and fasten them to a base on the near bank. To provide planking, notched aluminum sections could be fitted onto the cables one at a time and, powered by a small rocket, each one would be projected across stream. The minimum requirement for a footbridge would be achieved by this process. See Figure 1.

For a larger rocket bridge, a large bridge-anchor of several tons could be rocketed across a river on the same that a weighty airplane with principle JATO can rise at an angle approaching the vertical. This anchor would of necessity have to be heavy in order to force it well into the earth to provide a suitable base for a heavier suspension structure. The anchor would also contain heavy pulley arrangements. With these, stronger cables could be worked across and tightened, all work being performed from the near shore of the river. The next step would be to hook on the special prefabricated bridge sections to the cables. These might be motored across the suspension, or shot across

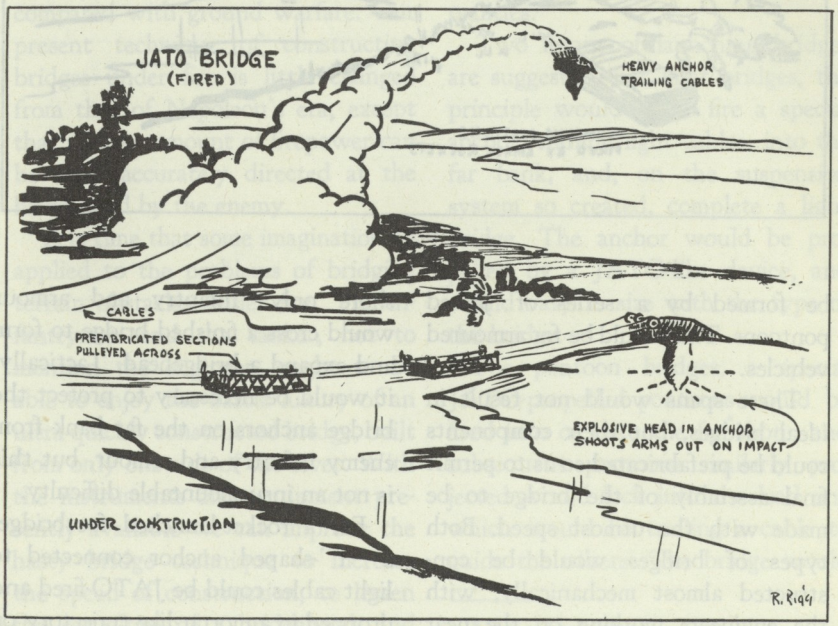


FIG. 2

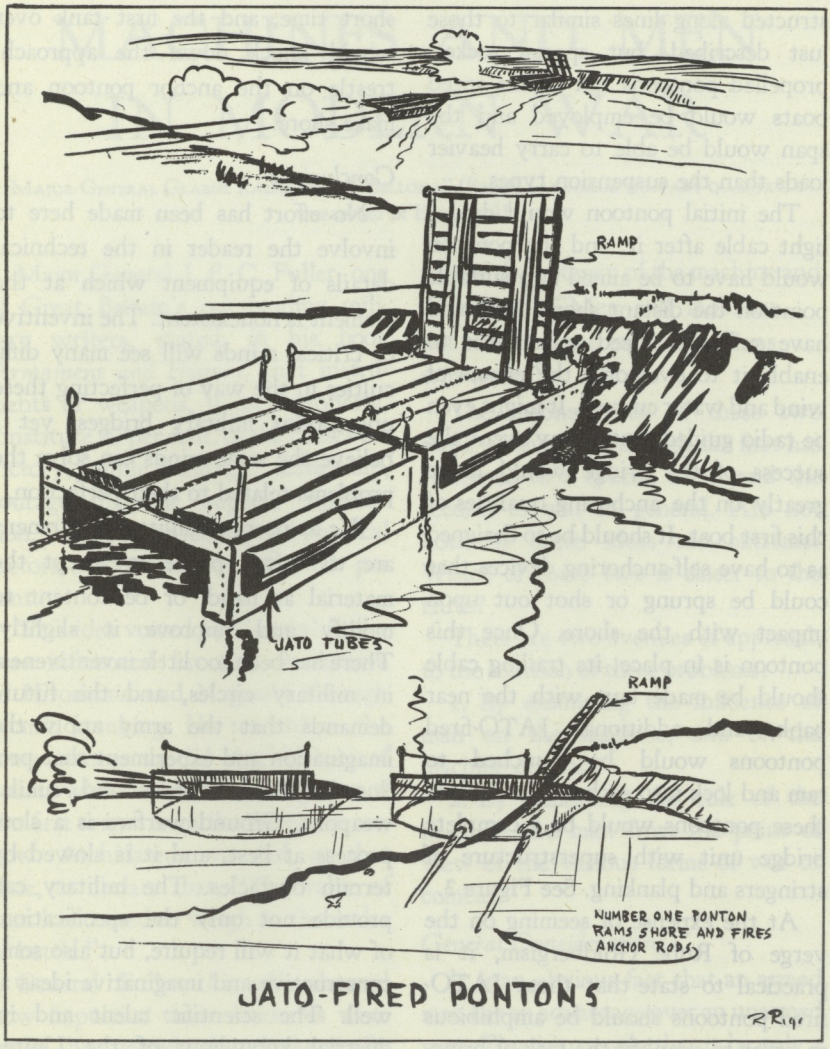


FIG. 3

by rockets. Obviously the approaches at the far end of such a bridge would require some human labour later, but the primary purpose of this span would be to vault combat troops over the obstacle as rapidly as possible. See Figure 2.

A pontoon bridge might be con-

structed along lines similar to those just described, but special rocket-propelled pontoons not unlike speed boats would be employed and the span would be able to carry heavier loads than the suspension types.

The initial pontoon would drag a light cable after it, and the pontoon would have to be aimed at a suitable point on the distant shore. It should have sufficient speed and power to enable it to overcome the effects of wind and water current. It might even be radio guided, but in any event the success of the bridge would hinge greatly on the anchoring qualities of this first boat. It should be so designed as to have self-anchoring devices that could be sprung or shot out upon impact with the shore. Once this pontoon is in place, its trailing cable should be made taut with the near bank, and additional JATO-fired pontoons would be launched to ram and lock into each other. Each of these pontoons would be a complete bridge unit with superstructure of stringers and planking. See Figure 3.

At the expense of seeming on the verge of Rube Goldbergism, it is practical to state that these JATO-fired pontoons should be amphibious in order to simplify the task of bringing them up to the near shore for launching. Properly designed, the components of this type of bridge could be rammed across a river in a very short time, and the first tank over would knock down the approach-trestle on the anchor pontoon and make shore.

Conclusions

No effort has been made here to involve the reader in the technical details of equipment which at the moment is nonexistent. The inventive or critical minds will see many difficulties in the way of perfecting these unorthodox military bridges, yet I believe the same minds can solve the problems related to their perfection.

We as users of military equipment are too often prone to accept the material at hand, or be content to modify and improve it slightly. There has been too little inventiveness in military circles, and the future demands that the army apply the imagination and experiment that produced guided missiles and similar weapons. Ground warfare is a slow process at best, and it is slowed by terrain obstacles. The military can provide not only the specifications of what it will require, but also some constructive and imaginative ideas as well. The scientific talent and industrial know-how of the United States would not be hard pressed to perfect these bridges in conjunction with the miliatry.

Let us modernize ground combat.

MACHINES AND MEN IN MODERN WAR

MAJOR GENERAL GLABISZ KAZIM ERZ IN "BELLONA" (POLISH LANGUAGE MILITARY QUARTERLY PUBLISHED IN ENGLAND)*

Major General J. F. C. Fuller, one of Great Britain's outstanding military writers, stated, in his book *Armament and History*, that instruments or weapons, if used properly, constitute 99 per cent. of the causes for victory, while strategy, leadership, courage, dicipline, supply, organization, and all other morale and physical factors account for the other 1 per cent.

This idea voiced by General Fuller was influenced by the destruction of Hiroshimo and Nagasaki through atomic bombing. He reacted in the same manner as did Archidamus of Sparta who witnessed the shooting of the first arrow from the Sicilian crossbow. Archidamus was led, at that time, to declare that, "The value of man has ceased to weigh in the scales of battle."

General Fuller, himself, showed how impulsive these estimates were when he voiced the diametrically opposite viewpoint a few months ago —obviously under the influence of the events of Korea. He laid aside the idea of the potency of the machine and announced, "Men and mobility . . . not machines and explosive means . . . win wars."

The inconsistency of these two ideas is obvious, although the first has reference to a special event and the second to war in general. Are not both of these ideas too extreme? Which of these two is closer to the truth?

There are two avenues of approach to the solution of these problems:

1. By examining the influence of man on the machine, and of the machine on man.

2. By examining the role of the machine and man from the point of view of the various forms of war or combat.

General Considerations

It is an obvious fact that an armed man has an advantage over an unarmed man. This is true whether it be only a club, a sling, or a lance. This advantage is increased the greater the reach or effect of the weapon. For example, a lance will disable one man; a high explosive shell, 10 or more; a bomb or

*The Journal *reprints this digest from the* Military Review (U.S.)—Editor.

poison gas, hundreds; and the atom bomb, tens of thousands.

The role of the machine (as a weapon of war) has continued to increase, while the role of man has decreased. This does not mean, however, that the role of man already has fallen from first to second place, for the role of the machine is dependent, to a very high degree, on the man himself, as well as on the weather and the terrain.

In connection with this dependence on man, on weather, and on terrain, the machine may be either a terrible and decisive instrument of battle or a troublesome burden. It may be a burden particularly at those times when the quality of the machine is replaced by quantity and when its handling is faulty.

Combat with Disproportionate Strengths

As a rule, the role of the machine in warfare will be greater when one of the opponents is weak from the technological viewpoint, and less when both opponents possess almost equal technological advancement.

Only in exceptional cases is the technologically weaker opponent able to resist or launch attacks. These exceptions would be possible, for example, when the stronger opponent:

1. Is not the master of his machines (as was Russia in 1939-40 in Finland).
2. Does not receive sufficient fuel or ammunition (as Rommel in North Africa).
3. Is too cautious and methodical (as was Montgomery in North Africa and Italy).
4. Is unable to exploit his technological superiority, due to terrain or weather, and the weaker opponent is able to exploit his numerical superiority in manpower (as occurred in the first 10 weeks of fighting in Korea).

Normally, however, the opponent with technological superiority is the victor in battle—but not to the extent of 99 per cent.

Combat Between Equals

The problem is entirely different when both opponents have relatively equal strengths. In this case, disadvantages in the technological field may be overcome by the advantages of better morale, better discipline, better leadership, and greater manpower reserves. However, it must be remembered that the unprotected man cannot save himself, even when he has greater courage, greater strength, and greater resistance, when he finds himself within the range of an atom bomb, a rocket, poison gases, or, simply, a bullet.

The human factor plays an enormous role in modern warfare when both opponents have relatively the same technological strength and technological advancement. This role becomes still more varied when we

analyze its various elements, such as the morale of the front and the rear, the training level, command, endurance, discipline, and, lastly, the calibre of the men who are responsible for the direction of the war.

Contrary to General Fuller, "Fleets, armies, and air forces; conscription and militias; strategic railways; military academies; and generals, admirals, and statesmen still continue to occupy a respectable place"—in spite of the miracles of the laboratory and industry!

Conclusions

In the light of the foregoing considerations, we can deduce the following conclusions:

1. Every attempt at defining the military role of man and of the machine in percentages is useless. It cannot be calculated, nor can it be predicted.

2. Reliance, whether only on machines or only on men, is erroneous and dangerous, because the function and role of the machine is dependent on the attitude of man, and the attitude of man depends on his abilities, including technological strength.

3. The role of the machine will be greater as the numerical strength and technological advancement of the machine increase.

4. Even in push-button warfare, which is still a long way off, final victory will not be won by the machine alone, even though its construction and exploitation be the best, as long as the weaker opponent has a minimum of the technological means to counter them and has the advantage from the standpoint of quality and quantity of men, of terrain, and climatic conditions.

5. The power of the modern means of warfare is terrible. Nevertheless, the role of man cannot be neglected nor reduced to microscopic importance, even when opponents have disproportionate strengths in the technological field.

The West in its defence preparations is placing its main emphasis on the quality of the machine in an effort to replace man with the machine. It is trusting in the potency of the laboratory, and in the efficiency of its techniques. The insistence of the West on a certain degree of comfort, even in time of war, lowers the quantitative efficiency of its gigantic production and cuts off from the battlefield too large a percentage of the men who are fit for combat.

The East, on the contrary, incapable of equalling the West from the point of view of the quality (and in time of war, of quantity) of equipment, attempts to counterbalance this by the quantity and plainness of equipment. In addition, it is able to place on the battlefield large masses of fanaticized human robots. Caring nothing for the comfort of the man or

ATTACKS ON HELSINKI — 1944

COLONEL P. JOKIPALTIO IN "FLUGWEHR UND-TECHNIK" (SWITZERLAND)*

Helsinki is located on a neck of land which reaches out into the Gulf of Finland from the southern Finnish coast. The geographic formation is such that within a distance of nearly two miles of the city there are only three or four islands suitable for the location of anti-aircraft artillery batteries. However, to the east and west, at distances of one-half to three miles from Helsinki, fairly large tongues of land reach out into the sea which are well suited for the location of anti-aircraft artillery formations. These tongues of land are similar in form to that on which Helsinki is situated, so that it was possible to mislead enemy air formations and keep the attacks from the city.

The size of Helsinki, not taking into account the suburbs, is about 20 square miles. About 300,000 persons live in this area. Outside of the city proper, there are several major residential centres, but these could not be included in the air defence plan. The entire defence, potentially, had to be concentrated on the city proper.

In this connection, it should be mentioned that the city was not evacuated, for it was assumed that the Soviets would not be able to spare any forces for missions of secondary importance. This circumstance also explained the fact that the air defence, considering the nature and extent of the objective to be defended, was relatively weak.

The First Attack

During the early part of February 1944, it had been ascertained by radio

*The Journal *reprints this digest from the* Military Review (U.S.).—Editor.

MACHINES AND MEN IN MODERN WAR

(*Continued from preceding page*)

for the high quality of equipment, it is able, to a great extent, to deprive the rear in favour of the front, thus decreasing the technical disproportion.

In the event of a conflict between the East and the West, the superiority of the "machine-man" factor will decide the issue, in spite of Archidamus, centuries ago, and General Fuller, in 1945 and 1950.

Neither man nor the machine alone is supreme. Their ideal union is and will long be the king of battle.

that the Soviets planned a major operation with their long-range combat aviation. However, the objective of the operation was unknown.

On the evening of 6 February 1944, a dense ground fog covered Helsinki, but did not extend to the tops of the higher buildings. The weather was cold, and no wind was blowing. On the basis of previous experience, no attack was to be expected.

However, at 1850, the Air Raid Warning Service reported that Soviet planes were approaching from the direction of Hogland. Between 1910 and 2111, uninterrupted waves of enemy bombers, in groups of from one to eight planes, attempted to reach the city. These planes scattered east of the city in order to launch coordinated attacks from several different directions. The attack was repeated between 0100 and 0415. About 120 bombers took part in the first phase of the attack and about 70 in the last phase.

The major effort was made from the east, from a general altitude of from 13,000 to 16,500 feet, with bombs being dropped during gliding flight. The first waves of both attacks dropped numerous parachute flares to illuminate the target area.

The anti-aircraft artillery fired almost uninterruptedly during both attacks, with the defence conducted, in the main, in the form of concentrated barrage fire. However, lead batteries which were equipped with radar gun-laying equipment were able to use aimed fire. Ground fog hampered the effectiveness of the searchlights. During the first phase of the attack, about 30 per cent. of the planes reached the objective. This was reduced to 10 per cent. during the second phase of the attack.

During these attacks, 70 persons were killed and 122 buildings were damaged. According to civilian defence estimates, the enemy bombers dropped about 1,200 bombs, of which about 20 per cent. fell on buildings.

The Second Attack

The second major attack began 10 days later at 1955 and continued, without interruption, until 2315. As in the previous attack, the Air Raid Warning Service provided timely information as to Soviet intentions. The enemy bombers arrived in waves of from two to 20 planes, generally from an easterly direction, with a total of approximately 120 planes participating. Many waves dispersed, however, in order to attack from several different directions at the same time. The bombing altitudes of this raid averaged about the same as the attack on 6 February.

The attack was discontinued from 2315 until 2340, at which time the Air Raid Warning Service again reported the approach of planes from the direction of the Bay of Finland. This

time, the enemy planes arrived in uninterrupted waves of two to three planes until 0543. In this second phase of the attack, approximately 300 planes participated.

The air defence was surprisingly successful, for only about 10 planes succeeded in reaching the target.

All things considered, the defence was conducted in the same manner as on 6 February. In both attacks, only 16 persons were killed and 27 buildings damaged. Out of the estimated 3,500 bombs which were dropped in this attack, only 70 fell inside the city area.

The Third Attack

Ten days later, at 1725, a warning report was received stating that enemy action was to be expected over the Bay of Finland. By 1730, the first air situation reports arrived, indicating that numerous waves of from 20 to 30 planes were sighted on a westerly course. By 1815, some 130 planes had been counted.

The attack this time was more violent than the others and continued without interruption, until dawn the following morning. Approximately 700 enemy planes participated in this action.

With regard to the conduct of the attack, three phases could be distinguished. The first phase lasted from 1843 to 2230. The enemy bombers approached the city in waves of from 20 to 30 planes, generally from an easterly direction. Individual planes flew ahead of each wave, dropping parachute flares to illuminate the target for the bomber formations. In this first phase, some 250 to 300 planes took part.

The second phase lasted from 2230 until 0230. This night phase was characterized by attacks by individual planes or very small formations. Defence was relatively easy, and only a few planes succeeded in placing their bombs on the target. Approximately 150 planes participated in this phase.

The third phase lasted from 0230 until 0505. This phase of the attack was conducted by waves of 2 to 10 planes. As in the first phase of the attack, individual planes flew ahead of each wave, dropping flares to illuminate the target. Approximately 250 planes participated, with attacks being made simultaneously from all directions. The bombing altitude of the enemy planes averaged about the same as in the two previous attacks.

Defence Problems

The defence forces had a difficult task during the attack on 26 February, for it lasted, without interruption, throughout the night. They succeeded remarkably well, however, for only about 5 per cent. of the bombs dropped fell on the target. Most of the planes which broke through the anti-aircraft artillery fire were in the first phase of

the attack, due to its tempo and the fact that the bombers approached from many directions at the same time.

During the first and second phases of the attack, it was difficult to maintain a clear idea of the situation. For this reason anti-aircraft artillery batteries in less important sectors were given a free hand to conduct the defence, while the other batteries were co-ordinated and their fires concentrated. The batteries which were equipped with radar gun-laying devices conducted aimed fire, while the other batteries formed barrages.

Since the weather was favourable, the searchlights could be used effectively with the result that night fighters succeeded in shooting down four planes and the anti-aircraft artillery batteries were able, in many cases, to conduct their firing with optical ranging. Considering the strength of the attack, only 12 persons were killed and 70 buildings damaged.

Conclusions

Considering the strength of these three main attacks on Helsinki, and the relatively small number of anti-aircraft artillery weapons, radar, and night-firing equipment, the results of the defence forces must be regarded as good. Of the 12,000 bombs dropped during the three attacks, only 530 hit the target area.

The following factors, mainly, influenced the results:

1. Centralized control and co-ordination of the defence.
2. Continuous and detailed training both day and night.
3. Numerous and dependable signal communications.
4. Good defence discipline.

Regardless of the type of organization, and the quantity and quality of the matériel used in such defensive actions, the best results can never be obtained if the foregoing conditions do not exist. This fact was evidenced clearly not only in Helsinki, but also in the other areas of the Finnish home front.

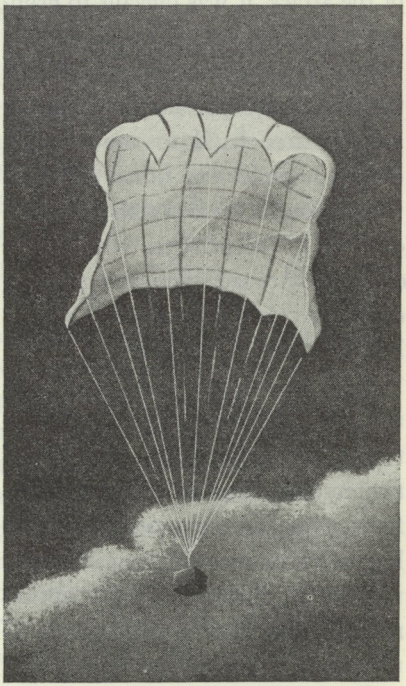
SQUARE CARGO PARACHUTE

A new expendable cargo parachute, made from strips of cotton muslin, has been developed by the USAF's Air Research and Development Command.

The chute, officially tagged the G-13, will replace the Air Force's old 24-foot rayon cargo delivery parachute and, in clusters of three or four, is expected to do the job of the 64-foot nylon chute currently used for heavy cargo drops.

The new cotton chute will deliver 500 pounds of cargo from a plane travelling 175 miles per hour. Its rayon predecessor could handle only 300 pounds at 150 miles an hour. The G-13 is fabricated from nine strips of material attached by cotton tapes to form a 28-foot square. Up-rushing air can escape through spaces between the strips, thus cutting down opening shock and enabling the chute to carry a greater load.

The new chute costs only half as much as the rayon cargo parachute. This cheap, sturdy, cotton chute is deployed direct from its shipping container instead of from the conventional canvas pack. The lid of the box doubles as a pilot chute at breakaway from the aircraft.



At present tests are being run on the same chute design in fiberglass, a cheaper and more stable product than muslin. Engineers say encouraging early test reports show that the fiberplass, although a low-strength material, is proving out successfully in the cargo chute. This they attribute to the strip design. — *The Quartermaster Review (U.S.)*

A Book Review

SOCIETY'S SELF-INFLICTED WOUNDS

By
Lt. Col. J. A. Stairs, MBE, Directorate of Armament Development,
Army Headquarters, Ottawa

In January 1950 the *Journal* published a review of Arnold Toynbee's "Study of History." This is not history in the sense of H. G. Wells' famous outline, i.e., a chronological statement of world happenings in the past. Instead it seeks to understand the meaning of history. Toynbee puts forward the idea that history can be divided up into a number of units which he calls civilizations. He names 21. Using many historical examples he then shows that each of these 21 units has a similar pattern of growth and decline.

The motivating power of history is one of challenge and response. In a growing civilization the people are united with their leaders in a common faith which enables the leaders to respond successfully to each new challenge. Breakdown comes when a challenge cannot be met and it is from then that the civilization begins its decline. The one time leaders who have lost their faith must depend increasingly on military power to achieve their ends. As the rift between this dominant minority and the proletariat widens, materialism and the forces of dissolution continue to grow until the civilization ends in a dark age.

But the collapse of a Society is itself a challenge and there comes to the internal poletariat a renewal of religious faith, which, in time, makes possible a new civilization and a new cycle of birth, growth, breakdown, decline and death. And although the history of civilizations is cyclic, the history of religion seems to be moving slowly forward and upward on a much greater scale.

Out of the "Study of History" which covers all aspects of human activity during past 6000 years, Mr. A. V. Fowler has recently selected those chapters which deal with war. These combine to make a short (165 pages) book on the relationship between war and civilization.*

The book is both more and less

*War and Civilization, *Arnold J. Toynbee, $3 (Selected by Albert V. Fowler). Oxford University Press.*

than the reader might expect. Unlike most war histories it is not a story of campaigns, strategy, weapons and tactics though these are used for illustration. Instead it seeks to show man's attitude toward war and war's effect on the individual and on society and how both the attitude and effect have followed recognizable patterns during the life spans of civilization both past and present.

The nine chapters are like nine essays, for although they are on the same subject they have been selected from widely separated parts of the parent work which must be read if one wants the complete picture.

The book opens by examining Western Society in the war-stricken world of today, and by looking back over the past, tries to determine in what part of civilization's life cycle we now stand. It turns out that we are in the second stage of decline. The period of growth during the Gothic age and Renaissance ended over four centuries ago and breakdown was followed by the Wars of Religion. In the 18th century there was a lull before our present second stage, the Wars of Nationalism began. Because of technological progress this second stage is more violent and destructive than the first.

What next? In the past, similar wars of nationalism in other civilizations have led to one nation becoming all powerful and the establishment of an empire (e.g. Rome, Persia, China, etc). This brings a new lull which is ended in a century or two by a third outbreak of violence following which the stricken society may experience a final rally before sinking into chaos.

Is this to be our fate? Perhaps, but Toynbee believes that our destiny is in our own hands and such an ending can be avoided if we so desire.

The second chapter examines militarism and the military virtues to discover why the 19th and 20th centuries have produced European nations that glorify war.

Toynbee finds that the West inherited two legacies from Rome, one was Christianity, the other was the worship of the state. The wars of religion having shattered the unity of our Christian legacy, the way was left clear for acceptance of the pagan state worship. This modern cult puts war upon a pedestal and looks on the military virtues as the highest good. Yet Toynbee thinks it is better to practise this paganism than to have no religion at all, for civilization can only survive as long as its people remain united in some common belief.

As for the military virtues themselves, courage, obedience, self-sacrifice, they remain virtues quite apart from their military setting and Toynbee believes they will one day outlive it.

Chapter three is about Sparta. Here is a system that led to military strength and political stability at the price of becoming petrified. All Spartan energies were devoted to maintaining the military *status quo.* She had no art, no music and even refused to compete in the olympics for fear that sport would take the Spartan mind off war and military perfection. Politically she never grew. Her trade remained local. And all this at a time when the nearby Athenian culture was spreading over the Mediterranean world and producing results which later became the admiration of mankind.

Sparta could go neither forward nor backward. The end came through victory. She was forced to accept leadership and responsibility for the Hellenic world and the sudden revelation of the wealth of this world demoralized her people and destroyed her system. Defeat followed.

The Spartan System inspired Plato's "Republic" which has been admired for over 2000 years as can be seen from "Mein Kampf."

But the ultimate failure of Sparta was still not as terrible as the total destruction which overtook Assyria at the end of the seventh century B.C. Assyrian abuse of military power in the 8th century BC forced her to wage incessant war during the next 150 years. In vain she would try to placate or destroy her enemies but always the old hatred would bear new fruit and they rose against her again and again. Throughout this period her army steadily perfected its weapons and techniques while the home front was bled white.

In 614–610 BC the end came. Asshur, Nineveh and Calah were overthrown by a coalition. Other defeated cities were able to rise again but long and bloody wars had sapped Assyria's will to live and her spiritual suicide made certain her physical death. Two centuries later when Xenophon with the ten thousand passed by he was unable to learn even the name of those who had lived in these ghostly cities.

It is surprising to find that the Assyrian field army was victorious to the end. Her last recorded battle was won in 610 BC after the homeland had been destroyed.

Assyria also illustrates how a power living in a march of a growing society can use its strength to defend that society against its natural enemies or can misuse it by attacking the society itself. In our Western world Charlemagne is a good example. But the best is the 14th century Transoxanian ruler Tamerlane. Few who know his name realize that he spent the first and better half of his career defending the Iranian society against the Asiatic barbarians. During the last half he rends the same society tooth and nail. If the consequences of

this action had been confined to his campaigns alone the matter would have little interest. But the consequences were far reaching. The nomad who had been slowly accepting Islam now rejected it in favor of Buddhism. Iran was unable to tame the nomad politically because of the wounds left by Timur and eventually the steppe fell into the hands of Russia. Toynbee reflects that but for Timur, Iranian culture would probably have succeeded and Moscow might now be ruled from Samarkand. One wonders how much better or worse life would be if Mossadegh had Stalin's power.

Chapter six shows the demoralization which comes with decisive and overwhelming victory. When in 168 BC Rome became undisputed master of the Mediterranean world the moral collapse of the governing class brought on a century of crime and suffering which was only ended with the coming of the Empire under Augustus.

Chapter seven reviews two and one half thousand years of military techniques to show how defeat comes from stagnation. The one time victor "rests on his oars" until beaten by an enemy with new ideas. Readers who prefer the more conventional type of history should enjoy this chapter.

Rapidly passed in review are the Spartan Phalanx, the Athenian Peltast, the Theban column, the Macedonian Phalanx, the Carthaginian Squadron and the Roman Legion. The legion survived for 600 years and although it had been defeated as early as 53 BC it was not until Adrianople in 378 AD that it was finally overthrown by oriental cavalry. The battle of Carrhae in 53 BC was fought by horse archers. But in spite of this and other successes, the next 1200 years belonged to the mail-clad lancer or cataphract. He is often seen in the art of Europe and Asia, in 3rd century Persia, 7th century China and 11th century Normandy. The undisciplined cataphract was defeated by the mongol horse archer in front of Baghdad in 1258 but made a comeback two years later when the same mongols were beaten by the disciplined cataphract phalanx of the Mamluks in Syria and Egypt.

The chapter closes with a note on Roman and Carthaginian naval tactics which further demonstrate that it is less the development of a superior technique which brings victory than the idolization of an old technique that brings defeat.

Toynbee now goes on to show the correlation that exists between an advancing military technique and a declining culture. This is clearly seen when the history of Greco-Roman technical improvements just outlined is placed against the full Hellenic background. Again the Assyrian

example reminds us of a collapse which came when the army was technically at its best. This is not surprising. As wars become more frequent and more violent, the energies of a society are turned to the work of self-preservation and less time remains for trying to improve the standard of living, or do basic research or any other form of creative activity. This seems to be borne out by the experience of the past 150 years in which science and technology have made possible the world wars which row disrupt our society. The real price of an atomic bomb is not to be measured in dollars.

The book ends with a look at those men who have tried throughout history to save their dying societies by means of the sword. There are those who try to bring peace through conquest aimed at empire and there are those who try to keep peace by the maintenance of empire but to no avail. The war to end wars is an illusion and the so called "Golden Ages" which came to Egypt, Rome, Persia, the Osmanlins and others prove in reality to be but "Indian Summers" before the winter of violence. Toynbee sums up the lesson by saying "It is only in fairyland that swords cut Gordian knots which cannot be untied by fingers. 'All they that take the sword shall perish with the sword' is the inexorable law of real life."

In summing up these nine chapters it may be said that war is to society what dope is to the individual. A little of the drug in the young and vigorously growing body seems harmless enough and may even appear advantageous. But as time goes on the habit grows and advancing technology and power make the poison more virulent. At last comes an overdose and though this is not at once fatal the end is none the less certain. Henceforth the stricken society will seek in vain to win peace by ever increasing the dose. There may be times which are relatively painless but such "Golden Ages" are only dreams and soon the harsh reality breaks in again more violent and terrible than before until at last the tortured body social disintegrates in death.

Anyone loooking at the atom bomb and 20th century science in the service of war is bound to wonder where we stand and what can be done. Toynbee tells us that we appear to stand about half way along the downward path but he never closes the door on the possibility that we may prove wiser than our forerunners and be able to avoid their fatal mistakes. As a practical means of doing this he seems to feel that an organization such as the UN offers the best hope. He understands the problem too well to suggest any simple means for effecting a cure. By such spiritual qualities as faith, patience and fore-

sight plus a lot of understanding and hard work, the solution may be found. But to grasp the full complexity of this problem one must read the parent work.

Many will object that Toynbee takes his examples from the too distant past. Of what interest are Sparta and Assyria to the 20th century? The answer is that these nine chapters are not a study of war in terms of strategy, tactics and weapons, but a study of the effect of war on the life of a civilization. It is a study of human nature both in the individual and in society and this accounts for the value of the examples regardless of the time or place from which they are drawn. For it is a truism that human nature is slow to change and in the reaction of human beings to victory or defeat we may observe the came effects 30 or 40 centuries ago as are seen in the world today.

Those who wish to know more about Arnold Toynbee's ideas but have not the time to read his major work will find he has published a collection of 13 essays called "Civilization on Trial" (Oxford University Press). These are light reading and form a good sequel (or prelude) to "War and Civilization."

WRONG ONE

Unfortunately, casualties sometimes were caused during the Second World War when aircraft accidentally bombed their own forward troops and trigger happy anti-aircraft gunners shot down friendly planes that strayed too close. Such incidents were infrequent but could never entirely be eliminated. Early in the game, however, the Royal Navy had achieved a reputation for shooting at anything that tried to pass overhead and nothing illustrates this better than the incident related in *Bomber Offensive* (London, 1947) by the redoubtable "Bomber" Harris who chanced to be aboard H.M.S. *Rodney* during 1941 as a member of a British Mission destined for Washington:

> I think it was on the second night out that when we were at dinner in the Admiral's flat we heard a tremendous racket and roar overhead. There was also a shower of white paint and cork fragments off the deckhead above; the "Chicago piano" or multiple pom-pom anti-aircraft gun on the quarter deck had opened fire. The Navy run these things so well that I felt quite sure they would not open fire while we were having dinner down below merely in order to practise. Admiral Sir Charles Little, the head of the Naval Mission to the United States, who was also present, suggested that I should go up and see the fun. But the figure of a duffle-coated snotty appeared in the doorway and reported without a blink at my presence: "The Captain's compliments, sir, but we were only firing at a friendly aircraft." This seemed so normal to me that I required no further assurance . . . *Historical Section, Army Headquarters, Ottawa.*

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