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FRONTISPIECE

Before World War 1 Palestine, Arabia and Iraq formed part of the Turkish Empire. When Turkey entered the war in support of Germany the British Government arranged for the despatch from India of a small expeditionary force to protect the Anglo-Persian oil wells at the head of the Persian Gulf. The expedition was later enlarged and, although it lacked the necessary strength and administrative support, attempted to advance up the Tigris and capture Baghdad. The venture ended in disaster and the capitulation of a large British-Indian force at Kut-el-Amara. The British responded by building up another army which drove the Turks out of Iraq before the war ended.

1st Australian Wireless Squadron was one of several units raised at the request of the British Government for service in Iraq. In those days field wireless sets were cumbersome affairs. Pack stations, which required five pack horses for the gear, generally worked forward of division. Wagon stations, carried in two limbered wagons, worked upwards from division.

In addition to field operations, the Squadron developed a highly efficient system of monitoring enemy wireless traffic.

The picture shows an operator at the operating bench of a wagon station.

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Photo Australian War Memorial, Canberra.

1st Australian Wireless Squadron

AUSTRALIAN ARMY JOURNAL

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TO FIND A PATH

Major C. P. Yacopetti, MC,
Royal Australian Infantry

The Pacific Islands Regiment

Honorary Colonel:	Brigadier D. M. Cleland, CBE, OStJ.
Commanding Officer:	Lieutenant-Colonel J. W. Norrie, OBE.
Battle Honours:	Not yet gazetted.
Pipe Banners:	Lord Rowallan, Eastern Command, Northern Command, Lord Dunrossil.
Regimental March:	Bonnie Dundee.
Organization:	Battalion Headquarters Administrative Company (includes Signals and Pioneer Platoons). Four Rifle Companies. Recruit Company.
Affiliations:	7th Duke of Edinburgh's Own Gurkha Rifles.

THE most colourful infantry unit of the Australian Regular Army is undoubtedly the Pacific Islands Regiment. In writing about this unique regiment, a brief mention of its history must first be made.

Unit History

Prior to World War II, there was no regular native force in Papua or New Guinea except the Constabulary. In 1940, it was decided to raise a unit because:—

(a) There was a threat of war.

(b) The natives were obviously willing to fight for their country if necessary.

(c) Their martial qualities and knowledge of bushcraft could prove most helpful to any force operating in Papua and New Guinea.

The first unit to be raised in 1940 was called the Papuan Infantry Battalion. It became commonly known as the PIB. Later the 1st, 2nd, 3rd and 4th New Guinea Battalions were raised, although the latter two never saw action. The Pacific Islands Regiment as such was officially designated in November 1944, when a Headquarters Pacific Islands Regiment was formed to administer the four infantry battalions then raised.

Then, as now, the officers and key NCOs were Europeans. The roles of the native troops were confined to patrolling and protection tasks and in these they proved themselves tough and well-disciplined soldiers. Throughout the New Guinea campaign they accounted for 2209 officially recorded enemy dead for the

loss of 63 Australian and native troops killed in action. Their individual feats of heroism were equal to those of any soldiers in the world, and one DCM and several MMs were awarded. Their European officers and NCOs also distinguished themselves. The decorations awarded to them included DSOs, MCs, DCMs and MMs.

One of the outstanding qualities of the native soldier was stamina. One company alone spearheaded the allied drive from Morobe to the Sepik, and this company was actively engaged in operations for 18 months with only three weeks rest. Troops of the PIR also took a leading part in every campaign except Milne Bay. The 2nd New Guinea Battalion was used in several successful set attacks supported by air and artillery fire, and thus exploded the old fallacy that native troops could not be so employed.

In June 1946 the PIR began to disband after assisting greatly in rehabilitation work and in the guarding and repatriation of POWs. So great was their success in war, however, that in 1950 it was decided to raise a native battalion as part of the Australian Regular Army. The Pacific Islands Regiment of today already has this proud tradition handed down from the background of fine wartime achievements. Some of the younger members of the battalions of wartime fame are still serving with the Regiment, many as NCOs.

Organization, Strength and Role

The Regiment is not organized on the "pentropic" organization. It consists of an HQ, an Administrative Company, four rifle companies and a recruit company. The Support Company is not raised as such, although the Signal and Pioneer Platoons are part of the Administrative Company, which also carries the usual Transport, Quartermaster and Medical Platoons. In addition, this company carries a small Employment Platoon to provide administrative personnel required by Area Command, Papua and New Guinea. The Regiment's posted strength today is about 700 all ranks. They are all armed with the Australian 7.62 mm SLR, Bren LMGs or OMCs.

Each rifle company is organized on the basis of three platoons each of three assault sections and one support section. The officer commanding, second in command, platoon commanders, company sergeant-major and company quartermaster sergeant are Europeans. Platoon sergeants and section commanders are native soldiers. Each of the platoons receives training in all platoon weapons, including 3.5-in RL and 2-in Mortar. In each company there is a fourth sergeant known as the "Top Sergeant." He is the senior native NCO in the company and understudies the company sergeant-major. Clerks, storemen, signallers, medical orderlies, cooks and drivers are also natives.

Regimental Headquarters, Administrative Company, two rifle companies and the recruit company are situated in the Port Moresby area, from which patrolling, garrison duties, recruit training and advanced training are carried out. The main camp is at Taurama Barracks, from which the control and administration of the unit is exercised. In addition, there are two outstations maintained, each of rifle

company strength. One outstation is at Vanimo, near the Dutch New Guinea border on the north coast. The other is at Nutt Point, Los Negros Island, in the Admiralty group. This latter outstation is commonly called "Manus" because it forms part of the Manus Island group. Later paragraphs will deal in greater detail with life on an outstation.

The peacetime roles of the unit are officially listed as:—

(a) Performing garrison duties and patrolling in selected areas.
(b) Forming the nucleus of trained personnel as a basis for any expansion which may be ordered.
(c) Aiding the civil administration as required.

In carrying out these roles the unit is playing a worthwhile part in the development of the country as well as preparing itself for war.

New Guinea is one of the most rugged and difficult countries in the world. Some of its mountain ranges are almost impassable. Its jungles are dense, and many of its areas infested with disease and vermin. Its rivers are wide, often flooded and crocodile infested. Its climate can be most trying, whilst some of its people have rarely seen white men, to whom they are sometimes hostile. Large areas are still unexplored, unmapped and unknown to the most widely travelled missionaries and patrol officers. Developing this country is a major task for both its own peoples and for Australia. It requires men of stout hearts as well as administrative foresight and perseverance.

It is into these wilds that many of the unit's patrols are sent. The information they bring back is extensive and invaluable. It covers such things as:—

(a) Existence and condition of tracks, rivers and vegetation.
(b) Corrections required to be made to existing maps.
(c) Capacity of the country to provide troops with food and water.
(d) Prevalence of disease and vermin.
(e) Number, type and strength of villages encountered.
(f) The disposition of the inhabitants towards white men and the civil administration.
(g) State of development, health and customs of the people.

Patrols often accompany Department of Native Affairs representatives during their visits to uncontrolled areas. The presence of the troops on these trips is an incentive to the villagers to further their own advancement, hygiene and discipline as well as creating respect for the administration as a whole. This work is commonly known as "showing the flag," and is of great value to the country. When traversing primitive districts the troops also help to provide a protective force for the whole party.

In war the Regiment can form the basis of rapid expansion if needed. Native troops could be used most advantageously as they have been in the past. That is in protective, deep patrolling and coast watching roles. Their knowledge of bushcraft and their endurance would leave them unsurpassed in these fields. With the added emphasis now placed on the acquisition of target information and disruptive tactics in rear areas, their value could in-

crease even more, especially if employed in familiar localities. It has been proved that native troops can be used, in conjunction with other arms, in successful attacks and defence. With good training, there is no reason why this should not happen again.

Ceremonial

The troops love and therefore naturally excel at ceremonial. One has only to be on parade with them to feel their own pride in their standard of ceremonial. Nearly every VIP who has visited the Territory recently has reviewed the Regiment at a ceremonial function and been impressed by the display. The VIPs have included Governors-General, Cabinet Ministers, Service Heads, Church and foreign dignitaries. The forms of ceremonial range from a simple Beating of Retreat to a full Trooping of the Colour ceremony. Many visitors come to see the troops perform on these occasions.

The Regiment can boast of a first-class Drum and Pipe Band. It has performed in several capital cities of Australia and has been acclaimed as an equal to any similar Australian band. It is a relatively young band, but already it has been presented with 4 pipe banners, which include one by the late Governor-General, Lord Dunrossil. Within the Territory, the band is in constant demand to add to and to enhance many public functions. Some organizations will even pay return fares and board and lodging for the whole band in order to obtain its services. The bandmaster is a European Warrant Officer, but the remainder of the band, including drum major and pipe major, are natives.

Recruiting

Recruits are taken in annually and only the best of applicants are accepted. They must be rated as SG3 or better. The standing of the unit in the peoples' eyes is such that it is considered an honour for an applicant to be allowed to join. Whenever possible recruits are taken in equal proportions from Papua, New Guinea and from the outlying islands. This keeps the unit balanced in local knowledge in case of expansion.

Before being posted to companies, recruits are given twelve months solid training at a special camp in Port Moresby area. This is probably the most important phase of the soldier's training, and many problems are encountered which are unknown to recruit training in Australia. It is most rewarding to see the troops respond so well. At the end of the recruit training period they are fitter and healthier than any other group of natives in the Territory. Their drill, turn out, discipline and knowledge of weapon handling and minor tactics is of a high order.

Some of the Problems

These results are dependent upon the solution of many difficult problems both by the troops themselves as well as by their European officers and NCOs. These problems existed and were established during wartime. They are even more pronounced in the changing world of today. Their solution requires very close study and a good deal of hard work outside "duty" hours.

The most obvious problem is the difficulty of language. This is tackled from two directions. The

troops are taught English from their first week of recruit training, whilst officers and NCOs are taught Pidgin English, which is understood and spoken by most native groups who have had some contact with the outside world. This way it is possible to communicate sufficiently to teach the soldiers their military duties and yet be able to understand their many and varied problems.

Even if both officers and men spoke a common language, there would still remain a hundred and one problems to solve. Many of the young troops have had little or no contact with European civilization before enlisting. Overnight they are confronted with a completely new world, which tends to confuse as much as it fascinates them. Some of the things that confuse them are simple facets of life which we take for granted, such as:—

(a) Mixing with other groups.
(b) Using and seeing modern equipment such as cars, planes, pumps, rifles and wireless, etc.
(c) City shops, banks, money, cinemas.

The native soldiers enlist with many village customs and native beliefs firmly etched in their minds and hearts. These cannot be erased overnight and be supplanted by European type army customs and discipline. In many ways the two are just incompatible. However, once the rudiments of discipline and army ways are learnt these are found to be invaluable in progressing more quickly in later training. Furthermore, once they begin to accept the fact that, as soldiers, they have to learn a new way of life dictated by discipline and army requirements, they accept changes more readily and confidently.

Again this acceptance does not spring up overnight. Consequently recruit training has been lengthened to twelve months, under experienced European officers and native NCOs. After this period they are ready to be posted to rifle companies for further training and for patrolling and garrison duties. In this latter phase of their soldiering, many of them find the solid discipline, learnt in recruiting, a very useful support on which to lean when their relatively simple minds have to try and fathom the vagaries of modern civilized life.

Without this background of solid discipline they would soon be susceptible to many worries. A "worry" is an anxiety existing in their minds as a result of personal problems, imaginary grievances or confusion due to lack of understanding of modern civilized customs. From their earliest recruit days they are taught that if they have a "worry" they must report to their officers, who will straighten their problem for them. This is most important, for a native soldier, brooding over a worry, soon finds other grievances, real or imaginary, in an attempt to explain or justify his circumstances. Where his civilized training is insufficient to satisfactorily explain his position, he will invariably revert to his own native ways of working it out in his mind. The problem is that soldiers will not readily come to any officer with a real "worry." He will only do so when that officer has earned his respect and confidence, which, once again, takes time to achieve. Nor do they appreciate having to switch their confidence to new individuals every 12 months or so. This makes it desirable to have officers remain

in their postings in the regiment for much longer than in most other units.

These are only some of the problems that the native troops face and which, at the same time, are posed for their European officers. There are other pressing ones, some of which are only beginning to take shape as a result of this changing world. Colour and envy of the status of Europeans are among these and in their solution, solid recruit training, a firm code of discipline, loyalty to the Crown and patient, understanding European staff will play a major part.

Much will depend on the staff, especially the young officer. They must be completely devoted and unselfish; they must be patient and sympathetic but equally determined that discipline will be maintained and customs of the service observed, due to the amount of supervision that native troops need. They must expect comparatively long tours of duty in the uncomfortable tropics. Eventually they must expect to come back as COs/OCs.

The Reward

The reward for all members of the regiment comes in two ways. For both native troops and European staff there is personal satisfaction in achievement and professional advancement. The troops are among the best fed, quartered, trained and educated inhabitants of Papua and New Guinea. On discharge from PIR, there are many more avenues of employment open to those who elect not to re-engage, while those who return to their villages take back a fund of knowledge which can be used for their own advancement as well as that of their people.

Personal satisfaction for the European staff comes with the obvious improvement of their troops who bear the mark of their own handiwork. To command these troops and see them daily become more proficient and healthier; to get to know them and speak their language in order to gain their respect and confidence, provides a sense of achievement which few other members of the ARA experience.

Service with the regiment also provides some of the best training that the Australian Regular Army can offer, especially to junior officers. When a young officer is reposted after 3-4 years service with Pacific Islands Regiment he will have met a greater challenge of leadership than any other of his contemporaries. He will have been put to and passed more tests of initiative, flexibility, adaptability, judgment and common sense than any other young platoon commanders in a regular unit in Australia. His knowledge of bushcraft and of operations in tropical areas will be better than most other young officers.

In one patrol alone he will probably have had to cope with many or all of the following contingencies:

(a) Prepared and briefed his subunit for move, at a moment's notice, by air, land or sea.

(b) Complete responsibility for a platoon of men for periods up to 60 days in country which has the world's most difficult climate and terrain.

(c) Crossing with little or no equipment flooded and crocodile infested rivers 300 feet wide or more.

(d) Navigated his way through stretches of unmapped and unknown terrain.

(e) Had groups of primitive natives follow his patrol for days on end.

(f) Bartered with native villagers for food, carriers and guides.

(g) Gone short of rations, water, medicine and sleep but still brought all his men through.

(h) Called for resupply or evacuation by air.

(j) Climbed from steaming, vermin-infested swamps to icy cold heights of 13,000 ft or more in a period of one or two days.

It has been stated that in the wars of the future, success will go to the commander who can keep his forces dispersed, concealed and mobile and yet be capable of concentrating them quickly at the decisive time and place. This may only be achieved by organizing the bulk of the assault forces into patrols each of which move from different start points and by different routes, under cover of darkness or foliage, to arrive at the objective at the appointed time and place. This calls for junior leaders of the highest calibre, whose leadership must have been previously proven in training. In particular they must possess the qualities of initiative, flexibility, courage, endurance, judgment and common sense. Those young officers who have successfully served with the Pacific Islands Regiment will be well suited to wage either this type of war or a more conventional war in tropical areas.

Life on an Outstation

It was mentioned before that the regiment maintains two company outstations, one at Vanimo, near the Dutch New Guinea border, and the other at "Manus." Each of the rifle companies serve on outstations for six months and then return to base at Taurama Barracks for the other six months of the training year. Life on an outstation can be one of the most pleasant and rewarding duties of one's service. Yet it has its own special problems, especially for the company commander and his second-in-command.

Both outstations are located some hundreds of miles from Port Moresby. From the date of arrival on the outstation, the company commander is granted the powers of a detachment commander and is virtually lord of all that he surveys. During these six months he knows he will be relatively undisturbed and can concentrate on some very serious training without the boredom of the usual garrison duties and distractions that attend peacetime soldiering near a metropolis. Here is the opportunity to bring every soldier up to scratch in weapon training and section and platoon drills, also the chance to organize that refresher course for NCOs and the potential NCOs course.

Here, everybody "lives in" including the company commander. Specialists such as signallers, pioneers, cooks and medical orderlies are placed under command, and with them comes the challenge to successfully weld them into an independent, self-sufficient team. Platoon competitions can be pursued to a satisfactory completion. A regular company routine can be planned

and executed without "battalion" causing it to change at fairly short notice. The serious business of planning long-range patrols goes on undisturbed. Then there are liaison visits to be exchanged with the Navy or missionary stations nearby.

Sporting and recreational facilities are available in the camp and they are used regularly. Beautiful palm-fringed beaches of white sand exist a few yards from the camp, while the tropical lagoons and coral reefs abound in fish in the most picturesque world imaginable.

With these come the usual problems that attend any camp in such isolated conditions. Taking a company away for six months knowing there is only one major resupply every six months is quite a planning task in itself. Then there is the problem of coping with the urgent evacuation of a casualty or the breakdown of power or water in the camp, knowing that there will not be another aircraft with the urgently required spares or medicine for days to come. Patrols have to be contacted, directed and resupplied. The odd storm, tidal wave or epidemic often add to their problems. Finally there are the troops who still have their troubles about their wives, pigs and gardens back at home. Even at Vanimo the paper warfare rolls relentlessly on.

Life on an outstation can certainly be pleasant but it is also a test of leadership. The responsibility for keeping troops fit, trained, busy, interested and usefully employed lies solely with the OC and his staff. They must readjust themselves to what is six months of relative isolation in an environment completely different from anything they have been previously used to. Failure to make this readjustment quickly, and to maintain a healthy tempo, could bring about an atmosphere of futility and boredom that saps morale. Much depends on the OC, and, for him, an outstation tour is a test of fitness to command.

Conclusion

In the history of Australian Military Forces, the Pacific Islands Regiment is a colourful unit of proud traditions, simple organization and unique roles. In every aspect of soldiering, the officers and men of the Regiment are presented with unusual and difficult problems. Their solutions are not to be found in books already written. The Regiment's motto is "To Find a Path." It is a fitting motto. It applies in every aspect of soldiering with the PIR as well as in its literal sense. It even applies in the field of human relationships. It could well apply in the training that the Regiment offers members of the Australian Regular Army for a future war. It may well be that in the war of tomorrow the Pacific Islands Regiment may be better fitted to conduct operations than more sophisticated but less self-sufficient units.

THE ELEMENTS OF POWER

Major N. R. Charlesworth
Royal Australian Infantry

I — THE WAYS OF INTERNATIONAL POLITICS

THE ways of international politics today are the ways of the "multi-state" system which has existed for several hundred years. Geographical distribution of power is now radically different from 1930, but the system is still intact. The salient feature of the multi-state system is the discrepancy of legal rights and status on the one hand and actual power influence and responsibility on the other. States, powers or nations form different political communities which have little practical significance in view of the power divisions today.

In the world today there is no organization to control the conduct of countries who are prepared to fight for their aims and policies. The United Nations Organization and Charter, although laying down the theory of such control, has not at this stage evolved an organ capable of imposing any course of action on the great powers. No international force can be raised to offset the aims of the major powers without threat of general war. Consequently effective action can only be taken on a voluntary contribution basis in the relatively minor conflicts such as Korea, Congo, Palestine. The complications of a true international force are too involved to discuss in this paper. In the meantime, the world is faced with continuation of the UN actions which are either strengthened or weakened by the presence or absence of armed forces in being or in potential.

History has shown the imperfect working of the balance of power system and subsequently war has dogged man. This is a weakness of the multi-state system—yet there is no agreement on institutions, procedures or traditions that will guarantee no further war when military technology is as powerful as it is today. It is therefore important to understand the elements of power and statesmanship and the conduct of international relations to recognize the imperfections and instability of our world. Much will, of course, depend on the super powers—USSR and USA. Only an understanding or awareness of basic principles will enable us to trace how the elements of power and their function affect our world today. The implications of thermonuclear warfare on this concept of

balance of power are not considered here.

The Multi-State System

There have been five great peace settlements in history. Westphalia 1648, Utrecht 1713, Vienna 1815, Versailles 1919 and 1945. Since Westphalia the world has become organized on the European State System. Under the system of the "territorially defined sovereign independent state," no nation owes allegiance to a higher sovereign authority, nor brooks any interference with its internal or external affairs unless it chooses, or is forced to submission. The other peace treaties reconstructed the system after tremendous upheavals.

The nature of war has changed through the centuries. Rivalries led to the balance of power systems and became a natural by-product of the "nation-state" system. While the wars of the 17th and 18th centuries were largely dynastic, those of the 19th and 20th centuries have become primarily nationalistic. World War 1 gave impetus to a force of explosive potentiality—economic nationalism—a result of competitive squeezing in the effort to live.

However, while wars have become more extended and devastating there have likewise been considerable developments in the peaceful settlement of disputes and the techniques of international organization. This has been followed by growth in administrative technique in the realm of international government. The first attempt was in the League of Nations. No "Great Power" has been willing to submit unconditionally to international jurisdiction (although the International Court of Justice has been useful in a limited way). Armed force continues to clothe a nation's policies, and so a premium has been placed on the possession or availability of the industrial raw materials and agricultural resources of the world, since a nation's ability to defend its rights depends upon its own strength in relation to its neighbours.

Fundamentally then, the central dilemma of international relations derives from the fact that the absence of superstate authority imposes on each country ultimate dependence upon its own resources in the defence of its security.

Domestic and International Politics

To "win friends and influence people" four broad methods have been devised:—

(a) Persuasion,
(b) Purchase,
(c) Barter,
(d) Coercion.

Generally a mixture of the four will give the most satisfactory result. However, the amount of each factor used depends on people, their background and the case. The growth of society, the instruments of power and personal aims, are all related to the struggle for power by one of these means. Similarly, for groups as for individuals there are two forms of approach to desired objectives in case of opposition and conflict—direct action and "political action." The first implies acting directly on the persons whose co-operation is necessary to achieve the objective. The second means that the group tries to achieve success through the use of the coercive power of the state.

In the national state, groups or political parties can and do use these methods to achieve their ends. In the international sphere no such group exists to preserve order and enforce law. Self-preservation and independence are the essence of the state, and this explains why the foreign policy of all states is the preservation of territorial integrity and political independence. This in past history has led to the growth of the balance of power system with all its difficulties and disadvantages. There have been short periods in which an approximation to balanced power existed, but these have been due to two states or sets of states who were trying to upset it in different directions, e.g., Prussia 1870 and 1914 versus France.

Ends and Means in International *Politics*

A foreign policy consists of bringing into balance, with a comfortable surplus of power in reserve, the nation's commitments and the nation's power. The fundamental subject of foreign policy is how a nation stands in relation to the principal military powers, for only great powers can wage great wars, resist great powers or defeat great powers. No great power can stand alone against all others—it must have allies, and it finds those allies among the nations with similar interests. The common error in the past is that they did not take the precaution to become members of an indisputably powerful combination, e.g., Germany and Japan.

If the object is not only to provide for security against being defeated in war but also to organise a peace which prevents war, the alliance must be so adequate, so dependable and so overwhelmingly powerful that there is no way of challenging it. In the past and today this is difficult to maintain, since alliances have tended to dissolve under the pressure of the special interests within the member states. The cycle of war continues until the strongest survives and a new power is formed by the winning combination.

The Pattern of Aggression

Western society in its growth over the centuries has developed what could be called a "system" of nation states. With the passing of time, groups of common culture and language have tended to come together in a single state. Slowly, perhaps, there is a process of consolidation going on among the sovereign states. However, in the past there have been numerous attempts to consolidate a number of states, if not the whole system, into one political unit. These are the great wars of history. The "system" proved stronger than the state that tried to break it down. The historian can discern four broad generalities in the behaviour of aggressor nations in the state system of the Western World:—

(a) The aggressor by all means in his command seeks to spread throughout the world a reputation for power, for success, for possessing a good way of life; he seeks to be feared and respected. There are subtleties and variations in the mixture of fear and respect, but the aggressor will always seem to inspire or want both.

(b) The aggressor pursues toward his immediate neighbour states a policy of penetration or makes them "satellites."
(c) The aggressor attempts to make allies of independent states, usually close to and rivals of independent states feared by the aggressor.
(d) The aggressor will attempt to expand in the name of a gospel of revolution. This is clearly less regular and possibly a special case of (a) above.

An examination of history and the world today provides interesting comparison with the historians' generalities. However, one interesting human fact is the feeling of nationalism that exists in various states. This is the greatest source of trouble to any aggressor, and although intangible and not easy to calculate, traditional loyalties and cultures of nations have in the past been the great stumbling block in the expansion of power.

II — THE ANATOMY OF POWER

National power as used in this paper means the total capabilities of a state to gain its desired ends vis-a-vis other states. This definition rests on three basic concepts:—

(a) The tools and techniques of statecraft
(b) The intensity of effort that can be brought to bear in support of particular tools and techniques employed.
(c) The relativity of all political power.

The tools and techniques of statecraft are defined as follows:—The tool is the physical instrument used to attain desired national objectives, the technique is the form of action employed to attain those ends, e.g., foreign offices, embassies are the tools, diplomacy the technique. Without attempting exhaustive classification, the major techniques of statecraft can be grouped as follows:—

(a) Diplomacy and related techniques.
(b) Propaganda and other techniques of mass persuasion.
(c) Subversion and sabotage.
(d) Economic inducements and pressures.
(e) Military pressures and coercion.

These techniques rarely function separately in practice. The power of any state which can be described in the functional terms of tools, techniques and intensities of effort, is never absolute. In order to evaluate the power of any one state, one must evaluate not only its objectives, resources, opportunities and intensities. One must likewise estimate these same qualities as presented by other states and estimate also the relationships of neutrality alliance or hostility which will determine the direction and intensity of pressure and resistance.

Forms of Power

Poltical power in the international sphere may be divided into three categories, although these categories are closely interdependent. These are:—

(a) Military Power.
(b) Economic Power.
(c) Power over Opinion.

Military Power

The supreme importance of military power lies in the fact that war is the ultimate in international relations. War is not the desirable weapon, but is the weapon which is used as a last resort. Potential war capacity is thus a dominant factor and military strength becomes a recognized standard of political values. History has shown that foreign policy can never be divorced from strategy. The foreign policy of a country is limited not only by its aims but also by its military strength, or more accurately by the ratio of its military strength to that of other countries.

Economic Power

Economic power or "war potential" has always been an instrument of political power if only through its association with the military instrument. The First World War revealed that economic weapons of unparalleled strength were available in the interests of national policy. Economic power as used to serve national policy can be divided into three broad categories.

(a) The means to promote such products (manufacturer and raw material) as will tend to render a nation independent of foreign nations for military and other essential supplies.
(b) The ability to acquire power and influence abroad by:—
  (i) the export of capital.
  (ii) the control of foreign markets.
(c) Ability to wage economic warfare, e.g., Germany, Japan, Great Britain.

Economic Aspects of Power

In its extreme form, economic penetration can be defined as the manipulation by one power of the business and economic ties that connect its economy with those of other powers for the purpose of achieving political or military advantage. Looked at from the point of view of power politics, every type of international commercial connection possesses political as well as economic significance. Four categories of purpose can be distinguished:—

(a) The weakening of the political position and military strength of rural states.
(b) The creation of an economy that is self-sufficient, particularly in the military sense.
(c) The close integration of the economics of satellite states to that of the dominant nation through such means as commercial ties, branch plants and international loans.
(d) The increase and extension of foreign trade with emphasis on the expansion of either imports or exports depending on the circumstances and dictates of the time. Some of these are complementary; some are mutually exclusive.

There are various machinations to undermine foreign nations. Some are blockades, preclusive buying, seizure or purchase of sources of strategic material, block currencies, etc. In addition, interchange of patents has been seen (from one light) as a vehicle of high-class espionage. To complete the study of this aspect of power, further study should be made of colonial policies, extension of foreign trade, foreign loans, aid to undeveloped countries and foreign debts. All of these activities can be related in one way or another to economic

penetration or an attempt to gain more power.

The Power of Ideas

A creed or sentiment of some kind is essential to social cohesion, but if it is to be a source of strength it must be genuinely and deeply felt by the great majority of the population, including a considerable percentage of those upon whom technical efficiency depends. Where these conditions are absent, governments may seek to produce them by censorship or persecution, but censorship and persecution, if they are severe, cause men to become out of touch with reality and ignorant of facts which it is important to know. Since the holders of power are biased by their power impulses, the amount of interference with freedom that conduces most to national power will always be less than governments are inclined to believe. Therefore a diffused sentiment against interference, provided it does not go so far as to lead to anarchy, is likely to add to the national strength. It is impossible to go beyond these generalities except in relation to particular cases.

Power Over Opinion

The art of persuasion has always been a necessary part of the equipment of a political leader, and in modern times, with the increased number of those whose opinion is politically important, power over opinion becomes increasingly important. Within different states this is controlled virtually by education context in schools. Therefore we have seen the growth of "psychological warfare" in the attempt to win peoples' opinion with subsequent demoralization. When we set power over opinion side by side with military and economic power it must be remembered that material factors are no longer being dealt with—the factors are the thoughts and feelings of human beings. Absolute power over opinion is limited in two ways:—

(a) By the necessity of some measure of conformity with fact or truth. Without this, propaganda is potentially self-defeating.

(b) By the inherent idealism of human nature. Propaganda harnessed to economic and military power always tends to reach a point where it defeats its own end by inciting the mind to revolt against that power. Human beings do in the long run reject the doctrine that might is right.

Total Diplomacy

It is well known that two powers facing each other alone are too few to be maintained in equilibrium for any length of time. Security for each requires that it should have some margin of safety over the other to take care of unforeseen contingencies. But that is obviously impossible for both. Each side tries to grow a little bigger until the tension becomes so great that there is a final explosion. This is not the case with the USA and USSR, since there is an in-between world with immense resources whose primary interest seems to be the maintenance of the "system."

It is the effective economic reconstruction and political stability of the in-between world which remains the guarantee of peace. Therefore in total diplomacy all the aspects of national power are dis-

played, e.g., the multi-state system and balance of power, domestic and international politics, the ends and means, the pattern of aggression. All are combined into the body of the three forms of power, military, economic and power over opinion. The nations facing each other use every tool and technique they have at their disposal to achieve their aims whether they are ideological or humanitarian. To put total diplomacy into practice or in a practical light, a study of the struggle between the USSR and the USA should be made. A fair conclusion after examining all aspects is that the kind of peace and security that we require is not beyond the resources and wisdom of the nations.

III — WHY SOME STATES ARE STRONG AND OTHERS WEAK

Nothing in the past has been more subject to error than the correct evaluation and true judgment concerning the power and forces of a state. Though equal in the eyes of the law, no two states are equal in their respective abilities to negotiate, bargain, exert or resist pressure or assert effective leadership in the world community. In addition, these characteristics change from time to time either quickly or by a slow process. There are no simple formulas to compute a state's capabilities, and therefore mistakes due to intangibles of human behaviour often occur. To establish a more reliable criteria of judgment, answers to the following four questions help to break down the problem:—

(a) "What is the state's capacity to define feasible foreign policy objectives?"

(b) "What is the state's capacity to combine the tools and techniques of statecraft into an effective strategy for the attainment of the foreign policy objectives in view?"

(c) "What is the state's capacity to provide the tools of statecraft required by the strategy adopted?"

(d) "What is the state's capacity to employ effectively the tools provided and the techniques selected?"

Analysis of state capabilities in the past has tended to emphasize question (c) and to neglect the other three. The neglected questions are all essentials to successful statecraft. The range of knowledge required to answer these four questions is extremely broad and deep. It covers all the social sciences, much in the physical and biological sciences, and a good deal in the humanistic disciplines. The major points will be covered in this part of the paper. It must be remembered, however, that a nation's strength and political influence cannot be measured with mathematical exactness—there are too many variable and human intangibles. However, you will see that judgments need not rest on pure guesswork.

Population as an Element of Power

Size and structure of population are datum points from which the modern state must reckon its power-political position. Among states fairly evenly matched in the possession of technological skills, superiority in manpower spells military, hence political, preponderance.

Manpower is the basis of military power. The size of the population determines the size of the armed forces and the quantity and quality of their weapons. Throughout history decline in population has entailed decline in national power. However, manpower alone cannot be the complete answer. Adequate food is required to feed the population and a degree of technological efficiency is required to arm it. Large armies can only be raised from large populations, and it is contended that a large army is still a main condition for ultimate victory. The larger the population, the greater the quantity and variety of weapons it can produce. Yet as the spread of technological proficiency turns quantity into quality, large numbers are transformed into great military power. However, only within comparatively narrow limits can it be contended that superiority in numbers can compensate for relative backwardness in technology, literacy, organization or other important qualities.

In conclusion, the psychological aspect cannot be neglected. On one side population, both the size and quality, is closely related to economic and military power, yet on the other it is reasonable to say under certain circumstances, high civilian morale, tight group loyalty and outstanding leadership may out-balance many divisions of well-equipped troops. Lack of these qualities may fatally sap a nation's diplomatic as well as military position, no matter how large its population or how rich and productive its industries.

Foodstuffs and Raw Materials

The question of raw materials with reference to peace and war leads straight into a confusing jungle of problems in international relations and political economics. The maze begins with the very conception of what constitutes a raw material. The situation becomes even more complex if we search for characteristics that would determine whether a specific commodity is a raw material, or whether it is an essential, an optional or merely a luxury item. People through the ages have developed their diets and requirements to conform with their environment and their ability to procure supplies. However, habits and demands also change as time passes. Human events are continuously shaped and reshaped by civilization, its technical and social standards and its progress.

Generally, resources are not readily realizable. If intelligence, management, labour and capital are not available, the resources cannot become a "natural resource." It depends on:—

(a) A demand for the raw material.
(b) Whether the skill is available to exploit the resource.
(c) Availability of skilled labour and capital.
(d) Time to exploit the resources.

In attempting to appraise natural resources, the problem arises of determining the measurement. It can be by geologists' estimates, the capacity of the existing industry or by the actual output. In addition it should be noted that actual output and current potential rates of growth are more important than quantity of reserves in the case of most minerals—unless the reserves are being rapidly worked out.

It is possible to draw the follow-

ing conclusions after this brief look at the problem:—

(a) Caution must be used in applying a measuring rod to international natural resources. Expert knowledge and awareness of contemporary trends in economic and technical development are important.
(b) Man has a great deal of freedom of action by adjusting his environment and by the possibilities of substitute processes if he is able and willing.
(c) The raw material problem cannot be solved permanently within a nation's political boundaries since ideas of what constitutes an essential raw material changes continuously with technical progress.
(d) By using crude gauges to measure the adequacy of a nation, false pictures of countries arise. Nothing is more misleading than to assume there is something like a natural law, which by the force of economic gravitation makes nations inevitably dependent on foreign raw materials. It all depends on a number of factors, many of which are subject to modification by man, and no generalization is permissible.

Technology and National Power

Today mere numbers of men, or the possession of raw materials, or the holding of strategic positions, is not the essential source of power. Only the countries with the scientists, engineers and skilled workers who can master the techniques required, can adequately equip armed forces. Today, armed forces are the cutting edge of the vast social machine organised to achieve maximum power which contemporary technology makes it possible to produce; thus total war. In general terms the role of technology in war can be stated as follows:—

"The determining factor in warfare is the capacity to put metal in motion in the largest amount, and with the greatest speed and manoeuvrability, so that it will most effectively limit and reduce an enemy's capacity to accomplish the same ends." The means to this end forms the grand technological sequence.

The grand technological sequence is established by:—

(a) The means of production.
(b) The means of transport.
(c) The means of communication.
(d) The means of violence.

This applied to any industry shows several classes of vulnerability, and in total war these become points of attack for an enemy. These vulnerabilities can best be seen in the order of argument which follows:—

(a) A well-defined set of raw materials required by an industry are "basic" amounts if they are large, critical if they are small. To interfere with their supply is an effective act of war.
(b) The complexity, concentration, requirements of skilled labour and demands for some rare raw material or difficult machinery to maintain, can cause technological bottlenecks in an industry. Interference at any of these points is an effective act of war.
(c) An industry has geographical extension. Raw materials are obtained from certain places. Transportation follows certain

routes. Plants are located at certain points. All are points that could be subjected to interference.

(d) An industry requires a specialised labour force which must be available at certain places. Their non-existence breaks the technological sequence.

(e) The efficient operation of an industry depends on the organization and direction of effort made possible by the system of controls, partly owner, partly government and partly labourers. Loyalty and contentment are essential here.

(f) An industry depends on some industries and, in turn, supports others. Integration and full mobilization are essential to top speed work and maximum output.

When viewed in geographical extension the grand technological sequence of a nation may be seen as joining at least three classes of critical economic areas, that is, regions where interference will affect a nation's war effort. These are:—

(a) Critical raw material area — a high concentration of methods or resources.

(b) Critical transportation area.

(c) Critical production areas.

} e.g., BHP

When the organization and activities of a nation at war are analyzed in these terms, the ways in which technology conditions its whole effort may be summarized as follows:—

(a) Technology gives usefulness to a raw material.

(b) Technology makes substitutes available for scarce raw materials.

(c) Technology gives importance to geographical regions.

(d) Technology establishes the means of transport and thereby the routes.

(e) Technology fixes the type and amount of manpower required for the war effort.

(f) Technology determines the form, quality and quantity of war material at a certain place.

(g) Technology conditions military tactics and enters deeply into the determination of military strategy.

Morale as an Element of Strength

Morale and other aspects of political behaviour are not only important in wartime. With the development of communications and the spread of literacy, the struggle to upset a nation's morale has become easier. Domestic discord, disunity and peoples' behaviour is an important factor in an estimate of national power. As long as guns have men behind them the quality of the mind and of the will must be counted with the weapons. Behind the army lies the nation and the high (or low) morale of the civil population can easily affect the morale of the armed services.

Form of Government as a Factor

States organized differently and governed differently vary widely in their diplomatic and military capacity. It is, however, extremely difficult to say that the form of government is responsible for the diplomatic or military behaviour of a

particular state. To focus on the differences and contrasts of democracy and totalitarianism is to oversimplify a complex problem. At the same time it is difficult for democratic states to play the game of power politics with totalitarian dictatorships. Countries like Russia can direct industry, education and manpower wherever they wish. They can control the information people receive and this is a great start in maintaining a nation's morale and ability to fight. The division of power in a democracy, the interests of minorities and free speech, make it difficult to maintain the rigid discipline to full agreement with policy and also to resist subversion. The apparent weakness of countries like Russia are the suppression of criticism and bureaucratic passivity. These in turn can become deadly weapons in the growth of knowledge and thinking—an essential foundation of national power.

The growth of neutralism as an accepted national policy since the beginning of the twentieth century is another aspect to be examined. These nations, although potentially powerful in manpower and resources, are pacifist in outlook. Some of the factors which may cause this outlook are:—

(a) Religion.
(b) Ethics.
(c) Domestic politics, e.g., the case of Indonesia, India, Austria, Switzerland, Sweden.

Conclusion

There is no straight formula to gauge a nation's power. However, a wide survey of history, human relations, knowledge, economics, geography, populations and an ever-increasing technology, can be used to provide probable answers. There are numerous conflicting thoughts and factors, but a general understanding of the problem is essential if a reasonable appreciation of international affairs is to be made.

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Behind the facade of every soldier is a person. Become aware of that person and show a sincere interest in him. Give him a sense of belonging to your team.

Strategic Review

RE-APPRAISAL IN THE WEST

Reprinted from the December 1960 issue of An Cosantoir, Eire.

THE North Atlantic Treaty Organization has undergone many vicissitudes since its foundation in 1949. That it survived them at all is remarkable in itself; that it is still a vital and dynamic force is little short of phenomenal. Fear of a common enemy is at best a flimsy basis for a long-term alliance between nations that share few cultural or economic interests, yet despite the unpromising prospects, the various frictions between members and the unceasing efforts of the Soviet Union to drive an effective wedge into the organization, there has never been any question of abandoning the principle.

However, having survived its teething troubles and adolescence, NATO is now coming of age. The time has come to look seriously at the future and to reappraise the position. General de Gaulle has said that NATO is out of date. He may be right. If so, there has seldom been so opportune an occasion as this to alter the situation.

For the first time in many years a United States President has a majority of members supporting him in the House of Representatives. In addition, the Secretary-General of NATO, Monsieur Spaak, has announced his intention to resign his post, thus leaving the field open for new policies that might possibly be prejudiced by the preconceived ideas of the man-in-possession. Thirdly, the situation that prompted the foundation of NATO is being repeated. Since the Soviet Premier deliberately wrecked the Summit talks last year there has been a continuous attack not only on the NATO countries but also on the United Nations, through which the Western bloc has always been able to demonstrate its good will to the uncommitted nations.

Changed Circumstances

The case for retaining the alliance has not been disputed, but circumstances have changed since 1949—politically, militarily and economically. The area of the Cold War has been extended and Europe as well as the United States must now take the global view.

The founders of NATO envisaged something more than military defence against armed aggression, but the military threat was the more urgent and the co-ordination of foreign policy was neglected. The Suez crisis in 1956 revealed the lack

of a common approach to international affairs. This almost wrecked the alliance.

Since the foundation of NATO the political and military focus has shifted many times — Indo-China, Korea, the Middle East and Africa: always outside the NATO area. It is becoming increasingly apparent that, politically at any rate, the "Maginot Line" concept of NATO is not only outdated but foolhardy.

The involvement of individual NATO countries in theatres outside the NATO zone without prior consultation with their allies has compromised the alliance; it has been unable to present the united front so necessary to collective security.

Furthermore, the march to independence of the African and Asian states and the influence they can wield in the UN has made the voting gap in that organization between the Western nations and the Soviet bloc potentially less unbridgeable. The African states have no inherent loyalties; their history has been the history of Western colonialism; their future line of action will be guided by what they believe to be their own self-interest. To them Communism is not an experience: colonialism is.

Unless some common approach to problems like those in Algeria and the Congo is agreed upon by the West the Soviet Union, supported by a majority vote, may well be in a position to substitute an attitude of sanctimonious righteousness for the querulous use of the veto. In the face of African opinion the West must not only be right but must also appear to be right.

For this reason there must be more consultation between the NATO powers. The machinery exists and, indeed, a move in that direction has been made. But political consultation on international policy is still treated warily, particularly by the stronger powers. NATO's policies, to be effective, must be orderly and unified: to attain this end there must be unrestricted consultation.

The Deterrent

Since the foundation of the organization its defence has been based on the so-called deterrent force. The United States and, to a lesser extent, Great Britain have retained exclusive control of the nuclear force while the remaining members have contributed to the conventional force—the "Shield."

This has placed Western Europe in an extraordinary position of dependence on the United States and Great Britain. Until the Soviet Union obtained nuclear parity this was a valid posture. Now it is not. The United States is herself open to nuclear attack, and is in the front line if nuclear war breaks out. This may not change her determination to defend Western Europe, but it raises a doubt in the minds of her European allies where no doubt existed before.

Furthermore, the existence of what amounts to nuclear stalemate between the East and West renders it probable that any Soviet military aggression might take a conventional form. In such circumstances would the United States or Great Britain retaliate with nuclear weapons if one of their allies were attacked? It is certain that NATO's under-strength conventional forces would be insufficient to resist successfully the numerically superior

attacking power. The third alternative would be the unthinkable policy of abstention which would permit the piecemeal swallowing of Western Europe.

It is improbable that any universally workable solution will be found between the rival powers on the question of nuclear disarmament. In the unlikely event of an agreement being reached between the Soviet Union on the one hand and the United States and Great Britain on the other, there is no reason to believe that such an agreement could be made binding on the Chinese People's Republic or, indeed, on de Gaulle's French Republic.

For this reason the build-up of a nuclear stockpile must obviously continue. The stronger the deterrent the less likely the outbreak of nuclear hostilities.

Up to the present the dispersal of atomic striking elements among the various NATO air forces and the setting up of various missile units in European countries which had accepted them, have been subject to the proviso that the nuclear warheads remain under United States control. Tactical and air defence weapons have also been provided to supplement the defensive "Shield" which, if it were to rely on the available conventional forces, would prove extremely vulnerable. Atomic warheads for these tactical weapons are also controlled by the United States.

In the new circumstances of nuclear parity between the USSR and the United States there must be some reappraisal of strategy. Undoubtedly there has already been considerable heart-searching on the question of providing NATO with its own nuclear deterrent. If NATO were to become a nuclear power with its missiles under the direct control of the NATO military chief it could provide Europe with a powerful defence and enable the NATO European countries to concentrate on the build-up of conventional forces to meet a limited, non-nuclear attack.

More important still, it would remove the uneasiness that grips many of the member states under the present arrangement. With an assured defence and a common policy—and at present these do not exist—the alliance could face the Soviet challenge outside Europe, politically and economically as well as militarily.

However, the matter is by no means simple. The crux is whether it is possible to formulate a nuclear policy which would be acceptable to all of the fifteen member nations. On the face of it the common purpose should find a solution, but there are misgivings in many quarters. At present, decisions of the North Atlantic Council are taken unanimously, although there is a standing agreement that nuclear weapons are to be used if militarily needed to resist an attack. If a conventional attack were to take place, however, there might be disagreement in Council, and the resultant delay in reaching a decision might produce the gravest consequences.

Spreading Nuclear Weapons

It has also been argued that the arming of NATO with nuclear weapons over which it alone would have control would lead to a spread of such weapons by inducing the

Soviet Union to supply them to her satellites. Opponents of the NATO deterrent suggest that a nuclear NATO would become an offensive alliance and would, therefore, shed its main characteristic.

While fifteen fingers on the trigger might conceivably produce either a premature explosion or delayed action—both of them disastrous—it is unreasonable to assume that the alliance which has survived for so long in the face of so many obstacles could not agree on the circumstances which would call for the collective defence of its components.

The spread of nuclear weapons within NATO would hardly constitute a threat to world peace, and there is no doubt that the Soviet Union will supply its Warsaw Pact colleagues with such weapons if and when the occasion appears to warrant it and regardless of any similar action by NATO. As to NATO assuming an offensive role, its very composition is a guarantee to the contrary. Nations such as Norway, Denmark, the Benelux countries, Greece, Turkey, Iceland and Portugal have no tradition of aggression and are unlikely to be induced to depart from policy in the foreseeable future.

The non-nuclear members of NATO are entitled to the protection that a nuclear-powered organization can provide. But it must be decided without any possibility of misunderstanding or future disagreement in whose hands the responsibility for the release of these weapons lies.

Economics

While the military situation within the alliance is uncertain, the economic situation is extremely difficult. A section of the 1949 Pact provides for close economic collaboration between member states. So far this has been merely a pious hope. At present what amounts to an economic rift exists between some of the member nations.

On the other hand, the unified economic policy of the Soviet Union and her satellites is an object lesson in consolidated effort. So powerful is the combined effort that it constitutes as great a threat to world peace as Communist military strength. Repeatedly for political purposes the Soviet Union, with much publicity, has thrown her economic weight into the scale to the discredit and discomfiture of the West—more spectacularly in her prompt decision to purchase the entire crop of Cuban sugar in 1960 on the refusal of the United States to trade with Castro's Cuba.

NATO countries are so preoccupied with the struggle for markets that a concerted effort to anticipate and thwart or counteract Soviet moves is impossible. NATO has never become involved in the differences between the Six and the Seven. Monsieur Spaak has stated that this is a weakness in the organization. He believes that in the struggle between the Soviet bloc and the West the emphasis has shifted from the military to the economic field.

In the Communist sphere all economic forces are readily available to the political end. The system of competition in the West makes it impossible to canalize the effort to meet world-wide problems such as the needs of the underdeveloped countries, where eventually the final

decision between Communism and freedom will be reached.

Only a unification of economic policy can arm the West against this massive Soviet offensive. The Common Market may be the first step on an extremely rocky road. The implications of a pooling of economic resources challenge the concept of nationalism and the economic unification of Western Europe might well herald political union. If narrow nationalism cannot resist Communism, the alternative—a United States of Europe—deserves a second glance.

The Communist bloc can fight on many fronts: it can don the mask of menace or the frozen smile of false friendship. In either case it presents a threat to the Western way of life. To meet this threat and to contain it, NATO must show a united front militarily, politically and economically. It is time for reappraisal—soon the sands will commence to run out.

—R.G.E.

COMPETITION FOR AUTHORS

The Board of Review has awarded the first and second prizes of £30 and £10 respectively for the best articles published in 1960-61 to:—

First Prize—"Communist Subversive Activities in Asia and the Pacific," by Staff Sergeant P. G. Gittins, Royal Australian Engineers.

Second Prize—"One Man's Battle," by Corporal T. Fitzpatrick, 2/17 Battalion, A.I.F.

ENDURANCE TRAINING

Captain N. A. Robinson, CD
The Queen's Own Rifles of Canada
Reprinted from the Canadian Army Journal, Fall 1960

"When writing of generals I put robustness as the first quality. Similarly for the soldier I rate toughness, endurance as the prime requirement." — Field Marshal Wavell in "The Good Soldier" (1945).

General physical fitness in a nation has a tendency to go in the opposite direction to the standard of living. Thus, as the North American standard of living goes up so does the North American standard of fitness go down.

This does not mean that the standard of health goes down: people live longer now than they ever did before, fewer babies die than ever before and epidemics are successfully fought and defeated; but these advances are all scientific, not human. As the power of science to assist humans in fighting disease grows stronger, so does man—being only human—allow the body to weaken, relying on the doctor and research chemist to keep him going.

In the Army this lowering of a national standard of fitness presents an increasing problem. It means that the recruits who enter the Army are healthy but not really fit, and in the particular area of endurance they are unfit.

Endurance is a quality partly physical and partly mental. A willing mind and stout heart can drive a tired body to extraordinary limits. These limits may be the usual rather than the unusual in a nuclear war. If the quality of physical endurance has been developed fully, the quality of mental endurance will have a greater chance to carry the soldier through. Thus the ideal soldier has the quality of total fitness with a sound mind in a sound body.

How can we implant this quality of endurance in the soldier? Unless some of it is there already, of course, we may as well not start. This will be partly hereditary and partly environmental. If the soldier is a European immigrant we are off to a good start; records show that in most cases he has the hereditary and the environmental endurance given to him by a compulsory sports programme from his earliest days at school and a voluntary one during his leisure hours.

With the Canadian-born soldier we may not be so lucky. We now know that many of the recruits entering the Army do not know how to play games because they have neither been taught nor have had the inclination to participate.

A sports programme is vital to the Army in order to develop and maintain endurance, but, unfortunately, two of our most popular North American sports do not develop this quality. The system of substitution in football and hockey develops the short-spurt athlete capable of a sustained effort for only a limited time, while the soldier needs to be capable of efforts of endurance lasting for extended periods.

A further hindrance to the development of physical endurance is that, in a volunteer Army, the conditions of service must be attractive or the recruits do not come in. Lots of physical training and route marches certainly develop endurance, but long, boring marches and the distasteful "physical jerks" hardly can be described as attractive conditions of service.

Yet the need is great and will grow. Physical education agencies already speak of gearing physical education in the schools to the new "push-button" world. This will mean less endurance training and more maximum effort training. This will leave the Army with a greater problem than ever, for the recruit now entering with weak legs from little walking and much riding, and a weak back and shoulders from little lifting and much lounging, will probably have other weaknesses for our instructors to correct.

In theory, the answer can be provided. On entry, the recruit is given the Larsen Tests and his weaknesses are recorded. From entry until he passes the Recruit's Physical Efficiency Tests the instructors work to correct the weaknesses and bring the already healthy body to a level of fitness consistent with the tests.

On joining the unit, the soldier enters a unit sports programme (both compulsory and voluntary) and a unit calisthenic programme conducted by the unit Army Physical Training Cadre instructor, thus developing endurance through sports and calisthenics. The sports are those selected for their endurance qualities, including swimming, soccer and cross-country running.

In practice, the answer is not quite so pat. Other factors enter the picture, and here are some of them.:

(a) Lack of facilities is the first and most important. For a large unit, the sports afternoon stretches the available facilities to the limit and reduces many personnel to the role of active spectators who derive little or no benefit from the sports programme.

(b) Other commitments of the unit will inevitably reduce the fitness programme. When faced with a reduction in a programme, the commander is forced to delete some items, one of which, unfortunately, may be Fitness Training.

(c) Morale is vital, and the good performance of a unit team is a boost to a unit's morale. However, the use of funds and facilities by a small team to the exclusion of all others is a deterrent to the fitness programme of the whole unit. A good turn-out to cheer on the unit team is a fine thing provided the rest of the unit is always getting the right amount of fitness training. The "gladiator" system was fine for the Romans, but will hardly suit the 20th century Army.

Unit teams are very good for the morale of the unit, and should always be encouraged. The best results of this system are achieved

when the team selected to represent the unit in a sport has earned its place via the sub-unit competition route, the whole unit having been given an opportunity to participate. So often the team is handpicked in a sport with limited participation and high cost.

Cost is very important in a fitness programme; costs are rising while allowances remain static, and the most value must be gained from dollar. Yet it is possible to find units spending two-thirds of the sport fund for the year on two unit teams (boxing and hockey), while all other sports share the remainder. Since the Army deals with some 30 different sports and two unit teams could total 50 men out of 600, there would seem to be a lack of balance.

In selecting a sport for a fitness programme it is suggested that the following criteria be considered:

1. Sports with a high fitness value.
2. Sports with a high participation rate.
3. Sports with low cost.
4. Sports with a high degree of enjoyment for the participants.

Swimming is probably the best fitness sport, as it exercises all the muscles and the respiratory system.

High participation rate sports are the team sports, and the bigger the team the better.

Low-cost sports are those that require little equipment, no expensive uniforms and which can be played anywhere. Soccer, volleyball and cross-country running are in this category.

The degree of enjoyment for participants will vary with personalities, but, in general, plenty of action, keen competition and low expense will provide the answers here.

Recent radiation experiments on animals in Germany and the United Kingdom have shown that those animals that were healthy and in a good state of fitness resisted the radiation much longer than the animals that were unfit. The implication is that human beings will react similarly. Thus the Army fitness programme will not only keep the soldiers' endurance ability high but will also help him to resist radiation in the event that he is subjected to it.

In conclusion, the fitness programme must take its place in the overall training programme; it cannot, for obvious reasons, be the first consideration, but whatever place it occupies it should give the greatest possible benefit to the greatest possible number of soldiers, and this means a fair distribution of time, money and equipment. This should produce a lot of fit soldiers if not a large number of Olympic athletes.

ARE YOU ADPS WISE?

Major C. W. Wright
Royal Australian Signals

THE recent announcement that Electronic Data Processing systems would be progressively introduced into the armed forces no doubt caused many raised eyebrows amongst those involved in the struggle to keep records accurate and up-to-date.

Already the subject of data processing has been discussed in this journal, but now that computers will soon be with us in reality we must condition ourselves for their arrival.

To give you some idea of the speed of computer development, ten years ago they were hardly used in industry and commerce. Today such organizations as National Cash Register, International Business Machines, Ferranti, Electrical Mechanical Industries, Remington Rand and International Computers and Tabulators, to name but a few, will soon be producing computers to the value of one thousand million pounds a year at a growth rate of 25 per cent.

However, the aim of this paper is to explain in as simple terms as possible how the innards of a computer operate so that you can assess for yourself how the big step forward is going to affect you personally.

Essential Terms

Before defining the term ADPS it will help if we review the evolution of data processing.

Man has always striven to reduce the drudgery of calculation in his work. The first adding machine for mass production was invented in 1885, but it was not until early this century, when punched cards were produced, that data processing systems really got under way.

It was then found that by using electro-mechanical switching devices it was possible to automatically add, subtract, divide and multiply, and print the results at the rate of 150 lines a minute.

During the war the urgent need for scientific data to design weapons demanded faster calculating machines, and was met by using electronic calculating devices.

Since then transistors, which are smaller and more robust, have replaced valves, and many different types of magnetic recording devices have been developed. Systems which can print results at the rate of 1,000 lines a minute are now used.

You will note that the word automatic has been used in ADPS in preference to electronic. This is because automatic helps to explain

the subject better and is commonly used by the services.

It may sound like mumbo-jumbo talk, but if you can fix the following sentence in your mind it will help to understand the explanations that follow. ADPS can be briefly defined as the processing of numerical and alphabetical information involving that of comparing and carrying out of at least two operations in sequence, without the intervention of an operator. Got it?

What Does Computer Mean?

To compute means to solve a problem by a series of mathematical steps. These steps involve receiving the data, transferring it, calculating it, recording it and finally producing the answer in readable form.

The big advantage of the electronic computer is that it can make accurate calculations in seconds which would take human beings days to do.

How Many Types Are There?

Basically there are two types, the analogue and the digital computer. In the case of the analogue computer advantage is taken of the fact that although things are different they can be compared provided that they are similar in some respects. Thus using the well-known water analogy an analogue computer can simulate the operation of an actual water supply system without the use of an ounce of cement. In another simulation example a pilot can undergo all the hazards of flying without leaving the ground.

In this article we are only interested in the digital computer, which is the other type. This computer uses figures to represent information, but these figures are not the everyday decimal digits which we use to represent from 0 to 9.

Instead various combinations of 1 represented by an electronic pulse, and 0 represented by no pulse, are used. Table A shows how alphabetic and numerical information can be represented in this binary code as compared with the decimal code.

Table A

Binary		Numerical
000001	=	1
000010	=	2
000100	=	4
		Alphabetical
010011	=	A
010101	=	C

What Does a Computer Look Like?

It is very similar to a group of gleaming juke boxes and filing cabinets assembled around a futuristic console, at which could be seated an attractive girl, who by moving switches and watching rows of lights is able to control the whole system.

The Input Unit

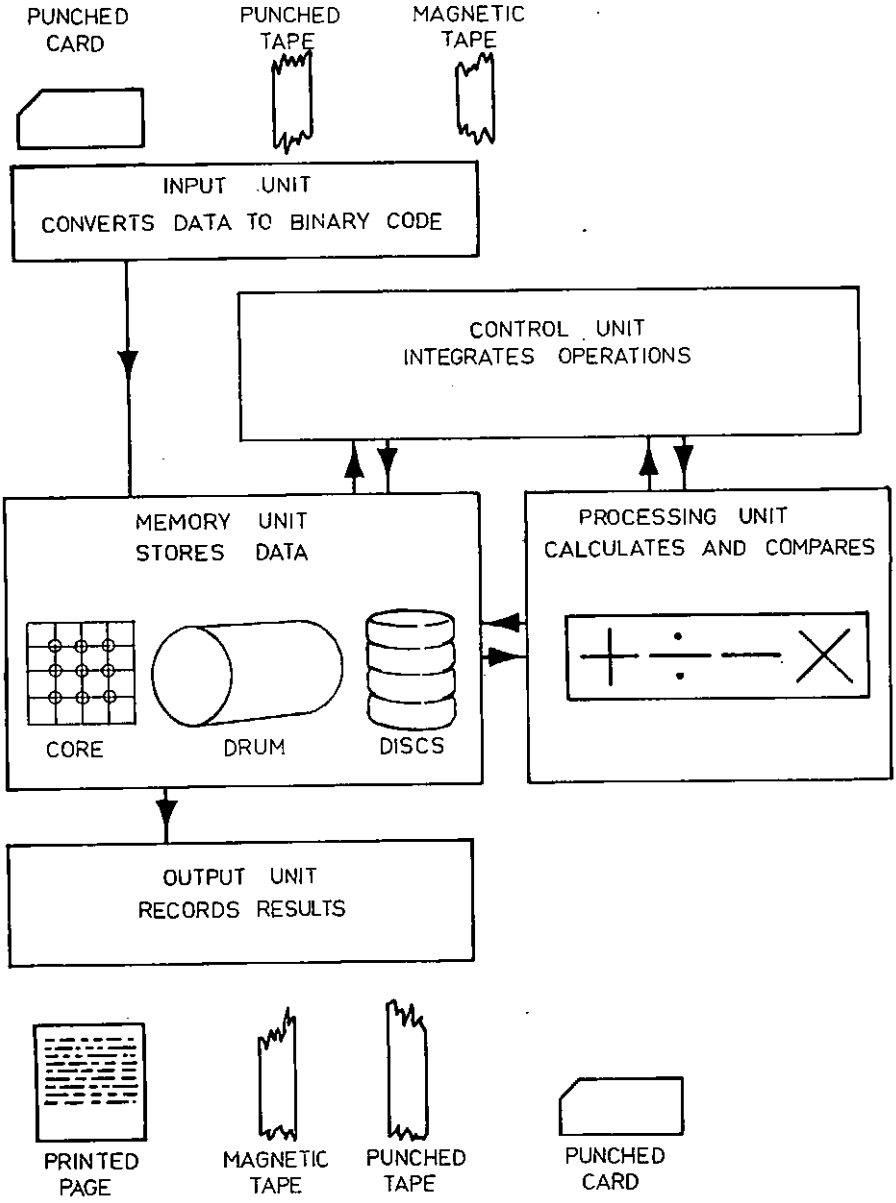
It is suggested that you use the diagram on page 34 as we proceed from the input to the output of the computer.

The input device receives the data by means of punched cards, punched or magnetic tape and even sensitized paper on which ordinary writing has been placed. The data is then converted into electronic pulse and no pulse data which the computer can understand and can process.

There are two main types of reference data used, that which is fixed such as rates of pay, and variable data which in this case could be the number of hours worked.

THE DIGITAL COMPUTER.

AS USED FOR AUTOMATIC DATA PROCESSING SYSTEMS



Programme instructions which tell the computer what to do are also fed into the input unit. To use the above-mentioned data the obvious instruction would be to multiply the pay rate by the number of hours worked.

The Storage or Memory Unit

All data, whether it be instructions, reference data used for calculations or results ready for further use, has to be readily accessible.

There are several memory devices used, and it is important that we recognize them and appreciate their capabilities. Magnetic cores, consisting of metal rings mounted on square wire frames, provide memories which enable information to be retrieved quickly, but are very costly. Magnetic tapes are cheaper and have good capacity, but time is required to wind the spools. Rotating magnetic drums and discs as used in the RAMAC computer provide both good capacity and access. Remington Rand have recently developed a thin film memory for their UNIVAC computers which enables information to be retrieved from them in terms of a thousand millionth of a second. In the course of time faster computers which are cheaper to manufacture, operate and maintain will be produced in a much more compact form. Talking of costs, large, fast computers at present cost from five hundred thousand to millions of pounds.

The Processing Unit

In this section the four basic arithmetic operations are performed at lightning speeds. Logical decisions are also made by comparing resultant calculations to see if they are equal to or differ from one another, so that the next step in the process can be decided.

As has already been mentioned, binary arithmetic lends itself to computers because it can be understood in the form of a train of pulses and no pulses measured against time. By using selected circuits, each representing one of the fundamental processes, data can be fed into them and the results stored in the memory as required.

The Control Unit

This section is the most important part of the computer, and if you can stand a little more binary talk the rest of the going will be easy. The control unit directs and coordinates all operations just as a commander does in battle. The instructions located in the memory unit are used to ensure that the input, the processing unit and the output all perform as an integrated whole.

The control unit can be likened to a switchboard. On each programme instruction it must work a switch to connect the right circuit to the right binary pulse flow at the right time. Furthermore it is able to locate all information used with unerring accuracy.

The Output Unit

The output unit performs the same function as the input unit, but in reverse. It can print the results in typewritten form or record them on magnetic or punched paper tape or cards, ready for further processing. At this stage it would be just as well to recapitulate by tracing the operations explained so far on the diagram to see if they meet the requirements of the ADPS definition.

The Programmer

Without a human being to tell the computer what to do no useful work would be achieved. The programmer has to list in detail all the instruction steps required to meet all circumstances likely to be encountered whilst the problem is being solved.

Programmes can now be written in COBOL (Common Business Oriented Language), which will enable programmes to be prepared more or less in plain English. Computers can translate these programmes into binary code.

A good programmer requires plenty of imagination and a flair for accurate detail. There will be plenty of opportunities in the services for those possessing these qualities.

Looking Ahead

Some of the effects which have been mentioned as being most beneficial when ADPS systems are working in the services are:

(a) Increase in the effective strengths of the fighting forces.

(b) Better communications.

(c) More effective stock control and payroll administration.

(d) Reduction in the number of paper forms used.

(e) Better planning for movement, exercises and operations.

In the meantime computers are being specially developed to meet the needs of greatly increased firepower and speed of movement in war.

Missile Defence Alarm Systems using spy satellites and intercept computers can trace the paths of rockets in flight and pinpoint where they come from and where they will land. Compact computers near observation posts can pass digital intelligence concerning the location, nature and size of enemy forces, so that the information can be automatically superimposed as military symbols on contour maps or TV screens at Headquarters.

Bell telephones have produced data attachments for normal phones which can provide direct access to centralised computers. These can process requests, and there is no reason why in battle they could not arrange the delivery of any number of designated items or information to the front line if adequate facilities existed.

With the ever-widening use of computers surely we can expect more interesting jobs and better service conditions?

Whilst this is a fair statement, remember we always have to pay a price for progress. With the ever-increasing output of mechanical production we have had to sit and grow soft, whilst sifting the mountains of paper required to provide information needed to keep control.

If we are to take advantage of these new machines which already provide the information on which to base our decisions and actions, we will need fit, venturesome men. We can only meet these requirements by keeping fit both mentally and physically.

You may well ask yourself as you sit in your chair, am I keeping up-to-date in my chosen profession and how long is it since I got up a good sweat in a game with those with whom I work?

THE CRITICAL AREA OF COMPATIBILITY

J.E.B.

UNTIL the fall of Singapore in 1942 Australia's defence policy was postulated on close co-operation with the forces of other members of the British Commonwealth. It was assumed that in any war in which the Commonwealth became engaged Australia would contribute a contingent to a Commonwealth Army, the principal component of which would be drawn from the United Kingdom.

Since the size of the Australian component would be quite small in relation to that of the United Kingdom, it was completely logical that we should conform to the British pattern of military organization, doctrine and training. The wisdom of doing so was demonstrated in World War I and the earlier part of World War II, when substantial Australian contingents fought for most practical purposes as integral parts of British armies. The only differences were minor ones like rates of pay and the administration of discipline.

If officers who served in the Middle East in 1939-43 cast their minds back to those days, they will readily acknowledge the immense benefits that accrued from a common organization, a common administrative system and common staff procedures. Those of them who had experience on a headquarters will further acknowledge that variations in organization would have been much less important than variations in staff and administrative procedures. It was these two common denominators which made such close co-ordination of effort possible by reducing the possibility of error and misunderstanding to a minimum. Everyone "talked the same language," orders, instructions, correspondence and verbal communications were couched in the same terms and followed along the same lines.

This happy state of affairs came to an end when Australia's main military effort was transferred to the South-West Pacific Area in 1941-42, where the principal component was not British but American. The American staff organizations and procedures were entirely different from our own. As David Dexter points out, Volume VI, Series 1 (Army), Australia in the War of 1939-1945, these differences were the source of much misunderstanding and frustration. Dexter

only touches the fringe of the subject and recounts only the more important highlights. By far the greater part of the difficulties that arose are never likely to go on the record.

Since the Americans provided the larger component, and since an American headquarters was in supreme command, the Australian army was the greater sufferer from these difficulties. The Americans cannot be blamed in any way for this. They did their best to help us with our logistic difficulties, but they had to maintain and operate a staff organization and procedure that would be readily understood by the greater proportion of the force under their command. If the position had been reversed, if a relatively small American component had been operating with much larger Australian forces, we would have expected the Americans to conform to our procedures. And it would have been no easier for them to adapt themselves amidst the press of urgent events than it was for us.

After the war we heaved a sigh of relief and reverted to conformity with British practice. In the circumstances this was reasonable enough, for the policy at that time visualized Australian formations again going to the Middle East to fight with British forces in the event of another war. However, the march of events soon shifted the focus of attention. By 1953 Australian statesmen were making it clear that our defence interests lay in South-East Asia rather than in the Middle East.

In 1954 Australia became a signatory to the Manila Pact, better known as the South-East Asia Treaty Organization (S E A T O), which aims at the preservation of South-East Asian security. Since then national policy has aimed consistently at strengthening the Pact, both militarily and economically. Since the United States is by far the strongest member of the Pact, it has generally been accepted that in the event of a major conflict in the area she will provide the largest component and the supreme command. For some years Australian military thinking and planning have been based on the realistic concept of close co-operation with American forces.

This line of thought has been reflected in our re-equipment policy. As in 1942-45, geography dictates that in the event of war in South-East Asia or the Pacific, we shall have to rely on America for the supply of those munitions which we cannot provide from our own industrial resources. Therefore our planners have wisely aimed at the greatest possible degree of compatibility with American weapons, ammunition and equipment. Although the similarity of fighting formations is by no means so important as compatibility of munitions, the advantages of organizational compatibility no doubt had some influence on the evolution of our new Pentropic division.

Thus we have gone part of the way towards achieving the compatibility with our new major ally that we enjoyed to the full when Britain was our senior partner. But have we gone far enough? Have we not overlooked the most important of all areas of compatibility—staff organization and procedures? It does not matter very much whether our division is organized on

similar lines to an American one, provided that it is roughly the same size and has approximately the same hitting power. But the experience of 1941-45 ought to have warned us of the difficulties likely to befall a junior partner trying to operate a staff organization substantially different from the one employed by the high command and generally in use throughout the theatre of operations.

In neglecting this problem we have, perhaps, been influenced by the fact that we have an infantry battalion serving in Malaya with the British Far Eastern Strategic Reserve. It has been easier to retain the old system. But we need to avoid easy, short-term solutions and look further ahead. Further, it is at least doubtful whether British public opinion will continue to support military commitments in an area where her national interests have dwindled almost to vanishing point. If, as seems probable, Britain joins the European Common Market, her economic and political interests, and consequently her military interests, will become more and more centred in Europe. She will have precious little left over for the maintenance of old sentimental ties. In any case, if war in South-East Asia coincides with war, or the threat of war, in Europe we are not likely to see many British soldiers in this part of the world. It would be most unreasonable to expect to.

Taking the long-term realistic view, we must expect to have to operate in close co-operation with American forces and under American command. What the American view is likely to be may be gleaned from their reaction to the British proposal to provide a military force to participate in the assault on Japan towards the close of World War II. General MacArthur welcomed the participation of a British corps of three divisions provided that it was completely American equipped and maintained entirely by American administrative services. Presumably he had had enough of trying to work with two systems. The British Government accepted this proposal, but the war came to an end before it was implemented.

In the leisurely days of peace Americans may express somewhat modified ideas. But under the pressures of war they will inevitably be driven to impatience with a junior partner who finds difficulty in conforming to their staff system and using their terminology and procedures. And that will be a very bad thing for the junior partner.

A brief study of American staff organization and procedures as part of the Staff College course is far from sufficient to ensure conformity under the pressures of war. For many graduates the scant knowledge they acquired at the College will have become submerged under the day-to-day working of their own system. Learning something in academic isolation is very different from the habit of mind born of daily usage. In any case graduates of the Staff College are not likely to be plentifully scattered along the lines of communication and throughout the base areas, places where our own experience of 1941-43 shows that similarity of procedures is most important.

All things considered, it appears that we ought to make sure of a full measure of compatibility in the area where it is tremendously im-

portant by adopting American staff organization and procedures in their entirety. And we ought to do it now in order to give ourselves a fair chance of acquiring the necessary knowledge and experience before we again find ourselves struggling along on the 1941-45 pattern.

It is not a question of which is the better staff system. Both have been employed successfully in great wars—by men trained and habituated in their operation. It is simply a question whether we seek the fullest possible measure of compatibility with our major ally, or stick to a system which, though sound enough in itself, will undoubtedly lead us into grave difficulties and disadvantages in the future as it did in the past.

Admittedly this proposal connotes a radical departure from tradition. But tradition has been an impediment to efficiency as often as it has been a spur and an inspiration.

In jungle and rubber plantations control becomes more difficult, the tempo of fighting is very different from that in more open country, emergencies crop up suddenly and unexpectedly, and in consequence the action of junior commanders has a far greater influence on the general scheme of operations than would normally be the case. Errors of tactics, judgment and decision on their part may easily decide the result of an action. In such close country the infantry becomes the dominant arm. In open country any mistakes on the part of the infantry can often be offset by the use of armour or by increased fire support, but in Malaya this was not possible, and success depended therefore on the quality and training of the infantry.

—*The War Against Japan, Vol 1.*

Some Thoughts on The Principles of War

Captain D. B. Gruzman

Royal Australian Army Ordnance Corps

THE aim of this article is twofold:—

(a) To show that the principles of war are not unchangeable.

(b) To call attention to the necessity for revision of the present principles in the light of nuclear considerations.

Are the Principles of War Unchangeable?

General Von Clausewitz in the course of his military career observed that "in real action most men are guided merely by the tact of judgment which hits the object more or less accurately, according as they possess more or less genius. This is the way in which all great generals have acted, and therein partly lay their greatness and their genius, that they always hit upon what was right by this tact. Thus also it will always be in action, and so far this tact is amply sufficient." However, he realized that individual personal knowledge was not enough, and although there were difficulties in expressing fully and accurately the theory of strategy in war, a necessity existed for its analysis and of the theory of war generally for the purpose of convincing other persons of the truth of the principles involved. Hence the long labours of Von Clausewitz in writing his Treatise on War (which included a number of principles which are referred to later in this article). This treatise makes it clear that the author drew on his own long military experience and his contact with other military men in formulating his arguments.

It must be borne in mind that General Von Clausewitz wrote his works in the first quarter of the 19th century, and consequently any principles which he enunciated could only be flavoured with the great battles up to the time of writing his works. Clausewitz is now remembered rather as a code maker of then existing ideas than as the exponent of new principles. It may seem trite to state the obvious, but the fact is that a school of thought has grown up over the years that the "Principles of War" are immutable, that irrespective of the changed circumstances of warfare the same principles are to be used and where necessary squeezed (so it seems) to suit such changed circumstances.

When General von Clausewitz expounded his ideas he hoped that by his efforts he might, to use his own words, "bring about a revolution in the theory of war." He recognized that war involved more than a mathematical approach, that it was part of the intercourse of the human race, that "it does not belong to the province of the arts and sciences but to the province of social life," that "it is a conflict of great interests which is settled by bloodshed, and only in that is it different from others." One of the principles referred to by Clausewitz was boldness—his own writings show a great example of boldness of ideas when one reflects that he wrote his works at the beginning of the 19th century.

It might be convenient at this stage to review very briefly the main lists of principles advanced from time to time.

General von Clausewitz

In the first volume of his works when dealing with strategy the following are discussed:

1. The Chief Moral Powers.
   (a) Talents of the Commander.
   (b) The Military Virtue of the Army.
   (c) Its National Feeling.
2. Boldness.
3. Perseverance.
4. Superiority of Numbers.
5. The Surprise.
6. Strategem.
7. Assembly of Forces in Space.
8. Assembly of Forces in Time.
9. Strategic Reserve.
10. Economy of Forces.
11. Geometric Element.
12. Suspension of the Act of Warfare.

Clausewitz does not refer to the above as his principles of war, although it is obvious that this list has been drawn on heavily by subsequent military thought. In his Summary of Instruction he refers firstly to the General Principles to be observed in war summarized as follows:—

1. The object of the theory of war is to guide us to the way of obtaining a preponderance of physical force and advantages at decisive points—if this is not possible we turn to moral powers, probable errors of the enemy, boldness, etc.
2. We must often undertake things when the probability of our succeeding is against us, if for instance, we can do nothing better.
3. Boldness.

He subsequently deals in his Summary of Instruction with General Principles under the sub-heading of "Strategy." It might be appropriate at this stage to refer to the statement in military writings that Clausewitz advanced the gaining of public opinion as a principle of war.

In outlining his general principles Clausewitz first set out the three principal "Objects" in carrying on war:

1. To conquer and destroy the enemy's armed force.
2. To get possession of the material elements of aggression and of the other sources of existence of the hostile army.
3. To gain public opinion.

He then outlined four "Principles" as follows:

1. To employ all the forces which we can make available with the utmost energy.

2. To concentrate our force as much as is possible at the point where the decisive blows are to be struck.
3. Not to lose time.
4. To follow up the success we gain with the utmost energy, i.e., pursuit.

If one accepts that a principle is really a method and that an object is an aim (see British Strategy, by Major-General Maurice, page 28), it is difficult to see how gaining public opinion is a "Principle"—it is reasonably included as an "object" in carrying on war and no further. As Clausewitz puts it, "Public opinion is ultimately gained by great victories and by the possession of the enemy's capital."

Major-General Sir F. Maurice in his book "British Strategy" summarizes other contributions as follows:

Von Det Golz
1. The object.
2. Concentration.

Foch
1. Economy of Force.
2. Freedom of Action.
3. Free Disposal of Forces.
4. Security.

Henderson
1. Concentration.
2. Surprise.
3. Pursuit.

Colin
1. Object.
2. Security.
3. Concentration.
4. Offensive.
5. Mobility.
6. Surprise.

Fuller

The same list substantially as appears under the heading Field Service Regulations (1932).

Official British thought was exemplified through the Field Service Regulations:

Field Service Regulations (Original List)
1. Concentration.
2. Economy of Force.
3. Surprise.
4. Mobility.
5. Offensive Action.
6. Co-operation.
7. Security.

Field Service Regulations (1932)
1. Maintenance of the Objective.
2. Offensive Action.
3. Surprise.
4. Concentration.
5. Economy of Force.
6. Security.
7. Mobility.
8. Co-operation.

Field Service Regulations (1935)

The same as for 1932 except that maintenance of the objective became the object or aim.

Post Second World War
1. The Object.
2. Maintenance of Morale.
3. Concentration.
4. Security.
5. Offensive Action.
6. Flexibility.
7. Surprise.
8. Administration.

Revised List (1950)
1. Selection and Maintenance of Aim.
2. Maintenance of Morale.
3. Offensive Action.
4. Security.
5. Surprise.
6. Concentration of Force.
7. Economy of Effort.
8. Flexibility.
9. Co-operation.
10. Administration.

List Contained in the Pentropic Division in Battle (Provisional), Part 1 (1960)

The same list as is contained in the 1950 list.

Since the time of Clausewitz various military writers have expounded their views on what should be regarded as the principles of war, and as has been pointed out in previous articles, no final agreement has been reached on this list. This, however, is clear, that at least two principles, namely maintenance of morale and administration, have been added to the original British list, whilst another two, selection and maintenance of the aim (originally maintenance of the objective) and flexibility (originally mobility), have been amended. Further, as has been seen after the 1939-1945 war, two principles, namely economy of force and co-operation, were omitted from the list, but by 1950 these principles were re-established, this time economy of force being called "economy of effort." (See The Infantry Division in Battle 1950).

Where is the justification, then, for the claim that the "principles (of war) are basic and immutable. They are not subject to exception" (brief explanation of the Principles of War—War Department, US) or for the claim that the object of the student of the art of war is "to adapt new methods to established principles" (Introduction to the Study of The Principles of War, Brig W. H. S. Macklin, CBE; see also The Essentials of Military Knowledge, by Lt-Col D. K. Palit).

The main argument appears to be that new types and methods of warfare do not alter principles, and that it is not the principles of war which must undergo change but the methods of their application. If this were true we would expect to find that the principles listed in about 1923 would still be unaltered. The fact that variations have been made only serves to indicate the futility of this argument. It is also suggested that (a) any variations are of a minor nature or (b) that the substance of new principles was already included in one or other of the original principles. I would submit for instance that a major change was effected in alteration of the principle of the maintenance of the objective to become finally selection and maintenance of the aim. When one considers that a principle of war is a "guide to conduct" the former principle now seems lacking in force with its shortcomings. Lt-Col Palit firmly stated: "This principle (i.e., maintenance of the objective) does not seek to guide the actual determination of an object . . . an object or motive is an essential prerequisite . . ." The reconstruction of this principle was then an absolute necessity. It is also futile to argue that there was always an overriding principle of having an objective and therefore no real change was effected. What is the use of having a set of principles if they are deficient of well-founded and accepted axioms? Further, the fact that principles which might previously have been implicit in other principles have been separately identified only proves that statements of fundamental truths must be made clearly so that they leave their impression on the minds of the persons relying on such principles. History has shown us that the obvious can be missed and the lesson has been learnt.

General Maurice had no hesitation in his work on "British Strategy" in refuting the suggestion that principles of war are unchangeable. He expressed himself in this way: "The general conclusion to be drawn from all this is that there are no fixed laws and rules of the art of war, and that even its principles are fluid and require constant re-examination in the light of the changes which time brings. It cannot be said that the principles of war in any particular list are immutable. No such claim is made in our Field Service Regulations. It is, however, true to say, since we find that there are certain methods common to all the great commanders from Hannibal to Foch, that there is an established and permanent basis of experience from which certain general principles of war, applicable at any given time, can be deduced. The inclusion or exclusion of principles from any particular list depends, as we have seen, partly on whether we are considering war in general, or whether we are concerned only with its military aspect. It depends also upon the conditions of the time, since these affect the relative importance of the principles and change their values. The principles of war are not, therefore, to be regarded as the items of a recipe, which if properly compounded will produce victory, but as guides to help us to train our minds to deal with the problems of war in the right way. Because this is so, any pedantic adherence to theory and formulae, the truth of which past experience appears to have established, has usually proved to be fatal in war. Because man has never been able to forecast accurately the conditions of future war, the unexpected is the rule of war."

General Maurice also points out that the suggestion of "pursuit being included as a principle was overruled," as "there was nothing to be gained by making pursuit a principle of war when a decisive pursuit had become so difficult as to be almost impossible. But since an effective pursuit of an enemy from a battlefield is the surest means of completing the destruction of his armed forces, we may well find that when and if such pursuit again becomes practicable pursuit will once again be a principle of war." One might be forgiven for thinking of the campaigns in the Western Desert and in Western Europe as some argument for the reinstatement of pursuit as a principle of war.

For these reasons it is submitted that the principles of war are not unchangeable and that circumstances can and should vary them where necessary.

Nuclear Considerations

It is interesting to note that current thought believes that the principles which were applicable to the post-war system of warfare still apply to a war which is expected to be fought with nuclear weapons. However, the fundamental principle of dispersion on an organized basis with its attendant battle groups, task forces, smaller combined arms teams and other fluid units such as the proposed US Recondo Patrol of Opportunity, the plurality of command and the highly increased difficulty in control, in my submission call for a re-appraisement of the principles of war.

What, after all, is the purpose of enunciating principles of war? The best answer yet given is that they

serve as a warning that in disregarding any one of them we accept risk of which the enemy might well take advantage. Surely the advent of nuclear warfare with its brand new problems of fall-out, contamination, radiation, etc, warrant our basic principles of war being either enlarged or amended to force home the lesson that they cannot be disregarded except with great risk.

Clausewitz thought it necessary to include as one of his principles "assembly of forces in space," which he interpreted as keeping forces "concentrated" with no portion to be separated from the main body unless called away by some urgent necessity. Captain Liddell Hart in his book "The Indirect Approach" interpreted concentration as only occurring effectively when opposing forces are dispersed and usually in order to achieve this, one's own forces must be widely distributed. He therefore points out that by an outward paradox true concentration is the product of dispersion.

In the latest explanation of "concentration" we are told it involves the correct deployment of the components of a force including reserves to enable them to combine to deliver a decisive blow. The problems associated with concentration under pentropic conditions are illustrated in the article on US Army Pentomic Division (AAJ December 1959). Flexibility as a principle deals with the need to cope with changing situations and unexpected developments, thoughts which tend to exclude nuclear concepts as co-existent with conventional warfare. Thus the basic idea of dispersion as understood in nuclear war does not appear to find a natural home in the present principles, and it follows that the principles of control must be considered in the same light. Experience in nuclear matters is still very limited, and consequently the adoption of principles must be exercised with a degree of caution. However, in the same spirit as Clausewitz approached the problem of war in his day let us adopt a bold approach to this problem, so that the fundamental principles involved become part and parcel of our military thinking. It might be argued that there is no necessity to upset the present principles and no need to elevate nuclear problems into the ranks of the "principles"—in other words, that the present principles adequately cover the situation and are good enough. This approach is inclining to the idea of principles being immutable and creates an unnecessary restriction on the free flow of ideas surrounding nuclear warfare.

Field Marshal Viscount Montgomery some years ago expressed the view that "it is obvious that the use of atomic and thermo-nuclear weapons will have a profound effect on the conduct of war, on weapon systems, on strategical and tactical conceptions and therefore on the organization of forces."

The lagging behind in new thought is illustrated by reference to the work of Richard M. Ogorkiewicz on Armour (published 1960). In dealing with the nuclear threat he says:

"The potential value of armoured forces cannot be fully converted into fact, however, until their equipment and tactics, as well as organization, have been brought in line with the demands of the new situation. As it is, few of the necessary de-

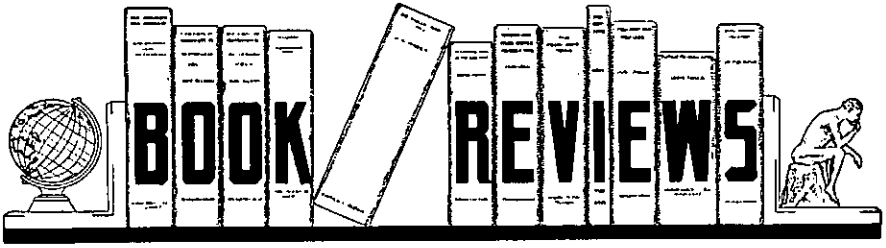
velopments took place during the first nuclear decade, and subsequent progress has lagged behind the slow realization of the potential value of armour. In all fairness, there have been a few moves in the direction of smaller self-contained units, as shown by the American armoured cavalry regiments, the regiments of the Soviet tank divisions and the French regiments inter-armes, all created since the Second World War. But the small versatile armoured units, self-sufficient tactically and administratively, which are indicated by the latest operational concepts are still to be generally accepted. In fact, there have been some regressive moves right in the opposite direction, as shown by the British experimental armoured division of 1955-56, which was intended as a specialized limited-role formation of the "all-tank" type, and which was the antithesis of the versatile mixed armoured battle groups envisaged under the new conditions."

Whilst one must never forget the lessons of the past, the type of warfare expected is so revolutionary that it offers a great challenge to the leaders of armies to perceive how warfare will be conducted in the future, and too rigid a reliance on past principles will lead inevitably to difficulties. This has been clearly recognized in the mass reorganization which has taken place, and therefore review of the basic principles of war is timely.

The following propositions are therefore advanced:

1. The principles of war are not immutable.
2. The principles of war should be reviewed constantly in the light of changing conditions. Boldness of thought is the keyword.
3. Tried and accepted principles should not be discarded unless nuclear warfare requires that such principles conform with the basic problems associated with this type of warfare.
4. A review of the existing principles is necessary to take into consideration nuclear warfare.

It is obviously necessary that we assume the initiative in any war, and we must therefore look to the future on the footing that we will exploit the use of nuclear weapons. This involves firm principles for guidance now, so that we become "nuclear minded" and therefore better able to cope with what lies ahead.



TOO LONG IN THE WEST, by Balachandra Rajan. (William Heinemann Ltd., London, and 317 Collins Street, Melbourne.)

The story is about Nalini, the daughter of Sambasivan, a Hindu university professor. She is sent to the United States of America to be educated at the University of Columbia.

Just prior to her return her father inserts an advertisement in a newspaper, an Indian custom, seeking a husband for his daughter. The address for application is given as Mudalur, a very remote village where Sambasivan has a country residence and where he is the sole employer.

In fact four suitors arrive in answer to the advertisement, one for matrimonial reasons, one for research, one for business and one, an American, accidentally. The last to arrive closes the only outlet from Mudalur by wrecking a bridge over a chasm.

The book relates the interviews with the suitors, the scheming and cliques in the village, and introduces some strange characters. Nalini finally selects her husband to the surprise of everyone, particularly the bridegroom-to-be himself.

Mr. Rajan is an Indian who is a Cambridge Ph.D. in English, a member of the Indian Foreign Service, and is now at the United Nations in New York. He writes about India in a manner that leaves one wondering whether his tongue is not in his cheek. His prose cannot be criticized, though one at times feels he is trying to "turn a pretty phrase." The book is very readable, requiring concentration to maintain touch. An explanation of some of the Hindustani or Urdu words would perhaps help the reader.

This passage between father and daughter illustrates the generally delightful style:

"My dear child, it isn't sin that matters, it's the appearance of sin. You were in the jungle and you were alone for three hours. If you did what you shouldn't have, that's deplorable. If you didn't, that's even worse, it's unnatural."

—G.M.C.