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AUSTRALIAN ARMY JOURNAL

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AUSTRALIAN ARMY JOURNAL

A periodical review of military literature

No. 230 July 1968

Contents

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Australian War Memo

A 4.2-inch mortar firing in support of the 2/10th Battalion at Balikpapan on 1 July 1945.

Stiffening the Army's Backbone

Major A. R. Roberts
Royal Australian Infantry

But the backbone of the Army is the Non-commissioned Man
Rudyard Kipling

Introduction

THE Army NCO of whom Kipling wrote formed part of a rank structure which was a direct expression of a simple and hierarchical pyramid of authority. At the apex was the commissioned leader, the mounted officer who embodied the martial spirit and the theme of personal valour. At the bottom was a broad base of private soldiers, 'professionals in violence'[1], but without any recognizable civilian skills. Rising from this base were consecutively smaller strata of non-commissioned leaders, responsible for the enforcement of orders, in direct and daily contact with the men, and acting as their intermediaries with the officers.

Today, the military hierarchy is no longer a pyramid. The development of managerial and technical expertise within the Army has stimulated a pattern of organizational growth in which the middle ranks have expanded more rapidly than the rest. Rank distribution has had to accommodate to the need to recognize skill by status symbols as well as by pay increments and to take account of the rising career aspirations among those technicians whom the Army endeavours to recruit and to retain. Many of these technicians now have their exact counterparts in civilian life. Expansion of the rank structure to provide appropriate rewards for specialists has been accompanied by a blurring of the traditionally sharp distinctions between NCOs, required to show leadership and exercise authority, and those military professionals whose skills, though equally necessary, have in the past been considered subsidiary to 'line' authority. The clearly visible connexion between the wearing of a rank badge and the exercise of supervisory authority, which the hierarchy of

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Major Roberts graduated from OCS in June 1952. He served with 1 RTB, 1 RAR in Korea, and with 3 Cadet Brigade before posting to UK as SC AAS(L) in 1958. On return to Australia in 1961 he joined 3 RAR and served with that unit as adjutant and company commander until 1966. He is now GSO2, DMT, AHQ.

This article was written during his attendance at RAAF Staff College in 1967.

rank was designed to perpetuate and articulate, has been disturbed. This article seeks to examine:

(a) Whether the present percentage of NCOs in the Army is too high;
(b) Whether too many technicians are filling NCO appointments, thus contributing to a lower general standard of NCO;
(c) Whether deficiencies in the present system could be rectified by the grant of some form of recognition other than NCO rank to skilled and experienced Army tradesmen.

Proliferation of NCOs

In 1885 the Government of New South Wales despatched an Expeditionary Force of some 800 men to fight alongside British forces in the Soudan. The NCOs in the Soudan Contingent may be regarded as filling the traditional roles of junior leaders and supervisors. Those tradesmen who brought to the Contingent the practice of their civilian skills were regarded as a separate group with little military worth apart from their skilled specialties[2]. So we find in the nominal roll of the Contingent such appointments as collar-makers, assistant collar-makers, shoeing-smiths and farriers listed after the private soldiers of the Artillery component, while the highly-trained 'Dispenser Kennedy' brings up the rear of the NSW Ambulance Corps.

TABLE 1 — RANK DISTRIBUTION OF OTHER RANKS BY PERCENTAGES OF TOTAL STRENGTH

Rank	*Soudan Contingent 1885 (1)*	*Regular Army 1967 (2)*
WO	*.04%*	*6.6%*
S/Sgt	*.08%*	*2.8%*
Sgt	*.4%*	*8.5%*
Cpl	*.7%*	*12.4%*
L cpl	*None appointed*	*5.4%*
Pte	*87.8%*	*64.3%*
	Total 100%	*100%*

Notes: (1) *Nominal Roll of the Soudan Contingent 1885.*
(2) *AMF Manpower Review, 1966-67, Army Headquarters, Canberra, Aug 67.*

Rapid developments in the technology of warfare have increased the levels of skill required to operate weapons as well as those required to administer and support military operations. These developments have forced equally rapid and drastic changes in the structure of the military organization. Army commanders at all levels are now

[1] M. Janowitz, *The Professional Soldier* (1961), p.3.
[2] F. Hutchinson and F. Myers, *The Australian Contingent*, Sydney, NSW Government Printer (1885).

responsible for organizations containing more and more men whose specialized skills approximate those of civilian employment. The Army's pattern of rank distribution reflects its need to expand the opportunity available for its specialists in order to retain them. The hierarchical pyramid has now assumed a diamond shape as a larger stratum of specialists has entered the middle NCO ranks (Table 1) formerly reserved for those exercising command authority.

Proliferation of NCO Tradesmen

An examination of the records of the Soudan Contingent shows that 93% of the other rank members were employed in military-skill occupations having little relevance to the civilian trade structure and that all the NCOs appointed were apparently performing leadership tasks. A similar examination of the statistics for the Australian Regular Army in 1967 shows that over 45% of the Army's other ranks are employed in the various technical and administrative Corps, carrying out specialist or tradesmen functions with close parallels in civilian life. The proportion of NCOs to soldiers in these Corps is higher than in the fighting arms and, in many cases, the number of NCO appointments appears to bear no relation to the need for a chain of command. To take a simple example in which most of the Corps are represented Table 2 shows the distribution of other ranks by Corps and rank within an Australian infantry Battalion:

TABLE 2 — INFANTRY BATTALION — DISTRIBUTION OF OTHER RANKS BY RANK AND CORPS

Corps	*WO*	*S/Sgt*	*Sgt*	*Cpl*	*Pte*		*% of NCOs to Ptes*
Infantry	*9*	*7*	*29*	*78*	*572*		*21.5%*
Medical	—	*1*	*1*	*5*	—	)	
Ordnance	—	—	*1*	—	—	)	— *137%*
Electrical	—	—	*1*	*2*	*4*	)	
Catering	*1*	—	*5*	*7*	*14*	)	
Service Corps	—	—	*1*	*1*	*1*		
Total	*10*	*8*	*38*	*83*	*591*		*Average 25.2%*

Source: Establishment for Infantry Battalion II/20/2 (TW)

The basic fighting sub-unit of the battalion, the infantry platoon, has a ratio of NCOs to private soldiers of about one corporal to nine men and one sergeant to 30 men. This ratio is common to most combatant units in all Corps. The inclusion of a number of tradesmen appointments filled by Infantry NCOs, such as Corporal Clerks, Corporal Drivers and Sergeant Storemen, reduces the final percentage of NCOs to private soldiers throughout the battalion to 25.2%, as shown in the Table. However, when the other Corps which provide administrative attachments to the infantry battalion are examined, the situation changes dramatically. Ordnance Corps provides a regimental

From a painting by Sir Carl Jess at the Australian War Memorial.

tailor, who is a sergeant. At rifle company level, a Medical Corps corporal appears but has no soldiers subordinate to him. In each company, the cooking is done by one sergeant and one corporal cook who between them supervise two private cooks. Service Corps is represented by one sergeant pay clerk, one corporal postal orderly and one private butcher, all working in different sub-units and with no command or supervisory function allotted to NCOs. In total, NCOs in the technical and administrative Corps elements far outnumber the private soldiers and create a percentage of NCOs to privates of 137%.

An Army tradesman has two avenues by which he can gain recognition, financial advantage and increased status. These are higher trade grouping and advancement to NCO rank. The Seven Group Classification System for other ranks' pay is common to all three Services and has granted each soldier a basic pay rate related to the Commonwealth Basic Wage. To this basic rate have been added a margin for skill and a margin for rank. The latter is assumed to acknowledge the responsibility and authority which accompanies the grant of NCO rank. Unfortunately, only six relatively small marginal increases separate the most recently joined non-tradesman (Group 1) from the most highly-skilled radio mechanic (Group 7). Between these two extremes must be fitted all the 600 trades now classified by the Army. There is constant pressure to revise the differentials payable to the more high-skilled tradesmen as their civilian counterparts gain marginal increases by industrial action. The result has been that the scale of rank margins has come to be used as an alternative or auxiliary method of increasing pay rates for tradesmen. Thus we find that the tailor (Group 5)in an infantry battalion must bear the minimum rank of Sergeant. Similarly, the cook (Group 3) can only be rewarded for improvement in skill by advancing him to NCO rank.

Selection of NCOs

The ranks granted to specialists in order to increase their pay differentials are indistinguishable from those worn by the platoon sergeants and corporal section commanders alongside whom they serve. Consequently both superiors and subordinates tend to expect of all NCOs the same standards of supervisory potential, acceptance of responsibility and leadership qualities. That many of the specialists promoted cannot reach and maintain these high standards, which were originally created for 'command' NCOs, is undeniable. In promoting NCOs, the Army requires of a Commanding Officer a report which covers those personal qualities which a potential junior leader is expected to have developed to a high degree. Among them are good appearance and bearing, ability to assume responsibility, capacity for teamwork and consideration for others, ability to inspire confidence and obtain results, and various organizing, administrative and instructional abilities. The same standards must, by regulation, be applied to all candidates for NCO rank.

My own experience, in an infantry battalion, has been that they are applied rigidly to infantry soldiers being considered for promotion. No rifleman reaches corporal's rank without at least an 'above average' rating in most of these qualities. Yet application of the same standards to selection of a Catering Corps private for promotion to Corporal Cook is difficult. He may not have real supervisory potential; he may not want to accept responsibility. His organizing and administrative ability may not be obvious and he has rarely had any opportunity to demonstrate his instructional capabilities. Nevertheless, the officer who has him under command must assess and grade him on these qualities. If the reporting officer applies 'line' NCO standards, the man may well fail to gain even an average assessment. On the other hand, if the standard of other cooks is used as a basis for comparison, the soldier may well rate better but the end result will be that another mediocre Corporal Cook is created. This man may be a better than average NCO by the standard of cooks. But the infantry soldier who sees him every day in barracks or in the field sees him not as a cook with two stripes but as a corporal, with the same pay, the same responsibilities and, presumably, the same ability as his own section commander.

Some Commanding Officers refuse to accept from their sergeant tailors or potential warrant officer caterers lower standards of appearance, bearing and soldierly qualities than they demand from 'line' NCOs. Failure to accept lower standards leads to refusal to promote the specialists concerned. This, in turn, means pressure from the technical Corps representatives who are anxious to fill their rank structure, to make room for more basic tradesmen at the bottom and offer evidence of opportunities for advancement to higher rank. Continued refusal to promote tradesmen often results in their transfer to another unit, where a more 'enlightened' CO will authorize promotion.

The Need for NCO Leaders

Superiors and subordinates throughout the Army must retain confidence in the NCO system. In counter-revolutionary warfare every soldier is in the front line and every man wearing rank must be, and be seen to be, capable of leading men into combat. The need to maintain NCO standards is particularly important in an Army in which up to 50% of the strength of combat units may consist of short-term National Servicemen whose reliance on the command structure is greater than that of the long-service private soldier.

The need to avoid dilution of the NCO structure by over-expansion was highlighted by the experience of the United States Army in the Korean War. The failure of the command structure among American other rank POWs was cited as a major factor in the general lack of resistance to collaboration and co-operation with the enemy. One

observer wrote, 'Technicians and specialists, valuable as they are, should have different insignia and be attracted and held by devices other than leadership rank. These people — whose contributions are, of course, vital — should be rewarded on a different scale and be outwardly more differentiated than at present from men who are our combat leaders. Only in this way will we avoid confusion as to who and what our leaders are'.[3]

A Possible Solution

Following the Korean conflict, the United States Army found it necessary to take steps to re-establish the prestige and authority of the supervisory or 'command' NCO. This meant a separation between the career of the specialist and that of the NCO leader. The programme which was introduced reduced the number of NCOs from 62% to 25% of the enlisted men. Although technicians retained their pay grading and, where appropriate, their status and privileges in relation to NCOs, new specialist insignia were introduced which ensured that NCOs were clearly distinguishable as such. Specialists, by virtue of their technical skill, are still often called upon to exercise leadership and supervision in matters relating to their specialty. For example, a senior specialist might be in charge of a rifle company's cooks, but he does not wear a sergeant's stripes and does not normally exercise the delegated powers of NCO command over soldiers. Nevertheless, his long service and technical ability are recognized and respected.

The suggestion that a system similar to that adopted by the United States Army might be applicable to the Australian Army is not as novel or radical as some traditionalists might imagine. Australian Military Regulation 64, published in 1927 and still current, states (among other things):

> A soldier holding an appointment to the title of which an asterisk is affixed in sub-regulation 1 of this regulation shall not be entitled to exercise any command on parade or on duty except over soldiers specially placed under his orders.

There follows a list of NCO appointments. Some of those marked with an asterisk and therefore excluded from the 'command' function are:

WO — *Bandmaster
*Draughtsman 1st Class
*Armament Sergeant-major
Sgt — *Armourer Sergeant
*Orderly-Room Sergeant
*Sergeant Cook
*Sergeant Tailor
Cpl — *Corporal Cook
*Corporal Storeman

[3] E. Kinkead, *Why They Collaborated* (1960), pp. 182-183.

Conclusion

The need to separate the recognition of the technical ability of the advanced tradesman from the leadership function of the NCO has, therefore, long been recognized in theory. What is needed now is action to halt the proliferation of NCOs and to re-define the authority and special place of the 'command' NCO. The aim should be to ensure that only those with real supervisory and leadership potential and the requirement to exercise these qualities should attain NCO rank. At the same time, the specialist must be able to advance both in pay and in status. Under the present Seven Group Classification System pay differentials have been so compressed that Service management has been forced to use the additional increments available by increases in rank as alternative rewards for higher trade qualifications or long service. In addition, trades in which the Army faces heavy civilian competition for the available manpower have been made more attractive than the margins system intended by the adoption of minimum rank structures for them. Termination of this misuse of NCO appointments can only be brought about by a review of grouping-for-pay. There appears to be a requirement for a system containing, say, 14 to 20 pay groups. With wider pay differentials, widely divergent skills could be more adequately rewarded. Additionally, such a system could support more than one pay field for a single trade; a lower field for the operator and a higher one for the maintainer, supervisor and instructor. Such a system could be combined with the introduction of specialist grades which catered for the senior specialist's psychological needs for improved status, entry to a more privileged group such as the Sergeants' Mess and visible insignia denoting his success in his speciality. These would do a great deal to retain and improve the recognition accorded to the Army's valuable specialists and tradesmen. At the same time, they would return to his rightful place of importance, responsibility and prestige, the backbone of the Army — the non-commissioned man. □

AAJ MONTHLY AWARDS

The Board of Review has awarded the $10 prize for the best original article published in the January 1968 issue of the journal to Lieutenant-Colonel R. Vardanega, for his contribution 'Simplifying Logistic Support in the Australian Army'.

Cyclopean Viewpoint

Aspects of so-called Psychological Warfare with reference to some Communist Situations in Tropical Asia

A. R. G. Morrison

PSYCHOLOGICAL Warfare, or Psywar for short, is a term of comparatively recent growth. It is a much-abused and ill-defined term, rarely meaning the same thing to any two people. Worst of all the baffled soldier or politician tends to reach for the term as if it were a sort of magical six-shooter when confronted with a difficult or puzzling situation.

The fact is that a great many forms of political activity, information work and propaganda are capable of being labelled Psychological Warfare and this lack of precision must be borne in mind when considering the subject.

It is, above all, a subject abounding in retrospective wisdom. Many decisions of a Psywar nature which today appear grave errors were often in the past taken by men of the highest ability and intelligence and will no doubt continue to be taken by men of ability and intelligence in the future.

If one attempts to define the term it quickly becomes even more apparent that the field is a vast one covering many overlapping activities. However, if one is to discuss the subject one must have a definition and if one excludes the bluff and bluster of diplomatic pleasantries between national Governments the following is probably a reasonable approximation:

> Psychological Warfare consists of all non-violent means of fighting declared or undeclared wars or of combating subversion, and intended:
>
> - Firstly to weaken the enemy's will to resist;
> - Secondly to win over to our side the civil population among whom the war or subversion is taking place;
> - Thirdly to sustain the willingness and determination of our supporters to carry on the struggle;
> - And fourthly to win and retain the support of world opinion.

Mr Morrison was born in Peking, the son of Dr G. E. ('Chinese') Morrison, and educated in England. He returned to China in 1940 and since then lived in Asia. From November 1947 until the beginning of last year he was a member of the Sarawak Civil Service. From 1960 until his retirement he was in charge of information work in that territory. He is now a resident of Canberra. The views expressed in this article are the author's own — Editor.

All these considerations are closely inter-related. The field is vast because it involves almost every aspect of good and intelligent Government and service activity.

The means of carrying out Psywar fall under two main headings which may perhaps be labelled Foundations and Gadgets. It is most important that the two should not be confused.

Looking more closely at the intentions referred to in the definition, weakening the enemy's will to resist is a most attractive and worthy idea but there is unfortunately no magic wand which can enable this to be done. It can be said categorically that any measures aimed directly at weakening the will of the enemy's armed forces will be entirely ineffectual unless the enemy is already under some form of pressure, either in the front line or on the home front. If enemy units possess high morale it is a waste of time to bombard them with broadcasts and leaflets calling on them to give up the struggle. If, however, they are under pressure the use of leaflets and broadcasts may be useful but they must present a proposition which can be accepted as a reasonable alternative. If there is nothing persuasive to offer a decision with Psywar implications can work in reverse. An example of this was the second world war decision to demand the unconditional surrender of Germany, which stiffened the will to resist, prolonged the war and cost innumerable lives.

It may be possible to exploit news of the enemy's home front if the armed forces can be led to believe that their families are suffering unnecessarily from the activities of their own leaders. This would particularly be possible if the armed forces were starved of home news. However, any efforts of this kind must carry conviction. They must be persuasive and they must be true. The Psyoperator or Cyclops must never tell lies. They will nearly always be discovered to be lies in the end and will rebound to the detriment of their originator.

The same basic considerations apply to calls addressed to subversive elements to give up. They will be a waste of time unless the element of persuasion is strong or unless the subversives are under severe pressure, and know it. This particularly applies to the communist organization which is a strong and well-disciplined one. Unless there is strong pressure only the weaker vessels will respond to such calls. This may be useful but it may also have a harmful effect through swamping the resources of the security forces for custody and interrogation.

Any Psywar efforts made in this direction will, of course, depend on possessing means of reasonably accurate communication.

It is important to possess the ability to produce and drop leaflets from the air and where small isolated pockets of the enemy can be accurately located, to communicate by voice aircraft or loud-hailer. Staff should be trained and expert in these activities and the equipment

must always be in a state of readiness. The time factor is nearly always vitally important and semi-skilled efforts can be slow and ineffectual.

The use of conventional broadcasting to reach the enemy should not be ignored. It is true that there can be little certainty that broadcasts will be received but the transistor revolution has brought great changes to listening habits. It is reasonably certain in these days that even small military units will often have civilian type portable receivers with them and it is probable that they will spend some of their time listening to the other side. But it should be recognized that there are many difficulties. The use of radio calls for close ties with the broadcasting organizations. Even if this is secured, messages and other enemy directed broadcasts, if they are to be effective, must be constantly repeated and this is dull broadcasting and abhorrent to broadcasters who will generally feel that their professional standards require them to operate on western lines. The communists are far less inhibited in adapting radio to make an impact on the Asian masses but this must involve, what is to the more sophisticated mind, much dull and wearisome repetition.

Turning now to the second intention, in the undeclared wars and wars of subversion of today, nothing is more important than to secure and retain the good will and support of the local population, and especially of the country people. In Asia the peasant is of far greater importance than the townsman, for it is in the vast, underprivileged rural areas that the communists have found their main support and sanctuary. Subversion and terrorism may well go on in the cities too, but because of their relative compactness and because the security forces may be more at home in towns than in the country, the urban efforts of the enemy are more easily contained or defeated.

Nothing is more damaging to the enemy's morale and freedom of action than the knowledge that local opinion is against him. And local support for our side depends on good government, good information services, correct and enlightened behaviour by the armed services and police and, if possible, by capturing the most powerful sentiment of all, that of nationalism.

If a local Government is popular, honest and socially progressive, and can arouse feelings of patriotism the task of armed forces operating in support of the Government is made comparatively easy. The converse is equally true. And where the converse applies any positive efforts to improve matters by an outside power are likely to involve being brutal to rulers who are, at least nominally, one's friends. The success or otherwise of armed forces operating in support of another Government must ultimately depend very largely on the competence and integrity of the local Government. Acceptance

and support for the *status quo,* any *status quo* so long as it is anti-communist, may contain a situation temporarily, but in the long term it is no match for reformist zeal capitalizing on social injustice and justified discontent. Communism can never be eliminated permanently merely by suppression.

In rural Asia and other backward areas of the world the most crucial question of all is probably that of land. Asia is predominantly a continent of peasants. What do they want in life? Of course they want more of the good things of life, health facilities and schools for their families, security and reasonably honest and efficient Government. But above all they want to possess their own land and to be left in secure enjoyment of it.

The desire to own land is something elemental, deep down within the feelings of nearly all mankind. Effective land reform cannot by itself work counter subversion miracles and exorcise the communists overnight, but where agrarian discontent exists there one is likely to find communism and it is probably true to say that without a progressive and equitable land system there can be no prospects of permanent anti-communist success.

Furthermore it seems at least probable that with modern methods of photographic survey, properly recorded basic land reform can be carried out — given the will to do so — without overmuch dependence on the administrative competence of the local Government. Of course it has to be recognized that simple distribution of land to the peasants who work it does not provide a complete answer. It should go hand in hand with the introduction of credit and agricultural extension services. But the distribution is the first essential step. And even if land reform is a vast and complicated subject, it is still much cheaper than fighting a war for landlords.

Agrarian discontent and nationalism are the two founts from which the communists derive most of their strength in rural Asia. If one is lacking, in any case of communist success, the other will almost certainly be present. The theory of communism is much too difficult for the masses. The success of the communists generally depends on capturing one or both of these motivations. If deprived of them their failure is a virtual certainty.

The importance of the agrarian motivation has been emphasized by Che Guevara who wrote:

> 'We have emphasized how conditions in the economically under-developed countries of the world, particularly the Americas, favour beginning the fight in the rural areas and aiming at changing the ownership of farm lands. Hence the guerrilla makes "agrarian reform" his banner'.

If the Government is to have the loyalty and support of the population, and especially country people, its officers must be in close

The NCO in charge of the welding shop of No. 9 RAAF Iroquois Helicopter Squadron replaced the makeshift crutch of this disabled Vietnamese child with new light-weight supports.

Photograph: RAAF Public Relations

and sympathetic contact with the people and it must have the means of telling the people what it is trying to do. A news vacuum will always be filled by something. Even if it is not filled by communist propaganda, it will probably be filled by damaging rumour and inaccurate hearsay.

Radio is an obvious medium but its limitations must once again be recognized. Even if the people have radio receivers they will not necessarily listen to their own home radio station unless they are interested and have confidence in it and in what it says. They cannot be relied on to listen intelligently and they may just as easily listen to enemy broadcasting. Sometimes they may not fully appreciate the difference. The provision of radios which can only pick up the home station may help but it is a clumsy and mistrustful device and may be circumvented or even utilized by a resourceful enemy.

More effective than radio, and certainly the absolutely essential complement, is purposeful and methodical travelling by Government officers to tell the people what their Government is doing during the course of their normal work. Every Government officer should to some extent be an information officer. Trained information teams and specialists can play an important role but only so long — and this is vital — as they are not regarded as a convenient substitute for proper travelling by administrators, health personnel, and agricultural assistants. If the latter all stay glued to their chairs at district headquarters, the Government cannot hope to have proper contact with the people.

Information staff can, for instance, organize useful civics assemblies and courses when Government activities and the Government viewpoint can be propounded. But they can only do this properly with the active co-operation and participation of the civil authorities and the police. Information staff alone cannot do it properly.

Given a reasonable degree of literacy the written word is of great importance, particularly among news-starved people. But the production of effective material for country people calls for quite exceptional skills in presentation and intelligent simplification. It must also be written in a form of the language which is readily understood by the countryman. The latter need is sometimes liable to be frustrated by the pride of the educated man who considers that the simpler language of country people is beneath him and who is out of touch with the countryside and has little or no interest in the people who live there.

Similar considerations apply to broadcasting. The language of the educated local broadcaster may bear little relationship to that of country people. Indeed the whole tendency of broadcasting, devel-

oped as it so often has been on the western model, is to aim at the educated elite. Communist broadcasters do not make this mistake.

However, although written and broadcast material must be simplified for country people, it is the greatest mistake imaginable to suppose that country people are stupid. Their education has been limited and hence the need for simplification. But they are generally shrewd and sometimes cunning, and around these attributes they often erect a protective screen of apparent dullness of intellect, especially when in contact with those who do not enjoy their trust and sympathy. All this is done in order to survive in a world where life for peasants is a very tough one. If one likes to think of country people as being simple people, the best thing is to think of them as being as simple as, say, dealers in second-hand motor cars.

The subject matter for written and broadcast material must be down to earth and relevant to the environment of the people to whom the material is addressed. The superiority of the democratic way of life as practised in the west will be of less interest to the countryman than modern methods of controlling the pests which destroy his padi.

Where the armed services are heavily committed in rural areas there is a tendency for them to become engaged in various non-military activities. But soldiers cannot, by themselves, be substitutes for good civil administration. They can put some backbone into a weak or frightened administration, but they cannot take its place. It is a job they are not trained to do nor can they provide the essential element of continuity.

This does not mean that there is no place for so-called hearts and minds work, essentially military good deeds for civilians. This mainly consists of medical aid, casualty evacuation and minor works such as bridge building and school repairs. Purposeful hearts and minds work has an important part to play and soldiers do it very well. But like everything else it has a converse. If it is overdone it can make things difficult for the civil authorities when the troops withdraw, as with the best will in the world the civilians may lack the resources to continue to do anything like as much.

One of the most important things of all is that police and troops should behave correctly and pay for everything they take or use. Rough and brutal treatment will nearly always help the enemy. It may well be understandable as a result of anger and frustration, especially if security forces are suffering casualties and believe that the civil population is betraying them. But it can never be of any help to our side and most of the people who get hurt in the process are probably innocent anyway.

Conversely, enemy brutalities and misconduct are capable of exploitation by our side but only if our own conduct is, by comparison,

if not exemplary at least better. From the point of view of the local countryman so much will depend on the conduct of the policeman and the soldier fighting on our side because they are the representatives of our side with whom he is most likely to come into contact during anti-subversive operations. His assessment of our side will depend largely on their behaviour.

Moral superiority is vital in all Psywar work. This was the great whip hand which the Allies possessed in the Second World War. They could not overcome the unifying cement of German and Japanese nationalism, and so win over the enemy, but they enjoyed the overwhelming support of world opinion and of the people of the enemy-held territories, together with almost unanimous support at home. If the enemy instead enjoys substantial support at home and abroad the Psywar task is made much more difficult because that support presents the first hurdle which must be overcome if success is to be achieved.

Moral superiority cannot rest on our intentions alone. They may be good intentions. So may those of the enemy. It is the opinion and the opinions of the people whom we are seeking to influence which matter. Our good intentions alone will not do much to influence them. They have to be satisfied that what we are offering them is preferable to what the enemy has to offer and this must be a matter of credibility and not of intent.

Effective information work must require personal contact. It cannot be replaced by even the most elaborate gadgets or gimmicks. A magnificently equipped film unit may draw crowds of Asian country people but by itself it can achieve very little in influencing the thinking of the people. Life in the countryside lacks many of the amenities of the town. A free film show will always draw a crowd even though the audience will probably fail to understand much of what the films are about. If films are to make an impact they must be of local scenes and of local people doing things which are understood. Such films are difficult and costly to make. A fine western documentary can easily be given a sound track in another language but this is a waste of time except in so far as it draws a crowd which can be addressed by the trained information man.

The distribution of printed matter provides problems in dispersed rural areas. If distributed by hand it may take an inordinately long time to reach its destination. Nevertheless this is probably the only effective way except when helicopter lifts are available. Air drops are very wasteful and should be reserved for very special occasions when the utmost emphasis must be given to some news or announcement. Air dropping of leaflets calls for detailed planning if the element of waste is to be reduced. Air drops can arouse interest and excitement but unless the population is very friendly they should be rarely undertaken. Frequent drops will reduce the amount

of interest taken in them. If undertaken in limited areas, one way of arousing interest in them is to number the leaflets and have a lucky draw for prizes. The number of prizes claimed gives a useful indication of the proportion picked up.

The CO of the 1st Australian Civil Affairs Unit handing blankets to an elderly woman of Long Dien village in South Vietnam. The inhabitants received money and commodities to help restore losses they sustained during Viet Cong attacks on the village.

Photograph: Army Public Relations

Although no one wants to weigh down soldiers on patrol, it can be useful to have them take simple and brief news sheets with them to give to the villages they may pass through. If printed on light-weight paper this need not be an excessive burden and can help to establish some sort of contact between the soldiers and the people.

While civil aid in someone else's country should, as far as possible, be done unobtrusively through the local civilian organization, which will have to carry on when the troops eventually leave, there is at least a case for providing small teams of civil aid and information personnel, simple printing facilities, health (and particularly child health) staff and agriculturists (especially veterinarians) to work with the civil authorities. Soldiers are not trained for these

jobs and it is wasteful to put them onto such work although military engineers are, of course, competent to undertake civilian jobs if they can be spared. Civil aid assignments should be reasonably long term because in any strange country the technician may not be fully effective for the first few months. Reasonable continuity is of the utmost importance.

Correct behaviour, personal contact and establishment of the feeling that our side is the winning one are the keys to winning the help of the civil population. It must always be remembered that the true communist is filled with a burning sense of mission. There are, of course, plenty of thugs calling themselves communists as a cover to prey on the local population but the true communist, who is to be feared, seeks to make the world a better one according to his lights. His message can very easily be an attractive one, especially if his conduct is genuinely based on the high principles to which the leading communist figures pay so much attention in their writings. It can never be repeated too often that if the enemy's ethics and conduct appear to be higher than our own and their message more attractive, our own chances of winning over the civil population will be slim indeed. The enemy who lacks a sense of mission will not be a major menace.

A point which should perhaps be emphasized here is the need to recognise that communists are financially honest people. The comfortable belief that corruption is endemic in Asia is today dated, misleading and inaccurate. The communist countries of Asia with their huge total population maintain exemplary standards of financial integrity. The degree of success of non-communist countries is closely related to their standards of honesty. No corrupt country is secure against communist subversion for where corruption exists honesty is communism's strongest selling point in the eyes of the people.

Of course the communist enemy may well be and often is capable of extreme brutality. Some of this is aimless thuggery but there is generally some ruthless logic in it such as the liquidation of those whom they regard as traitors, anti-social elements and capitalists, as well as those whom they know to be their dangerous enemies, such as skilled and dedicated counter-revolutionary cadres in the villages. But the brutal liquidation of a remote or unpopular official or landlord is unlikely to upset the local country people. It can in fact contribute to their acceptance of the communist argument of the need for struggle. The peasant is much more likely to be upset if troops steal his poultry or shoot his xenophobic buffalo, or burn down his village in some reprisal.

No human beings can avoid making mistakes and communists are human: they are not impregnable. They derive much of their strength from having set rules to follow which, if applied in the correct Marxist manner, provide answers to cover many eventualities.

But they are not always the right answers and the rules allow for limited flexibility. Communists often lack much wordly experience. They are slow to adapt to a new situation. Although their discipline is strong they have their weaker vessels like any other community. And they undertake an astonishing amount of written work. The massive volume of documentation often exposes their problems and difficulties though if the documents are to be put to good use it is essential that our side should command the services of enough skilled translators and those qualified to understand communist jargon.

Communists may kill genuinely popular and well loved local figures or engage in senseless outrages which hurt the civil population and arouse their indignation. The sexual conduct of some of the leading figures may not always be beyond reproach and is likely to be fully documented in comments by other comrades. The communists are particularly weak in their understanding of communal differences and in their knowledge and understanding of the thinking and way of life of other races. In Marxist theory communal differences simply melt away under communism and they find it hard to understand that in practical terms this golden age is still a long way ahead. They may overrate their strength or engage in policies which result in severe reverses. The Indonesian communists have taken catastrophic decisions on three occasions in less than 40 years. Communist ideas about land are basically repugnant to a land owning or would-be land owning peasantry.

Communists are not supermen who never make mistakes and it is reasonably certain that they will continue to make them. But they do possess a very strong, deep rooting system capable of lying dormant for long periods. It must be combated at the roots and not by trying merely to cut off the flower heads.

Psywar is no magic wand but unfortunately is apt to be regarded as one. This is the heaviest cross which has to be borne by Cyclops. It is particularly likely to be thought of as a magic wand in regard to relations with the civil population. The people of an area are unco-operative. Both the Army and the politicians may with one voice cry 'Let a psychological operation be mounted immediately to correct the situation'. One can, of course, try but Cyclops may very well find that he is being expected to make bricks without much straw. He can make a special effort to explain the Government viewpoint and why it is wrong and foolish to support the enemy but these efforts will be a waste of time unless at least one of three features is present. These features are dynamic and progressive Government policies to explain, enemy errors to exploit, or clear signs that our side is winning.

But one cannot just wave the magic wand in an unfavourable situation and change the hearts of the people overnight by some mysterious process of mass hypnosis. Politicians are liable to regard

Psywar as a convenient substitute for proper and effective political effort and organization. Any such Psywar operations, if they are to be effective, must normally involve a concerted effort by the Psy-operators *and* the civil authorities *and* the politicians. Furthermore it is useless to try and change the hearts of people unless they can be given a reasonable degree of security and protection afterwards. Only people who possess the most dedicated nationalist fervour are likely to be able to withstand the impact of severe enemy reprisals.

The third and fourth intentions of the definition are so closely linked that they are best considered together. If a war is to be fought successfully there must be support at home and preferably abroad as well. There is a need to mobilize and retain both home and world opinion on our side. Our case must be put in a persuasive manner. It must be such as to convince reasonable opinion in all sections of the community that it is a just cause.

This calls for good information services and the co-operation of the press and other mass media. If journalists and news photographers and what they produce are sympathetic to our cause the battle is more than half won. But war reporting, even by a sympathetic press, does call for some checks and restraints. Too much freedom to report the brutality and hatefulness of war, unbalanced by equivalent material from the other side, can be most damaging. This particularly applies to photographic coverage. One can only reflect on what massive and effective use would have been made by the Allied Governments in the Second World War if photographs such as those showing some activities of our South Vietnamese friends, taken by western photographers and widely published in western papers and books, had been captured from the Germans or the Japanese showing similar things being done to European or Asian partisans. It can, of course, be very properly argued that from the point of view of newspaper ethics the journalists are doing no more than their job — which is to tell the truth. But even if one accepts this the fact remains that the brutal truth may be of the utmost benefit to the enemy.

It may perhaps be useful here to refer briefly to some general aspects of Psywar in tropical Asia since the war, with particular reference to nationalism and agrarian problems.

Communist rebellions failed in two countries in the area, Malaya and the Philippines. In Malaya the Emergency lasted for 12 years though the numbers of armed communists probably never exceeded 7,000. Nevertheless they did much damage, retarded the progress of the country and tied down large numbers of soldiers and policemen. The communists failed because it was almost entirely a Chinese movement and confined to no more than a section of the Chinese

population and did not succeed in awakening any mass support by Malays. Although in theory the Malay peasantry should have been attracted to the movement, in practice their conservatism, loyalty to their rulers and religion and the fact that the communist movement was so largely Chinese left most of them unmoved. It does not follow that no Malays were affected. A few were but they were a tiny minority and it was loyal Malays who provided the vast bulk of the regular and auxiliary police and other security guards. From the Psywar aspect the granting of independence was the most important key factor in defeating the communists but it was not the only factor. There was in Malaya an efficient and honest administration and police force operating under unified military and civil direction. The army mastered the problems of fighting in the jungle. The configuration of Malaya meant that it was possible to cut the communists off from their food supplies. Their bases were in deep jungle and not in friendly, inhabited country.

The experience gained during the emergency greatly strengthened the capacity of the new rulers of Malaya to manage their own affairs. They also inherited an exceptionally large and efficient police force, an essential asset the value of which is sometimes underestimated. The new rulers have placed very special emphasis on rural development. Progressive legislation, some of it recently revised, protects the interest of the peasant and large land development schemes, although the number of families resettled is quite small, give hope and promise to the landless. The picture is an encouraging one. The points to emphasize are the part played by nationalism, the failure of the communists to overcome communal differences and the highly intelligent follow-up operations in rural development.

While the Malayan Emergency was going on the Huk rebellion was taking place in the Philippines. The Huks were originally a Nationalist resistance movement opposing the Japanese. It contained communist elements but was not dominated by them. In the turmoil and mass corruption of the postwar years (corruption in high places has been described as the greatest ally of the Huks), the communists captured the movement. They did so very largely by exploiting agrarian discontent. The majority of small Philippine farmers are tenants. Their grievances provided most fertile ground for communist exploitation.

The struggle was a bitter one. There was savage conduct on both sides. The communists lost because of the emergence of a truly great national leader in Magsaysay who understood the grievances and convinced the country people that something was going to be done to remedy them. At the same time there was a great improvement in the performance and conduct of the police and armed services while communist excesses continued. The rebellion collapsed and

nearly all the main communist leaders were apprehended. From the Psywar point of view the success was achieved because the ordinary country man became convinced that the Government had something better to offer than the communists. And as the pressure against the Huks built up, generous surrender terms, including the offer of land, was made to the Huk activists.

Unfortunately the positive momentum gained has not been maintained. Magsaysay introduced land reforms but he did not actually solve the land problem. In the fifteen years between 1948 and 1963 the percentage of farms operated by tenants sharply increased. The outstanding leadership of Magsaysay was lost in an aircrash in 1957. The promised reforms have not been fully implemented and the Huk movement has revived. While it is not true to say that the Philippines are back where they started, the situation is far from good.

A country where the poverty and hardship endured by the masses should provide particularly fertile ground for the growth of communism is India. The interesting point is that although communism exists and is a serious threat in some places, it has not taken a much wider hold. This can probably be attributed very largely to the forces of nationalism and the immense prestige of the great, non-communist leaders who secured India's independence. And as they have died and been replaced by men without this kind of prestige, the nationalist motive has been kept in being by the quarrel with Pakistan and powerfully reinforced in an anti-communist direction by the quarrel with communist China.

The main communist movement in India has been in the State of Kerala which is made up of the Malayalam areas of Travancore, Cochin, Malabar and Madras. Agrarian discontent has been exploited there although there is less dependence on agriculture than is the average in India. But in addition there has been over-population, under-consumption and poverty, coupled with a relatively high literacy rate and the feeling that Kerala has been neglected, even by the Government of independent India. The communists gained much support through leading the move for a greater Kerala, to comprise all the Malayalam areas, and they were successful in this move for a kind of local nationalism. It is interesting to note that in its rural campaigns the communists made good use of the legend of a benevolent local Emperor in whose regime all were equal and there was plenty for everybody.

Thailand, where communism has failed so far to make much progress, is of interest as illustrating the powerful nature of nationalism and agrarian contentment. The Thais are a proud and nationalistic people who succeeded in remaining independent when most of the rest of Asia came under western colonial domination. Furthermore, an unusually high proportion of the land is owned by the

people farming it. There is some tenant farming but there is much less than in most other Asian countries. The situation has provided difficulties for the communist movement to surmount, although it certainly exists in Thailand, and despite the degree of corruption and privilege which exists in the country. The situation for the communists is most favourable in the impoverished and until recently neglected north-east and in the extreme south where there is a Malay ethnic majority and large numbers of Chinese, and where the remnants of the Malayan Communist movement have found a reasonably secure refuge.

Singapore is obviously a special case because its agriculture is negligible. Here an extraordinary able and vigorous non-communist leadership has captured the nationalist movement, which at one time was much influenced by the communists. The non-communist movement has made particularly effective use of media of communication and has never been afraid to borrow ideas from the communists, even to the themes and appearance of some of the postage stamps. But more than anything else Singapore owes its present stability to the sheer intellectual brilliance, coupled with toughness and honesty, of the national leadership which it has evolved.

A rather different kind of failure concerned the Indonesian confrontation of Malaysia. The philosophy behind confrontation was communist inspired but once propounded by the PKI it was taken up by the Indonesian Government which was initially quite friendly towards the new Federation. Confrontation achieved little success because the Indonesian appreciation of the Malaysian situation was ill-informed. They had little to offer and they received little support in Malaysia except from communist sympathizers who were predominantly Chinese. Only a few Malays — some disgruntled Malay politicians in Malaya and some Malay or Melanau communities in Sarawak who were motivated principally by grievances over forest exploitation — were prepared to give any active support. And even this support inside Malaysia was contradictory to Chinese support because it was largely anti-Chinese in nature.

The most serious aspect of confrontation, apart from the loss of life and waste of effort and resources, was that it provided a sanctuary and arms supply for the Chinese communist movement in Sarawak. But it was never a critical threat to Malaysia. The situation was ably handled by the Malaysian and commonwealth authorities and the military direction and conduct of operations was particularly skilful. The Indonesians themselves were confronted by a reasonably efficient and respected Government machine well organized in rural areas and by a generally unfriendly local population. There was no effective nationalist situation for the Indonesians to exploit. In fact, from the political point of view, confrontation brought some benefits to Malaysia for it provided an external stimulus

towards unity during the difficult initial years which must be surmounted by any new federation.

The resettlement village of Ap Suoi Nghe, two miles north of the Australian Task Force base at Nui Dat in South Vietnam, is sponsored and helped by Australian troops through the Civil Affairs Unit. Charcoal burning is an important local industry in the new village.
Photograph: Army Public Relations

The agrarian situation is one of some interest in regard to the State of Sarawak. Here there is no agrarian situation affecting Natives, that is non-Chinese. They are in full possession of their own land and tenantry is hardly known. But there is land hunger on the part of Chinese who have been restricted in the areas where they may acquire land. This was done to protect the Native interest. Natives are rich in land but it has little value. The Chinese land hunger has a genuine foundation though often exaggerated. The need to reform the land laws both in the Native and Chinese interest has long been recognized. Unfortunately action by the Colonial Government was excessively delayed and when sound and expert proposals for reform were evolved it was too late to introduce them before Malaysia.. The first State Government tried to introduce new land laws but it was too difficult. The bills became a political issue and had to be dropped. But the failure to introduce reforms greatly impeded Psywar effort directed at the rural Chinese who provided the backbone for the Sarawak Communist Organization.

While there is no intention here to seek to analyse the Vietnam situation there are two points which are relevant to the proposition that communist activities depend largely on having an agrarian or nationalist situation to exploit. Vietnamese nationalism has a long history extending back to well before the arrival of Europeans in South-East Asia. The communists have succeeded in capturing the nationalist movement to a considerable extent. The agrarian situation also favours the north where most of the land was always owned by the peasants who worked it or was communal land. In the south, much of which was settled much later than the north, land holdings are much larger and the proportion of tenants much greater. A classical agrarian situation does exist there favouring the communists. Land reform was introduced in South Vietnam in the fifties but it is limited in nature and has certainly not solved the agrarian problem.

In Cambodia the agrarian situation is also unfavourable for the Communists. Most of the peasants own their own land and there is no land hunger. The country has produced an able nationalist leader and although the Government is opposed by both communist and non-communist underground movements, there is a considerable degree of national unity and ancient and deep-seated local animosities directed against the Thais and Vietnamese operate in support of this.

In the case of Burma a most unfavourable agrarian situation had evolved during the economic depression of the twenties and thirties. Very large areas of padi land had passed into the possession of Indian Chettiar money lenders who had no wish to be landlords but had to take over land to safeguard their loans. The disruption of the war and immediate postwar years, as well as deliberate Government policies, have led to the complete eradication of the Indian interest and although some local landlordism remained, this is now being eliminated by the simple expedient of abolishing all rents on farming land. Consequently although the Burmese administration is weak and the Government is beset by serious problems of largely ethnic insurgency there is no strong agrarian issue for the communists to exploit. There is also a strong spirit of Burmese nationalism among the ethnic Burmese. These factors make a favourable contribution towards providing a stable political situation in the country.

The foregoing remarks have dealt largely with foundations. In conclusion it may be useful to look rather more closely at some of the gadgets which can be employed in operational Psywar activities. It should be borne in mind that the use of any gadgets must be based on good local intelligence and a sound understanding of the policies and philosophy of the enemy. And it must be emphasized that gadgetry without effective foundations must be largely a waste of time. Sadly enough, magic wands only exist in fairy tales.

Leaflets

These are produced for a variety of reasons and their efficient production calls for the existence of good and speedy printing facilities. When they are wanted they are nearly always wanted urgently. The Psyoperator must have priority access to good printing facilities and ample supplies of suitable paper of good quality, lightweight and yet durable. Leaflets are generally dropped from aircraft. The paper should preferably be in various colours so that a different colour can be used for each leaflet dropped. In this way the fact that they are different can be readily recognized. Careful air planning is essential so that the flyers know where to drop and how many.

Other leaflets such as surrender passes may be distributed by patrols and again light weight is essential.

The drafting of leaflets calls for simple and skilful presentation. They must be as short as possible and preferably illustrated. They should have no blank spaces on which crude or hostile individuals can write rude remarks. Horror themes should be avoided. If they are about horrors committed by the enemy they may well frighten the very people whom we are trying to win over and so help the enemy. If they are of horrors from our side such as 'What will happen to you if we bomb you with napalm' they are likely to affect our image adversely in the eyes of home and world opinion.

Voice aircraft

Useful for limited tactical work but here again the need is generally urgent and the fitting of voice equipment to aircraft takes time. The production of good tapes requires skill and training as the tapes are very short and in such brief compass must convey a clear message.

Tapes are best produced under studio conditions, which in practice need only mean a first class tape recorder and a small acoustically treated room, which can be portable and sectional. Even though they are so short the production of tapes is emphatically not a job for amateurs using small tape recorders intended for popular use.

Sound or Public Address units for ground use

These can be vehicle or boat mounted, or entirely portable. They are more flexible in use than voice aircraft and messages or talks can be much longer, though not too long if the message is to get across. They are useful for conveying messages in villages and towns.

Community radios

The Government should be able to reach the public over the air: there should be listening facilities in every village. But it is essential that whatever is broadcast is in the local language or dialect. Unless care is taken emanations from the capital may be completely unintelligible in the country.

Community radios should only be provided if a reasonably responsible and competent person can be put in charge. In larger centres community listening should ideally be coupled with permanent public address systems, provided that the cost of such installations can be justified through effective and regular use being made of them.

Film units

Useful but definitely not a magic weapon. Since they operate at night they are very vulnerable to enemy action. Films can be effective at conveying a message to country people provided the message is simple and expressed in a manner which is intelligible to them. Ideally this calls for local production of films designed for specific audiences and communities. The western film, with hurriedly dubbed in local sound track is of very little value, apart from attracting an audience, because it will be beyond the comprehension of Asian peasants.

Film dramas, if intelligible, can be very valuable but since they need to be designed for a special type of audience, they are likely to be troublesome and costly to produce.

It is essential that film shows should be accompanied by talks and lectures. Information staff may far too readily assume that all they have to do is to set up the equipment and run off the film but this should only be the introduction to the important work of the evening.

Films and slides for cinemas

Cinemas are important places for public congregation. Government news films and documentaries and even simple slides can usefully be shown. While the main impact will be in towns, the cinemas in rural area bazaars should not be ignored because many country people visit them when they come in to do business.

However there are serious difficulties in organization. Cinema owners and managers not unnaturally begrudge every minute of non-paying time and the sanction of law may be necessary if the material is to be shown regularly. Furthermore, news films will become hopelessly out of date unless very large numbers are produced for widespread simultaneous release. This is extremely expensive.

Live drama

Especially useful as a means of conveying a message and need only be very simple. The value of live drama can be seen from the attention which the communists pay to this medium. They are, however, at a great advantage since all they generally do is to provide scripts for playlets which local people put on. Very often the local cadres write and produce their own drama.

By comparison, while the writing of simple scripts is easily done, the organization of complete touring live drama teams is very cumbersome and the teams are highly vulnerable.

Rallies, processions and other mass events

These provide a means of inculcating such feelings as unity, enthusiasm for actions or policies or solidarity in resistance to something. Herd instincts are strong. Enthusiasm can be infectious and a good deal of artificial stage management is possible, though ideally it is the personality of the leader which should prevail. Good organization is necessary, especially to see that working people who give up their time to attend a mass event are provided with transport and refreshment. But Cyclops can only help organize. The politician must play the leading role.

Civics work

Basically this consists of explaining to local people how their Government and its various departments works and seeks to help them, and what are its aims and policies — most country people have little idea. In its simplest form it consists of a civics assembly where a group of people are brought together to hear talks from the local administrative officer, health officer, agriculturist and policeman and to get these officials to answer questions. Surrendered enemy personnel can also play a very useful part on such occasions. Refreshments should be provided and the people attending given some small allowance to cover their expenses in coming to the assembly.

Exhibitions

A more elaborate form of Civics activity. A good exhibition showing Government activities and development programmes can do much good and can usefully be combined with film shows, civics courses and such gimmicks as putting up a little local radio station so that people can hear their own voices and those of their friends over the air.

Posters and wall news

These provide important means of conveying information and messages with an element of repetition because they are likely to be seen more than once. Pictorial presentation or illustration of written messages is very valuable. The more unsophisticated the audience the more important do the illustrations become. The pictures themselves can be very simple in nature but careful planning and access to reasonable printing facilities is needed. All the techniques of advertising can be used to make posters more permanent. Postage stamps can be used as posters in miniature and postal franking is convenient for disseminating slogans.

Regular publications

The Government and the services must keep the literate part of the community informed of what they are doing. This will normally be done by information releases to the press and radio

stations. If suitable newspapers in local languages are not available then publications should be produced in their place. They can be very simple but if not undertaken at all there will be a news vacuum which can and will be filled by the enemy. Communist ability to produce underground papers and get them read is outstanding.

The RAAF doctor at Vung Tau treating a Vietnamese child during a recent Medcap (medical-civic-aid programme) in the area.
Photograph: RAAF Public Relations

Elaborate printing facilities are not essential.. For the simple production of news material cyclostyling can provide good results with minimum staff. Even very small administrative or military units can produce such material if the local language can be written with a typewriter. And it is possible without too much additional trouble to illustrate such material.

Special publications

They have a useful part to play. They should be simple, illustrated and possess striking covers. The sentences should be short, the type large. This indeed applies to all publications intended for communities with a low rate of literacy.

In the production of fiction it must be borne in mind that the needs of the educated man and of simple people are quite different.

The simple story for simple people can be a powerful medium in propagating ideas but for intellectuals it is ineffective. For the latter the writing itself must be good and good writing cannot be mass produced.

Songs and slogans

These are a powerfully evocative medium for promoting feelings of nationalism. They are much used by the communists but they convey nationalism (or sometimes communal chauvinism) first and communism only second. One of the most striking examples of the use of songs for this purpose was in the struggle for Irish independence. Songs such as the *Wearing of the Green* and the *Ballad of Kevin Barrie* were a more potent force than whole brigades of 'Black and Tans'. Slogans are closely related to songs. A telling phrase or expression can work powerfully on the mind.

Hearts and Minds activities

These can greatly benefit the image of the serviceman or policeman and so of the Government itself. Almost any good works by the services or police among the civil population come under this heading. Policemen or servicemen must be briefed at all levels as to what they are trying to do. The attitude to the private or constable is of the greatest importance in making a success of Hearts and Minds work.

It especially covers first aid and simple health work and the evacuation of the sick or injured to hospital by air. It also covers the undertaking of simple but useful works such as bridge building, the provision of recreational facilities, participation in sporting events, youth work, concerts, repairs or improvements to public buildings in the countryside, blood donorship and any other activities which come to mind.

The services have many skills which can be put to work but some funds are necessary and if works are undertaken, they should be reasonably permanent in nature. There is, for instance, not much point in building a bridge in soft wood in the tropics and have it collapse eighteen months later.

If it is desired to expand Hearts and Minds work by visiting forces it would probably be desirable to have small civilian civil aid units attached to the larger service groups, bearing in mind that the countryman's wife, children and livestock are all very dear to him. Some work of this kind could easily, and in fact best, be done by women.

Finally, it should be stressed once again that gadgets, no matter how useful, should never, never be confused, as they often are, with foundations. Unless one can build on sound and progressive foundations all the most elaborate and most modern gadgetry in the world will be ineffective. □

Computers in Field Artillery

Lieutenant-Colonel D. R. O. Cowey,
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COMPUTERS are becoming smaller, more readily available, and cheaper each year, with the result that active consideration is being given to their use in many new fields in Australia — including that of the field artillery system.

The basic problem involving computation in the field is finding the line, range, and angle of sight between two sets of cartesian co-ordinates; one representing the target position and the other the position of the centre point of a battery. Finding line, range and angle of sight involves calculating the bearing, distance and angle of elevation or depression on one point from the other.

It is then necessary to connect these points with a curve of roughly parabolic shape which represents the path a selected, theoretically perfect, projectile will follow in still air in standard conditions. When the position of this path is calculated it is then necessary to determine the direction in both azimuth and elevation in which a theoretically perfect gun should be pointed to direct the projectile along the path. However, the bore of a practical gun, when layed, will not coincide with the first few feet of the calculated curve, because some movement of the bore occurs between the projectile beginning to move up the barrel and leaving the muzzle.

At present the theoretically perfect path of an idealistic projectile is recorded, in most cases, in the form of tables of figures giving angles of elevation at selected increments of range. When the data for a number of different cartridges for a particular type of gun is assembled in a printed manual the manual is called the firing table. Other methods of recording theoretical paths are graphs, inscribed cones or discs, which may form part of the sighting gear or plotting instruments, and magnetic tape.

For an individual gun firing an individual round at a selected target a number of corrections are necessary. These are to cater for:

(a) The condition of the gun.

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(b) The make-up and condition of the individual cartridge i.e. both projectile and propellant charge.

(c) The weather conditions at the time.

Of these corrections the largest is often due to the strength and direction of the winds blowing at various heights through which the projectile will pass on its way to the target.

It is usually possible to arrange for a number of rounds of ammunition of the same make-up to be available in the same conditions of temperature, paint smoothness, moisture content etc., at the same time, but in the extreme case — using a large accurate gun with complicated ammunition — it may be necessary to deal with each round individually.

In some cases all guns will need further corrections to take into account their displacement from the battery centre if the requirement is to lay the guns to hit a pin point target. Where a number of batteries are concerned a time allowance may also be necessary so that rounds from all guns will arrive at the target simultaneously.

With all targets a certain amount of intelligence must be taken into account. Examples are; crest clearance problems, location of friendly troops, and air flight paths of friendly aircraft. Crest clearance problems mean that when certain guns are called on to fire on certain targets it may be found that objects such as large buildings, trees, or hills, may be in the ballistic path. Since all gun-ammunition combinations have a zone i.e. no two rounds of ammunition can be relied on to follow an exactly similar path, the mere fact that a target is not within an area held by friendly troops is not sufficient to permit it to be engaged without examination. An estimate must be made of its distance from friendly troops and if necessary the target may have to be engaged with one end only of the zone of the guns. This implies that a number of rounds are deliberately wasted so that the shorter or longer falling rounds out of a group will be effective at the target.

It is possible for a large computer, adequately fed with intelligence, to automatically perform all the facets of providing the information discussed above. It is necessary however to draw some balance between the size of the computer, the amount of information it can be fed in the time, and the amount of human intervention which is desirable. The provision of a computer of appropriate size to carry out the functions discussed above is under active examination by a number of countries, including Australia.

It has been stated that the largest correction required may often be due to the direction and strength of the wind at various heights. It is therefore clear that it is not desirable to provide the means to do very precise calculations of many other corrections, if accurate weather information cannot be obtained.

The only feasible method now known of providing this information is to arrange for a balloon filled with a light gas to be released in the vicinity of the gun position. The rising path of the balloon may be tracked optically or by radar and the balloon may carry radio, which can transmit information obtained from instruments carried by the balloon regarding air conditions at the various height levels. The information obtained is processed into a telegram in standard form and is then transmitted periodically to officers requiring the information for ballistic calculations. There should be a degree of forecasting in the information since it should desirably represent air conditions in the middle of the interval at which the telegrams are sent.

A small computer of the type which could be used in the field.

It may be found possible to process all the information obtained about the weather by the use of a computer. If the interval at which weather conditions are sampled can be reduced and the results can be processed automatically, hence rapidly, it may be possible to provide means for gun position officers to interrogate the device containing the weather information at the time the information is required, rather than relying on a periodical and out of date telegram.

It will be seen from the above that effective gunnery in the field is based on the concept that it is possible to provide the gun position officers with a reliable standard ballistic path for individual standard cartridges under standard conditions. Since the manufacture of ammunition involves many engineering and chemical processes which are difficult to maintain to fine tolerances it is a formidable task to provide accurate standard ballistic paths for the many variations of projectiles provided to the artillery. Apart from the different types of shells provided it is usual for the same shells to have variations of filling and fuzes.

The present method of preparing firing tables is to first determine as accurately as possible the design of the ammunition to be used by a given gun. A considerable quantity of ammunition is then manufactured, a large sample of which is fired from as many guns as it is feasible to provide, under conditions which are as near to standard as can be achieved, and which are carefully and accurately recorded. Specific variations which may occur in manufacture are examined both theoretically and practically and firing experiments are conducted to determine the result. An example of this aspect is variation of projectile weight.

Statistical analysis of the results of the firing experiments is undertaken and the results are presented in the form of firing tables, which not only list the expected result of firing standard cartridges under standard conditions but also the corrections necessary if:

(a) The gun varies from standard

(b) The ammunition varies from standard

(c) The weather conditions vary from standard

As particular ammunition fired from a particular make of gun continues in service additional statistical information on the behaviour of the weapon-ammunition combination is accumulated and firing range tables are amended or added to as required.

Two sets of conditions affect the behaviour of a projectile:

(a) Those which exist within the gun prior to the projectile leaving the muzzle.

(b) Those which exist in the atmosphere.

The study of the effects of these conditions is known as the study of internal and external ballistics respectively.

In Australia the study of internal ballistics of Australian ammunition and weapons is carried out principally by the Defence Standards Laboratories (DSL) on information provided by the various ammunition factory laboratories. The facilities of the Proof and Experimental Establishments are available under the direction of the Superintendent of Proof Establishments (SPE) at Army Headquarters

to conduct practical studies of internal ballistic phenomena and irregularities. The study of external ballistics of Australian ammunition is carried out mainly by SPE at Army Headquarters with the assistance of the Weapons Research Establishment (WRE).

External ballistic information is obtained from the Proof and Experimental Establishments at Port Wakefield and Graytown, and this information, together with that on internal ballistics from DSL, is processed by the use of an electronic computer operated by WRE at Salisbury in South Australia. By this means SPE is capable of preparing firing tables for any new conventional gun-ammunition combination. One firing table has been prepared by the present organization and has gone to print and two more are nearing completion.

Most common types of artillery, mortar, and armoured vehicle ammunition are manufactured in Australia to overseas design.

From the foregoing it will be clear that it is necessary to maintain tolerances on design features to obtain as near as possible standard i.e. firing table performance. It is the responsibility of the Army Design Establishment (Equipment Information Section) to maintain a record of the design (pattern) of all types of ammunition manufactured. The pattern is distributed to factories by means of technical data packages in the form of drawings and specifications for components, sub-assemblies, assemblies, and complete packaged cartridges.

It appears profitable to examine the control of distribution of the patterns by an automatic electronic system as is done in the United States.

It is the responsibility of the Army Inspection Service to ensure that factories maintain tolerance on design features in accordance with the pattern issued so that standard, i.e. firing table, performance is maintained. Hence a number of tests and checks and carefully judged advice are constantly required of Army Inspection Laboratories. A further check is made on all batches of ammunition manufactured by the firing of proof samples at Army Proof and Experimental Establishments. In the firing of samples of artillery ammunition the internal and external ballistic performances are examined independently.

Apart from meteorological conditions a shell may fail to arrive at standard range because it failed to receive the correct momentum from the events which occurred in the gun. It may also fail to arrive at its correct range because of events which occur during the flight through the atmosphere. Examples of these events are, instability because of incorrect shape, shedding of driving band, centre of gravity in the wrong position because of incorrect filling or assembly, and through a variety of other reasons. Therefore, in

addition to measurement of range, checks are made of velocity close to the muzzle and of pressure in the bore.

Painstaking observations are made, under the direction of the Commonwealth Bureau of Meteorology, to record all weather conditions which could affect the flight of the shell during proof firings; firing in extreme conditions is avoided.

Statistical analysis of proof results is undertaken, during which all non-standard conditions, other than those within the ammunition, are corrected. If the first sample is unsatisfactory a second is fired, after a review of the batch, and if this also is not sufficiently close to firing table performance the batch is rejected.

A common cause of unsatisfactory ranging is the chemical and physical properties of the propellant. Tests of propellant, including firing of standard projectiles in comparison with a standard lot of propellant, are undertaken at all stages of manufacture, and if propellant is not used immediately further tests are carried out during storage. The Director of Ordnance Services arranges check firings at intervals during its service life, of samples of stocks of ammunition held.

It may be profitable to examine whether computer processing of proof results could be undertaken in a similar way to that now done with firings for preparation of firing tables.

In conclusion, the use of computers for calculations in the field is under active consideration but the extent to which intelligence can be fed automatically into the calculations must still be the subject of long and careful examination. Computers and automatic distribution of information may be of considerable advantage in the handling of meteorological information but investigation of this aspect is just beginning.

The analysis of experiments to aid the preparation of firing tables is, to a large extent, already being carried out by a computer in Australia. The automatic processing of design information from the Army Design Establishment to factories will probably be of advantage in Australia but has not been examined in detail. Consideration could well be given to the analysis of proof firing results, in a similar way to the analysis of firings in aid of the preparation of firing tables. □

An Introduction to Operations Research

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Introduction

IN a former article[1] in the AAJ the author indicated that network analysis was a small facet of operations research (or operational research in the British terminology). Also following Lt-Col Alun Gwynne Jones[2], the place of operations research within the five categories of military analytic method was shown. To recapitulate, these five categories of analysis were as follows:

(a) Political analysis.
(b) Conceptual analysis.
(c) Systems analysis.
(d) Operations (or operational) Research.
(e) Technical research and Development.

It is proposed briefly to outline the nature of operations research, to list the various management tools and aids which come within its scope and to explain the military application of operations research. Operations research is commonly known as OR or Opsearch but will be referred to in this article for the sake of brevity as OR. (The height of familiarity in the subject is reached when one refers to oneself as an Opsearcher).

It would be idle to pretend that there was not already an abundance of civilian and military literature on the subject of OR. Most people would be surprised at the recent upsurge in writing on the subject and the range of books which is available in any respectable library. Therefore, to use the words of Dr. Merrill M. Flood[3], this

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He has served as a troop commander with the Maralinga Range support Unit (1958-59), with 21 Construction Squadron (1959-61), and for 21 months was seconded to the RAAF for duty with 5 Airfield Construction Squadron. He was with FARELF from 1962 to July 1964, first as OC 4 Troop and later of 2 Troop RAE, 11 Field Squadron RE, until posted to the School of Military Engineering Liverpool. After a period as OC 23 Construction Squadron, he was posted to Vietnam in March this year as OC 17 Construction Squadron.

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article is essentially expository in nature and is intended as an elementary introduction to the field for those with no prior knowledge of it. Even for those with some previous contact with the subject, this article might be helpful in sorting out some of the terminology.

Unlike Dr. Flood I shall not be appending an extensive bibliography to this article for those who wish to delve further into the subject; I shall evade the responsibility of selecting the best of the literature which has appeared since 1958 and merely mention the existence of the Operations Research Society of America which has produced five major publications in OR. Publication No 4 is 'A Comprehensive Bibliography on Operations Research') prepared by the OR Group, Case Institute. The various volumes of Publication No 5 ('Progress in Operations Research') are helpful in tracing the development of the various techniques of OR.

Definition

Before mentioning any alternative definitions of OR, it will be again best to recapitulate. OR was stated to be simply the application of scientific method to management. It is a tool for providing management with the facts and figures required for making effective decisions. The principles and steps underlying OR are the same as those underlying a military appreciation except that there is a wider application of academic disciplines. The analysis of factors is performed more mathematically and there is extensive use of computers and data processing.

We shall now compare this definition with other definitions and in so doing attempt to expand our knowledge and understanding of OR.

The simplest definition is that mentioned by the Australasian Institute of Cost Accountants,[4] that is '. . . really means a scientific substitute for commonsense'. Now the attitude of most Service officers is that when they read this definition they 'switch off' immediately and say that commonsense will do them. They do not want any scientific substitute. They fail to recognize, however, what has been probably mentioned to them many times and that is, that scientific developments in equipment and communications have proceeded at a faster rate than any one human mind is able to grasp. Therefore, even with the most highly developed ability to find commonsense solutions to problems an officer is not necessarily able

[1] 'Network Analysis in Planning: A Military Analytical Approach' by Maj M. M. van Gelder, AAJ No 219 August 1967.
[2] 'The Organization of Defence Studies' (lecture given at the RUS Institution by Lt-Col Alun Gwynne Jones (now Lord Chalfont), *RUSI Journal*, May 1964.
[3] In 'Operational Research in Practice'. Report of a NATO Conference (Pergamon Press 1958).
[4] 'Operations Research' Australasian Institute of Cost Accountants. Revised Editing July 1963.

to cope with a modern complex military situation. The definition above is a little faulty in that it should read 'a scientific *aid* to commonsense.' The problem then is merely to persuade the reluctant officer to accept scientific management aids to assist him with his commonsense decision making.

The Institute of Cost Accountants considers the following definition as probably the best:

'OR is the use of analytical methods of the physical sciences involving the collection and analysis of information about operations for providing management with a quantitative basis for making executive decisions.

'It helps single out the critical issues which require executive appraisal and analysis and it provides a factual basis to support and guide executive judgment.'

This definition is satisfactory as far as it goes, but it does not give any clues as to the identity or nature of the analytical methods.

The following definition[5] is, I believe, the most explanatory and at the same time the most military oriented.

'An *operation* is a pattern of activity of men, or of men and machines, engaged in carrying out a co-operative and usually repetitive task, with pre-set goals and according to specified rules of operation. The scientific study of operations is called *operations research*. Because men are involved in operations a considerable amount of variability occurs between samples of similar operations; but because of their repetitive nature these variations can be systematized by the use of *probability theory*. By studying similarities of pattern, predictions about one operation can often be made from studies of other operations, isomorphic with the first, and thus the concept of "repetitive nature" can be generalized.

'OR is not just an exercise in probability theory however. It is a scientific study in its own right, using experimental as well as theoretical techniques to study a natural phenomenon; an operation. Its object is to understand the behaviour of various operations by the appropriate use of observation, controlled experimentation and theoretical analysis, so as to predict the operational result of changes in operating rules or in equipment, and thus better to control the operation and improve its result.'

It would be almost presumptuous to paraphrase or expand upon the above description of OR. I shall have to make some comment however because of the introduction of the expression 'probability theory'. Probability is of course the likelihood of the occurrences of various possible outcomes, but this article is not the place for a

[5] From 'Notes on Operations Research' Assembled by Operations Research Centre MIT (Crosby & Lockwood 1959).

formal discussion on probability theory, which can be both complex and interesting in its ramifications. It does, however, set the stage for the humbling notion that all the military operations which we previously thought were so different and so individually demanding in their solution or execution are in fact part of a pattern. The particular component of an operation, be it an infantry patrol or a bridge-building operation, are constant in nature but there is a degree of probability of, say the occurrence of a Viet Cong ambush on a particular type of road convoy, but by 'opsearching' we arrive at techniques designed to improve the safety of road convoys.

The basis of OR therefore seems to be an inherent respect for the value of statistics and the mathematical manipulation of those statistics. Fortunately it will be found that the basic concepts of the mathematics involved are 'simple and intuitively obvious, and the only source of complexity is the quantitatively large number of variables, most of them expressing minor aspects of a major problem . . .'[6]

Analytic Tools of OR

Some of the more important analytic tools of OR are contained in the following list. They are shown alphabetically and not in order of importance in respect to military application. There is quite a deal of overlapping in the terms and several terms simply describe slight variations of the same technique. The list has been made reasonably exhaustive, however, to enable the reader to note the growth of the OR terminology. Some of the terms are perhaps a little incorrectly called 'analytic tools of OR' as they existed as techniques before the expression 'operations research' was devised, but they have become generally associated with OR.

An accepted arbitrary grouping[7] of the analytic tools of OR may well be within or associated with the following techniques:

(a) *Probability techniques*, which are used in decision making under conditions of uncertainty.

(b) *Programming techniques*, which are algebraic means of reaching rigorous mathematical solutions of problems involving the complex interaction of many variables.

(c) *Simulation techniques*, which are systematic trial and error means of solving problems and especially of finding the implications of different policies and alternative external events.

The list of OR analytic tools is as follows:

- *Dynamic Programming*
- *Game Theory*

[6] 'Logistic and Transport Operations' by Dr. Glen D. Camp as appeared in *Operational Research in Practice* Report of a NATO conference (Pergamon Press 1958).

[7] *New Techniques for Management Decision Making* by Franklin A. Linsdsay (McGraw-Hill 1958).

- *Linear Programming*
- *Markov Processes*
- *Mathematical Programming*
- *Monte Carlo Method*
- *Network Analysis (CPM, PERT and Retometry)*
- *Operational Gaming*
- *Optimization*
- *Probability and Statistics*
- *Queuing Theory (or Waiting Line Theory)*
- *Search Theory*
- *Simulation Techniques*
- *Stochastic Processes*
- *Sub-optimization*
- *Symbolic Logic (or Mathematical logic)*
- *Theory of Value.*

Definitions of OR Terms

The following does not aspire to being an authoritative dictionary of OR terms but it is hoped that it assists the reader to isolate the terms and prevent confusion in their use. There is considerable value in being aware of the existence of terms even if they cannot be fully understood. All education begins with a recognition of terms or elements followed by an understanding and finally their application. The definitions have been either selected directly from references, or are amalgams of the best definitions taken from several references.

Dynamic Programming

Dynamic programming is a method of solving multistage programming problems in which the decisions at one stage become the conditions governing the successive stages.

Dynamic programming problems are ones which are generally difficult to work out intuitively but can be solved by progressive decisions in a given pattern or by use of functional equations. Typical problems are the 'Chessboard Problem', the 'allocation problem' and the 'equipment replacement problem'.

The Principle of Optimality is generally acknowledged as the basis of dynamic programming.

Game Theory

As used in OR terminology, the theory of games generally referred to is that developed by the late John von Neumann and by Oskar Morgenstein. The theory of games provides a rigorous means of determining in certain situations of conflict that strategy which is most likely to achieve the highest pay-off. Because of their formal rules of play and of pay-off games are, by and large, the simplest situations of conflict.

The simplest example of game theory is the case in which there are only two conflicting interests and in which the losses of one are always exactly equal to the gains of the other. This is termed a 'two-person zero-sum game'. Nearly every conceivable practical application of game theory involves a non-zero-sum solution because the gains of one are seldom equal to the losses of the other. Often the number of interests involved will be three or more, and the number of strategies available to each will be large.

The general consensus is that game theory, although highly developed by theorists, is very little use at present in solving complex problems.

Linear Programming

The general problem of linear programming is that of maximizing (or minimizing) a linear function, subject to a set of linear restrictions, in the form of equations and/or inequations. In business the linear function maximization may be the maximization of the profit formula for example, and the linear restrictions describe the manner in which several limited resources may be combined. Linear programming is the analytic tool available for finding the optimum combination of resources from a large number of feasible combinations.

The most common types of linear programming problems are as follows:

(a) Transportation and assignment problems.
(b) Allocation of limited resources among competing activities.
(c) Problems involving time.
(d) Other types of problems involving range of probabilities, production, warehousing and distribution.

One is tempted to ask how government and private enterprise have existed in the past without the remarkable tool of linear programming. It is generally acknowledged however 'that older cut-and-try methods of scheduling production, especially when done by the same person over a period of years, often have been coming quite close to the optimum as subsequently determined by linear programming'.[8]

Notwithstanding, new products and new production techniques do demand a rapid and accurate means of optimization. An interesting but simple graphic approach to a linear programming problem is contained in a modern school text-book 'Understanding the New Mathematics' by Evelyn B. Rosenthal.

Markov Processes

It is difficult to describe a Markov process in non-mathematical terms but it may be described as a type of behaviour indicating

[8] Lindsay, *New Techniques for Management Decision Making.*

how external and internal forces change the state of a system and how often the system changes from one state to another. The state is a conditional event, its probability at a certain time being dependent upon specification of the value of the probability at some specified base time. A simple Markov process occurs when the probabilities of change of state at time t are simple functions of the state at time t.

A sample sequence of transitions is called a Markov chain.

The simple Markov process has significance in connection with queues. One may be forgiven for thinking sometimes that the Services invented the term 'queue'.

Mathematical Programming

Mathematical programming is essentially the general class of problem of which linear programming is a sub-class. It refers to techniques for solving a general class of optimization problems dealing with the interaction of many variables, subject to a set of restraining conditions. Such problems are called allocation problems[9] and arise when:

(a) There are a number of activities to be performed and there are alternative ways of doing them and
(b) Resources or facilities are not available for performing each activity in the most effective way.

The allocation problem is to combine activities and resources in such a way as to maximize overall effectiveness.

A subclass of the general allocation problem is those involving linear effectiveness functions and linear restrictions and is known as linear programming.

The mathematical programming field extends beyond the linear programming field particularly in directions in which the latter is inadequate. 'The linear programming model is static and non-probabilistic, whereas the actual situation is dynamic and stochastic'.[10]

Without any apologies for lack of further information[11] some of the most widely used methods of mathematical programming are as follows:

(a) Distribution Methods
  (1) 'Stepping-stone' method
  (2) Modified — distribution method
  (3) Vogel's approximation method.
(b) Simplex method (not very simple!)
(c) Approximation methods.

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[9] *Introduction to Operations Research* by Churchman, Acknoff and Arnoff (Wiley 1957) p.275.
[10] Dr. Merrill M. Flood.
[11] See however *Elementary Mathematical Programming* by Robert W. Metzger (John Wiley & Sons 1958).

An interesting facet of mathematical programming is that there are normally many equally optimum programs allowing a choice of the program actually put to use. There is therefore still scope for executive decision after the mathematical programmers have done their part.

Monte Carlo Method

The Monte Carlo technique is a form of simulation that provides experimental, as contrasted to theoretical, answers to problems involving the complex interaction of many random events. It often can be a useful element in a simulation solution.

Without being able to quote the authority for the following historical note, it is believed that Monte Carlo was the code name given by von Neumann and Ulan to the mathematical technique which they applied to solving a category of nuclear-shielding problems which were too expensive for experimental solution and too complicated for analytic treatment.

Originally the concept referred to a situation in which there is a difficult non-probabalistic problem to be solved and for which a stochastic process may be invented which has moments and distributions satisfying the relations of a non-probabilistic problem.

More general acceptance has employed the term 'Monte Carlo' for any problem which is solved by use of a chance process.

Network Analysis

It is hoped that the network analysis technique has been adequately described in AAJ No 219 of August 1967.

A network is essentially the portrayal of a number of interconnected activities by means of arrows showing the sequences and dependencies of the various activities. A network can be manipulated by time processing and by inserting the restraints and this is called network analysis.

Terms which may be more familiar to readers are Critical Path Method (CPM) and Program Evaluation and Review Technique (PERT). These may be considered as variations of the general network analysis technique. CPM is deterministic in the sense that the network is established with historically determined estimates of activity duration. When things go wrong, then the network calculations are reviewed. PERT is probabalistic in that it uses 'expected times' and 'variances'. It has all the capabilities of handling uncertainties.

What should be stressed is the very wide application of the network technique. There are very few military spheres of activity involving planning which cannot use network analysis to great advantage. The normal outcry is that army planners have not got suffi-

cient time to worry about charts and networks. What is not realized is that the network charts and the isolation of the critical path of activities are designed to save time. Also it is not realized that the initial tedium of establishing the network is very quickly replaced by a frame of mind which commences automatically to establish networks in all planning processes and mentally at least isolate the critical activities.

Retometry is an all-embracing term covering network analysis techniques and is interesting because of its artificial origin which is attributed to P. Marsden and D. R. Moires of the UK Atomic Energy Authority.

To rationalize the large range of terminology associated with network analysis they decided to devise from first principles a new word — 'retometry' (L. rete, net; Gr. metron, a measure) which they defined as follows:

'Techniques which have as their fundamental basis the concept of graphical representation of the activities necessary for the achievement of the objectives of a project, with their logical interrelationships, and use this concept to analyse time or resource aspects of the system.'

Operational Gaming

Operational gaming is a trial-and-error method of simulating problems in which human players are involved. A situation is created in which two or more players with conflicting interests are involved, and the outcome is not completely deterministic.

For those who are familiar with the military tactics model room the outcome may not be theoretically deterministic but a most probable outcome is decided by an arbiter or directing staff. This leads us to a rather facetious definition of the word 'tactics' as the 'thought processes of the senior officer present.'

Optimization

This OR term is included mainly to deter people from using it loosely in the sense of maximizing or continually making greater — or always keeping costs to a minimum.

The problem of optimization may be expressed as that of maximizing or minimizing a given effectiveness function, subject to a given set of restrictions. It is essential that all restrictions or restraining conditions be taken into account in assessing the final optimum value.

Probability and Statistics

As mentioned before, apart from defining probability in the simplest way as the likelihood of the occurrence of various possible

outcomes, it is not proposed to explore further the theory of probability and the kindred subject of statistics.

What may be emphasized, however, is the enormous part probability plays in OR, because probabilities are no longer associated only with guesswork and uncertainty but can now be accurately measured or predicted. The distinctive approach of OR is the development of a scientific model of the system under study incorporating measurement of factors such as chance and risk. This enables us to predict and compare the outcome of alternative decisions, strategies or control.

Queuing Theory. (Or Waiting Line Theory).

Most OR writers do not attempt to define queuing theory but concentrate on describing the structural features of queues.

A large class of operational situations which can be described mathematically in terms of probability are called queuing operations. They are all concerned with the flow of people or equipment or messages flowing through a 'bottle-neck', where the arriving units sometimes pile up, waiting to get 'service' before they can continue on their way.

The following characteristics[12] are apparent:

(a) Some sort of unit which must be serviced, such as customers in a shop.
(b) Service which must be performed on them, which may or may not be independent of the number and type of customer.
(c) An arrival time distribution for the customers — usually a random or partly periodic distribution.
(d) Lastly, an exit procedure by which the units leave the service point.

There are two general types of problems. The first involves arrivals which are randomly spaced and/or service time of random duration. This class of problem includes situations requiring either determination of the optimal number of service facilities or the optimal arrival rate (or times of arrival) or both. The second is concerned with the order or sequence in which service is provided to available units by a series of service points and is called a sequencing problem.

Search Theory

A theory of research[13] has been developed to enable the adoption of an optimal strategy in the location of, say, enemy persons or devices. Its application to traditional methods of military search might be a more scientific approach to pattern of behaviour of the enemy being sought.

[12] 'Application of Operations Research to Industry' by Ellis A. Johnson (OR Office John Hopkins University 1953) p.24.
[13] *Notes on Operations Research* assembled by OR Centre MIT (Crosly and Lockwood, London, 1959). Chap. 2 'Search' by B. O. Koopman of Columbia University.

Traditionally, search operations have been based mainly on systematic search patterns in a geographical or area sense.

Simulation Techniques.

Simulation is a systematic trial-and-error procedure for solving complex problems. The basic technique is that of setting up a model of the real situation and then performing experiments on the model.

'Many management problems are so complex that it is practically impossible to find the single provably best answer. It may even be impossible to approximate the optimum by use of mathematical analysis. Under these circumstances good answers can often be found by simulating the interaction of important elements of the problem. Simulation offers the possibility of comparing many alternative courses of action and of assessing the profit significance of events over which management will have no control.'[14]

With simulation it is possible to use several criteria (time, weather, damage, efficiency, etc.) simultaneously without having at the outset to relate them quantitatively (as in mathematical analysis). It is very empirical in its approach rather than theoretical.

Stochastic Processes

The term 'stochastic' is loosely used for 'probabilistic' or 'random'. Strictly, stochastic should be used in an opposing sense to deterministic. A deterministic process or model can be predicted with certainty whereas a stochastic process includes an element of randomness or probability.

A stochastic mathematical expression would contain therefore both a deterministic component and a random component.

An expression to predict the fall of artillery shot could contain a determinate element e.g. temperature, and a random element e.g. variability of burning rate of propellant. Gunners who object to descriptions of their fire as random might accept the description of stochastic quite happily.

Sub-Optimization

Relating it to the definition of 'optimization' it is not difficult to perceive a definition of 'sub-optimization'.

What is apparent, however, are the advantages of occasionally sub-optimizing.

L. Tornquist of the Cowles Foundation[15] observed that the decision maker who tries to make only the best decisions may be beaten by a decision-maker who deliberately takes the risk of making some less-than-optimum decisions and as a result makes more and earlier

[14] Lindsay, *New Techniques for Management Decision Making.*
[15] As reported by Lindsay.

decisions. The truly optimal strategy contains a large number of approximately optimal decisions. Occasionally some bad decisions have to be tolerated if the decision maker is to increase the speed of decision making, and by studying the consequences of bad decisions it will be easier later on to find better decisions.

As General Eisenhower said in his United States TV interview as it appeared on ABC TV on 18 Jan 1967, 'The first principle of war is to win as quickly as possible.' To do this it may well be necessary to make a few sub-optimal decisions for the sake of speed.

Symbolic Logic

Symbolic or mathematical logic is a method of logical reasoning in formal mathematical terms. As a language of reasoning, it has a great advantage over verbal language in that it is designed to be rigorously free of contradiction and ambiguity.

It can describe and analyse very complex logical problems just as the more familiar algebra provides a symbolic means of describing and solving complex numerical problems.

An example of mathematical logic which is now being taught in schools is as follows:

A + B means 'either A or B'
AB means 'both A and B'
A' means 'not A'.

Theory of Value

Decision is based on two types of consideration; consideration of probability, that is, the probability of occurrence of various possible outcomes, and consideration of the worth, or value, of these outcomes to the executive. The product of probability and value summed over all possible outcomes is the expected value, or simply the expectation with respect to the given course of procedure.

The problem of elementary decision is to ascertain the course of action of greatest expectation.

Some Military Applications of OR

It is not proposed to give an example, either historic or anticipated, of the military application of each analytic tool of OR. A few examples may however whet the appetite of the interested reader.

Operations research is acknowledged to have had its humble beginnings in the United Kingdom during the Second World War when it made its contribution to the winning of the war at the hands of the 'back room boys'. Although it was probably not referred to as operational research at the time, OR techniques made their appearance in submarine and aircraft tracking, bombing patterns and other fire effectiveness studies.

In considering areas for the military application of OR 'the application of science should not be restricted to ultra modern and sophisticated areas, but should be extended to any area where a need exists and where there is a reasonable expectation of valuable results'[16]:

Equipment Replacement

Although one of the additional complexities in military situations is the rapid obsolescence of equipment, it is still possible to decide when it is of the greatest economic advantage to replace a machine, the usefulness (and therefore output) of which declines with age.

This can be done by taking into account the conditions of equipment replacement and identifying the objective or function which it is required to maximize. An optimal replacement policy is used throughout.

Such a problem may be handled through dynamic programming techniques.

Transportation and Logistics

The 'transportation problem' is one of the subclasses of linear-programming problems for which simple and computational procedures have been developed to take advantage of the special structure of such a problem. It is probably the most important special linear programming problem in terms of relative frequency with which it appears in application. The transportation problem as it is now known was first formulated by Hitchcock (1941) who considered the problem of minimizing the cost of distributing a product from several factories to a number of cities. The technique, as later independently formulated[17], was used in the well-known 'tanker problem' concerning the choice of shipping routes for a fleet of military tankers charged with the task of making certain specified deliveries between designated pickup and discharge points.

It is not difficult to visualize a number of military applications of the general transportation problem. It could be used for example in the location of stores depots to optimally serve other military installations.

Four military examples selected from a broad range of problems[18] to which linear programming methods are being applied are as follows:

(a) Provide spare engines for military aircraft as replacements for failed engines, so as to minimize costs due to expected shortage of spares.

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[16] 'Logistic and Transport Operations' an article by Dr. Glen D. Camp, the George Washington University.
[17] Koopmans (1947) and Koopmans and Reiter (1951).
[18] Dr. Merrill M. Flood.

(b) Assign bomber sorties from bases to targets so as to maximize total bomb tonnage on targets.

(c) Shift earth within a given region so as to conform to a specified topography for the least total effort.

(d) Design and utilize a complex communications network with given types and quantities of facilities for handling messages in the most economic manner.

(e) Choose ammunition type in face of uncertainty regarding type of opposing armour so as to maximize probability of destruction.

Queuing Theory

There is an extremely wide range of military problems which can be solved by application of queuing theory. Wherever there are customers in the form of soldiers, cargo-carrying trucks or tanks awaiting service in some form or other, there exists a potential queuing problem which should deserve some consideration.

Most mistakes in providing queue service facilities arise from a non-recognition of a general characteristic of queues, that is, that full utilization of the service facility is incompatible with speedy service for the unit. As long as the service rate is much larger than the arrival rate of customers, and therefore their inverse ratio is low, the service channel is more than adequate to accommodate the arrivals. The chance of their being a queue is quite small and few arriving units have to wait for service.

If, however, the service channel can just barely keep ahead of the average rate of arrival (the ratio above approaches unity) there is a good chance of there being a long queue of waiting units.

As the ratio approaches unity, the queue length (believe it or not) goes rapidly to infinity.

For the simple system (single channel, all units going through the service, first come first served) if the service facility is busy more than three quarters of the time most of the arriving units will have to wait in a queue more than twice the mean service time before service is started on them.

If it is costly to keep the customers (soldiers, trucks etc) waiting the ratio should never be close to unity.

On good service, if there are expected eight customers per hour then a reasonable service facility might provide for ten customers per hour. Even then the probability of having to wait is still $\frac{3}{5}$.

There is obviously a necessity for manipulating the service facility so that an optimum balance may be achieved between the cost of idle facility time and the cost of idle customer time.

Assignment Problem (Allocation to Corps)

As mentioned before the assignment problem is one which can be solved using linear programming techniques.

The following problem is simply an adaptation of the well-known travelling salesman problem.

The Army is faced with the problem of assigning soldiers to Corps. Each soldier has particular characteristics that make him better suited to some Corps than to others. But, as some soldiers are also generally superior to others, the Army cannot have the single best soldier in each Corps. The Army's problem is to assign the best soldier to a particular corps and to assign the second or third best to the remaining corps and so on so that total 'product' will be maximized.

If the Army is able to set down some quantitative measures of the relative productivity of each soldier in each corps it can use a pattern.

As I have not attempted this type of assignment problem I am not able to comment on its practicability although it would appear to have potential.

Simulation

Once the model of any particular military operation is established, it is necessary to simulate the progress of the operation. This is done by choosing some significant changeable factor and selecting changes randomly by use of a computer or some simple random device such as the throwing of a dice.

With the computer, it selects at random one value for each variation according to a weighted distribution. For example if the probability that a guerilla mortar attack on a remote outpost will be delivered at night is 0.45 (45 times out of a 100 a mortar attack will be delivered at night), that it will be delivered at dusk is 0.12 and that it will be delivered at dawn is 0.23, the computer will do the equivalent of drawing at random one slip of paper from a jar in which there are 45 marked 'darkness', 12 marked 'dusk' and so forth.

To take a different example, if the stores handling facilities at a depot were to be investigated, the throwing of a dice could represent the random arrival of various stores loads — the throwing of 1, 2, 3, 4, 5 and 6 could represent respectively 45, 50, 55, 60, 65 and 70 tons in an hour. A table showing initial holdings, delivery, handled and carryover could be easily established.

Assessing Enemy Controlled Areas

As a simple, interesting and dangerous example of a stochastic experiment to solve a non-probabilistic problem, we adapt the well-known 'water area problem' and consider the problem of finding the

area of an irregularly-shaped active enemy controlled area. Enclose the approximate controlled area in a rectangle of area R and randomly select points (x, y) in the rectangle by selecting x and y from the appropriate uniform distribution along two sides of the rectangle. A visit by a search and destroy patrol by helicopter at each of these randomly selected points indicates 'enemy contact' or 'no enemy contact'.

The product $R \left(\frac{\text{no. of points of enemy contact}}{\text{total no. of points visited } N}\right)$ approximates the enemy controlled area. Since this approximation is statistical in nature its error is usually measured by the standard deviation.

Network Analysis

At the risk of being accused of labouring the issue there is a wide range of application of the network analysis techniques in military planning.

Convoys

Most people would have heard of the thought and experimentation which went into the calculation of the size of convoys which traversed the Atlantic during World War II. What most people would not realize, however, is that the adopted solution of the problem was later found to be faulty according to recognized desirable objectives.

'An example of a problem "sub-optimized" with an incorrect objective is a World War II operations research study which showed that the larger a convoy of ships, the smaller would be the losses resulting from enemy submarine action. Although the conclusion proved to be correct, the solution failed to meet the real objective, which was maximum delivery of supplies to Europe. As the size of the convoys was increased, a point was reached beyond which the over-all deliveries were actually reduced; for the increased delays of loaded ships waiting for convoys to assemble, and the increased delays in unloading in congested British ports, more than offset the reduction in sinkings. A study that, instead, took as its objective the maximization of tonnage delivered to Europe before December 1944, would have found the optimum convoy size that minimized the combined losses arising from loss of ships and from port delays.'[19]

Conclusion

It is hoped that the definitions are sufficiently complete, and the range of military application sufficiently broad to encourage in the reader an interest in OR. If the officer chooses not to use the scientific aids to commonsense, then it is highly desirable that he inculcate in his subordinates a desire to explore the usefulness of OR techniques.

[19] Lindsay, *New Techniques for Management Decision Making.*

The professional military man is rarely obliged to be cost conscious in other than minor accounting, and this state of affairs is used by many to explain away traditional, expensive and cumbersome military methods. It has been suggested that one way of measuring the cost of delay was to adhere to the old adage that 'time is money'. In most of the OR analytic tools or techniques where the optimizing factor is expressed in terms of money cost, the military mind need not falter but simply substitute time cost for money cost. There is a tendency in the Service to be organized to prevent mistakes, but of course too often at the cost of increasing delay.

It is not suggested that OR is the immediate remedy to a number of defects in our military organization. For all the 'opsearching' which has gone on in the defence departments of the United States there appear to be some enormous costly mistakes made in the design and procurement of weapons systems, the logistic support for the Vietnam war and the actual conduct of the Vietnam war. What we should be asking ourselves is how much more costly and wasteful would have been the large defence complex of the United States if it had not been for the scientific approach of systems analysis and OR.

The study and implementation of OR techniques can produce some immediate tangible results, but its most worthwhile results come from an inculcation of a state of mind in our military managers and their acceptance of the scientific aids which OR makes available.

One of the strongest grounds in favour of the increased adoption of OR techniques in the Australian Services is that, in the space of a few years, OR has been accepted almost universally in large business as an invaluable aid in the solution of research and industrial problems. The writing of this paper is therefore only partly prompted by a wish to introduce the subject of OR to interested military readers. Its other purpose is to ensure that the Army keeps abreast of the OR techniques now being actively exploited by civilian practice. □

Adventure Training

Major H. L. Stewart,
Royal Australian Artillery

ADVENTURE Training can be defined as an activity designed to meet a physical challenge through the collective efforts of a team. The keynote of successful Adventure Training is the use of teamwork to combat, over a prolonged period, the hazards of difficult terrain and climate. This type of activity has a natural appeal to most young men and certainly to those motivated towards the Army. By developing the qualities of self discipline, self reliance, initiative and team spirit, Adventure Training can play a valuable part in preparing these young men to be junior leaders.

This type of training is directed to Duntroon where the advantages are twofold. Firstly, most cadets enter directly from school, and therefore have little knowledge of the world at large. Secondly, an increasing amount of a cadet's time must be devoted to academic studies at the expense of military training. In this context it seems a pity that the opportunity for organized Adventure Training is denied them — during a four year period relatively free from either professional or domestic responsibilities.

If it is to be of any real value, Adventure Training must fulfil three requirements. It must be voluntary, and therefore sufficiently interesting to encourage the maximum participation: it must be organized in such a manner that the desired qualities are developed: it should produce a useful result in relation to either Military Training or Civil Studies. The two types of Adventure Training which fulfil these requirements are expeditions and battlefield tours.

We are fortunate in Australia in having extremes of terrain and climate. Large areas have never been fully explored, and provide opportunities for many types of interesting and productive expeditions. This feature of our country has already attracted a Combined Services Expedition from the United Kingdom to the 'dead heart' of Australia. For those not attracted to the inland there are oppor-

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Major Stewart graduated from the Royal Military College in December 1953 and was allotted to the RAA. After several regimental postings he served with 101 Fd Bty (1959-61) during the Malayan Emergency. Adjutant of the Jungle Training Centre until 1963 he was then a member of the Army Team of Lecturers until attached to AAS (UK) (Interchange Officer) on duty as an instructor at RMA Sandhurst. On his return to Australia he was attached to Southern Command until attending the Staff College in 1967 where he wrote this essay. In February of this year he went to HQ AFV as DAAG.

tunities for a variety of expeditions such as diving, canoeing, shooting and mountaineering. With thorough organization all these projects can serve to provide background experience to normal training and studies.

Battlefield tours have a more direct application in the field of military history studies. The Second World War battlefields in Papua and New Guinea are becoming more accessible each year, while those in Malaysia need not be beyond our resources. Properly conducted tours of these areas would do much to bring the official histories to life, and provide a sound basis for the professional study of military history.

However, before mounting such Adventure Training projects some basic problems must be overcome. The first and perhaps the fundamental problem is that of finance. Even if one assumes that the bulk of the rations can be provided from within our own resources there is still the problem of special equipment and transport. The interest value of any project to the cadet will decrease in direct proportion to the amount of money he is asked to contribute. If we accept the premise that Adventure Training should not involve a cadet in any additional expense then obviously the money must be provided by the Royal Military College. This is perhaps not such a difficult problem as it may appear. The primary source for the initial purchase of equipment is Treasury. However, another fruitful method of offsetting financial expenses is by the use of foundations.

Most universities and similar institutions obtain a great deal of money from foundations, and it is only a matter of guiding the benefactor along the desired path. For example, money contributed for such things as military history prizes could perhaps be better spent to offset part of the cost of visits to selected areas. There are many variations to this theme. The main point, however, is that once the capital outlay for equipment has been met, and provided that equipment is properly maintained, the running costs should be relatively small.

The cost of transport is a rather more complex problem but in this regard the Army is in a better position to offset these costs than other organizations. Transport involves both the provision of vehicles, and air movement. In the former case the type of vehicle required is already in service with the Army and we have well established links with the industry concerned. Most firms are prepared to loan vehicles to reputable expeditions. This serves the dual purpose of advertising their product and obtaining user trial reports. The preparation of a report seems a small price to pay in return for the use of vehicles — and perhaps even petrol — either free or at a substantial discount.

The second element of transport is air movement. This is particularly related to the mounting of battlefield tours and expeditions outside Australia. There appears to be no valid reason why the transport could not be provided by the RAAF. We have now reached the stage where service aircraft are constantly moving to, or linking up with, aircraft to New Zealand, New Guinea and Malaysia. The number of people who would be involved in this type of project would not impose a significant burden on the resources of the RAAF. At the same time their co-operation would result in a substantial reduction in the costs involved.

These problems of co-ordination and control would require the appointment of an Adventure Training Officer. However, much of the value gained from these schemes lies in the maximum participation by cadets during the planning and organization stages. All that would be required in the case of expeditions is a small committee to control finance, equipment, and co-ordination with outside organizations. In the case of battlefield tours a suitably experienced officer would be required to accompany each group, to conduct the cadets around the area visited.

Obviously it would not be practicable for every cadet to participate in Adventure Training each year but the opportunity should exist for a cadet to take part in at least one project during his final two years. Also the value gained from these projects should not be confined to those actually participating. If the aim of each expedition or tour is clearly established, and the project properly organized, each would result in reports, articles, lectures and films, to benefit everyone. In this way not only would the maximum value be gained from projects; they would also serve to stimulate the interest of the younger cadets.

There is no reason why an established Adventure Training Scheme should not embrace the Army as a whole but it has special relevance to Duntroon, where the training of junior leaders must always remain one of the college's basic responsibilities. The correct application of the concept of Adventure Training will result in the production of young officers who are better equipped to face the practical realities of their profession. □

THE QUICKSAND WAR: PRELUDE TO VIETNAM, by Lucien Bodard, translated and introduced by Patrick O'Brian, (Faber and Faber, London, 1967, 45s sterling).

Reviewed by Major R. J. O'Neill, Lecturer in History at the Royal Military College, Duntroon.

THE right of a record of personal experiences to be regarded as history can be a fascinating question. When the author has played a leading role in the outcome of important events the matter is seldom in doubt, for even if his account is biased, the fact that the author publicly describes his actions and his motives ensures that his writings contain at least a few scraps of history which posterity cannot ignore altogether. However, when the author was merely an observer of the events he describes the possibilities widen. He may be a Thucydides, committed to the fortunes of one party, yet endeavouring to record events so that readers at some time distant in the future might understand the Peloponnesian War. Alternatively he may be a Marx, analysing his environment in such a way as to inspire a specific course of future action or belief amongst his readers.

Students of events in Vietnam have been confronted with this question by almost every book which has appeared on the subject since 1945. Is this book an objective record of the past or is it trying to stir up feeling towards the implementation of a particular policy? Is it a mixture of both ingredients and how much of each has the author combined? Lucien Bodard, a French journalist who worked in Indo-China from 1946 to 1950, undoubtedly has ample stocks of both ingredients from which to draw, and like Bernard Fall, Denis Warner and Malcome Browne, he has mixed them judiciously to produce an absorbing narrative, easy to read, exciting, coherent and leading towards a readily acceptable conclusion which casts the French as the 'bad guys'.

Bodard's main contribution to history in *The Quicksand War* is to provide detailed pictures of life in Saigon between 1946 and 1950 and of the fighting on the Chinese border in northern Tonking in 1949 and 1950. Most books on Vietnam or Indo-China under French control concentrate on the years of the big battles — 1950 to 1954 — and gloss rapidly over the vital events which precipitated the war and the reasons for the French failure to crush the Viet Minh before they received the decisive assistance of the Chinese communists. Until one reads Bodard it is difficult to discover the realities of local politics

in Saigon and Cholon, the role of the sects and, most important, the significance of the piastre rackets which provided so much of the motivation for individuals — officials, soldiers, businessmen, French, Vietnamese, Chinese or Macanese — to keep supporting the war. Bodard has also provided the only detailed account of events on the Chinese border leading up to the flood of Giap's regiments which engulfed the long line of isolated French outposts in late 1950. This account is particularly useful because it casts doubt on yet another statement made by Edgar O'Ballance in *The Indo-China War, 1945-54*, and passed on by Joseph Buttinger in *Vietnam: A Dragon Embattled*, that the garrison of Lao Kay, the French post which controlled the Red River Valley entrance to Tonking, was overcome by the Viet Minh in February 1950. Bodard describes both the evacuation of the garrison and the reasons which led to this withdrawal and it seems most likely that this evacuation occurred in November, after the fall of the border forts of Cao Bang and Lang Son, in October, rather than eight months beforehand. However, the author's judgement of omissions necessary to keep the tale spiced with sensation, have robbed his book of any hope of definitiveness in its field. Alongside lengthy, coquettish accounts of high life in Cholon appear brief mentions of the Ho-Sainteny Agreement, the Dalat Conference, and the Along Bay meeting between Xuan, the ruler of Cochin China, Bao Dai, the Emperor of Annam in exile, and the French in June 1948. Hence, *The Quicksand War* is to be regarded more as a supplement to Donald Lancaster's renowned *Emancipation of Indo-China* than as a complete history of the war in Indo-China between 1946 and 1950. □

ARMY CIVIC ACTION IN SEPIK DISTRICT

The word 'Army' is taking on a new meaning for the people of the Sepik District. The reason for this new Army 'image' is civic action —something which is becoming synonymous with Army exercises and patrols throughout the Territory.

'A' Company of the 2nd Battalion, Pacific Islands Regiment, based at Moem Barracks, near Wewak, has just completed a civic action programme, which followed a company exercise in the Lumi area.

Tasks undertaken by the soldiers included the construction of sections of road between the villages of Willium and Tangei, building a 40ft by 60ft community centre at Waigoitei Village and a new village aid post at Telotei Village.

All projects were carried out in conjunction with the Department of District Administration and with the help of villagers themselves.

Some tasks were only begun by the soldiers and left for the villagers to complete, the aim of Army civic action being 'to help the people to help themselves'.

The soldiers also helped install rainwater tanks at another village. The Battalion's next civic action venture will be a patrol to New Ireland later this month.

— Dept. of External Territories *Papua and New Guinea Newsletter*, 2 May 1968