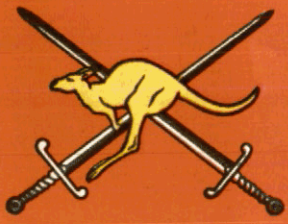
AUSTRALIAN ARMY JOURNAL



No 145

JUNE

1961

Notified in AAOs for 30th June, 1961

MILITARY BOARD

Army Headquarters
Canberra
1/6/1961

Issued by Command of the Military Board

Distribution:

The Journal is issued through Base Ordnance Depots on the scale of One per Officer, Officer of Cadets, and Cadet Under Officer.

FRONTISPIECE

When France surrendered to the Germans in 1940 the local authorities in Syria adhered to the Vichy Government though there were many ardent followers of General de Gaulle in the country. After the disastrous British expedition to Greece and the loss of Crete, it became increasingly apparent that German agents, with the active co-operation of the Vichy authorities in Syria, were using the country as a base for subversive activities throughout the Middle East. The existence of this hostile base on the northern flank of the British position in the Middle East could not be accepted, while General de Gaulle was anxious to win possession of the country. Consequently in May 1940 the British Government ordered their Commander-in-Chief in the Middle East to occupy Syria as soon as possible.

The operation was undertaken by 1 Australian Corps (7 Australian Division and elements of 6 Australian Division), British, Indian and Free French formations. Opposition was much stronger than expected, and a month's hard fighting over difficult mountainous terrain was required to bring the country under Allied control.

The picture shows part of an Australian field regiment in action against the Vichy forces.

AUSTRALIAN ARMY JOURNAL

A Periodical Review of Military Literature

Number 145 June, 1961

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Syria, 1941

Photo Australian War Memorial, Canberra.

AUSTRALIAN ARMY JOURNAL

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The AUSTRALIAN ARMY JOURNAL is printed and published for the Directorate of Military Training by Wilke & Co. Ltd. The contents are derived from various acknowledged official and unofficial sources and do not necessarily represent General Staff Policy.

Contributions, which should be addressed to The Editor, Australian Army Journal, Army Headquarters, Albert Park Barracks, Melbourne, are invited from all ranks of the Army, Cadet Corps and Reserve of Officers. £5 will be paid to the author of the best article published in each issue. In addition, annual prizes of £30 and £10 respectively to the authors gaining first and second places for the year.

POLITICAL EDUCATION IN THE ARMY

Captain E. M. McCormick,

Royal Australian Infantry

"Politics is war without bloodshed"—*Mao Tse Tung.*

TODAY the problems of nuclear war are always before us, and the major part of the time and energy spent in the study of military affairs is taken up in attempts to solve the many problems associated with such a war and its weapons. The immensity of the problem and its attendant horrors tend to overshadow the serious threat of the assault on men's minds by the communist dogma. Yet if the march of communist ideas is not contained and actively countered it may not be necessary to worry too much about the problems of nuclear warfare, as we may one day wake up and find that the war is over before it has really started—that a communist government is in power and the country is a communist satellite. It has happened before and it could happen again here.

The communist dogma is a weapon of war and of equal use in both hot and cold wars. It is aimed at the mind of man. As with any other enemy weapon its characteristics and capabilities must be clearly understood by the soldier if he is to counter or nullify its effects. The soldier must understand what he is fighting. We are also told that in a nuclear war it is most important that the soldier must have a sound belief in the righteousness of his cause if he is to withstand the stresses and strains of atomic attack. He must know why and for what he is fighting and believe in his reasons. The ordinary soldier must therefore understand the aims and methods of the communists. To do this he must be educated in communism; in other words, he must receive a type of political instruction or indoctrination.

Political instruction for soldiers!!! Immediately one can hear the objections. From the military critic—"The soldier must be non-political to carry out his job. Any communist subversion can be countered by the activities of Intelligence. We must on no account have political instruction in the Army. The next step would be commissars." He is ably backed up by the politically-minded critic—"Politics are for the politician. The soldier is a servant

of the State and must not indulge in politics. Political instruction would result in power-mad generals using the Army for their own ends and the overthrow of the constitutional processes of legal government." Before going further we must therefore decide if there is a threat to the Army and through it to the people.

Karl Marx said the communist must be ready to employ trickery, deceit, law breaking, concealing and withholding of the truth, etc, to achieve his aims. This does not leave much to the imagination. Obviously one of the most useful ways to advance the communist cause is to suborn the allegiance and if possible convert the opposition's armed forces or, if this is not possible, destroy their morale and thus render them ineffective. Is this being attempted here? The answer is "Yes"; only the degree of activity is doubtful.

During the last ten years many officers will have had brought to their notice the fact that a known communist or communist sympathiser was operating in their unit or area. In most cases these officers were surprised, as the offender will have proved a most keen and conscientious soldier, looking anything but like the traditional unwashed, unshaven, furtive figure we imagine the home-grown communist to be. It was even more of a surprise to find that the extra-curricular activities of this keen, conscientious soldier involved sowing the seeds of the communist faith in the minds of his comrades. Let it not be thought for a moment that such cases are common. They are not, but they have occurred and will continue to occur whilst the struggle between the free and communist worlds exists. They are evidence that the communists are actively attempting to suborn the soldier from his natural allegiance and produce communists or communist sympathisers in the Army.

During the Korean War a soldier approached me with a letter he had received from his local town councillor. This councillor was, and had been elected as, a communist. In his letter he said how he had just discovered that the soldier was serving in Korea, and then in a fluent and plausible manner asked him did he realize he was being a traitor to his class? Why was he supporting the reactionaries fighting against his fellow workers? Had he in fact realized what he was doing in Korea? Perhaps not, but now he had had the situation explained he could take the steps to ensure he remained on the side of the worker and peace. He now knew the truth and must not support the capitalists. The soldier was angry and upset by all this, but he had hesitated to bring the matter to the notice of the authorities, as the councillor was really "quite a decent type" who had done a lot for the people in his ward. He did not understand why he should write him or anyone else a letter like that. The letter was passed to the appropriate authorities, but it is doubtful if any action would be taken. The councillor had committed no crime.

Other men received through the mail communist newspapers and literature, all showing the righteousness of the communist cause in Korea. These men were not communists, had never subscribed to the Communist Party, and were actively engaged in fighting the communist armed forces. They did not know why they should be picked out for

such mail, or where the reds had obtained their addresses. Amongst other things, the literature contained articles by various communists of their own nationality active on the side of the enemy as newspaper correspondents, members of peace committees and such like.

Add to this the cases of communists approaching the next-of-kin of soldiers with the same line as that expounded by the town councillor, worrying the life out of people already under a strain by the fact that their sons and husbands were actively engaged in a shooting war. Their fears and worries became communicated to the soldier, who in turn became worried about his wife or mother or girl friend. Thus through innocent people the communists attacked the morale of the soldier. It would appear from these few examples that communism is a direct threat to the Army and the people. The methods used are consistent with the teachings of Karl Marx. When it is realized that much of this nefarious activity was carried out by fellow-countrymen of the soldier, it is obvious that the communist line in this country does not differ materially from that of Lenin in 1928 when he said, "The Communist Parties (abroad) must carry on persistent propaganda urging the worker to refuse to transport war materials for the enemies of the Soviet Republics." How then can we combat this threat?

Already in the armies of the United States and Australia some effort is being made to counter the threat of communist teachings. The alarm felt at the effects of communist interrogation and indoctrination of POWs during the Korean War was widespread. In America this has resulted in the publishing of a code of conduct, and both there and in Australia courses are conducted to give officers at least some idea of what they may encounter at the hands of the communists if taken POW. Whilst this is all excellent in its way, it would appear to be putting the cart before the horse. Most soldiers do not become prisoners of war. Is it therefore logical to concentrate on training in this manner to the exclusion of any instruction on how to counter the insidious communist attacks on the minds of the majority, who indeed may never be taken prisoner? It is a step in the right direction, but it is working back to front.

Investigation has revealed that communist ideas are most effective against the less well educated type of person, the person who knows little about his own system of living and therefore has nothing with which to fight the statements of communism. Obviously the way to counter this situation in the Army is to educate each and every soldier in citizenship and communism. Compare the advantages and disadvantages of the two systems and let him make up his own mind.

The average Australian is a very fair-minded fellow. He is not really interested, to any great degree, in politics, nor has he any great knowledge of the various political parties. He generally accepts the views of the group he has been brought up with, or allies himself with. He is convinced everyone has a right to say what he thinks. In many cases changes of government occur solely because he thinks it's about time the other side had a go, rather than a belief in the platform of the opposition. The average Australian does not, however, tolerate outside interference from anyone in the domes-

tic affairs of his country, and this is perhaps one of the keys to countering the machinations of communism.

If he is aware and convinced that communism is not Australian in its ideas and aims, that it works to overthrow the legal government and is subordinate to a foreign power, will he support or tolerate it? I think not. Where can we get the proof? From statements of communist leaders, such as Andrei Vishinsky, who in 1948 stated: "A real internationalist is one who brings his sympathy and recognition up to the point of practical and maximum help to the USSR, who supports the defence of the USSR by every means and in every possible form, and who actually cooperates with the USSR and its agencies. The readiness of the workers of any country to subject all their aims to the basic problems of strengthening the USSR in its struggle is the manifestation of revolutionary proletarian internationalism on the part of the workers in foreign countries. The defence of the USSR as the socialist motherland of the world proletariat is the holy duty of every honest man anywhere." Could the aims of the Communist Party be put more clearly than this?

After completing a well-run course of instruction comparing our system with the communist system and showing the foreign control and aims of the Communist Party as stated by their leaders, in which the methods of communist expansion are discussed and understood, the soldier will be in a strong position to resist the blandishments and false promises of the reds. He will be able to recognize the communist methods whether he encounters them in Australia, at war, or in a prison camp. He would understand and have a firm belief in what he was fighting for. The material to destroy the effects of communist methods and appeals is contained in the writings of the system, and to defeat it we must educate the soldier in both the democratic and communist way of life. There is no fear that our system and way of life will suffer in comparison with that of the communist.

The solution to the menace of communism is simple, but the task of putting the solution into practice is immense. Such an educational programme could not be initiated by the military alone. It would in the beginning require the help of the government and major opposition party. On the Army side it is a job for the RAAEC. Together with the country's political experts they must produce a plan and supervise its execution. The plan must ensure that every soldier receives regular interesting instruction, in everyday language, by people who know what they are talking about. Such instruction must be part of the normal training programme in the same way as weapon training and minor tactics. In the same way as fieldcraft is taught to minimise the enemy fire, so must political education be given to minimise the ideological bullets. The production of a complete plan is beyond the scope of this paper. It is sufficient to understand the immensity of the task, the fact that it can be done, and some general suggestions as to the method.

Will political education affect the attitude of the Army towards its duty? I think not. If the political indoctrination of communist armies, with its distortions, lies and half-truths, binds the armies closer to the state, how can education in the truth

but do likewise? It will strengthen the soldier's belief in his cause and thus his will to fight. Fears that such education would encourage the Army to take over the country from the legal government are groundless. Except in the case of a communist government being in power, there is no fear or possibility of any take-over or even desire for such a take-over. The system is not designed to produce politician soldiers, but purely to educate the soldier in the dangers of an alien ideology conceived outside his country and aimed at the eventual overthrow of Australia's way of life. No domestic political party could quibble at this. In fact, such a system strengthens their own position by cutting to a minimum the chance of them being overthrown or taken over by the communists. The fact that the system is based on a plan conceived by co-operation between the military and the statesmen will ensure that just as the statesman will be a check on the megalomaniac ambitions of the odd general, so will the Army be a check on any one political party using the system to spread its own doctrines. The system can best be described as non-denominational political instruction.

In conclusion, it can be said that there is a major threat to the armed forces posed by the communist dogma. This threat could actually destroy their effectiveness without a hot war. It must be countered, and the way to do this is by educating the soldier in citizenship and communism, by comparing the two systems, and by making it clear that the communist dogma is an alien idea aimed at the subjection of Australia. The problem is a large one, but the difficulties are not insurmountable and should be tackled at once. The idea is new in a democracy, but not in the world. It has a bad name when being used for bad ends, but it can be adapted to do good. In the words of Lenin, "Everyone will agree that an army which does not train itself to wield all arms, all means and methods of warfare that the enemy possesses or may possess behaves in an unusual and even criminal manner."

Walled towns, stored arsenals and armouries, goodly races of horses, chariots of war, elephants, ordnance, artillery and the like; all this is but a sheep in a lion's skin, except the breed and dispositions of the people be stout and warlike.

—*Sir Francis Bacon.*

Strategic Review

THE LESSON OF LAOS

IT would appear that the impending "cease-fire" in Laos may be no bad thing for Western interests, for it has become increasingly clear that the Royal Laotian Army, as at present constituted, is quite incapable of imposing any effective check on the activities of the communist Pathet Lao. Events in Laos have followed a pattern made familiar by the French defeat in Indo-China some years ago. In both cases the Governments attempted to maintain authority by means of conventional military forces employing methods appropriate to formal warfare. In both cases their opponents adhered strictly to guerrilla strategy and tactics and gradually extended their hold over the countryside. In Indo-China they crowned their guerrilla operations by enticing the French into a pitched battle in circumstances which practically guaranteed them success. If there are no signs in Laos that the Government forces are likely to fall into a similar trap, there is at the same time no indication that they are capable of putting a stop to the mounting record of communist guerrilla successes.

To taxpayers who are aware that some £150,000,000 have been poured into Laos, the results may seem a little disappointing. But it is not really fair to blame the Laotians, who, after all, never sought to become actors, or even extras, in the game of international power politics. They would have been content to live quietly in their backward sleepy little land. The collapse of the French colonial empire in Indo-China thrust them unwillingly to the front of the South-East Asian stage. Almost overnight Laos became another area to be buttressed by the West against the march of communism.

The Western organizers of the new anti-communist barrier elected to develop, in conjunction with the Laotian Government, a conventionally organized, trained and equipped army of some 30,000. Those of their advisers who had read correctly the lessons of Indo-China would have preferred a force less than half the size specifically designed to meet the most likely military threat—guerrilla penetration. Unfortunately their advice went unheeded, and when the crisis came the Laotian Government found that its well-found, well-paid army was incapable of effectively coping with the guerrilla forces sponsored

by the communist bloc, though it might perhaps have been able to fight a conventional battle. Probably the only component capable of fighting the guerrillas was Captain Kong Lae's parachute battalion, but if that unit has not actually joined the Pathet Lao it is actively co-operating with them.

In the non-military sphere, only a thin trickle of the massive financial aid poured into Laos has reached the mass of the people, if indeed any of it has reached them at all. Practically all of it has found its way into the pockets of Laotian big business operators, who are probably now rich enough to remove themselves and their families to safer areas, where they can live comfortably on the proceeds.

The lessons are plain enough. The directors of Asian communism have no intention of engaging in conventional warfare unless and until the situation is so favourable that success is practically assured, as it was at Dien Bien Phu. They have proved that they can go a long way and achieve a great deal, perhaps all that they aim to achieve, without recourse to formal military operations. In South-East Asia the subverter and guerrilla together constitute a much more potent menace than nuclear weapons.

There seems to be no reason to suppose that in the foreseeable future the communists will abandon the methods which have served them so well. Through guerrilla warfare they conquered China and drove France from Indo-China. If the West continue to prepare for a type of war that is not likely to occur, guerrilla methods may well carry our adversaries to still further successes.

It is worth remembering that in Malaya the communists not only failed to achieve their aim, they met with decisive defeat. They failed because their adversaries fought them *offensively* with their own guerrilla methods. Perhaps they would have failed in Laos, too, if they had been opposed by an army capable of meeting them on their own ground. Are they going to continue to succeed simply because we refuse to read the lessons of China, Indo-China, Laos and Malaya?

28 Apr 61. —E.G.K.

GROUND EFFECT MACHINES

Major E. A. McCloskey, A.M.I.E. (Aust)

Royal Australian Engineers

MANY extravagant claims have been made by newspapers and otherwise responsible persons on the performance of hovercraft. Although the science is still in its infancy, there are nevertheless certain fundamentals which dictate the capabilities and possible uses of these machines.

This paper is intended to explain the principles and to examine these fundamentals in a non-mathematical way to give an idea of what is feasible. The information contained herein was obtained by personal liaison with Saunders-Roe, Vickers Armstrongs Ltd., and Folland Aircraft Ltd., to whom the author is indebted.

The terms Ground Effect Machine (GEM) is used throughout the paper, as it is more descriptive of the action, and also because the name Hovercraft is the subject of copyright attempts by the inventor, Mr. C. S. Cockerell.

History

As early as 1875 attempts were being made to reduce the friction on the hulls of ships by trapping air between it and the water. All attempts failed because the solid walls used to contain the air caused a drag and nullified any other benefits. Mr. C. S. Cockerell proposed that the solid boundary should be replaced by a curtain of higher pressure air around the periphery, and constructed a model to show that the idea did work. The Ministry of Aviation gave Saunders-Roe a contract to investigate the proposal and make suggestions for its possible development.

The report was favourable, and in 1958 the National Research and Development Corporation (NRDC) placed a contract, again with Saunders-Roe, for a manned experimental model—this was the SRN1 shown in Figure 1. To prevent the technique becoming a monopoly, the NRDC set up a company of its own, Hovercraft Developments Ltd., to spread the information around the aircraft industry. Other experimental craft have been built since. (Figure 2.)

Principles of Operation

There are four types of GEM:—

(a) Levapad.
(b) Plenum chamber.
(c) Labyrinth seal.
(d) Momentum jet curtain.

The first two operate at only an inch or less above the surface, and

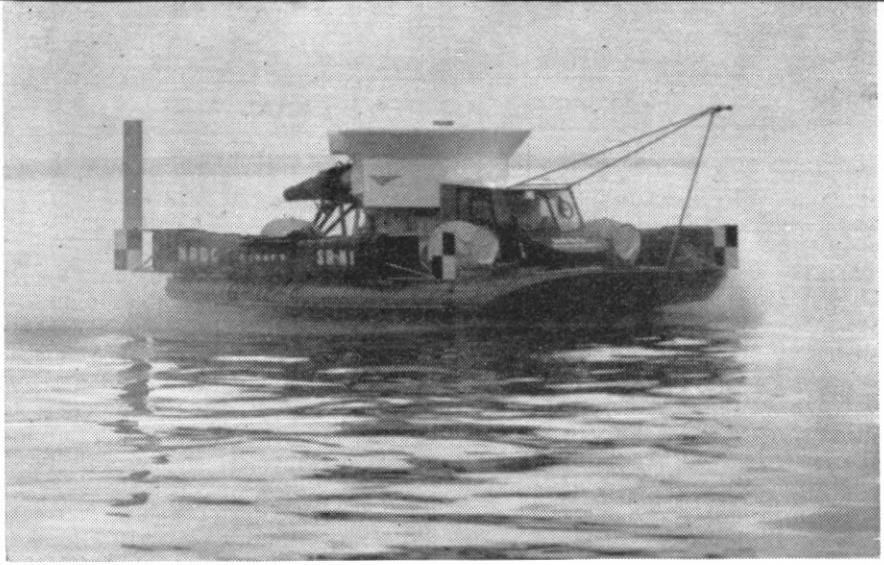

Figure 1

The SRN 1 Hovercraft, built by Saunders-Roe Limited for the National Research Development Corporation.

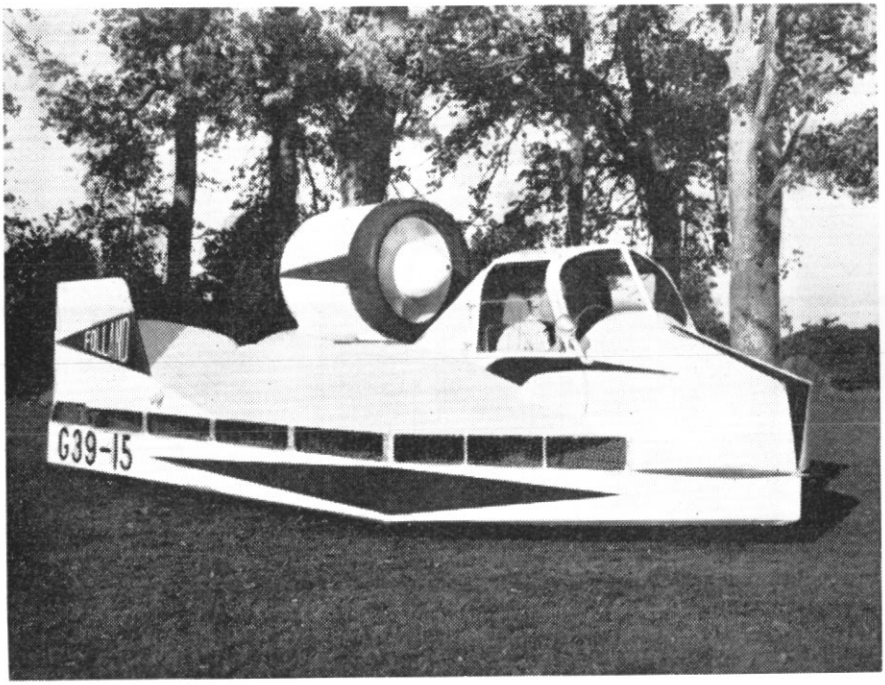

Figure 2

The GERM (Ground Effect Research Machine) built by Folland Aircraft Ltd.—Hawker Siddeley Group.

the labyrinth seal is a most complicated machine, so all development in England is being done on the momentum jet curtain.

Figure 3 is a simple representation of the momentum jet curtain type. Air is drawn in by a fan and distributed by ducting to the periphery of the craft, where it is directed inwards in a continuous curtain. This air fills the space under the craft (the cushion) until a pressure (cushion pressure) is reached which forces the curtain to turn outwards. Equilibrium is reached when the inward force due to the change of momentum of the curtain from one direction to another balances the outward force due to the cushion pressure.

The cushion pressure also acts on the base of the craft and the surface over which it travels, thus providing the lift. Propulsion must be obtained either by a separate engine or by directing backwards some of the air jet (integrated system).

The design of a craft from these basic principles is most complicated, as the author found from experience, relying on optimum values—in some cases, critical—of fan pressure ratio; cushion pressure, speed, craft size, angle of jet and a score of others. For the purpose of this paper, only a few general relationships are mentioned.

General Relationships

(a) Payload

As in aircraft operation, payload and range are intimately related. From experience to date, it appears that long distance large GEM's can carry payload to 30% of its "all-up weight," whilst on the short runs the figure rises to 50%. For smaller GEM's the figures are reduced. Economy of operation increases with size.

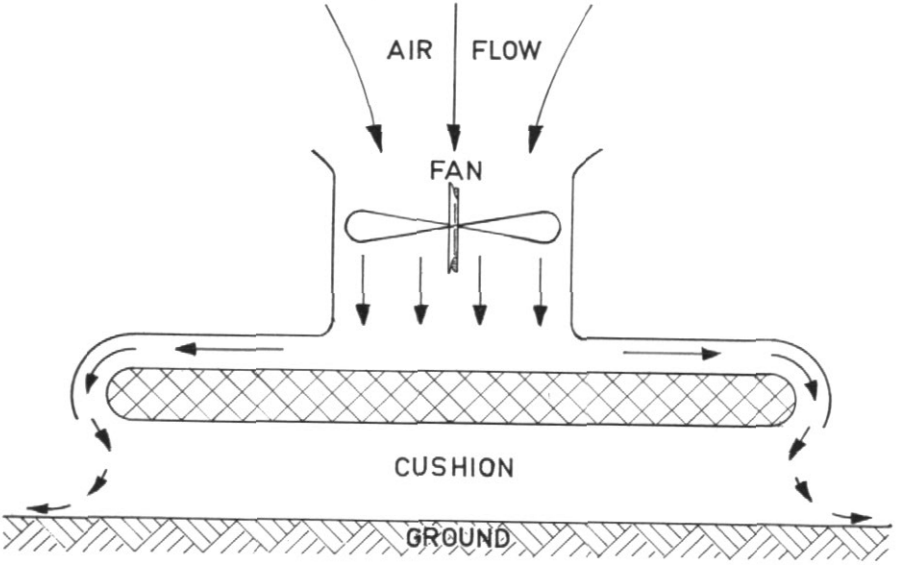

Figure 3

Representation of momentum jet curtain

(b) Hover Height and Power

The maximum hover height can be fixed by considerations of the craft's use. If it is known that it will be used only over still water or flat open plains, then the hover height can be kept down to one or two feet, but where there are obstacles the hover height must be sufficient to cope with them or a detour found. The least dimensions of the craft cannot be less than twelve times the maximum hover height, and is not normally less than fifteen times, because of stability considerations; thus, if the designed craft is to hover at 4 feet maximum it should not be less than 60 feet diameter.

The installed power must be sufficient to cope with the maximum hover height required, and will be of the order 150 horse-power/ton of all-up-weight if maximum performance is required down to about 50 HP/ton of all-up-weight.

These observations are made because the GEM is essentially a low density cargo carrier. If a high density cargo is carried, the craft will be bigger than cargo space considerations dictate, and will have as a consequence a greater maximum hover height.

Of course, it is not necessary to operate always at maximum height, and one would avoid doing so where possible, to conserve fuel and reduce noise. Figure 4 indicates possible ranges for a mythical GEM to illustrate the effect of reduced fuel consumption, through lower hover

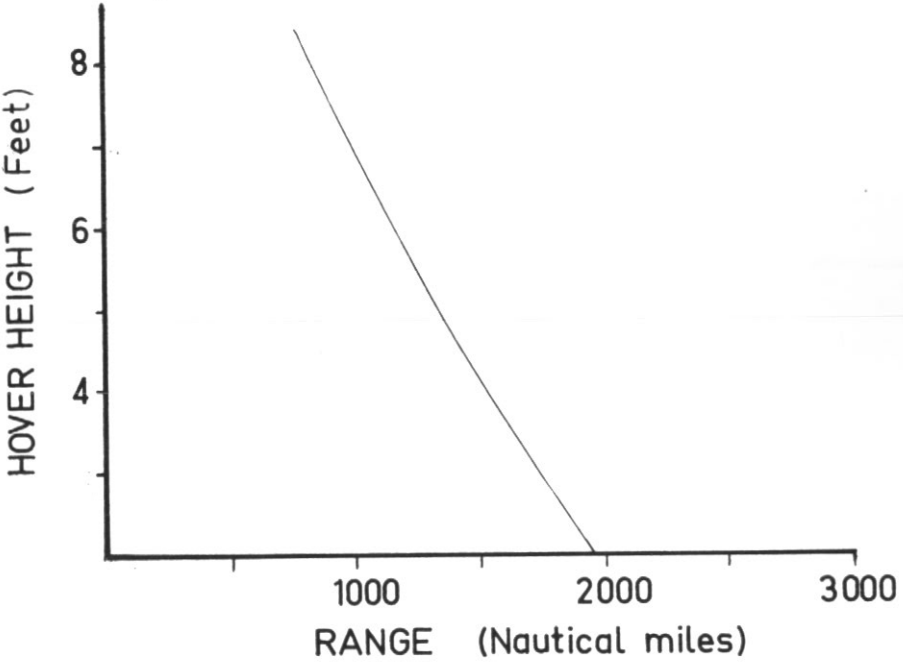

Figure 4

Variation of range with hover height

heights. There are other factors involved in the assessment of ranges, so these values should not be used other than for illustration of this particular aspect.

(c) Shape

Circular craft are considered throughout the text, as this shape is most efficient in hover, although at speed, normal flight aero-dynamics might dictate an elongated shape to reduce drag. However, there is not much variation in total power required, as the gain in one does little more than counterbalance the loss in the other.

The shape might also be dictated by the terrain over which the craft has to pass. As will be explained later, manoeuvrability over land is poor and it may be necessary to limit the width to pass between telegraph poles, through ravines or along watercourses.

(d) Speed

For each GEM there will be an optimum speed which will give maximum range. The lift engines are burning fuel at a more or less constant rate (provided height remains constant) and are affected to only a small degree by speed. A balance must be struck between the fuel consumption of the lift engines and the fuel consumption of the propulsion engines. No generalization can be given on speed except to say it will lie between 50 and 100 knots.

Limitations

(a) Manoeuvrability

A car skidding on ice is a fair analogy to the behaviour of the GEM. A change in steering will turn the craft itself around, but the movement will still be in the original direction opposed by little more than air resistance. Over water there is an additional resistance due to the wave-making action of the cushion, but then it is probably not so crucial.

The motion can be retarded further by the use of swivelling engines, reverse pitch air screws or by some physical contact with the surface. No work has been done on the development of this aspect except by Folland Aircraft Ltd.—a subsidiary of Hawker Siddeley — who have wheels under their experimental GEM which can be lowered for contact.

The designers anticipate using this principle in conjunction with hoverways—lightly bulldozed tracks to remove major irregularities and reduce gradients to maximum of, say, sixteen per cent. If desirable, the wheels can be retracted.

Turns by banking might also be possible over flat ground, but only to a very limited extent. Other companies conducting experiments have conveniently ignored the problem of manoeuvrability for the present and make their flights over water. The author had the experience of being a passenger in the SRN 1 (4½ tons) when it was turned through 180° at 45 knots over water. It was fully 400 yards before the craft, travelling backwards, came to a stop.

(b) Cost

Depending on the size, the cost will vary from £10,000-£5,000 per ton of all-up weight, the larger craft costing less per unit. A craft of 400 tons will therefore cost £2 million. It sounds a lot, but compare this with the Rotadyne (£1m) and with the Britannic (£2m), neither of

which could carry one-third of the payload of the 400-ton GEM.

(c) Obstacles

Details of the types, dimensions and frequency of obstacles can only be determined after a full reconnaissance of the proposed route. Here one can only mention them and show their effect on engineer support.

1. Trees. Clearance of extensively wooded areas would present too big a task for the time and resources available. Small clumps or isolated trees and telegraph poles could be quickly demolished by the usual methods.

2. Buildings. Built-up areas would be avoided, but it may become necessary to blow or push down isolated structures in the way.

3. Embankments. It may be necessary to climb an embankment, say after having followed a river. In this case it would require a 1 in 6 slope to climb out, the excavation extending over the width of the craft.

4. Ditches. The size ditch that can be crossed with impunity is dependent on the cushion pressure and length of craft. The ditch acts as a pipe through which the cushion air can escape. Roughly, a craft 200 feet long and cushion pressure 75 pounds per square foot could cross a deep ditch 40 feet wide or a shal-

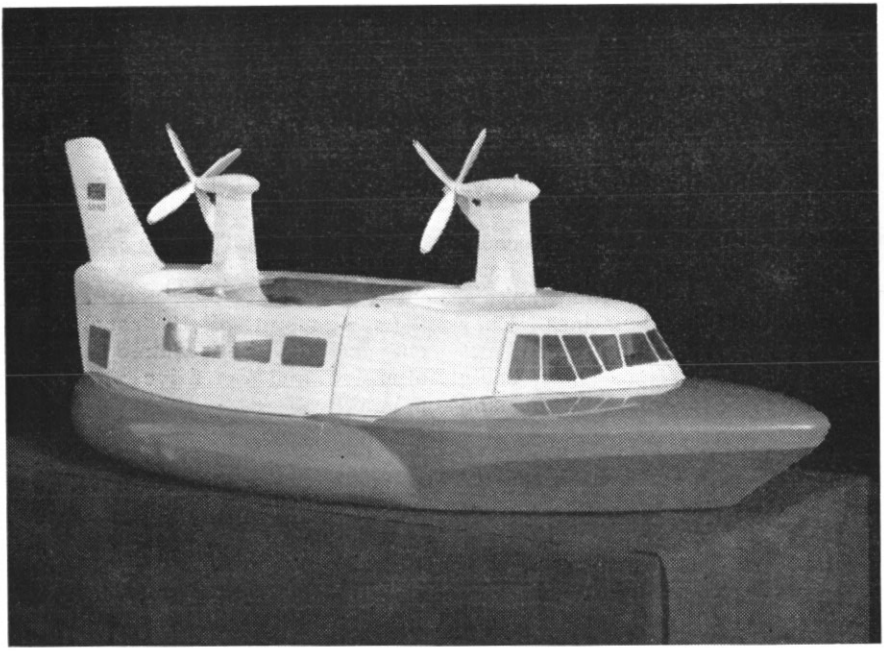

Figure 5

The S.R.N. 2 shown here as a passenger ferry version

low one 125 feet wide. In the last war, most bridges were 100 feet or less, so there may be quite a saving in bridging effort here. In any case, fabric screens on light frameworks placed the craft's width apart will prevent air escaping along the ditch.

(d) Spray and Dust

Whilst stationary over water the craft is enveloped by a fine mist due to the jet curtain blowing on the water. The same effect would obtain over dusty ground, although it was not possible here in England to find such a place. As the craft gathers speed the spray becomes less dense forward of the craft until vision is completely restored at about 25 knots. Research is being carried out on the use of spray deflectors and recirculation to minimize the problem.

Applications

Two applications are immediately at hand. Saunders-Roe are producing the SRN2 of about 30 tons as a passenger ferry (Figure 5), whilst Folland Aircraft Ltd. are working on hovertrucks.

In the military field they could be used as tank transporters, floating helicopter bases, fuel tankers, supply craft for submarines. They are more versatile in some roles than either aircraft or ships, being able to pass over, or settle on, land and water. There is no need to channel the traffic through ports or to construct airfields. In operations, dispersion surprise and a properly balanced fighting force would be achieved.

Of course, the GEM could not be used in the tactical role due to its size and vulnerability, but in the strategical role it may prove its worth. It would be subject to normal enemy air attack, as are ships, but it has speed on its side. Further, it is not subject to torpedo attack, or vulnerable to mines and underwater obstacles whilst in flight.

Summary

The science of GEM's is now at the stage that aeroplanes were in 1910, but the development will be much more accelerated. Intensive research is being undertaken in Britain, Russia and the United States, and the next decade will see startling advances in operational craft. The size of these craft will have to be accepted, but then it will be appreciated that here is a machine which will do what none other will. It fills the gap between fast light-load carrying aircraft and slow heavy-load carrying ships.

As a result of its capabilities, changes may be required in both offensive and defensive strategical policies.

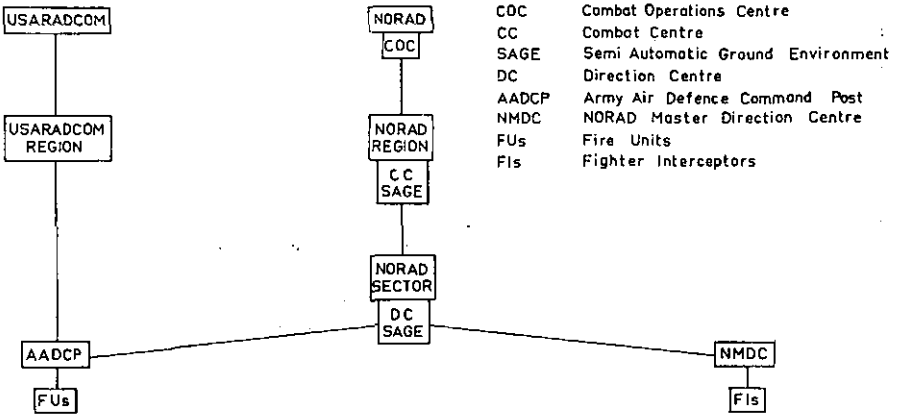

Figure 1.

Canada border. Throughout the length of the eastern and western seaboards are radar sets, both on land and, along the east coast, out to sea on Texas towers — huge platforms rising out of the ocean on pylons.

Apart from its contribution to the early warning network, the US Navy provides additional air defence with its ships of the Atlantic and Pacific fleets equipped with Terrier, Talos and Tartar surface-to-air guided weapons. When these ships are in port they tie in with the local Air Defence Command Post and fight as would a Nike battery. The same applies to US Marine Corps units stationed on the mainland.

USAF Air Defence Command, Combat Centres and Air Defence Direction Centres have the following missions:

(a) Maintain constant radar surveillance.
(b) Detect and identify aircraft.
(c) Vector interceptors.
(d) Destroy hostile targets.
(e) Pass air defence data to other agencies, principally the Army Air Defence Command Post.

Readers no doubt know the performance of US fighter interceptors, so I shall not mention them. Needless to say, they are all equipped with air-to-air guided weapons — Falcon and Genie, as well as some Sparrow 111 missiles. Their surface-to-air guided weapon is the Bomarc which has a range in excess of 400 miles, is propelled by a ramjet engine and has a nuclear capability.

The real teeth of the US Air Defence is US Army Air Defence Command. HQ USARADCOM is in the same set of buildings as HQ NORAD at Colorado Springs, Colorado, and is commanded by a Lieutenant General. For ease of command, the US is divided into five geographical regions called 1st Region USARADCON etc. Each of these is commanded by a Major General. Within a region are a number of defences varying in size from one battalion to one brigade of eight battalions.

US Army Air Defence organizations are a little different from ours, in that a group is inserted between battalion and brigade. A brigade is commanded by a Brigadier General and consists of a number of groups. A group is commanded by a Colonel and consists of a number of battalions. The battalion is the smallest unit providing the defence of a city.

These battalions are equipped with the Nike family of missiles. The original round, Nike Ajax, is gradually being replaced by a bigger longer range Nike Hercules. This is a magnificent weapon with a range of over 75 miles and a height of more than 150,000 feet. It can carry a nuclear or high explosive warhead.

The fire unit is a battery. It has a strength of approximately 90 and is commanded by a captain. Each battery occupies a considerable amount of ground as the Integrated Fire Control Area must be separated from the Launching Area by several thousand yards. Most batteries at present are universal, which means that they can fire either Hercules or Ajax rounds. The Integrated Fire Control Area contains three radar sets — acquisition, target tracking and missile tracking — which are remotely controlled from the director station trailer and the tracking station trailer. The former also houses the computer. The Launching Area contains a launching control station and three sections each of four launchers. All missiles are prepared in an underground preparation room beneath each section and one launcher is on an elevator which lowers it to receive missiles. They are then transferred to the other launchers along rails which connect the launchers. The reader can well imagine the enormous cost of a defence of this nature. The land must be purchased, then prepared for the battery with underground shelters, elevators, concrete hard standing, roads, barrack blocks and the equipment itself. They usually cost about $20,000,000 each.

Practically every US city with a population of over 500,000 has a Nike defence. For some cities, such as Los Angeles, it takes approximately 30 Nike batteries to provide the defence. Initially the units are Regular Army but gradually the sites are being handed over to National Guard units. The national Guard is not dissimilar to our CMF. However, its members put far more time into it and so become more adept. A national guard captain or major thinks nothing of doing an 18 weeks course at the US Army Air Defence School, Fort Bliss, Texas. In fact he must qualify at such a course for substantive promotion to the rank of major. About half of the strength of a NG battery is on full time duty manning the equipment every day. The remainder is on instant call. However, in all defences a certain percentage of sites are fully manned at all times and ready to fire their missiles.

In each defence there is an Army Air Defence Command Post. It could be compared with our Anti-Aircraft Operations Room. It houses a magnificent set of equipment called Missile Master. Unfortunately the security classification of this system prevents my describing it. It receives EW and identification from the Air Force Semi Automatic Ground Environment, freshens it up with information from its own nine radars and feeds the information to the

batteries. Selection of batteries to engage each target in a raid may be made here and the command transmitted electronically to the battery concerned. It appears as a symbol around the target video on the planned position indicator of the battery acquisition radar.

Personnel to man the defences are trained at the US Army Air Defence School, a part of the US Army Air Defence Centre at Fort Bliss, Texas. Fort Bliss is a large post with about 30,000 troops stationed on it. The commander of the centre, who is also commandant of the school, is a Major General. Apart from the school, 1 Guided Missile Brigade, 6 Artillery Group and the Air Defence Section of Army training Command are located at the centre.

The school conducts numerous courses to train individuals. They vary from indoctrination courses for lieutenant generals and below, battalion and battery commanders courses, battery officers courses, to maintenance officers and NCOs courses. These last are of nine months duration. There are five major departments — Command and Staff, Electronics, High Altitude Missile, Low Altitude Missle, and Non-resident Instruction. Each department is headed by a Colonel. The total number of instructors at present is 3,000. In 1958, 19,000 students went through the school. In July 59, there were 8,300 in residence. Because of equipment limitations—29 Ajax batteries, 40 Hercules batteries and 11 HAWK batteries—a 20 period day is worked, from 0430-2400 hours. The normal working day is 0730-1630 hours. However, up to 23 per cent of instruction takes place between 1630 and 0730 hours.

1 GM Brigade is a training organization of three groups each with 2 or 3 battalions. Here the battery commanders, battery officers and maintenance men, who have been trained by the School, come together with other members of their units for collective training. The units are not complete but are called "packages" and consist of the key personnel — 3 officers and 35 other ranks from a battery. Packages from all the NATO countries except Great Britain are trained here. This training is in three phases. Phase 1 is individual training for operators and is of four weeks duration. Phase 2 is collective training for five weeks. During Phase 3 the package moves to McGregor Range for three weeks where they perform training tests and fire 2 or 3 rounds. The package then returns to its parent unit and trains the remainder. In a National Guard unit, the package is composed of full time men.

Another function of 1 GM Brigade is to run McGregor Missile Range which is 25 miles from the School. It covers an area of 1,220 sq. miles and is used by the School, packages from 1 GM Brigade, Nike Hercules and Ajax batteries from various European countries, and by every unit, both Regular Army and National Guard, in Continental USA and Hawaii, for its annual service practice. The units are flown to McGregor where they spend a fortnight. A RCAT (Radio Controlled Aerial Target) Battery flies the targets.

US Army air defence units are deployed in Germany, Okinawa, Korea, Formosa, Panama and Greenland. The units in Germany are

with 7 US Army. The allotment is a brigade at army level, a group at corps level and forward area weapons at division and battle group. The number of groups in the brigade at army and the number of battalions in the groups at both army and corps varies, being dependent upon the situation and the number of subordinate formations. The groups are mixed, having within them both Nike Hercules and HAWK battalions. All personnel for these units are trained at Fort Bliss, however the units as a whole are trained, not packages, and for 16 weeks instead of 12.

HAWK is a very fine weapon which was developed to counter the low altitude threat below the capability of other air defence missile systems. It utilizes continuous wave radar which completely eliminates echoes from stationary objects and so allows targets flying as low as 50 feet to be engaged. The letters HAWK stand for Homing All the Way Killer. This name is derived from its semi-active homing guidance. The forward area weapon at present is the twin 40mm Bofor mounted on a light tank chassis. It will be replaced by a small guided missile of similar characteristics to our Malkara.

At White Sands Missile Range trials are being conducted to improve the present missiles and to iron out the last few bugs in the latest of the Nike family—the Zeus. This is an anti-missile missile with a range of hundreds of miles. Already this year a HAWK destroyed an Honest John surface-to-surface missile and a Hercules abruptly terminated the flight of a Corporal SSGM. Neither missile had a warhead; they were both direct hits.

With the threat of nuclear weapons hanging over the head of the free world, an adequate defence system is most necessary. The United States probably has a better one than any other country, including Russia.

The human obstinately resists change of any sort but particularly an effort to change his mental raiment—the trousers of convention, the vest of doctrine, the coat of dogma, and the all-enveloping mantle of tradition. Man has a mind that can reason, but he uses it primarily—almost exclusively—to buttress the opinions, prejudices, and minor faiths he has unthinkingly absorbed from his environment. This he incorrectly calls thinking. The right name is rationalizing.

—Major John H. Burns, "The Dead Hand" (1937)

THE MILITARY CHALLENGE TODAY

Dr. C. M. Mooney, BA, MA, PhD.

Reprinted from the Royal Canadian Air Force Staff College Journal 1958

"Wishful thinking about war constitutes a major element in scientific thinking about war. An evaluation of faiths is an indispensable key to the future. The student of war must recognize that wishes, opinions, and beliefs, including his own, are among the phenomena with which he deals. He cannot exclude them from his predictive formulations as may the physicist. With all their intangibility, imponderability, and changeability, he must do his best to reduce them to order. He cannot do this unless he combines persuasion with analysis. He must try to perpetuate in the society the beliefs which constitute the postulates of his study, or his analysis will be undermined."

Quincy Wright, A Study of War.

It strikes me that statesmen and scientists are assuming too much military responsibility, and soldiers too little. The corrective—if my conceptions of war, military function, and current military realities are at all valid—would seem to be for our military leaders to weld themselves and their forces into a single, powerful military arm. I suggest that this is the major challenge to military leadership today.

I recall Aristide Briand's remark to Lloyd George during World War I that "war is much too serious a thing to be left to military men." I have in mind the later jibe by H. G. Wells: "The professional military mind is by necessity an inferior and unimaginative mind; no man of high intellectual quality would willingly imprison his gifts in such a calling." And I have before me a recent paper by Ellis Johnson[1], head of US Army Operations Research, urging a point of view held by many scientists who work on military problems, to the effect that military strategic planning and technology should be given over entirely to outside bodies of civilian scientists, leaving to the military only the roles of combat, combat training, and the development of war plans.

It is true that the grand strategies of international conflict have been the prerogatives of heads of state.

[1] Ellis A. Johnson, *Jour. Op. Res. Soc. America*, 6, 11-34, 1958.

It is true that military men have often been reluctant to adopt new methods of warfare. And it is true that the military exploitation of the physical, chemical, atomic, and biological resources of science calls for technological specialization. But it does not follow that war is preeminently a matter of diplomatic conception or technological accomplishment; it is, above all, a military enterprise.

Today, when the weapons of choice in the east-west diplomatic duel are atomic missiles, it might justly be remarked that war is much too deadly a thing to be left to statesmen and scientists. In its cold actualities and hot potentialities, it manifestly calls for joint collaboration of statesmen, scientists, and soldiers, in the co-ordinate realms of national policy, scientific technology, and military operations—in which it must never be overlooked that the military underwriters are the soldiers.

The responsibility of the military is an ultimate one, implied in and lying beyond all that is accomplished or fails of accomplishment at diplomatic and technological levels. It requires military professionals to contemplate—even when the civil power does not, or in ways the civil power may not—the ultimate conduct of a war offensive or a military defensive by force of arms *in ways and at times most likely to be successful.*

The existence of the "push-button" does not necessarily determine the nature of war or its outcome. The conclusive implication of the "atomic ultimatum" simply makes it imperative that international "hostilities" be waged always, if possible, at diplomatic and technological levels (by summit conferences and sputnik contests, for example). It is clear that it should be waged with the full knowledge and consent of military men; not only because war, in its most sophisticated forms, is still, essentially, a military undertaking, but for the further reason that if the "winning" diplomatic offensives do not win, and the "successful" technological defensives do not succeed, the final inheritors of a run-away war will most certainly be the professional military men and their fighting forces—and they will not want to be unprepared.

Indeed, there is a grim logic to the idea that if we are to maintain ourselves in a state of a military strength and readiness we should maintain ourselves *as* a military *state. We do accept the necessity* of the military oligarchy and the regimented society during the acute crisis of armed warfare because we are aware that the military "model" permits a unification of purpose, a *massing of resources, and a co-ordination* of effort not otherwise possible. Should we conceive ourselves now to be in grave military danger, and note that the hostile nationalities which threaten us possess, through the workings of historical chance, a society, culture, and technology built upon the military "model," then we might wisely adopt the same posture.

But this is unlikely. Our society is cast in the liberal, humanistic tradition. The democratically responsible civil arm will not readily grant executive power to military professionals short of the clearly perceived brink of disaster. The nation must, paradoxically, accept the

greater risk of going down democratically than surviving autocratically. The military is thus constrained by the "soft" facts of national life, on one hand, while attempting to confront the "hard" facts of international life on the other.

Here, then, it is essential that we have the minimum insurance of a strong military arm which would assume full management of all military operations, and collaborate with other executive branches of government on military aspects of national and international affairs. Should the civil government be reluctant to initiate this, it could be accomplished by our military leaders.

The first requirement would be, of course, an agreement by military men on the need for a strong military arm. There would then seem to be two avenues open to them. One would consist in rigorously militarizing the present armed forces at all levels of organization and in all fields of operations. The other would consist in unifying the existing forces within a single command and thereafter extending the influence of the military arm into all collateral activities of government having any military consequences. The question may arise here: Would not the strengthening of the individual forces work against their unification? This will be answered, I think, when we contemplate the nature of the command function.

The Command Function

War is any hostile activity between opposed entities. In highly developed form, it is the deliberately planned, rationally controlled application of force by one national alliance upon another, employing moderate and sufficient methods of coercion so far as possible, and the extreme methods of armed warfare when necessary. Its efficient execution in all moderate and extreme forms is the business (or science or art) of military professionals. The incorporation of military professionals into a military arm, the conjunction of a military arm with the civil arm, the subordination of a military arm to the civil arm, are arrangements governing the use of military force, and do not bear on the essential nature of war and the essential business of military professionals.

A military arm is an organization of professional military leaders and forces operating within general statutory regulations and under executive limitations imposed by the civil power. The arm exercises exclusive command over its members and estates and stands in a *liege* relationship to the civil power. Within its military domain it possesses a whole apparatus of government. It is a stronger arm than the civil, since it could survive alone, while the civil arm could not.

The exercise of power known as the *command function* is what makes the military truly military and distinguishes it from all other organizations (the religious "Orders," anciently derived, are perhaps the only parallel). The command function is achieved by merging *judicial* and *executive* functions (which are separate, in civil government, from each other and from the *legislative*). It is delegated from the top command down through descending ranks in open (published and public) regulations enforceable under an open code of military law (legislatively "given" to the military by the civil). It is delegated in sub-

unitary fashion, *so that authority and responsibility are commensurate and have a precise locus everywhere within the organization.* This has the consequence of giving the military organization a capacity for rapid, decisive action, and enables it to act as a concerted whole or independently in its several parts. From this regimental integration of structure, function, authority, and responsibility the military organization derives its great structural rigidity, functional flexibility, and corporate viability.

Militarizing the Forces

With these concepts in mind, let me turn to the first of the two avenues to be exploited—militarization of the armed forces. This would mean strict adherence to the principle: every person and every activity essential to the operations of the military organization should be subject to military command. Exceptions to this principle (for example, non-military) would be regarded as vitiating military capacity. Wider application of the principle (for example, decreasing military dependence on non-military organizations) would be regarded as adding to military strength.

Since the militarization programme would be in the nature of a "corrective," it could be seen as amounting, in effect, to this: no *civilianism,* no *bureaucratism,* no *scientism.*

By *civilianism* I mean that civic attitude which leads to a view of the military organization as a kind of business, industrial, or educational enterprise; chooses to see soldiers as work-a-day citizens; and prefers permissive methods of management to authoritarian. It is the antithesis of the military attitude, and its effects have to be seen as corruptive of military efficiency.

By *bureaucratism* I mean the practice of delegating responsibility but withholding authority, of prescribing action but proscribing decision, of centralizing the whole "mind" of management at the top. This, however necessary to the regulation of government business by its civil servants, is unnecessary to the management of military affairs, and its practice in the military should be regarded as weakening the command function.

By *scientism* I mean unwarranted faith in scientific practicality, whether held by the scientific "doctor" or the management "patient." It springs out of the desire—often the pressing need—of top planners and executives to attain greater certainty in management, and their belief that they can achieve it through the "optimizing" methods of science. It resides also in the growing confidence of increasing numbers of consulting "management scientists" that they can evolve practical answers to operational problems more effectively by scientific methods than can otherwise be done by professional managers. This is all legitimate, provided the problems are what might be called the "cost-accountable" ones. But when scientists believe they can apply exact scientific methods to the making of top policy decisions, and when executives believe that scientists have "scientific" means for determining "right" policy decisions, the combination of scientific naïveté and managerial credulity amounts to *scientism,* which can be corruptive both of science and management.

There are many fields that might be exploited in militarizing the armed forces. To illustrate, let me take two—military professionalism and military management.

Military Professionalism. A programme designed to accentuate military professionalism could have two objectives: one, underwriting the sense of professional pride and self-regard on the part of military men; two, enlarging their professional stature.

For this, there is a rich ground to be exploited. The military profession is an old and honourable one. It is a profession not simply because its members are in the armed forces, but because it embodies special knowledge and skills, possesses a history and traditions, observes a professional code, and confers formal training and qualifications. In exploiting this ground, the moves would be thoroughly conventional; but in the context of this whole argument they seem to assume more than ordinary significance.

The "marks" of the military, its dress, insignia, decorations, honours, music, ceremonies, privileges of rank, and the respects and compliments that attach to military position, would be sedulously preserved. Along with this, an intensive study of the military in its historical aspects would contribute not only to professional self-identification, but drive home those principles and precedents that count towards professional competence.

An important measure of a profession is its adherence to an established code of behaviour. The code of the military—where each man pledges his life to unquestioned obedience, absolute loyalty, courageous endeavour and stoical endurance—is an heroic one. Much of it is implicit in practice and tradition, some of it specifically embodied in military law, and some set forth in precepts (behaviour on being taken prisoner of war, for example). More of it, perhaps, could be formulated in simple, compelling language, as a kind of recitative or catechism. All who violated it (by, for example, breaches of military security, brutal or stupid excesses in command, theft of property, abuse of civilians, mutinous behaviour, cowardice, premature surrender) would invariably be subject to severe punishment, making it evident that what a soldier *is* he must *be*.

The military man's professional warrant is founded on military competence. It does not derive from his particular technical training, or from the specialized nature of the tasks he performs. Thus, the medical officer is a military man first and a doctor second; his medical work is incidental to his military role. The electronics engineer is a military professional not because of that qualification, but because he has an essential task in the realization of the purposes of the military unit. Professional military competence seems, then, to reside in such things as knowledge of military organization, command functions, military methods—in short, all things military whereby a man may be judged a professional "man at arms." Thus, training in military fundamentals might be seen as an imperative requirement for every military rank, no matter how technically specialized or esoteric his

particular "place" in the military scheme of operations.

The list of military fundamentals might well be extended. When military directors must routinely "command" numerous technologies, they should have a general knowledge of the maxims underlying these technologies. This would embrace a knowledge of the theories and practices, facts and fictions, uses and abuses, of such "generalizing" sciences as psychiatry, sociology, psychology, political science, economics, and of such "particularizing" sciences as communications theory, operational research, human engineering, and industrial engineering.

Military Management. I described in an earlier paper[2] the complex nature of military management, emphasized the management power inherent in the command function, pointed out the manifest usefulness of various sciences and management techniques, and indicated how they could be integrated into the military. I did not deal with the dangers of undue reliance on science in management.

One motive behind the suggestion that professional military training might be extended to develop greater sophistication concerning the uses and limitations of the applied sciences was the idea that military managers should not become unduly dependent on advisory scientists or consulting technologists in making their military decisions.

It is all right for scientists to bring their methods to bear on military management problems and assist military directors to have a well-informed and thoroughly-reasoned basis for their operating decisions, provided this does not displace the locus of military decision or vitiate its force. There are ways of minimizing this possibility. One is to insist on the personal responsibility of military men in all decisions they make, however advised during their preliminary appreciation of critical issues. Another is to cut off all intercourse between the military and outside advisory agents, or, preferably, perhaps, to put all useful or necessary scientific services into the military organization, subject to military command.

By taking the scientists into military service, their sciences would become responsible military technologies. The scientists would be held militarily accountable for the pertinence and competence of "answers" to problems which they elected as theirs. With this, the command function would no longer be in danger of being split between scientific experts and military professionals, and military professionals would be freed from the "intellectual reproach" tacitly represented by experts studying military problems from the outside.

The question of scientific independence will arise. To my mind, a scientist engaged in scientific administration, or solving practical problems out of scientific knowledge with scientific methods, is an administrator or a technologist. Thus, the proposition to put technologists into uniform constitutes no threat at all to those scientists in appropriate "free" settings in the

[2] C. M. Mooney, Scientific Aspects of Military Management, *R.C.A.F. Staff College Journal, 1957.*

universities, in the armed forces, or elsewhere, who pursue those theoretical, speculative, wide - open studies that fortuitousy contribute to the sum of human knowledge.

This same idea applies not only to scientists. For example, it would be considered undesirable to employ civil servants in military establishments, to effect routine repairs and maintain military equipments with civilian tradesmen, or to man military installations with civilian operators, for the reason that military commanders cannot "command" civilian employees. It would follow that only military men would command military personnel or direct military operations. Skilled civilians would not be employed in military executive capacities, because civilian "officers" cannot exercise authority without corresponding powers of command. All such, if needed by the military, would go into uniform.

On this matter of being in uniform: is it, incidentally, a small point, or as large as the principle involved, that all military personnel should wear military dress in the performance of military duties? Military command calls for authority to be openly indicated. The officer or non-commissioned officer carries the authority and responsibility shown by his rank. Should he not, then, be in uniform?

These are but a few of the ways, or kinds of emphases, that military leaders could employ in developing a most highly disciplined and competent soldiery in the armed forces.

Unifying the Forces

With three separate military forces, army, navy, air force, there are, manifestly, three separate command functions. It follows: they do not and cannot constitute a true military arm of government. Though sharing one shoulder socket and wrapped about with a single "defence department" sleeve, they are not one military arm, nor are they three. There is, in this situation, no command function compatible with the idea of a single military arm of government—or, to put it another way, the command function supposedly vested in the defence department has no single military arm and is not, in effect, a command function.

I have suggested that the unification of the three forces into a single military arm would have to be accomplished by military leaders. It may be supposed that it is a step that would only be forced upon the three forces by the civil government; and it might be supposed that it would be a point of honour with the forces to oppose any such step. But these are suppositions that might be viewed in reverse. The civil power could not force the arms to integrate; moreover, the civil power could want no better guarantee of military dependence than their present division. *Per contra,* military leaders can want no better way—and one within their own province — of achieving a truly military arm than through unification. Whether the civil power wants it or not is of lesser consequence than whether or not military leaders want it. That they should want it has been the whole burden of my argument. And it would appear that they could accomplish it quite directly.

The step to be taken would be the singularly simple one of replacing

the present three command functions with one. This would mean one Commander in Chief, and, of other kinds of HQ members, one each—in short, one military HQ instead of three, and an end to tri-service committees.

The unifying process, from this point on, would become a planned military "operation," calling for careful staff planning, and rigorous use of the strength inherent in the command function. Its success would depend on two things: first, unanimity of purpose by top leaders of the forces; second, such a hardening of the forces by the programme of militarization that we have foreseen that they could sustain the traumatic effects of the merger. It is obvious that the operation would not be simple or pleasant on the human side, and that there would be many personal "costs." But it has to be supposed that these would be stoically accepted.

As the single arm came into being it would be, in effect, *the military arm.* The tactics in making it a strong arm would be the same militarizing tactics that we have discussed. They would continue within the force, with an intent now aiming at the development of a sense of the unity of the arm, professional community, and identity of purpose. Thereafter, the arm, by virtue of its singularity and strength, would be able to exert, in realms of diplomacy and technology, the military influence that our national security would seem to demand.

There is just one question: what would bring our top commands together in a compact of this kind?

I do not profess to know. I let it stand as the essence of the challenge to military leadership today. If you believe, as I do, in military *genius,* you may agree it is a legitimate challenge.

Beyond this, I can only say with T. E. Lawrence: "All men dream; but not equally. Those who dream by night in the dusty recesses of their minds wake in the day to find that it was vanity; but the dreamers of the day are dangerous men, for they may act their dream with open eyes, to make it possible."

T. E. LAWRENCE

THE PROBLEM OF INTERPRETATION

J. T. Laird

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Reprinted from the "Australian Quarterly," March 1960

In the literature of guerrilla warfare, a form of warfare to which the Australian Army, in view of its interest in South-East Asian defence, should give particular attention, the name of T. E. Lawrence occupies a prominent place. Lawrence played an important part in organizing and leading the Arab guerrillas against the Turks in World War 1, and has become a controversial figure among military and other writers. In this article the author charts a path for the student through the maze of literature about Lawrence.—Editor.

THE recent publication of yet another book on T. E. Lawrence, Jean Beraud Villars' *T. E. Lawrence, or the Search for the Absolute* (1958), underlines the continuing interest in this highly controversial figure of the First World War. Although Lawrence died in 1935 and a second world war has added a tremendous amount of war reminiscence to the literature of the twentieth century, the fame of the man and his book *Seven Pillars of Wisdom* has survived the passing of the years. The nature of this fame, however, has suffered extraordinary vicissitudes; few men have been subjected to such extravagant praise and blame from their biographers as Lawrence, and few war books have been acclaimed and condemned so violently as *Seven Pillars of Wisdom*. The depths of detraction were plumbed a few years ago by Richard Aldington in his *Lawrence of Arabia: A Biographical Enquiry* (1955), which presented Lawrence largely as a charlatan and dismissed his book on the Arab Revolt as sham history. But it was obvious that Aldington's savage treatment of Lawrence could not remain the last word on the subject; the balance needed to be redressed in Lawrence's favour. This has now been done by Jean Beraud Villars, in a book which is without doubt the best work on Lawrence to have appeared in the long line of biographical studies extending back to Lowell Thomas's extravaganza, *With Lawrence in Arabia* (1924).

During the course of the First World War the military campaigns in the Near East attracted relatively little attention from either the British public or the British High Command. In comparison with the herculean labours of the armies on the Western Front, the struggle against the Turks in such countries as Palestine, Arabia, Jordan and Syria seemed unimportant and remote. At the end of 1918, T. E. Lawrence was an obscure lieutenant-colonel, prac-

tically unknown to any of his fellow countrymen outside the small group of British officers with whom he had served in the Near East. From October, 1916, to October, 1918, he had laboured tirelessly with the Arab Forces as an adviser to the Sherif Feisal and other Arab leaders, helping to shape policy and taking part himself in the guerrilla warfare of the desert that was being waged in the Hejaz, Jordan and South-Western Syria. By itself, his career would never have brought him fame. The fame that subsequently came to him was a hothouse growth and a curious illustration of the effectiveness of American publicity techniques of the post-war period. The inventor of the Lawrence cult was the American journalist and propagandist Lowell Thomas, and the bizarre method he employed does much to explain the strangeness of Lawrence's subsequent behaviour. The most immediate effect of Thomas's propaganda campaign, however, was that he established the legend of Lawrence as the almost superhuman war leader, as the Englishman who practically singlehanded had united the wandering tribes of the desert into a mighty army which had rolled back the Turkish forces from Arabia and Jordan to the gates of Damascus.

The "Lawrence of Arabia" legend was born from the fertile brain of Lowell Thomas in the year 1919. The publicity medium Thomas employed was the "illustrated travelogue," or "film lecture." The title of the lecture was "With Allenby in Palestine," but the star of the show was Lawrence. With the aid of spectacular motion pictures and still photographs "full of sweeping cavalry, Arabs, camels, veiled women, Holy cities" (to use Thomas's own words on the subject), Lowell Thomas enthralled his huge audiences in New York and London, and later in many other parts of the world. His commentary appears to have been eloquent and picturesque, even if little hampered by the requirements of truth.

After Lowell Thomas had done his work, the Lawrence legend began to grow apace—partly because of the publication of a large number of articles and books about him, and partly because of the appearance in print of Lawrence's own account of his war experiences, *Seven Pillars of Wisdom*.

One of the most sensational newspaper stories on Lawrence appeared in the *Daily Express* on 27th December, 1922, when it was revealed that the famous Colonel Lawrence had recently enlisted as an aircraftsman in the R.A.F. under the alias of John Hume Ross. The publicity led to Lawrence's being discharged from the R.A.F. in January, 1923.

From 1924 onwards a large number of books and articles on Lawrence have appeared. The first was Lowell Thomas's book *With Lawrence in Arabia*, published in New York in 1924. Thomas's book, uncritical, superficial and frequently inaccurate, set the tone for a number of other laudatory works, such as *Lawrence, Prince of Mecca* (1927), by "D. Roseler" (E. V. Timms). A somewhat more responsible account was Robert Graves' *Lawrence and the Arabs* (1927), which drew heavily on Lawrence's own account of his war experiences, as given in *Seven Pillars of Wisdom*.

Graves' account was later followed by Liddell Hart's more carefully compiled *T. E. Lawrence: In Arabia and After* (1934). However, both Graves and Hart were led into error at times by Lawrence's evasive replies to their inquiries on biographic details and by their credulity concerning Lawrence's own written account of the Arab Revolt. The general effect of these early writings was to strengthen the legend of Lawrence, by showing him as the supreme strategist, the great military leader, and the man of almost superhuman endurance, that Lowell Thomas, somewhat more flamboyantly, had reported him to be.

Lawrence's own written account of his war experiences was first published in December, 1926. This was his subscribers' text of *Seven Pillars of Wisdom*, for which a number of important people had each been invited to subscribe £30. In the following year he allowed the public the chance of purchasing an abridgement, made by himself, to which he had given the title *Revolt in the Desert*. *Seven Pillars of Wisdom* was not made available to the public until after Lawrence's death, but when it appeared in 1935 its general effect was to consolidate even more firmly the two main elements in the Lawrence tradition—the military importance of the Arab war against the Turks in the Hejaz, Jordan and Syria and Lawrence's dominating role in this irregular desert warfare, as military genius and leader extraordinary.

Although there had been occasional scoffing at the Lawrence legend in the 1920s and early 1930s by writers like Sir Andrew Macphail[1] and Major N. N. E. Bray,[2] their adverse comments on Lawrence had received scant attention at the time, and it was not until the year 1937 that the first significant stains began to show through on the reputation of the by now dead hero. In 1937 the volume called *T. E. Lawrence by His Friends* was published, under the editorship of one of Lawrence's brothers, A. W. Lawrence. This volume contains seventy-nine records of personal impressions of Lawrence, most of them completely eulogistic but a few recording anecdotes and judgments damaging to the traditional view. Thus the archaeologist, Leonard Woolley, tells in his contribution of the gossip among the Arab workers at Carchemish about Lawrence's relations with the youth Dahoum[3]; and Bernard Shaw comments ironically on Lawrence's famed "modesty":

"When he was in the middle of the stage, with ten limelights blazing on him, everybody pointed to him and said: "See! He is in hiding. He hates publicity."[4]

Major Hubert Young also reveals that Lawrence was by no means always fair in *Seven Pillars of Wisdom* to the other British officers engaged in the Arab Revolt.[5] These and similarly derogatory remarks in other sections of the book mark the beginning of the crumbling of the Lawrence legend.

In 1939, Vyvyan Richards severely criticized Lawrence's aesthetic theories. He pointed out that Lawrence's guiding principle in the

1. Sir Andrew Macphail, Three Persons (1929).
2. Major N. N. E. Bray, Shifting Sands (1934).
3. See T. E. Lawrence by His Friends, pp. 87-90.
4. Ibid, p. 245.
5. Ibid, p. 124.

printing of *Seven Pillars of Wisdom* was to make the double page of letterpress look well to the eye and that to achieve this effect Lawrence was willing to rewrite parts of the original text. Richards rightly censured Lawrence for adopting such a procrustean method, pointing out that "an artist does not so manipulate his work to fit it to accidental outside conditions."[6] Such criticism, allied with Richards' unfavourable judgment on Lawrence's concept of "fine writing," drew attention to certain weaknesses in Lawrence's book. Thus, it was Lawrence the artist as well as Lawrence the man who was henceforth to be under fire.

Although David Garnett's commentary on Lawrence in *The Essential T. E. Lawrence* (1951) was consistently favourable, there appeared shortly afterwards the book by Richard Aldington that launched the full-scale attack on Lawrence, both as man and artist. This was *Lawrence of Arabia: A Biographical Enquiry* (1955). Aldington set out to prove that many of Lawrence's assertions about himself showed evidence of "a systematic falsification and over-valuing of himself and his achievements"[7] and that on close examination "the national hero turned out at least half a fraud."[8] He also claimed that his researches had led him to conclude, *inter alia*, that "*Seven Pillars of Wisdom* is rather a work of quasi-fiction than of history"[9] and that "the career of Lawrence the man of action . . . was of much less significance than is generally supposed."[10] Aldington's method of investigation was much more thorough than that employed by any of the earlier interpreters. By careful collocation he exposed the conflicting nature of much of the information in earlier books on Lawrence and the unreliability of *Seven Pillars of Wisdom* as history. He proved beyond doubt that Lawrence sometimes lied about himself, not only in the material he supplied to his biographers but also in his personal letters and published writing. He demonstrated that Lawrence secretly encouraged the growth of the Lawrence legend by giving assistance to Lowell Thomas, Graves and others, whilst publicly denying all interest in their efforts. He established the fact that Lawrence was haunted during his early manhood by the knowledge that he was an illegitimate child, and he showed that Lawrence's neurotic and abnormal behaviour, both during and after the war, was due in part to his discovery of this secret.

Aldington's book, however, could not remain the final word on Lawrence. The consistent hostility of the author towards his subject made the work an indictment rather than an impartial investigation. Aldington seized every opportunity that presented itself for sarcasm, irony, and insinuation, and even when the evidence was incomplete drew condemnatory conclusions. Moreover, he tended to give insufficient weight to positive evidence favouring Lawrence. Thus, he failed to make due allowance for the fact that Lawrence rewrote the first eight books of *Seven Pillars of Wisdom* largely from memory, after losing the original draft towards the end of 1919. He also largely overlooked the fav-

6. Vyvyan Richards, T. E. Lawrence (1939), p 125.
7. Lawrence of Arabia, p 12.
8. Ibid, p. 12.
9. Ibid, p. 13.
10. Ibid, p. 14.

ourable opinions of many of those who had known Lawrence intimately and who had testified in the strongest terms to his strength of character, qualities of leadership, and important part in the Arab Revolt. And he gave little credit to Lawrence for having already acknowledged in *Seven Pillars of Wisdom* his minor role in the campaign, his junior rank in the hierarchy of British officers working in liaison with the Arab leaders, and the limited purpose and range of his narrative. From this and other evidence it was apparent that Aldington's interpretation of Lawrence and his book was prejudiced, and that his role was that of prosecutor, not judge.

It was left to the French writer Jean Beraud Villars to reach a just and sane conclusion on Lawrence. In *T. E. Lawrence, or the Search for the Absolute* (1958), Villars has written a biography that goes far towards rediscovering the Lawrence of fact, as distinct from both the legendary hero of early writers and the maligned dwarf of Aldington's "biographical enquiry."[11] Villars' research was no less thorough than Aldington's and he discovered independently for himself most of the discreditable facts about Lawrence that Aldington "unearthed." But whereas Aldington produced his discoveries triumphantly and in a spirit of moral indignation, Villars accepted these matters calmly, tolerantly, and even with sympathy. Nor did he allow these things to assume too much importance in his book or sway his judgment. His portrait does full justice to Lawrence's undoubted abilities as a man and a creative artist.

Some of the evidence that Villars presents on details of Lawrence's war experiences conflicts sharply with the versions of the same affairs that Aldington offers. Villars' analyses of the Wejh and Aquaba expeditions are particularly useful, since they help to restore confidence in Lawrence's own account of these matters. From Villars' book, Lawrence emerges as a war leader of considerable ability, whose misfortune it was to devote himself to a series of campaigns that could yield only mediocre results. Villars also traces the conflicting forces at work in this gifted and highly complex man, and shows how they inevitably produced psychological disturbances, especially during the period from 1918 to 1925.

Although there have been so many biographic interpretations, it is still essential that the reader who is interested in Lawrence should go to Lawrence's own writings, and in particular to the *Letters*[12] and *Seven Pillars of Wisdom*. For the Lawrence of the war years and the immediate post-war period, *Seven Pillars of Wisdom* is the invaluable source. It is true that the work is not fully reliable as history. Lawrence sometimes sacrificed historical accuracy in the interests of what he considered to be higher matters. These higher matters were both political and aesthetic — on one hand the advancement of the Arab cause in the face of Turkish, French and British imperialism, and on the other the attainment of an epic grandeur, largely through descriptive language of great imaginative richness and power. This descrip-

11. Villars' book was written during 1950-1954, and was originally published in French early in 1955.
12. David Garnett (Ed.), The Letters of T. E. Lawrence (1938).

tive element in the writing, although sometimes overornate, vividly re-creates the life Lawrence led during his two years among the Arabs, in all its drama, colour, and strangeness, and with an intensity that none of the biographies can match. There are also the numerous passages of self-revealing comment, confession and introspection, in which, sometimes intentionally and at other times only half-intentionally, Lawrence bares his soul. It is these last two literary qualities—the subjectivity and descriptive power—that constitute the main merits of *Seven Pillars of Wisdom*, making it an autobiographic work of rare and abiding interest.

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