DEFENCE FORCE JOURNAL

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Royal Military College Cadets on exercise with Leopard tanks at Puckapunyal, Victoria.
PROBABLY never before in history have
governments known so much about each
other, and their peoples so little.” In his article
“Five Times in Yakutsk” in the National Geo­
graphic of August 1977, Dean Conger highlights
the reason why, in a world aching for peace
after two devastating world wars, two Asian
wars waged by world ideologies and hundreds of
lesser wars ranging from those involving thou­
sands of tanks to those involving a handful of
infantry on each side, we still need to produce
weapons and train men to kill each other; and
in military journals we still need to discuss the
Profession of Arms.

The mutual distrust continues, and, with
increasingly efficient technology, the Great
Powers, like Olympian gods, peer down at
each others’ domains. We might take heart in
the fact that, with knowledge of each others’
dispositions and capabilities, neither side will
be inclined to lash out blindly like a cornered
animal.

So we continue to discuss and argue about
the most efficient and effective way to defend
our country within the severe financial con­
straints placed on us by a public indifferent to
the dangers lurking beyond and within our
borders.

The arguments are sometimes pithy, some­
times pointless. It is to be hoped that in putting
forward the case for the needs of one service
over another, we do not fall into the abyss of
the puerile ‘bomber versus carrier’ debate in
the Britain of the late Forties or the wasteful
missile scramble in the United States during
the following decade.

The Australian Services are too small in
numbers to duplicate effort. If we are to remain
a viable defence for this vast continent, we
must work together, not pull in opposite direc­
tions. This does not mean that I am against
argument between and within the Services
providing it is logical, non-partisan argument.
Without discussion of the matters vital to
defence planning we would flounder along
from crisis to crisis and finally fail when put
to the test.

I am pleased to see that this issue’s authors
have this very much in mind in their articles.
The title, “The Case for the Rationalization of
our Defence Supply Management” speaks for
itself and “The Future of Infantry—a letter to
a friend” looks at our current tactics based on
recent past operations and suggests that we
should rethink them in a radical way. “Joint
Force Operations” by our new RAAF Board of
Management representative looks at an area
long neglected but increasingly of vital impor­
tance to the Defence Community.

Colonel Matthews, Editor of Parameters, the
Journal of the United States Army War College
has written a masterly exposé of military jargon
which I reproduce with no apology. I would
love to have written it myself, but he has said
it all.
THAT FACTOR-TERRAIN

The article by Maj K. J. Lyons, 'That Factor-Terrain', (DFJ No 6, September/October 1977), could give the impression that the subject of Terrain Evaluation is not receiving attention in Australia.

Whilst it may be considered that there is insufficient effort being directed at this problem, it is worthwhile in light of this article to point out some of the work that is going on.

The Department of Defence's Engineering Development Establishment is currently involved in a task to investigate mathematical modelling of vehicle mobility. This investigation will mainly concentrate on evaluation of the existing comprehensive models, such as the US models AMC-74 and AMM-75, by carrying out validation trials (ie, by comparison of model simulation results with field trial results).

The investigation will also cover such aspects as how the models can be used effectively (eg, as an aid to vehicle and equipment design and selection, and as an aid to operational staffs in selecting vehicle fleets for various defence scenarios); and will necessarily address the problem of what terrain information is required, how this information might be obtained and made available to the user.

It is also interesting to note that CSIRO have recently completed an environmental study of South Australia, using satellite imagery as the main source of information. It seems likely that a similar study for all Australia north of the SA-NT border will be commenced soon and may be completed in approximately four years.

Whilst the information provided in the CSIRO study is not sufficiently detailed to be a source of data for models such as AMC-74, it may well provide a useful basis for obtaining the additional information required.

It is also known that Army Office are concerned about terrain evaluation for a number of purposes, and that specific research requests are in the process of preparation or have already been prepared.

The above indicates that we do not have all the answers right now, however work is proceeding to fill this gap in our knowledge.


ALTERNATIVE VIEWPOINTS

In Issue No 7 of DFJ, you posed the question: "Are the many stimulating and controversial subjects facing Australia covered adequately or at all?" A casual glance at the indexes contained in that issue reveals numerous omissions to indicate that the journal has some way to go towards achieving sufficiency in terms of analysis and discussion of the pertinent aspects of critical subjects.

Clearly, within the current constraints of the DFJ, any one article attempting to cover all aspects of major issues has to be general in nature. Unfortunately, the inherent danger in presenting such an article, whether it be, for example, on the Mirage replacement or the Melbourne's successor, is that the reader might be led into believing simplistic explanations based on many submerged assumptions, both complex and conflicting.

For instance, Captain Richards' article on 'An Aircraft Carrier for the Royal Australian Navy' in the same issue raises in my mind a number of topics on which full discussion of the pros and cons would no doubt occupy a complete issue of DFJ. For example:

- clarifying the aims and objectives of future maritime warfare and the emphasis to be placed on the variety of inherent tasks therein;
- predicting the impact of technology on future maritime warfare: eg stand-off PGMs (air, surface or underwater launched), RPVs and digital C3; and
- determining the best way(s) of integrating each force element (eg aircraft carrier, long range maritime patrol aircraft, anti-shipping strike/interdiction aircraft) into a cohesive and effective maritime warfare
LETTERS TO THE EDITOR

One way of stimulating the latter is to call for articles on specific topics and throughout the year devote an issue or two to, say, the future TFF or Melbourne's successor, or particular facets of these subjects.

Hopefully, readers could then be presented with a number of alternative viewpoints, leading to a better all-round understanding of matters important to us all.

R. W. Howe
Wing Commander
Directorate of Project Co-ordination-
Air Force, Canberra, ACT.

TWO DEFENCE JOURNALS

Would you please advise me of the rationale behind the apparent production of two government-sponsored military journals — namely the Defence Force Journal and Triad?

In view of your plea for more articles (Editors Comment, DFJ No 3, March/April 1977), I would be somewhat surprised if we can support two journals without each detracting from the other.

Glen M. Duns
Royal Military College of Science, Major
Shrivenham, England.

Triad has replaced the Navy Quarterly and is a Public Relations promotional magazine which is designed for external distribution, whereas the Defence Force Journal is an in-house publication for the Armed Services. As for having too little material, I would dearly like to go to a monthly issue, if funds would allow—Editor.

CONTINENTAL OR MARITIME DEFENCE?

While reading Captain Tonna's article (DFI, November/December 1977) on guerrilla warfare I became increasingly disturbed that any serving officer could have so misinterpreted current government policy that he believes we have now adopted a military strategy of Continental Defence. Even the cursory of glances at the Defence White Paper of 1976 would clearly indicate the reverse and I would draw the good Captain's attention to the two quotes following his article. The first supports my contention that it is, in fact, a maritime strategy that we have adopted; the second suggests that if Australia is to develop as we would all wish, then we need a strong navy.

Captain Tonna talks of invasion, but how credible can this be? The Germans in World War II were unable to cross even 22 miles of English Channel. Could any thinking person see an invasion force crossing hundreds of miles of open ocean. The Japanese contemplated it but decided it was too much, even at the height of their successes in the Pacific War. The good Captain quotes a 1944 example of "20 German Divisions in a country about the size of Victoria". How many divisions would be needed in a country the size of Australia? Two hundred?

I suggest the more likely threat in Limited War is the maritime threat to our overseas trade. By the late 1980s we will be dependent on overseas sources for 70% of our oil supplies. Interruption of that alone would bring our country to a standstill in a matter of weeks.

Department of Defence, J. D. Foster
Canberra, ACT.

RIFLE FIRING TECHNIQUE

Having just read the article "A Muskettry Coaching Aid Using Video Techniques" and having spent ten years of my CMF time occupying many hours, plus almost every Saturday afternoon, on the rifle ranges with an SMLE mark III*, I would like to make two comments.

The first is that, assuming the soldier is firing off the right shoulder, the right leg should be parallel to the barrel of the rifle. This gives the most natural position for the rifle, and makes for accurate shooting.

The other is that two fingers—the first and second—should be used on the trigger. This gives a much stronger pull and tends to overcome snatch.

Aranda, ACT. J. S. Cumpston, ED

THE BANTAMS

This is to thank you most sincerely for publishing my letter about the Bantams in your Journal. (DFJ No 7, November/December 1977.)

As official sources have proved to be somewhat sparse as far as information about the
Bantams, I have found that the help of individuals has been of more value to my researches. Because of the particular nature of your readership, hopefully I shall receive some useful leads from among them.

102 Owen Boulevard, Sidney Allinson Willowdale, Ontario, Canada

THE ARMY — WHAT IS HAPPENING??

Please allow me to commend and support WO1 D. K. Watts—an extremely good article (DFJ No 7, November/December 1977). When WO1 Watts joined up the leadership may not have been so well educated as now, but it had no doubts about the nature of its responsibility to the job, its soldiers and its superiors. Officers and NCOs had to achieve a high standard of professional competence which included the exercising of leadership and were fully aware that the job required more than just ‘9 to 5’ hours.

Perhaps the ‘modern’ army has been able to persuade itself that these requirements have become less important possibly because there is no-one about today who is prepared to insist otherwise.

I have an unique advantage in my present job as a fairly low-caste defence public servant, in that I can observe the attitudes of the modern leaders as they move around me. Some, a fairly large minority, but a minority nonetheless, exercise a natural or acquired sense of responsibility towards situations as the opportunity occurs and these blokes are a pleasure to work for. However, there are too many who honestly don't know what responsibility implies or who feel that their status and education excuse them from being involved with soldiers in the way it was in the past. This category is virtually indistinguishable from the public servants who surround them.

As officers, NCOs and their men are entitled to one another’s support I suggest it is a bit much to expect subordinates to react favourably when their superiors avoid any sort of personal involvement with them. Involvement does not mean interfering with a soldier's privacy and should never be a means of seeking popularity—a sure cause of distrust. However, it should establish mutual respect—any popularity which results being a bonus. One can never be popular with everyone.

Today, pursuit of education seems to occupy officers’ attention often to the detriment of their military duties or the complicated nature of their work reduces their availability for learning and practising leadership. It is therefore a short step to becoming so busily absorbed in hoeing their own little rows that they are unlikely to notice what the whole paddock is like, let alone the people who work there.

These are observations all indicative of some of the problems that WO1 Watts writes about. If I seem to have over-criticized officers it is because it is a group in which I spent most of my service. However, warrant and NCOs are even more involved in a different way. It is their honesty, competence and sense of purpose that effective officers should rely upon to increase their capacity to command their soldiers. Furthermore, in addition to their place as a link between officers and men they should be, as in the past, a source of that knowledge that young officers need to acquire to be good in the leadership business. It should be apparent, therefore, that a 100 per cent effort from everybody all the time is necessary, hence the ‘long hard look’ of the writer’s second paragraph. It was always thus in the old Army and indeed in the Militia between the wars. Modern Army Reserve should take note—I know as an old Militiaman.

The ‘modern’ serviceman or woman requires the same sort of leadership as the ‘old’ ones did and I suggest that they would respond equally well to leaders who know their business. Things are far from good and I suggest that we go back to the old methods of training and practice which I suspect have not so much been found wanting as found too difficult. Being an old CA in the public service is full of interest—one hears things that officers may not get told.

Thank you, Mr Watts—excuse the old form of address—for saying what should be said more often and insisted upon in every sphere where leadership is taught and where it should be practised.

P. H. Coen,
Lieutenant-Colonel,
ARA (Retired).

Department of Defence, Canberra, ACT.
To Military Writers:  
A Word  
From The Editor  
On Words

Colonel Lloyd J. Matthews,  
United States Army*  
Associate Editor, Parameters:  
The Journal of the US Army War College

JONATHAN Swift's Gulliver declared 250 years ago that lawyers have "a peculiar Cant and Jargon of their own . . . whereby they have wholly confounded the very Essence of Truth and Falsehood, of Right and Wrong." While few editors of military journals today would make so damning a charge in connection with soldiers' use of jargon, it remains true that, within military circles, the tendency of writers to cultivate a narrow and ugly professional idiom often constitutes an obstacle to effective communication. This idiom, known variously as Pentagonese, military gobbledygook and Army officialese, has been the subject of frequent comment. Well known, for example, are the military's fondness of acronyms (CHOP, RIF, VOLAR), barbarisms with the suffixes -ize and -wise (prioritize, denuclearize, logisticwise, flexibilitywise), new meanings for old words (sanitize, deadline), polysyllabic, dazzle-phrases (optimal digital programming, systematized logistical infrastructure), slick euphemisms (protective reaction strike, retrograde movement, preventive war) and transposition of parts of speech (adjective used as noun — a friendly; adjective as verb — sauing; noun as verb—to task; truncated noun as verb—surveill, destruct; verb as noun— a minimize).

But less appreciated is the fact that much of the debasement of military discourse ensues not from the effects of a jargon whose origins are peculiarly military, but, rather, from the corruptive influence of journalese and the other civilian ese's associated with commerce, science and government.† From these sources, certain catchy locutions make their way into public print and are soon widely noticed. The military writer, unfortunately as impressionable and fashion-oriented as the next human being, zestfully incorporates such words in the military lexicon, thus compounding the problems of communication already inherent in military jargon.

But what is wrong with a vogue word? What has become suspect about such words as image, rhetoric and viable? They appear in the dictionary, don't they? While a few such words are comparatively recent coinages (lifestyle), it is true that the majority of vogue words have enjoyed a long, respectable and conservative past. Their questionable semantic status did not arise until after their rediscovery and popularization at the hands of trend-setters among contemporary writers. The objection to vogue words is quite simply that they tend to be misused and overused. Misused because they are absorbed into a writer's active vocabulary uncritically from popular sources that are themselves imprecise in their use of language. Overused because their very currency attracts those multitudes of writers who feel inescapably drawn to the latest fads of language. At this point, you may object, "OK, so the word is overused; what's wrong with a well-worn word?" There are several good answers. Overexposed words quickly lose freshness and vigor and thus the power to command attention. In Edwin Newman's phrase, they "wrinkle into cliches before our eyes." Furthermore, originally strong words lose force through overuse so that the currency of language is debased. Traumatic, for example, properly pertaining to the infliction of a serious physical or psychological wound, now seems

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to imply little more than unpleasant. The adjective outstanding became so diluted in the Army's efficiency report system that personnel managers seeking an appropriate superlative felt compelled to invent the ludicrous term truly outstanding. A related objection to overused words is that they are drained of their power of nuance and fine discrimination. The ubiquitous padding term overall eventually took on so many meanings that it is now essentially meaningless. The word feedback has become so elastic that there is little assurance that the particular signification intended by the writer will be the one understood by the reader. Eventually, overworked words often cease to communicate absolutely. Their narcotic familiarity deadens the retina, with the result that the words fail to register. Thus, when an author writes that "the subject matter of this book is weapons in use at this point in time," the reader's eyes will skip the words matter and point in. They merely clog the text. In sum, there is ample reason to be cautious of overused words: They make for discourse that is trite, imprecise, pretentious and inefficient.

Discussed below are some 25 vogue words frequently abused in current military prose. Granted, several of these so-called vogue words will already appear slightly jaded to many, but writers still rush to embrace them with all the thrill of fresh discovery. You may find it interesting to check the following entries against samples of your own recent writing.

configuration. This technical term is best used in reference to the relative disposition of the parts of a thing, or to the resulting external form: as, in its modern configurations, the tank appears with a low silhouette. Avoid the tendency to use this word as a fancy alternative to shape, form, arrangement or organization.

context. The phrase in the context of, referring to the broad situation in which a particular event occurs or has application, is often used unnecessarily: as, in the context of war, the taking of life becomes a virtue. In this sentence, the words the context of are superfluous. Bear in mind further that in the context of does not mean in regard to or with respect to.

feedback. This is a technical term, and its use should be confined to technical senses. It ordinarily refers to the return to the input of a part of the output of a system, the returned input consisting of information on discrepancies between intended and actual performance, so that the system's operation is automatically self-correcting. However, the word feedback nowadays saturates military discourse in a disconcerting variety of nontechnical senses (information, effects, comments, reactions, reports, hints, rumors) where the one sense intended is rarely apparent. Seek a more precise term.

game plan. A metaphor from coaching jargon, it was introduced into popular discourse by the Nixon administration. Just say plan. Similarly, why speak of an organization's track record when you can more simply speak of its record?

image. Given a new life by Marshall McLuhan in a 1964 examination of the impact of modern technology on man's world picture, the word today permeates daily conversation and reading fare. An image connotes a visual perception, so it should not be applied for perceptions or impressions resulting from other sensory stimuli. Avoid the temptation to use this word as a loose synonym for reputation, repute, name, impression or standing. Footnote: There is perhaps a philosophical implication of the obsessive concern shown by today's military writers with the word image. While no one questions the need for sensible Army public relations programs, it is possible that preoccupation with image — that is, with outward appearance — has served to divert attention from its proper object — the reality that lies within.

in-depth. This expression is one of the numerous hyphenated adjectives that have come to be manufactured on the spot by prefixing a preposition to a noun. Demanding a strong initial accent, such constructions break up the rhythmic flow of the English idiom and thus impair prose quality. The best advice in the expression's current state of overuse is to avoid it. If you cannot resist, then use it only as a prepositional phrase: rather than "I conducted an in-depth study," say, "I conducted a study in depth."

in-house. Ninety-nine percent of the time, this expression can be eliminated with no loss of meaning. It is a fancy redundancy. Instead of "The Army conducted an in-house study,"
say simply, "The Army conducted a study." If you wish to distinguish between something accomplished by the Army with its organic resources and something it hires done, then specify: as, the Army contracted for a study by the Hudson Institute.

_interface_. Originally a scientific and technical term from whence it was adopted by communications and computer specialists, the word has now come to infect all areas of military writing in a broad variety of senses. Joint Chiefs of Staff Publication 1, Department of Defense Dictionary of Military and Associated Terms, sets forth a technical definition confining the word's application to "information flow." It is time to give this rubber term back to the specialists and to say, instead, exactly what is intended: joint, juncture, union, point of contact, frontier, common boundary, connection, point in common.

_lifestyle_. Denied the sanction of a separate entry for its definition in the liberal Webster's Third New International Dictionary in 1968, this word subsequently caught on spectacularly in civilian discourse, and now frequents military writing as well. Thus, one rarely reads of service life or Army living - he reads instead of the Army lifestyle. Be aware, however, that the style of an action is not properly equatable with the action itself. When an old soldier confides his gratitude for 30 years of Army life, he is expressing considerably more than satisfaction merely with the stylistic contours of his existence.

_low-profile_. Despite the fact that this word as an adjective is sanctioned by no reputable dictionary, it has become a fixture in military writing. If you must use the expression, shun its adjectival form. For example, rather than "He maintained a low-profile stance," say, "He maintained a low profile."

_matrix_. The word matrix is already causing problems for writers (and readers) and promises to cause more before it finally settles down to a stable status. Etymologically, the word is a late Latin formation meaning womb or uterus, hence its reference to that which gives origin or form to a thing, or which serves to enclose it: as, Athens was the matrix of Greek civilization; the diamond was embedded in a matrix of organic materials; the lead type faces were cast in a matrix of steel. The word did not begin to cause problems until after the sudden prominence of matrix mathematics in the 1950s coincident with the development of the electronic computer. In mathematics, a matrix is a set that obeys certain arithmetic rules, and that is composed of elements arranged rectangularly in rows and columns, all enclosed in brackets. The computer provides quick solutions to those hitherto difficult problems in science and business that are translatable into the language of matrix algebra. Owing to the increasingly wide familiarity with the mathematical sense among non-technicians, the word matrix has infiltrated military discourse, often in metaphorical guise (as, the strong-points formed a matrix on the battlefield). The word is troublesome because it is not always apparent which sense of the word is intended - traditional, mathematical or metaphorical. There is also a growing tendency toward misuse: as, the Army is a matrix of people with broadly divergent economic, social and ethnic backgrounds. Here, matrix is apparently used in the erroneous sense of mixture. Unless you are doing technical writing, the best course at this time is to use the word with moderation, and then only in its traditional sense.

_ongoing_. Military writers evidently feel a strong compulsion to assure readers that the processes and actions they are writing about are not defunct; hence, they sprinkle their papers with allusions to ongoing studies, ongoing projects, ongoing developments, and so on. If an activity remains in progress, that fact will usually be obvious. If you must provide assurance, however, use a traditional word such as continuing or current.

_orchestrate_. It was perhaps inevitable that military professionals, whose complex enterprises often require the proper timing and meshing of numerous subordinate activities, would be drawn to the word orchestrate. Give this word a rest. Currently, perhaps only scenario and viable are more strongly in vogue in military writing.

_paradigm_. From a Greek term meaning model, pattern or example, the word paradigm today is best applied to an outstandingly clear and typical example: thus, Napoleon and Custer are paradigms of the youthful general. Avoid the pronounced tendency to use para-
digm as a fancy substitute for model or hypothesis, as in paradigm-testing.

**parameter.** A technical term with precise meanings, it refers to an arbitrary constant that modifies with each of its particular values an element in a mathematical system. Or, in a different and more general sense, a parameter is a physical property expressed as an independent variable whose value, in conjunction with those of other such properties, determines a physical event: thus, among the parameters of a bullet's trajectory are initial velocity, angle of elevation, air resistance, shape of bullet and gravity. Through the process of distortion that attends overuse, parameter is now routinely misused as a flashy synonym for factor, boundary, limit or condition.

**time frame, point in time, subject matter, problem area, experience factor.** These five expressions present similar problems in that they are wordy embroideries of briefer, simpler terms. A time frame is a span of time within which certain events, whose precise times are often unknown or undecided, are expected to take place. Avoid the prevailing tendency to use this expression in connection with a discrete time. Even when speaking of a bracket of times, prefer a succinct synonym such as period, span or time. The phrase point in time is nearly always an unnecessary elaboration of the single word time. Similarly, in the overwhelming majority of cases, subject matter, problem area and experience factor are better reduced to subject, problem and experience.

**rhetoric.** This word has endured a long and protean past. Originally an honorific term applied to the art of writing to achieve various intended effects, it has at time been employed in the depreciative sense of eloquent but empty, insincere words. More recently, it has come to denote the characteristic positions, arguments and jargon of particular schools: as, the rhetoric of the New Left. It is in these latter two senses that the word today has become a stock favorite of military writers.

**scenario.** The current darling! Scenario is a stage term for the actor's outline or synopsis of a play plot. More recently, in the movie and television industries, the word is applied to the screenplay and shooting script. By a loose process of metaphorical transfer, the word came to be broadly applied to a particular conformation, among several possible, of contingent or future events. But, in current military parlance, the word lacks a stable signification. Some of the apparent senses observed are as follows: prediction, anticipation, contingency, eventuality, plan, possibility, unfolding event, conjecture, picture, vision of the future, hypothetical situation. The prudent writer will set this word aside and seek, instead, one that clearly conveys his meaning.

**spectrum.** In physics, a spectrum is the band of frequencies of sound, light or electromagnetic waves, hence the term's application to any complete range of related ideas or objects that form a series of continuous gradations. In this latter sense, the word is relied on to excess among military writers.

**structural, unstructured.** Long part of the jargon of psychology and pedagogy, these terms finally caught the popular imagination and are among the more modish words available. Military activities today are rarely organized, supervised, planned, patterned, ordered, guided, shaped or designed; instead, they are structured. Consign structured and its negative back to the specialists.

**surface (verb).** No longer is the act of surfacing confined to whales, submarines and other sea dwellers. Everything can, and does, surface today — ideas, impulses, spies, runaway soldiers, and what have you. There are several traditional substitutes for this overnight cliché—for example, appear, emerge, come to light. Use them.

**syndrome.** The term denotes a pattern of symptoms that characterize a particular medical, psychological or social condition. As a result of the stretching process that attends excessive use, the syndrome is often mistakenly equated to the disease itself: as, the Army is suffering from a fatal syndrome because of reduced Congressional appropriations. Reserve this word for those occasions when it can be applied with precision and effect.

**traumatic.** A powerful word (at least it is supposed to be). Do not cheapen it by loose application to feelings, experiences and situations that are merely displeasing or upsetting.

**utilize.** Note the impressive -ize ending. Utilize best applies to making profitable use of an apparently useless thing or of something
intended for a different use; as, ammunition boxes were utilized to build temporary shelters for the refugees. Unless this special sense is intended, prefer the simpler, unaffected alternatives such as use and employ.

**viable.** Certainly among the most omnipresent vogue words in the military vocabulary, it is also among the most abused. *Viable* means born alive with a degree of development sufficient to sustain life; more broadly, it can be applied to that which is capable of existence and development as an independent entity. It does not mean feasible, advisable, workable, achievable, effective or practicable. Avoid such usage as the following: “Upon analysis of the various factors, the plan was found to be viable.” A plan might be workable, but it is difficult to conceive a sense in which it would be viable.

The terms discussed above by no means exhaust the list of words used to unimaginative excess in military writing. Consider as well these venerable lovelies: *ad hoc*, ballpark figure, breakthrough, catalyst, charisma, conceptual, confrontation, constraints, cosmetic (adjective), cost-effectiveness, counterproductive, credible, decision-making, dialogue, escalate, euphoria, frame of reference, geared to, ground rules, guidelines, hindsight, impact (verb), macro-, micro-, and mini-, marginal, maximise, meaningful, mix (noun), optimal, optimize, options, peripheral, permissive, pragmatic, predictable, proliferate, quantum jump, realistic, relevant, rethink, sensitivity, stem from and vis-à-vis. Obviously, such words can be made to serve a worthwhile role by the military writer, but only if approached with caution, in awareness of the risk, and used sparingly, for measured effect.

Lest the military professional feel incompetent to write if he relinquishes his comforting dependency on the foregoing stock of contemporary clichés, he might for reassurance dip into the pages of Alfred Thayer Mahan’s enduring treatise, *The Influence of Sea Power Upon History, 1660-1783*, written in 1890. Mahan’s prose is timeless and compelling, and he manages it without resort to interface, feedback, scenario, orchestration, paradigm, matrix . . . In counselling caution with respect to vogue words, I am not, of course, inveighing against modernity in language. Language, if it is to remain useful, must be adaptable. But the careful writer will always distinguish between the intelligently modern and the mindlessly faddish. He will thus spurn writing that, in the words of Sir Ernest Gowers, “forces its modernity on the reader by posture and display, like an incompetent model flaunting a new dress.” And he will avoid as well language that, while professing modernity, has, in fact, grown so stale and hackneyed that it no longer performs the service of true communication. The careful writer will draw, instead, on that ample and proven store of words that continue to speak to us with classic force and clarity.

How many of us can honestly say that we haven’t used some of these words in our writing? The disease is endemic throughout the English-speaking world.—Editor.

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**Award: Issue No. 8 (January/February 1978)**

The Board of Management has awarded the prize of $30 for the best original article in the January/February 1978 issue (No. 8) of the *Defence Force Journal* to Major Paul Mench, for his article *A Nuclear Defence for Australia? Some Thoughts on a Role for Nuclear Weapons.*
THE subject of this article has generated a great deal of discussion in recent years, particularly since the start of the Kangaroo series of combined/joint exercises. Unfortunately, much of the debate has lacked objectivity and, apparently, a real understanding of the issues involved. This situation reflects, I believe, the lack of experience the Australian Defence Force possesses in joint operations. Apart from some relatively minor and short operations in World War II, the Australian Services have no experience of joint operations under Australian command. Up to and including Vietnam, Australian forces operated essentially within Allied command structures. The result is that Australian commanders have no real experience of joint command at the higher levels, and the members of all three Services generally know more about operating with equivalent Allied Services than with each other. Although the 1ATF/ALSG/9SQN operations in South Vietnam might be regarded as 'joint', they were only a small part of the much larger operations directed by the Commander, US Military Assistance Command Vietnam (COMUSMACV) and his subordinate component commanders, Commander US Army Vietnam (COMUSARV) and Commander 7th/12th Air Force. As such, our experience in these operations did not provide a sound basis for the development of doctrine for Australian joint operations or combined operations under Australian command.

Certainly, we have conducted joint exercises (most recently Kangaroo Two) but these exercises have not validly tested many important aspects such as Joint Force air defence or Joint Force logistics. Without such valid testing, our doctrine and procedures will remain largely theoretical, as will the arguments about them. Our doctrine and procedures, as presently agreed, are an amalgam of UK and US doctrine, which in turn, is the product of actual operational experience. Although we should resist the temptation to re-invent a combat...

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proven wheel, we must make sure that the wheel that we have adopted is the right size for Australia.

Why a Joint Force?

Present doctrine states that when significant elements of two or more Services operate together, a Joint Force normally will be established. The key word is 'significant', and is open to (mis)interpretation. In my view, a Joint Force should be formed when any Service component has a capability for independent action which is needed for Force mission accomplishment, but which may not be directly related to the activities of another component. For example, an air component may have a tactical counterair or interdiction capability which is required for mission success, but which may not be used in direct support of a land component. In this context, one of the tasks of the air component could be to create an environment in the force area within which the land component could operate successfully. The same situation could apply to a naval component. Based on historical evidence, such operations need close co-ordination and central direction, to ensure that resources are used efficiently and that the activities of one component do not inhibit the activities of another, eg, that air (or naval) elements do not destroy, as part of an interdiction program, facilities that may subsequently be required by the land component.

What Capabilities Should a Joint Force Have?

The capabilities required in a Joint Force are completely dependent on its mission and the operating environment. It should have a designated area of operations which specifies boundaries in terms of land, sea and airspace, as appropriate. These areas should only be those for which a Joint Force Commander (JFC) needs to have direct responsibility. As an operation develops, changes may be needed to the Joint Force Area of Operations (JFAO). Logically, the Joint Force must include the capabilities needed for the control and/or use of the designated JFAO. For example, it would be pointless giving a JFC responsibility for an airspace (in a hostile air environment) if he did not have the resources to defend it, or a sea area which a naval component could not control. Similarly, the land area to the rear of a combat force in a JFAO should encompass only those resources, such as airfields, logistics units, ports and lines of communication, which must be under the control of a JFC for mission success. The proposition is simple: if a JFC does not need to be directly responsible for land, sea or airspace to accomplish his mission, it should be excluded from his area of operations and assigned to another commander or authority.

As to other Joint Force capabilities, they should be only those needed to accomplish the mission. However, apart from combat units, a Joint Force must include those logistics elements needed for the direct support of operations by all components.

Joint Force capabilities may need to be varied as operations develop, with CDFS, acting with the advice of the Chiefs of Staff, allocating available resources in response to the overall national requirement and perceived priorities. In this context, Defence Force resources may be used to support the operations of a Joint Force, but not be required to form part of that force. For example, naval operations under the direction of a Maritime Defence Commander (who would probably also be a Joint Force Commander) may include the protection of shipping supplying a Joint Force, or the interdiction of enemy sea lines of communication remote from a JFAO. Such operations may be conducted at the request of a JFC and co-ordinated with his operations, but the capability to conduct those operations normally would not be required within the Joint Force on a continual basis.

Why Do We Need a Joint Force Commander With His Own Headquarters?

There are two alternatives for the command of a Joint Force—one overall commander who directs and co-ordinates the activities of subordinate component commanders, or joint command where two or more component commanders have a shared responsibility for accomplishment of a mission. The concept of a JFC, theatre commander, 'el supremo', or whatever is accepted by most, if not all, other military forces. The concept is based on combat experience, which has shown that when two or more Services are operating together to achieve a common mission, difficult decisions often have to be made. These decisions may involve such
as matters as allocation of scarce resources between the Service components, or the changing priorities which one component's operations will have over another. Although such decisions could be agreed between two (or three) co-equal component commanders, the probability is that each commander will see situations differently on many, if not most, occasions and fail to reach agreement. There are many historical examples of this situation, with results to no one's liking but the enemy's. Successful joint command would require, I suggest, almost saintly qualities of the commanders, but even very senior officers are mere mortals, with their perceptions very often biased to single-Service experience and requirements. Even within a single component or Service, joint command responsibility does not exist; division commanders do not decide by mutual agreement who is to have the support of Corps troops. One wonders what the outcome of World War II in Europe might have been if Montgomery and Patton had not been subject to the direction of Eisenhower.

The answer to the question: why do we need a JFC? is that when decisions affecting two or more Service components have to be made, one commander must have the authority to make such decisions and carry the responsibility for them. This is one reason why we have a CDFS.

As to a JFC's need for his own headquarters and staff, UK doctrine provides that when a Joint Force is established, the component headquarters (normally land and air) are integrated into one Joint Force Headquarters, which then serves both the Component Commanders and the JFC. This means that most staff officers are 'two-hatted', responsible both to the JFC and their respective Component Commander. The UK doctrine has been tested in operations and it works. However, it was designed primarily for small scale intervention-type operations and demands collocation of component headquarters. US doctrine, on which present Australian doctrine is predominantly based, provides for separate Component HQs and a JFHQ (or Joint Task Force Headquarters (JTFHQ) in US parlance). The UK model is economical of manpower and promotes close liaison between the components. The US model provides for more autonomy in component operations. It also appears to be more suited to operations geographically remote from the next higher echelon, such as a Unified Command Headquarters, where the JFC (JTFC) may well be responsible for more than just current combat operations, eg, political matters, liaison with civil authorities, Force logistics. A reading of JSP(AS)8, which is derived almost exclusively from US JTFHQ SOPs, will indicate the responsibilities of a typical JFHQ staff. Many of these responsibilities would be inappropriate to Component Headquarters and could inhibit Component Commanders in the conduct of their assigned tasks. It has been suggested that a Joint Force operation could be commanded adequately by the senior Army combat formation commander, ie, Corps, Divisional or Task Force commander, with air and/or naval staff officers attached to his headquarters. This arrangement possibly could work if air and/or naval component operations were limited to direct support of the Army component, eg, close air support, short range reconnaissance, tactical air transport, and coastal transport. However, if air and/or naval operations such as tactical interdiction, counter-air and in-shore surveillance need to be conducted beyond the ground combat zone, they pass beyond the area of responsibility of the Army combat formation commander, who is primarily concerned with and fully occupied in, planning and conducting the land battle. The rhetorical question may also be asked: is the senior Army combat formation commander to be responsible for Force logistics operations which must be taking place behind his rear combat zone boundary? I suggest not.

In re-examining the need for a separate JFC and JFHQ, we should not draw too many conclusions from our experience in Exercise Kangaroo Two. Many important functions of a JFHQ were not validly tested during that exercise—again, a study of JSP(AS)8 is appropriate.

Command and Control

This is probably the most misunderstood aspect of joint operations and yet, paradoxically, the issue is a simple one when stripped of emotion.

The degrees of command and control authority, as specified in our current doctrine, are agreed internationally and have been derived from combat experience. Most of the misunder-
standing stems, apparently, from a common belief that the explicit authorities in the definitions are immutable. This is not so. The defined authorities and responsibilities can be expanded or contracted, as deemed necessary, by the conferring authority.

The question which has to be answered in each case is: what is the minimum degree of command/control authority, if any, which a commander needs to accomplish his task and mission efficiently? Having answered that question, the appropriate degree of authority is then conferred, with any caveats or additions specified.

When a commander needs some degree of command or control authority over another Service element, he will usually need a specialist officer (or staff) from that Service to advise him on how best to use the allocated resource. In any event, the commander who is given the authority and the commander of the element placed under command or control must both be given a copy of the directive which specifies the degree of authority conferred. Anything less than specific, written delegation of command and control in joint operations, and failure to provide qualified advisors or liaison officers is most likely to lead to misuse of resources and divisiveness between Services with a common force mission.

Conclusion
The comments I have made are based on my continual research and experience in the subject of joint operations over the last five years. I have written this article in the fond hope that it will generate more light than heat and contribute to the evolution of an appropriate Australian doctrine for joint operations.
VSTOL VARIATIONS

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A

n invitation to Register Interest in Aircraft Carrier Project Investigation for the RAN, with VSTOL (Vertical/Short Take Off and Landing) aircraft as the only fixed wing aircraft option, has recently been issued. This, together with overseas developments in VSTOL, focuses attention on the shape of VSTOL aircraft carriers of the future.

The characteristics of VSTOL aircraft are sufficiently different from those of conventional take off and landing aircraft that a long hard look will have to be taken at carrier design to ensure that ship and aircraft are integrated into a total system. This approach from the outset should result in early achievement of the full benefits of VSTOL. These will not be derived if VSTOL aircraft are merely incorporated into an existing conventional aircraft system.

This article discusses some innovations in carrier design and operating arrangements which might improve capability and hence increase the pay-off from operating VSTOL aircraft from a carrier. The purpose of the article is not to outline plans but to stimulate thought about other possibly useful features of a VSTOL carrier.

Method of Operation

Before discussing changes, a brief outline of the methods of VSTOL aircraft operation may help. VSTOL aircraft operating from carriers will normally operate 'STOVL' (Short Take Off and Vertical Landing.) By using its high power-weight ratio to achieve rapid acceleration during the STO deck run and hence a launch speed of the order of 100 knots, the aircraft can gain considerable wing lift when it is at its heaviest. Wing lift plus vectored thrust lift are together adequate to support the aircraft's weight. When landing, the fuel and weapon load will be partially expended and vectored thrust from engines alone is powerful enough to support the aircraft during a Vertical Landing.

Vertical take off is not likely to be used except for aircraft which need to get airborne with absolute minimum delay, such as fighters on deck at immediate alert, or where a turn into wind to launch aircraft is for some reason particularly undesirable. Some reduction in take-off weight may be acceptable to gain the benefits from quick reaction or a steady carrier course.

The Ski Jump

The first change discussed is aimed at increasing launch weight. The greater the total weight at which an aircraft can be launched, the greater its endurance/payload can be. In carrier operations, the relatively short length available in which to build up airspeed means that wing lift and hence all up weight at launch could be less than is desired. Methods to increase lift at launch and hence increase permissible launch weight are therefore keenly sought.

In a normal STO take off from a carrier, a VSTOL aircraft uses wing lift ($L_w$) and vectored thrust lift from its jets ($L_j$) to keep it airborne after launch. These two forces together ($L_w + L_j$) need not equal the aircraft's
weight \(W\) at the instant of launch, but they must do so before the aircraft impacts with the water! All other things being equal, if the time from instant of launch to water impact can be lengthened, there will be a longer period for the aircraft to accelerate and to gain extra wing lift from extra speed in order to achieve the situation where \(L_w + L_j = W\).

The skier's problem is similar — how to remain airborne for as long and hence as far as possible after take off. He solves his problem with an upward angled 'ski jump'. The thought is that the VSTOL aircraft should do likewise during the period from launch to fully supported flight.

Figure 1 depicts two versions of a VSTOL aircraft leaving a carrier deck at weight \(W\), a weight greater than total available lift \(L_w + L_j < W\). Figure 1A depicts a flat deck take off in which the aircraft would have built up sufficient speed between \(X\) and \(Z\) to increase \(L_w\) by point \(Z\) on the theoretical flight path, so that \(L_w + L_j = W\) and away he would climb. Regrettably, water impact at point \(Y\) has more than likely spoiled his entire day.

In Figure 1B, the ski jump pilot with an identical aircraft, the same deck length and wind conditions and a similar but elevated launch path manages to build up sufficient airspeed between \(R\) and \(S\) to enable him to a climb away after passing point \(S\).

The ski jump designer will be faced with the task of determining the best angle on the jump for the particular aircraft type(s) so that the distance \(RS\) is a maximum across the likely range of launch weights and speeds. Flight stability on take off and the ability of the aircraft undercarriage to stand the extra vertical acceleration will need to be taken into account, not to mention the 'Big Dipper' effects on the pilot immediately prior to launch.

The gain from a 20° ski jump versus a flat deck of the same length for one type of VSTOL aircraft has been estimated as an increase of almost a ton in aircraft payload with the same safety margin.

Will it work? An adjustable ramp is being constructed at the Royal Aircraft Establishment, Bedford, England for shore trials. Launches at 6° commenced in August 1977 with 12° as the target for the end of the year. Confidence is high that a low angle ramp around 6° will prove both attractive and very unlikely to have any serious design problems. A payload increase of 1000 lbs would be possible. Just how far up the angle will go can only be resolved by trials.

**Grids**

VSTOL aircraft suffer from two adverse phenomena when hovering just above a landing surface. The first is exhaust gas ingestion. The engine exhaust envelopes the aircraft and the engines suck in their own exhaust gases thereby increasing engine heat and decreasing efficiency.

The second is an aerodynamic effect on lift as a result of the disturbance of the natural flow of gases by the ground surface. The total vertical lift generated when the aircraft is within about 6 to 8 metres off the ground will be considerably less than the lift created at the same engine power outside ground effect. Hence the ground effect necessitates more power to get from 0 to 8 metres than to hover at greater heights.

These two problems would be overcome by fitting a grid (Figure 2) to direct exhaust gases over the ship's side. The aircraft's Vertical Take-Off and Landing weight could be thereby increased.

The problem of deck-buckling and tyre burning due to overheating where a series of aircraft take off in a short time from one spot...
would also be reduced by a grid — though this particular problem could probably be more easily overcome by water cooling of the deck area.

**Turntable**

A full deck length run is likely to be required to launch VSTOL aircraft safely at maximum all up weight on all but very large carriers. Because of aircraft ground manoeuvring characteristics, the positioning of an aircraft at the extreme after end of the flight deck would be a time consuming business requiring flight deck personnel to position the aircraft.

A turntable at the after end of the flight deck (Figure 3) would eliminate this problem. Rapid launch of a series of aircraft without handling the aircraft would be practicable with consequent saving in manpower and time.

Some form of tie-back arrangement might be fitted on the turntable to allow the pilot to check the engine at full power before take off, as it is not practicable to design VSTOL aircraft brakes and tyres to restrain the aircraft during a full power ground run. If the turntable could be gridded, so much the better.

**Flight Deck Layout**

The conventional aircraft carrier has its deck angled to port (Figure 4) so that aircraft landing — and more importantly overshooting — stay clear of aircraft just landed or ready for catapulting. It would be surprising if the idea flight deck layout for a VSTOL carrier, which uses a long run to launch and a small area to land, were the same as the ideal layout for a conventional carrier, which uses a long run to land and a small area to launch.

Accepting that the least troublesome place to put the ‘island’ — bridge, funnels, radar etc — is to one side and that the ‘Rules of the Road’ for surface ships dictate that it be on the ‘give-way’ or starboard side, one must then decide where to put the deck park and the runway.

Is a parallel runway the best idea (Figure 5) with two small deck parks, or would a slight angle to starboard be preferable, giving a larger deck park aft and a smaller deck park forward? This might have the advantage that a turntable/grid could be further from the centre-line and hence the problems of directing exhaust from the grid could be reduced. A runway angled to starboard is a feature which might be seen in future VSTOL carriers.

A simple change to flight deck layout which has already been tried and proven, is a ‘tram-line’ system for runway centreline marking.

Accurate and smooth steering of the aircraft is important during take off deck run especially when operating from a small carrier or a rolling deck — or both. It has been found that ‘tram-
lines’ marking centre line limits rather than a single line make for better steering accuracy, especially at night. Tramlines also ensure that the nose steering wheel experiences maximum adhesion during the take off run, as the wheel operates on the special non skid paint used generally on the carrier deck and not on the day glow paint which is used for marking the lines. Tramline markings and tramline lights can be expected in VSTOL carriers.

'Don’t Rubbish AUSTRALIA'

VSTOL aircraft engines are very susceptible to FOD (Foreign Object Damage). In the words of the Flight Manual for one such aircraft: ‘VSTOL aircraft are particularly adept at creating their own FOD and then ingesting it . . . . The aircraft has proven to be an efficient manhole cover remover although it displays no discretion in depositing them after removal.’

Presuming to have some prescience of the possible name of our hoped-for VSTOL carrier, the current anti-litter slogan might well be adopted by the ship. Flight deck hygiene is important with conventional aircraft, but because of the special FOD problem, it is even more so with VSTOL aircraft. As a result the number of openings in the ship’s island whence objects can be thrown or blown should be strictly limited. Secure stowage of flight deck equipment will be of special importance. Sponsons projecting from the flight deck will have to be kept not only scrupulously clear of loose paraphernalia, but all gear stowed there will have to be securely fastened.

As a footnote, a carrier provides an ideal operating environment for VSTOL aircraft because of the dust and debris free environment.

Flight Operations —
Into Wind or Axial Operations

VSTOL flight operations with the ship steaming into wind are not likely to be markedly different from practice with conventional aircraft. A free run launch will take the place of catapult launches. The traditional racetrack landing circuit and final approach will be much the same as for conventional aircraft, with CCAR (Carrier Controlled Approach Radar) and some form of stabilised mirror landing aid providing glide slope information. In the final stages of the approach the VSTOL aircraft will decelerate and land vertically rather than executing an arrested landing as with conventional aircraft.

Flight Operations — Weathercock

Non-axial VSTOL operations have not to the author’s knowledge been extensively developed. This development is inevitable if the full potential of the VSTOL aircraft to land and take off with the carrier ‘out of wind’ is to be realised. Since these operations will be oriented round the relative wind, ‘weathercock operations’ appears an appropriate name for them.

The CCA radar, mirror landing aid and the turntable could all be automatically controlled by a relative wind detector (see figure 6).

Racetrack landing circuit and final approach would be lined up with the relative wind. An instrument or ‘blind flying’ approach using the CCA radar would be made in exactly the same manner as at present, but oriented to the relative wind. The pilot would complete the final stage of his approach using the mirror and end with a crossdeck landing. It may be necessary to modify the mirror to include a Left/Right indication, as the ship centre-line which currently provides that information would not be relevant.

If the operational circumstances call for it, an air defence or CAP (Combat Air Patrol)
aircraft could be held in readiness on the turntable. By weathercocking the turntable and providing fuel through an umbilical, the aircraft could be at standby for instantaneous launch with all systems running for as long as the pilot can stand it. The weathercocking turntable plus VTO capability combined could provide an aircraft that was to all intents at an airborne alert state yet available over an extended period with a full fuel load. This represents a very significant advantage over fixed wing carrier borne aircraft, where aircraft on deck alert may be several minutes before getting airborne, especially if the carrier happens to be steering a course well off the wind when the aircraft are called for.

Aircraft not on a turntable could be kept weathercocked by deck handling parties, but where a carrier is manoeuvering or zig-zagging, this could be a tedious process calling for large numbers of deck handlers. Umbilical fuel arrangements would also be less convenient than on a turntable. There may be a case for fitting more than one turntable.

Having said all that, experience may show that for landing a ‘crabbing’ approach (Figure 7) is almost as easy to fly as a direct approach and that the landing is easier to execute. This technique would be similar to that currently used by helicopters. It would require some neat judgement when a group of aircraft were being embarked to arrange their spacing so that aircraft separation throughout the pattern was correct.

An axial approach all the way to the deck might not be practicable with an aircraft on the turntable. A parallel offset approach could perhaps be used. The aircraft would approach down a line parallel to the ship’s axis and be brought to a hover alongside the port side of the ship. It would then be flown sideways to a point above the landing area. This would overcome the problem of avoiding an aircraft on the turntable, but might take a little longer.

**Landing Area**

In good weather, landings can be expected anywhere along the ship’s length, but with the majority taking place in the after half of the ship. Landings forward of the island without the island in the pilot’s field of view are unlikely, especially at night. The pilot would find difficulty in landing without a reference datum. When forward of the bridge and facing forward, he would be unable to see the ship until just before touchdown.

In rough weather the more stable centre third of the ship is likely to be used exclusively for landings. Reverse axial landings with the carrier heading downwind and downsea can be expected, as these would provide calmer conditions, less water on deck, less pitch and possibly less roll motion. Reverse launches might also be encountered. This capability to operate aircraft when proceeding down-sea would give a VSTOL carrier the ability to operate in conditions which precluded operations from a conventional aircraft carrier the same size.

**Conclusion**

VSTOL aircraft will call for changes in the design of carriers and in some concepts of their operation. The extent to which the significant benefits of the VSTOL capability are realised in carrier operations will depend upon the ingenuity of the designers of the ship component of the VSTOL air power system and the imagination of air controllers and pilots. They will need to adopt a fresh approach to the possibilities in operating this new breed of aircraft.
The Future of Infantry
a letter to a friend

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No doubt you will be surprised that this letter has found you. Don't worry too much as to how or even as to who wrote it. I write as a friend of the past but already you have forgotten my name. As a friend I have followed closely your career; always with much interest and no little admiration; always conscious of you as a loyal and generous ally.

And yet it seems much has now changed and I wonder how you will cope. Suddenly you are not helping others and you are forced to put your mind to the defence of your own homeland. How often in the past have you applied your skills and resources to the defence of someone else's homeland — distant hard pressed lands of different people and different ways. How remote those causes and yet costly your involvement?

Now you face your own Great Land, a land of distance, of wealth, of resources and a few people — your own people. Yet I see other changes — no longer the assurance of more powerful friends or the efforts of likeminded allies, no longer warfare where skill could multiply strength or technology negate advantage or confidence bolster commitment. No it seems to me, old friend, that once more you are struggling up a steep narrow track, outnumbered, outgunned, once more with few soldiers, untrained reserves and little equipment you are up against a confident and cunning enemy.

How little or how much has changed? In those distant days it was your infantry who suffered so much for so little return. Not just your infantry of course but those tireless gunners, those few aircraft, those doomed warships, those wasted or abandoned men trapped elsewhere. But even when you became the victor little changed — your infantry continued on to other campaigns, there was always something for your few gunners to do but as for the rest how they chafed, anxious for something to do.

For a while recently it looked as if, for the first time, there was plenty for all but how long ago was that? I watched your return home. I heard of the cutbacks, the depression of spirit, of the talk of new concepts, new demands — how confusing it all sounded.

However time is short and opportunities few and as an old and tolerant friend you will not take it amiss if I use both.

I can understand, from a distance, your frustration but I find it so contrary to your
traditionally optimistic spirit that you should have taken it so badly. An old infantry hand like you will never be out of a job yet you seem to have given so little attention to your future. Now there’s a challenge! Do you wait for change to be forced upon you (as you have so often in the past) or do you intend to use the present lull to make the best use of an unique opportunity?

You will find difficulties immediately with my challenge. The forces of conservatism, apathy, laziness, economy and time all bear down upon initiative and caution restraint or at worst deliberately obstruct. The efforts of those who work hard and long to encourage and promote professionalism and generate progress seem lost within the more pressing demands of other priorities. We found and such has been our way that there is often good reason to let events take their course — to fill our time with other things. In the end, we told ourselves, the results would be the same. How comfortable a thought — in my own land we lost that battle and with it the war and I doubt whether history will be more gracious to you. All of us have shaken our heads at those who delayed the introduction of the machine gun or bemoaned the demise of the horse and do you remember how we scoffed at the appearance of those first ragged legions? What matters the mantle of the Angel of Death? My friend from my cage I wish I could shake you.

Why do you pride yourself on flexibility and yet are so slow to press for change; so slow to press your own ideas, your own experience and enthusiasm to the ideas of today and tomorrow? Have you been beguiled by signs that change is under way, that new manuals are being written, new doctrines being tested? Why do you wait? In an age when your children are swamped with technology you have yet to equip your section commanders, so often the thin edge of success or failure, with their own system of communications. In an age when politicians and generals play chess with mechanical armies most of your infantry are still on their feet. In an age of accelerating change when did you last change your basic infantry organisation let alone your tactics!

Serious old friend I think you have become a prisoner of your own experience. The long infantry war has slowed you down — the painful losses caused by the booby trap and the ambush and the rocket have imposed the habits of caution and attention to detail so divorced from the strategic and tactical circumstances in which you now find yourselves. For a while there you had a taste of the future with new concepts of mobility and firepower but then the corrosion of peace and the rust of economy blunted your enthusiasm for change. How long ago did you practice the attack and defence at a reasonable level and where are those experienced leaders who can remember when you last did it as the real thing? You cannot survive on memories and even your most recent but now distant experience is out of date.

Unfair comment, you cry! Does all this mean that the previous effort has been wasted? Given the boldness with which the denigrators of your conflict experience have debunked the value and cost of your previous involvements, one would think so but you have had your back to the wall before. Why not build upon what you have? Why not raise your sights to the bigger league; why not develop the new tactics suited to your changed circumstances; why not exploit the changes in technology; why not apply the seasoning of your experienced personnel to the wider mass and respond positively to the national requirement to make better use of your resources? Convinced or not I leave you with the following thought — tactics have always been about fire and movement. How can you apply these two factors to the problems you now face?

To consider fire first but obviously and necessarily in conjunction with movement. I hear that in your manuals you accept an enemy who can outgun you both as to the quantity of fire he can bring to bear and the range and effectiveness of his weaponry. I also remember that your response to such a circumstance is to note this reality in your appreciation and assume (or do you hope?) that your own limited counter bombardment capabilities will be sufficient to hamper the enemy hammering your infantry during the mechanical stages of the attack. Some appreciations add an option and embark the assaulting troops in your precious few carriers and then flow on until the attack is dissipated upon the unresolved question: do you go on taking accelerated casualties
caused by the enemy's superior anti armour fire or do you dismount and continue the attack into his waiting mines, defensive fire, his well sited machine gun and small arms fire? I realise of course that you have lurking in reserve various devices to assist your infantry through this sticky patch but I wonder how seriously anyone has examined how much use these devices really are.

Have you therefore returned to the days of stalemate, to those days when the weight of fire prevented movement, the days when the last man on his feet was the winner? Has technology again triumphed?

Or in the same way that advances in technology (for example, the tank) broke the monopoly of the machine gun can you now find ways to break the stranglehold of the anti armour and the anti air weapon? Have you reached a new threshold of development? How could you use firepower (and mobility) to lessen the effects of the enemy's? Could it be that the answer is a bolder use of air and armour in its various forms? Traditionally you have always been short on both and your experience in their use has been limited and narrow. (Even now in a country of such size you cannot find room to train boldly).

How do you break the deadlock? Maybe in the same way as some suggest a renewal of interest in the reverse slope position as a means of reducing the enemy's direct fire advantage in the defence so also you may have to reverse your attitudes to armour and air. Perhaps the magnitude and remoteness of other peoples' wars have deflected you from the important resulting lessons, for example, the speed with which both sides adjusted their tactics, replenished their forces and got on with the action. However the particular lesson to note has been that of the multidisciplinary approach to a problem — no longer is it purely an infantry or armour or air problem, it is a combat force problem.

So you say, if I put my infantry into a carrier to provide mobility, flexibility, protection and firepower, I will also increase the chance of a loss in one stroke. But on the other hand you are also creating a new element — the harmony and strength of association. Steady, you say, that is counter to the entire tradition of separate corps development—a tradition which has ensured specialised development, administrative economy and which is based upon sound principle. My friend, if your final objective is the application of combat power to the best advantage then I suggest you have major adjustments to make. As infantry you have always regarded those other arms and services as appendages to the real fighting edge and you still regard your armour (and artillery and engineers and air) as a separate force, still something to do those extra jobs like guard the flank or provide another fire unit or support. To use an old analogy you have yet to combine all your resources into one smashing fist.

However your problem is not just organisation but I suggest, tactics as well. To illustrate. The fact that so many of your attacks in the past have been dismounted has led you to concentrate upon the quickest and most convenient approach to an enemy's defensive position. You have considered in detail the left and the right flank approaches or some variation. For completeness you have also mentioned the rear approach but then dismissed it quickly because of the need for speed or because of the problems of distance or security. Yet so often your enemy has had commanding positions from which to cover his flanks and his front and has been deployed with his reserves, embracing much of his integral fire support, sited in depth across his likely withdrawal route.

How rarely do you attack first this reserve position in order to destroy his reserve, to destroy his integral fire support, to disrupt his fire plan, to prevent his withdrawal, to attack his least advantageous position, to disrupt his counter attack and counter penetration tasks? Why don't you do this? Because you will stretch or snap the ranges of your fire support or because you do not have the mobility. Are these the reasons or has habit or conformity or the need to pass examinations robbed you of the ability to overcome limitations? Could you not reduce the efficiency of the enemy's fire and improve your own by taking yours with you; constantly moving and making greater use of your direct fire capability? Could you not also negate the problems of flank protection by bold and speedy moves by paying more attention to speed and surprise than to security. (Could
you not make greater use of battlefield surveillance, reconnaissance and communication technology to improve security?).

But to turn to movement. I suggest that despite changes in technology your infantry still basically fights on its feet. Your experience has emphasised the slow grind of the infantry war and the ties to the operational base and the administrative tail. A kinder interpretation of your experience is that it has accentuated the offensive and you have sought to carry the fight to the enemy by whatever means have been available. I prefer this interpretation and I think it a pity if more attention was not paid to it.

How do you then combine the offensive spirit with the best mix of fire and movement but without the restraints of base and tail? I suggest that the new tyrannies of distance, the need for dispersal and your expected adverse ratios of men and equipment all make it necessary to seek a new mode: a mode that facilitates movement and concentrates fire power in the search for an operational advantage.

Already to hand in the form of an infantry carrier and the helicopter are possible components of such a mode. Given the speed with which technology alters it would be a mistake to get caught up in long arguments as to the advantages and disadvantages of each. The more profitable line to explore is the exploitation of these opportunities.

Well, you say, the theory is difficult enough to swallow what about the practice? I suggest your first problem of practice remains theoretical. You have to recapture mobility as a tactical principle and get your infantry off their feet for most of the battle. In the past you have used the TEWT to overcome shortages of men and equipment, why not again? Secondly, why not make greater use of what is available; if you don't have this new equipment then simulate what you do have — it is the principle of mobility you wish to inculcate.

The third suggestion is that you look again at the other aids to mobility especially the new resources in surveillance and communication. Why for example are your battle drills so slow? Those same drills were designed to save time. Why do you allocate so much time to the attack appreciation and the attack itself and so little to the use of the bypass, the feint, to the enemy's reactions to your efforts? Like the Roman Infantry of old you are well trained, disciplined, dogged but how so conventional your approach and costly the results.

The fourth suggestion is to develop the art of anticipation. It appears that a new form of Infantry carrier has arrived. The basic configuration of the ground version is already established and I imagine that the airmobile version is not very far behind. Finally the infantry has a vehicle promising mobility, protection, fire power and convenience. It would be a pity if you waited for the technology to be delivered before you started to become accustomed to its potential. Too often in the past you have fallen for that trap and have been left behind in your application of the state of the art.

Similar comments apply to the use of the helicopter. What has happened to its bold use? Have the restraints imposed by lack of resources or by advances in missilery dictated the grounding of your infantry — surely not. If your new tactical conditions presuppose air inferiority and extensive movement at night why is it I have yet to hear details of troop lift by air in mass at night. What are the tactics?

If your forces must be moved more often, where are those air and ground vehicles for resupply or, better still, advanced dumping? You have been prepared in the past to establish bases in a hostile environment, why the timidity now? Why do you insist in steamrolling every bit of opposition, why not keep the enemy off balance by constant redeployment across his lines of communications? Of course you would need to be bold administratively as well — dumping stocks forward of your main effort into areas secured by your more advanced elements.

How then do you combine these matters of organisation and tactics? Well, somewhere in your doctrine on the attack you will have to accord a higher priority to the lessening of the effect of the enemy's fire power. Could I suggest two possible options. The first is to pay greater attention to the location and destruction of the enemy's fire bases by means other than those properly counter battery, i.e. by the vigorous
use of cavalry, armour, mobile infantry and air to destroy the bases and force him to redeploy to protect his resources.

The second option is to pay greater attention to limiting the enemy’s observation of your endeavours. It appears that you do not pay much attention to resources available. The first and most obvious resource is darkness. Not only do you relegate the night attack to the later pages of your manuals but in training and practice you give it little attention. You appear to regard it as a complicated and more exotic activity to be mastered if time allows. Despite the improvements in technology, darkness is a masterful weapon unexploited.

Finally a word for the infantry soldier. I remember years ago he had enough to carry but now with better equipment I hear he has twice as much water to carry, much more ammunition and more rations. Have you mired him into immobility? Frankly with the demands of his weapons for ammunition I can’t see how he can carry it all or how you can keep it up to him. Is his load really lighter? I hear you have even brought the helmet back!

My friend, your problems confound me. Even the word ‘defence’ carries overtones of passivity contrary to the offensive spirit demanded when the security of the homeland is at stake. Somewhere you must find a new balance — a greater fluidity of organisation and yet a new compactness; a preoccupation with decisive results; a new dimension of mind and co-operation that will seek out the best advantage and an administrative freedom that reinforces effective combat power.

Nevertheless you have faced up to great challenges before. You have demonstrated originality of thought and application and while your present strategic environment seems free of pressing obligation you would be well advised to put your time to good account. I fear for the lucky country, but I wish you well.

An old friend.
THE CASE FOR RATIONALIZATION OF OUR DEFENCE SUPPLY MANAGEMENT

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Introduction

In recent years defence considerations of many countries have emphasised the need to reduce the size of the administrative ‘tail’ and to obtain cost savings and more efficiency within the defence supply systems.

Positive action has been taken in the United Kingdom and the United States. In general, the studies of the administrative organisations in those countries have brought pressure for elimination, or relaxation of inter-service and inter-departmental barriers and for increased rationalization of numerous common operations. Considerable emphasis has been placed on integration of supply operations and more efficient supply management.

The Australian Defence Forces have been under considerable pressure due to constraints placed on them by various financial and manpower limitations and this will most likely be an ongoing situation. If one also considers the size of the administrative elements in relation to the total force, the need for greater cost and manpower effectiveness in that area is obvious.

There is now a need to align the administrative functions with current Defence objectives of introducing “more central direction of supply and personnel administration and expenditure policy, in the interests of Australian defence industry, and, in order to modernise personnel employment practice in the services and to permit controlled direction of defence resources to national objectives and to reduce duplication”.

One of the major elements of defence administration is defence supply management. In Australia it involves possibly the largest inventory and greatest diversity of items to be found in any organisation in the country. At present the management of this inventory is embodied in each Service department being responsible for items in the inventory applicable to that Service. Many of these items are common to each Service or can be readily grouped as like items. As a result there is considerable duplication of management functions. The rationalisation of supply activities by integration of the supply management functions and the development of centralised supply management appears to be a necessary step to achieve effective and economic management of our defence inventory.

“The supply management function contains three principal activities. Firstly, the determination of the initial replenishment requirement. Secondly, initiation of the consequent procurement request to contracting agencies. Thirdly, the action after delivery of distribution and accounting for the inventory and management of the various supply systems including the computer system upon which the services are now largely dependent.”
The task of supply management is to provide material support required by the military services, without failure, under all conditions of peace and war. The support must be provided at a minimum cost for the material itself and for the effort involved in supplying it.

In the context of this article integration is defined as the formation of a single headquarters, command and supply support system whilst maintaining the identity of the separate service. It is assumed that in the Australian context the identity of the three separate Services will be maintained. Nevertheless, the supply functions can be merged to a considerable degree without change to the traditional three-Service concept.

The validity of supply management integration and centralised supply control is best illustrated by examination of the major developments that have taken place in the United Kingdom and United States. Initiated during the 1960s these have set the basis for their current supply operations.

**The United Kingdom**

Major reforms in the areas of defence administration began in the 1960s. The British approach tended to be based on the principle of preserving the traditional structure. The over-riding principle, however, of what was dubbed the Thorneycroft-Mountbatten reforms begun in 1963 was that organisation should be according to function rather than department. The Government of the time adopted these reforms and the principle was carried, in part at least, into the procurement sphere.

Two new bodies were created — the Defence Research Committee and the Weapons Development Committee. The Defence Research Committee was charged with overseeing all military research, not directly supporting existing equipment projects, so to keep the general trend of defence research under some form of supervision. The Weapons Development Committee was to concern itself specifically with the task of project management.

From these reforms came an entirely new concept in the procurement policy. To that time no detailed supervision of procurement programmes had been carried out. The Defence Research Committee consolidated and partially integrated work formerly carried out for the three services by a number of scientific committees or ad hoc study groups from the time before World War II. In order to ensure that an objective and influential voice was available, to advise the Secretary of State for Defence on the validity or otherwise of service proposed operational requirements, the Defence Operational Requirements Staff was set up with this function.

The 1963 reforms were a start towards an improvement in defence procurement but were insufficient to cope with the organisational problems associated with such procurement. Once again the government commissioned a report on procurement organisation by a project team led by Mr D. Rayner, a Director of Marks and Spencer, the large British retail organisation. The first observation contained in his report was that “earlier changes in organisation have contributed little to improvements in the procurement system”. The report recommended major changes be made to the entire procurement structure. Its most important recommendations were:

- the combination of existing weapons system procurement activities into a single procurement agency under the Secretary of State for Defence;
- the full integration of this agency into the Ministry of Defence;
- the appointment be made of a number of officers to functional posts, for example, controllers of research and development, land systems, air systems, guided weapons and electronic systems, etc;
- procurement organisation should be budgeted for under five heads, four for the system controllers and the fifth covering research and development and headquarters administration; and
- procurement be treated as a specialised function and the organisation encouraged to provide its own middle and top managers while having due regard to wider considerations of service and other careers.

The Government accepted these and other related recommendations of the Rayner Report and from it emanated the current UK procurement system. This system is presently organised along functional and integrated lines. The Procurement Executive, as it is presently
known, was formed on 2 August 1971 and is part of the Ministry of Defence with its head answerable to the Secretary of State for Defence. Procurement machinery was updated at the same time. The following diagram shows the organisation of the Procurement Executive and its place in the Defence organisation.

The development of the Procurement Executive achieved a large measure of centralised control and policy direction over Defence Procurement by providing the one body over the three Services. By such a rationalised approach to Defence equipment requirements, it became obvious that large savings could be achieved.

Further developments aimed at instituting reforms in numerous areas have followed on

Figure 1.
THE CASE FOR RATIONALIZATION OF OUR DEFENCE SUPPLY MANAGEMENT

from 1965. Some of these developments are detailed below:

- **Lands Administration.** Prior to 1964, all land servicing and administration was carried out by the Service concerned, with resulting unnecessary triplication. In 1965 the Army was made responsible for the Lands work of all the forces and the Defence Lands Service was created. Considerable economics have resulted from this measure.

- **Inspection Procedures.** Again in 1965 efforts were made to implement, where possible, common supply and logistic procedures for all the Services and arrangements for co-ordinating contracts and for inspection of stores and equipment. A large number of inspections were organised on the basis that the Service having the principal interest in an equipment was made responsible for its inspection, regardless of where it was used.

- **Equipment Catalogues.** It was recognised that a major requirement to achieve effective logistic integration was to establish standard lists of all items of defence equipment. In 1965, when the work commenced to introduce a single system, there were well over two million items in the inventories of the three Services. By 1970 seventeen percent of the original two million items had been eliminated.

- **Standardization of Equipment.** As a follow on from the standard catalogue an opportunity was presented to introduce standardization of defence equipment whenever it was practicable. The principle applied was that the Service department with the major interest in one item or range of equipment was nominated to prepare and monitor a standard specification for use by all departments. This eliminated the excessive variety in the Services store holdings and imposed a check on further procurement on non-standard items.

- **Medical Service.** Standard administration of medical and dental stores was introduced including integrated training of RN and RAF medical laboratory technicians. In 1968 the Army was made responsible for the procurement of medical and dental items for all Services and a single medical and dental equipment depot was opened.

- **Support of Weapons Systems.** In 1966, the Templer Committee was set up to investigate and report upon the methods in use for support of the British weapons systems. It was found that there were a number of systems common to two or three of the Services, or quite closely related to ones held by another Service, so potential existed for the integration of support facilities. Common support arrangements were then made for the Sparrow, Sidewinder, Rapier and Martel missiles. The Army was given responsibility for supply of all Rapier spares. A common servicing policy was adopted. The RAF took over provision and stock control for both Army and Navy air stores and is now responsible for all fixed wing units. The RN is now responsible for all rotary wing units.

The major element behind these reforms was standardization and rationalisation leading to the single service manager concept. The principle of single service management has been extended considerably so that a single Service has been given responsibility for a common support or supply activity.

The RAF has the responsibility for furniture and similar accommodation stores and is responsible for placing of contracts for POL. The Army is responsible for the management including authorisation for design, development, procurement and inspection of clothing other than flying clothing and survival equipment. It is also responsible for research and development, procurement, storage and distribution of motor vehicles as well as major maintenance and provision of spares. It is responsible for supply of small arms and ancillaries for all three services. The Royal Engineers are responsible for all future airfield construction. The RN has responsibility for mooring and salvage and research and development, design, production and procurement of marine craft for the three Services. In addition, the Naval Victualling Department is responsible for the provisioning, procurement, inspection, development, storage and distribution of food. Ration scales are decided upon by joint Services consultation.
The United Kingdom has applied a large measure of rationalisation. Where this has required centralised control, which has been necessary to a large degree, the Ministry of Defence has taken over. The Defence Ministry instituted a series of continuous studies into systems co-ordination to provide a constant source of review and suggestions for further development of integrated logistics procedures. Extensive computerisation of supply tasks has been effected and a Supply Planning Group has been set up to provide for the evolution of common practices and procedures.

Despite the developments that have taken place, the British approach has provided some limitation to more extensive tri-Service development. This is reflected in the short introduction to the British White Paper of July 1970 'Central Organisation for Defence' which states “the object is to ensure the central control of defence policy without impairing the efficiency and morale of the fighting Services. Their separate identities will be preserved”.

Thus the British have tended to approach the question of administrative re-organisation and improvements to the supply management on the basis of the traditional structure. Nevertheless, the reforms and developments that have taken place have achieved economies in manpower and cost as well as improved procedures and this provides good lessons for similar developments in Australia.

The United States

Since 1961 the Department of Defense concentrated on efforts to improve logistic readiness while minimising the number and dollar value of stocks. During the period 1960-61 the Secretary of Defence McNamara initiated the American Department of Defense (DOD) Cost Reduction Programme. The main features of this programme were:

- competitive contracting procedures; and
- improved inventory management comprising:
  - balanced logistic guidance;
  - co-ordinated procurement and management through a Defense Supply Agency (DSA) and single service commodity management;
  - standardised systems and procedures;
  - value engineering; and
  - computers.

Five principal events took place in the following decade to influence supply management. These were the development of the Federal Catalog System, integrated item management, standardisation of procedure, improved communication and automation of records.

The full introduction of the Federal Catalog System in 1958 established a common ‘Supply language’. The use of the catalogue prevented addition of unnecessary items to the inventory as new weapons were developed. Use of the Defense Logistics Service Center control catalogue file enabled comparison of all new items proposed for stock against all items already in the system. In this way it was possible to determine if the same item or a substitute item was available. In the financial year ended in 1969 it was determined that approximately forty per cent of the parts in newly developed weapons were already in the system. A further result of this catalogue system was standardisation and item simplification programmes, as it enabled rapid classification and comparison of items to eliminate duplication and also enable the purification of the catalogue.

Integrated item management led to the creation of the Defense Supply Agency in 1962 which brought over 1.8 million common items under single management, other single management responsibilities were given to the General Services Administration, Army and Air Force which brought another 125,000 items under single management. This resulted in about fifty percent of all items in the supply system being assigned to one manager to buy, store and issue on behalf of all the military services. Most of those items remaining under the Service management are peculiar to the individual Service or directly related to the operation of its weapon systems. Action had continued to reduce the items under Army, Navy, Air Force or Marine management.

A further benefit from the integration was to reduce the number of ‘inventory control points’ from 44 to 22 and enable numerous storage points to be closed.

Standardisation of procedures developed as a follow on from integrated management and as a means of enabling the interchange of stocks among the Services. The requirement for a single set of forms, records and codes

Improved communications were designed to develop high speed techniques for communicating logistics data over ‘the Defense long-lines network’.

Automation of records progressed significantly from 1961 where the number of computers applied to supply management grew from 260 to over 750 in 1969. Each of the Services and the Defense Supply Agency have comprehensive computerised inventory management.

Of these developments, the one that is to be highlighted is integration of item management. Single management agencies were established at the direction of the Secretary of Defense and started in 1955. The aim was to maintain effective support of the four defense elements, Army, Navy, Air Force and Marines while reducing operating costs and the size of the inventories. A survey of their results was conducted in 1961, upon which the Secretary of Defense announced, on 31 August 1961, that the Defense Supply Agency would be established to manage the procurement and distribution of common supplies at ‘wholesale level’.

The DSA is jointly staffed with military personnel from all of the Services. It is responsible for the items of supply assigned to it and distributes from the depot level in the United States as well as supporting Air Force and Army installations worldwide.

Considerable progress has been made with the establishment of the DSA and charging it with the responsibility, on behalf of all the Services, for procuring, storing and distributing a large proportion of the items in the supply system. Nevertheless, the Service themselves still retain substantial control of their own procurement programmes; with the result that there is still a large number of semi or fully
independent defence procurement agencies operating in the United States. The diagram at Figure 2 shows the place of the DSA in the Department of Defence.

Procurement procedures are still under review and proposed overhaul. The report of the Commission on Government Procurement presented in 1972 makes much of integrated and consolidated procurement activity. In recommending important changes to procurement machinery, it said 'the recommendations propose an integrated system for the effective management, control and operation of the Federal procurement process. The focus of this system is the proposed Office of Federal Procurement Policy'.

The new Procurement Policy Office should be placed with the existing Office of Management and Budget, the report suggested, and kept fully independent of any agency with procurement implementation responsibilities. Thus the office would have responsibility to maintain efficient central supervision and the enactment of common procedural regulations. The Services, however, will still retain a major role in procurement decisions along with the Defense Supply Agency.

The United States has made considerable progress in integration which now involves more than one half of the total defence inventory. Economies have been effected in procurement policies by the formation of the Defense Supply Agency. Further economies have resulted from the elimination of much duplication and by standardisation. A large measure of central direction and co-ordination has taken effect. In the terms of the Report on the Commission on Government Procurement, an integrated systems approach is called for, one in which a comprehensive framework for controlling and conducting acquisition programmes can function effectively. Further developments towards integration and centralisation can be expected to be effected.

Summary of Overseas Developments

The developments that have occurred in these countries shows that much can be done to rationalise and integrate supply functions. There is considerable value in instituting common supply management procedures as has occurred in the United States. Not only for efficient management but to reduce duplication and to achieve overall cost savings. The British Procurement Executive integrated into the Department of Defence provides an excellent example of the creation of a single control body particularly in relation to procurement for the Services.

Perhaps the most significant factors in these developments, related to Australian requirements, is the savings in manpower and costs. The British by means of their rationalisation programme of commodity groups which led to a single service management concept, have produced considerable savings in manpower and real estate. For example, it has been stated that in motor transport procurement under single service management, savings in manpower led to some $300,000 a year saved in wages and release of some 600,000 square feet of covered storage, with the annual cost of handling each vehicle reduced by some ten percent.

In the case of the United States, the development of the Defense Supply Agency and improvements in supply management resulted in an actual savings of more than $516.9 million reported by the Department of Defense Cost Reduction Programme for the financial year 1969. These savings were related to:

- refining requirements computations;
- increasing use of excess materials;
- buying equipment at the lowest sound price;
- reducing supply system operating costs;
- improved provisioning;
- more economical packing, preservation and packing practices;
- improved equipment maintenance; and
- improved Data management.

The results achieved in these countries highlight the effectiveness of supply integration with the emphasis on single service management and in the USA a single procurement agency for common items, together with centralised control of defence supply management, in achieving cost savings and more efficient and effective management.

Australia

Australia has moved very slowly towards supply integration and centralised supply man-
agament. In regard to the latter, real impetus is only now forthcoming as a result of the Defence re-organisation. A measure of rationalisation, however, has been previously effected.

The first step towards integration was recommended in the Mooreshead Report of 1957. This report recommended that moves be made to ensure "the most effective use of resources by better co-ordination, the establishment of common services and overhaul of procedures throughout the three services". It was rejected by the government of the day. In 1969 however, the government instituted major reforms in procurement organisation, concurrent with partial rationalisation of the defence organisation. On March 1969, Defence Minister Fairhall announced that he was setting up a Defence (Industrial) Committee to replace two older bodies. The Defence Business Board was also being restructured. The latter body comprised a number of prominent industrialists and all its members went onto the new Defence (Industrial) Committee. The functions of this body were defined as:

- correlating the material needs of the services and the production programmes involved in meeting them;
- considering questions of war potential and general contingency planning for industrial management in an emergency;
- advising on the feasibility, costs and other consequences of decisions involving 'make' or 'buy' options; and
- considering the need for stockpiling strategic materials.

These reforms constituted a major development in Australia's procurement machinery and the development of some central policy making in defence procurement. With the decision to hand over final responsibility on large acquisitions to the Defence Department, thereby reducing the individual Services responsibility in this regard, a move was made towards integration where possible. As a flow on from these reforms a number of services were either integrated or placed under single Service management. In addition a standardised equipment catalogue for all the Services was initiated.

As stated previously, the real impetus towards rationalisation, integration and centralised management has only recently developed. In 1972 the Minister for Defence, Mr Barnard, stated on assuming charge of the Departments of Defence, Navy, Army, Air and Supply:

"... These moves towards integrated defence management will be preliminary to the second stage of re-organisation in which there will be more direct lines of control of the activities of the Services and of defence production, procurement and defence science ..."

These words are synonymous with the aims of the United Kingdom and the United States, as previously cited, in regard to supply management. The government policy as stated by the then Minister for Defence was further defined by Sir Arthur Tange, Secretary, Department of Defence, in his report of November 1973:

"What is required is for the Minister to have at his disposal an organisation which can supervise support activities conducted at various levels under delegations, and which can perceive and bring up policy issues for Ministerial direction. The organisation should be designed to give a proper distribution of weight between the operational interests as seen by the operational Chiefs of Navy, Army and Air Force, and the prudent use of the public funds applied to the purchase, production, storage, transport, inspection, turnover and maintenance of assets held in the inventory".

The supply organisation proposed in this report to bring together Navy Controller of Supply, Army Director of Supply and Air Force Director General of Equipment, existing Defence Department cataloguing, standardisation and supply policy staffs and movements and transport policy staff of the Services is now in existence as shown in Figure 3.

Certain other developments have taken place over recent years in Australia. The Defence Cataloguing System (DCS), in line with similar actions in the United Kingdom and the United States has been carrying out conversion of Service and Supply inventories to the DCS from the variety of systems that have existed.

The Defence Cataloguing System provides a centralised system that is essential to a well managed, efficient supply system. The DCS also provides an advantage in that the large
measure of standardisation achieved in the system now enables a tie in with the support system of other nations.

The next development has been in provision of support for weapon systems. Current defence policy is to examine the practicability of integrating support facilities for new equipments or weapons systems when considering their procurement, and for management plans to be promulgated setting out the responsibilities of the Services and other government departments in relation to new equipments. Recent equipment purchases in which some degree of integrated support has been arranged include the Landing Craft Heavy, Macchi Trainer, HS 748 Aircraft and Light Observation Helicopter.

Finally there have been some developments in single manager activities. Single manager responsibilities have been assigned as follows:

• Army to be responsible for food preparation and serving equipment, common weapons ammunition and associated spares through to 30 mm and medical and dental stores;
• Air Force to be responsible for supply support of RAN Macchi and HS748 aircraft and Army and Navy light observation helicopters, Nomad and Pilatus Porter aircraft; and
• Navy to be responsible for supply support of RAAF torpedo.

It has been agreed prior to the integration of Defence Service Departments that the implementation of further single manager arrangements would be dependant on the development of a standard Demand and Issue procedure for the three Services. A tri-Service study group has reported on this matter and this is still awaiting resolution.
Currently, tri-Service study teams have been raised to develop management specifications for a common computerised defence supply system. Although the study has been motivated primarily by the need to re-design current EDP systems for the transition from Honeywell to Univac, it has provided scope for development of a common system in the Supply areas of requirements determinations, procurement, stock control, cataloguing and codification. The studies have shown that there is a great deal of homogeneity within the Service inventories, particularly in group/class disposition and value.¹²

These are the main developments to date and it is obvious that in comparison to the other countries, progress has been extremely slow and lacking in depth.

In regard to those aspects of supply integration which embody single service management, there has been some recognition of the economies and management efficiency. Nevertheless, an examination of the total defence inventory would reveal that only a small number of the items common to the Services have been as allocated. It is true that further development is envisaged and it is understood that a study of single service management aspects is currently in progress and hopefully a positive approach will ensue.

Why the hesitancy to date? The requirement for such management in operational situations is already recognised. Under the terms of JSP(AS)210 Joint Services Administration Manual—Division of Administrative Responsibility of the Services in Operations (DARSO), specific supply responsibilities are allocated to a Service to carry out on behalf of all three Services. For example, Army is allocated responsibility for aerial delivery and DZ marking equipment, rations, POL — aviation fuels and MT fuels provision and supply, medical and dental stores, ammunition and explosives etc. This in effect means that the principles of single service management are applied with a Service being made responsible in those areas of supply for which, due to various reasons, it is best suited to meet the force requirements. If this is seen as a definite requirement for operational situations, surely it must also be applicable in the normal situation. In fact, it is considered that the responsibilities should be applied in peacetime if there is to be a smooth transition in an operational situation.

The correlation with DARSO then is the application of the principles of single service management across the total defence inventory as the basis for the Defence supply system. This would enable the items that are common to the three Services to be apportioned to that Service which is best suited for the supply responsibility either by virtue of being prime user or historically having the greatest familiarity and/or management expertise with such items.

If we examine the total defence inventory particularly in relation to the size of the respective Services and the requirements of their normal day to day activities, what benefit is there in each Service contracting for supply of common items? For example, each Service has a requirement for commercial style buses to carry out routine transport of personnel. Yet recent supply history reveals that Navy procured Bedford, Army procured Ford and Air Force procured Volvo buses. Three different types of vehicles, each with their own individual spares backing, documentation, etc, requiring separate action by three service procurement sections and, in this case, separate contractual action by the Office of the Purchasing Commission.¹³ Apart from the apparent higher cost per vehicle which must result from the piecemeal procurement, there is an inherent higher administrative cost in the separate procurement actions. These disadvantages now appear to be recognised as the new procedure for procurement of commercial vehicles for each Service is to be based on a Defence Commercial Vehicle Programme. Such vehicles are but one common area. Is there any validity in each Service separately procuring their requirements of any common item intended for the same function within each Service?

As has been previously stated there are a wide range of items in the Defence Inventory that are common to the three Services. At present, these items are handled by individual Services each with their own provisioning, procurement, warehousing and distribution systems. All three Services tender separately, where applicable through the same agency (Purchasing Division), for contracts to supply the same items, generally in the same packs and to the
same specifications. Individually they often represent only a small customer to industry, collectively they would be a substantial customer.

It is considered that this leads to considerable waste in the utilisation of buildings used to store the separate holdings of the three Services throughout Australia. Further waste in utilisation of computer and EDP procedures, waste in transportation used to move separate stocks around the country and finally waste in personnel. Therefore considerable economies can result from rationalisation of the main aspects of supply management over a wide range of commodities in the Defence inventory.

Single Service Management provides a large measure of success in achieving economies and efficient management, but it is still only a part measure, the obvious extension is to adopt the principle of a Defence Supply Agency as has the United States. That is, a single integrated supply agency for the considerable number of common and generally day-to-day items in the total inventory. For example, commercial vehicles and associated spare parts, general tools, stationery, messing and culinary equipment, building materials, office furniture and equipment and so on. In the United States such items represent over fifty per cent of the total inventory.

Each Service should retain responsibility for their weapon systems and specific operational equipment and those items where the Service retention of responsibility is necessary. The principle of single service management, however, would still apply. For example, the Air Force should remain single service manager for aircraft, Army should be the single service manager for all GS Vehicles, Navy should be responsible for all watercraft. The extension and development of single service management should continue as previously proposed.

As in the United States the ‘DSA’ should draw its staff from the supply staffs of the three Services, both Service and civilian. It should contain its own contractual authority which could involve a re-location and re-designation of some staff from the Purchasing Division. Such a measure would make the ‘DSA’ a properly self contained supply agency which would reduce administrative delays and costs that occur with the requirement to process through another organisation. The ‘DSA’ should then be very responsive to Defence and individual service needs.

Ultimately the ‘DSA’ should be responsible for the management of these items through a centralised, integrated depot organisation distributing to all service installations. This may require re-designation of some service ‘depots’ and re-allocation of responsibility.

The benefits of a ‘DSA’ would include the standardisation of common items, combining the service requirements with more economical procurement, more effective use of the computerised supply system, elimination of duplication in stocks within the separate Service depots, reduction in storage and distribution costs, more economical use of supply staff and freeing the Services supply organisations from the responsibility for the routine items on the inventory so leaving them free to concentrate on their weapons systems and high priority requirements.

**Conclusion**

To offset the continual pressure of financial and also manpower limitations, the Australian Defence Force must achieve the maximum in cost effectiveness within the Defence budget. It must get the most value for money. The administrative ‘tail’ represents one of the largest elements in Defence costs both in manpower and in terms of the supplies for which it is responsible.

The experiences of other countries and developments in Australia and overseas to date lead to the conclusion that much can be done in achieving cost effectiveness and actual cost savings, by rationalising the supply functions and instituting a large degree of central control over these functions.

Supply integration should be developed along with centralised management of common items to achieve a common procurement policy, single procurement action, maximum savings in procurement, manpower, storage and distribution costs. Maximum standardisation and development of commonality in equipment will aid cost savings.

A central authority is necessary for the development of policy and plans for supply on a total Defence basis and the Supply and Support
organisations should now be able to meet this requirement.

Creation of a ‘Defence Supply Agency’ could achieve a better control of contractual procedures leading to better relations with industry and lower tenders as procurement would be based on a combined requirement. It would achieve better control of holdings, distribution and greater utilisation of storage facilities with considerable cost savings.

The principle of single service management should apply to the maximum within the area of those items remaining as service responsibility in order to achieve the maximum in management efficiency as well as cost savings.

**NOTES**


7 General Service Administration — established to provide an economical and efficient system for the management of Govt property and records, including construction and operation of buildings, procurement and distribution of supplies, disposal of surplus property.


10 Reports of the Advisory Committee on Organisation of the Defence Group of Departments, (The Moorshead Report).

11 Tange, *op. cit.*

12 Defence Procurement Specification Team Comparison Studies on Composition of Defence Inventory.

13 Now — Department of Administrative Services, Purchasing Division.

**BIBLIOGRAPHY**


Government Organisation for the Defence Procurement and Civil Aerospace, 1971. (United Kingdom)


Reports of the Advisory Committee on Organisation of the Defence Group of Departments. (The Moorshead Report)

Statement by the Deputy Prime Minister for Defence on Re-organisation of the Defence Group of Departments, December 1972.


**ANNUAL PRIZES 1976-1977**

The Board of Management has awarded the following prizes for the best articles of the year (Issues Nos. 1-7) to:


2nd Prize—The Australian-American Alliance: Some Possible Restrictions on a US Response by Captain M. G. Smith in Issue No. 3.
Stonehenge, Oxford, the ancient Whitehorse, Bath, the Cotswolds and the Ridgeway are just a few of the better known towns and landmarks which surround the south midlands village of Shrivenham. As a base for the enthusiastic tourist, Shrivenham is ideally situated, being as little as five minutes to no more than a few hours drive from the majority of England's greatest tourist attractions.

However, most Australians go to Shrivenham not as tourists but as students at the Royal Military College of Science (RMCS). In my experience most officers of all services who have not attended RMCS have little idea of the scope and value of training available at the college.

My aim in this article is to outline the major RMCS course available to Australian servicemen and the type of life students and their families can expect at Shrivenham. I also hope to correct the misconceptions many officers have about RMCS training.

Courses conducted at RMCS

RMCS conducts a variety of short and long courses for the British services. Ministry of Defence civilian officers, defence industries personnel and foreign defence force officers join British service officers to create an international atmosphere, which enhances the knowledge and experiences exchanged and absorbed by students during their courses.

Australian students do not attend all the courses conducted at RMCS. The major courses attended by Australians are:

- The Army Staff Course.
- The Guided Weapons Course.
- The Royal Navy Gunnery and Telecommunications Courses (Dagger Course).
- The Military Vehicle Technology Course.
- The Naval Ordnance Quality Assurance Course.

The Army Staff Course

The majority of Australian students (18 to 20) at RMCS attend the Army Staff Course. This course consists of three divisions. Division I and II are now 12 months' courses commencing in January each year. Division III is for three months and commences in October each year. The three divisions study the same basic topics but in differing depth and detail. British students chosen for the Army Staff Course go on to Camberley Staff College at the completion of the RMCS course. Australians on Division III also move on to Staff College at Camberley, while Divisions I and II Australians return home or proceed to further specialised training in UK.

The aim of the Shrivenham part of the Army Staff Course is “to develop, in accordance with individual qualifications and experience, the potential Commander and Staff Officer’s understanding of Science and Technology and their application to the problems of Defence.”

The topics studied are all of military importance and include:

- Fire power.
- Communications.
- Guided Weapons.
- Equipment Management.
- NBC,
Aids to Decision Making, Fighting Vehicles and Mobility, Aerial Vehicles, Surveillance and Target Acquisition.

In most modules, there are lectures on foreign equipments and technology to up-date students on advances in foreign military hardware. Naturally, a significant proportion of time is allocated to the study of British military equipment and its comparison with foreign equipment.

Students are required to write a service paper and/or brief on each of the topics studied. Short presentations, tutorials and syndicate discussions help students to achieve a better understanding of the academic, technical and military problems arising during a study.

Entry qualifications for the Army Staff Course at RMCS are detailed in the Promotion Manual Part I, Chapter 5. Basically, if you are qualified for promotion to Major and have a degree in engineering, science or maths, you are eligible for selection to Division I. If you have a matriculation pass in science and maths you are eligible for selection to Division II. For Division III, you must be eligible and qualified for entry to Staff College.

The basic technology, design, development and procurements of service equipment is studied in conjunction with their military applications. Division I students study the science and technology of these topics in greater depth and detail than Division II, while Division III are confined to an intensive but somewhat superficial treatment of most topics. RMCS has a remarkable range of laboratory and field equipment which assist students in understanding technical subjects by practical demonstrations and controlled experimentation.

Students on Division I undertake an Advanced Study and Division II students a Project Study. Depending on the subject chosen by the students, studies may entail investigation, research, experimentation, liaison with staff officers, project engineers and civilian scientists, and the compilation of a study report. Each study team gives a verbal presentation of its report to an audience which usually consists of a number of interested staff officers and academics as well as college staff and fellow students.

Throughout the course, students travel on orientation and industrial tours which not only broaden their understanding of the problems of turning requirements into hardware, but establish important liaison links for future co-operation between students and industry leaders.

The guided weapons systems course

The aim of this course is to prepare officers for appointments concerned with Guided Weapons in Staff, Research and Development, Trials and Training establishments.

The Guided Weapons course is 12 months duration, commencing in January each year. Subjects studied include:

Trajectories, Aerodynamics, Missile Dynamics, Guidance and Control, Propulsion, Structures, Computers and Programming,

Students qualifying on this course may be granted their MSc degree or a Diploma of the RMCS. The course is similar in design to the Army Staff Course but with each student required to produce a thesis and work in a group on a design project. Industrial tours and visits to Research and Development establishments are included in the course. Australian students usually proceed to further studies or attachments in the United Kingdom or Europe on completion of the course.

The Royal Navy Gunnery and Telecommunications Courses (Dagger Course)

The aim of each course is to give selected officers who have previously qualified on specialist courses, a practical scientific and technical course to prepare them for posts in staff, Research and Development establishments, operational requirements and material management fields.

The 'RN Dagger Course' as it is commonly called, is 12 months' duration and commences in January each year. Naval officers study the main areas of naval warfare technology and combine with the Army Staff Course to study subjects of a common interest to both services, for example, Equipment Management and Guided Weapons. Although the course is Navy orientated, it is similar in design to the Army Staff Course with tutorials, syndicate discussions, presentations and projects on the same or similar subjects.

The Military Vehicle Technical Course

The aim of this course is to train officers to fill appointments concerned with military vehicles in Staff, Research and Development, Trials and Training establishments.

The course is 12 months' duration commencing in January each year. Students successfully completing the course will be granted an MSc degree. The normal entry qualification is an engineering degree. The course covers the principles of vehicle technology, interaction of component and assembly design and operational analysis techniques.

The Naval Ordnance Quality Assurance Course

The aim of this course is to give background knowledge of Science and Technology in the field of munitions to selected officers.

The course is 6 months duration commencing in January each year. The course title is no indication of the Service students must evolve from. In 1976 the RAAF provided one student. The subjects studied include:


LIFE AT RMCS

Although the courses at RMCS require some amount of private study, there is ample time to enjoy the many recreational facilities provided at the college. There is also time to see the places you have heard about in travel programmes and read about in brochures or books.

The college day commences for students at 0850 hrs and finishes at 1700 hrs. There are seven 50 minute periods each day with, whenever possible, the three afternoon periods being devoted to practicals or laboratory work.

Wednesday afternoons are programmed as sports periods and students may unleash their energy in a wide range of activities, such as Rugby Union, soccer, cricket, waterpolo, swimming, basketball, gliding, tennis, squash, hockey, golf, sailing and cross-country running or hashing. Besides these sports, there are a
Shrivenham Village, the thatched cottage village dominated by RMCS.

number of extra-curricula activities available to students and their families. These include horse riding, shooting, hunting, canoeing, pottery classes, flower arranging, art classes, foreign language classes, fencing and photography.

Social life is hectic. There are two large halls of residence or messes in the college and students become members of one or other mess depending on their course. Besides the regular social events programmed in the college calendar, there is a busy private social life. For the luckier people there are tickets to the Trooping of the Colour, Royal Ascot and the Buckingham Palace Garden Party.

There is a five to six week mid-year break during which students prepare their projects and advanced studies. Most students find time in this summer period to take three or four weeks leave and there usually occurs a mass exodus of overseas students across the English Channel to the waiting wonders of Europe.

Married quarters are allocated to overseas and British students. The MQs are of a quite high standard and are two storey, centrally heated, brick dwellings with three to four bedrooms and fully carpeted throughout in the recently renovated quarters.

The local NAAFI and Shrivenham village provide for most of the family’s immediate needs, with shops at the neighbouring village of Faringdon and the larger town of Swindon catering for all domestic requirements.

POST RMCS APPOINTMENTS AND CAREER PROSPECTS

After returning to Australia on completion of his Shrivenham course and attachments, the RMCS officer will usually be appointed to a position where his training will be beneficial to his service. For the members of specialised courses such as the RN Dagger, Guided Weapons, Military Vehicles and NOQA courses, appointments to specialist staff positions are most likely. Any Staff Course members may be posted to a wide variety of command and staff positions in AHQ Canberra and the Defence Science and Technology Organisation.

Army Staff Course trained officers are classified as Technical Staff Officers (TSOs) and non-corps postings will be greatly influenced by the TSOs’ Committee responsible for staffing TSO positions. TSOs will still receive regimental or corps postings throughout their careers and retain their chance for attendance at Staff College. Post RMCS
regimental training is vital for TSOs if they are to be fully aware of the detailed requirements and problems facing the field Army.

**Conclusion**

RMCS training is of great value to the individual officer professionally and personally. The individual officer's Service likewise benefits considerably from his training, experiences and personal contacts.

RMCS should not be considered as open only to technically qualified or academically inclined officers. Any officer meeting the basic service and academic requirements for RMCS, could successfully attend and complete the Army Staff Courses.

Personally, I found my time at Shrivenham to be most rewarding and enjoyable and I heartily recommend Shrivenham training to all eligible officers in all Services.
Lieutenant Colonel R. F. Stuart
Royal Australian Infantry

Introduction

JOHN JOSEPH PERSHING was born in Laclede, Missouri, on 13 September 1860. From a modest family background and a short early career as a school teacher, he was to choose the military as his ultimate career, in which he rose to command of the American Expeditionary Force (AEF) in France during World War I — a command which at the end of the war numbered over two million men. After World War I he was appointed to the unique rank of General of the Armies on 3 September 1919, and subsequently to Chief of Staff, United States Army in 1921. General Pershing retired in 1924, at the age of 64 years, and died in Washington D.C. on 15 July 1948. During his retirement he had been active as a plebiscite chairman in the Tacna-Arica dispute between Chile and Peru, and also as Chairman of The American Battle Monuments Commission.

Early Military Career 1886-1917

Pershing graduated from the United States Military Academy, West Point, in 1886 as a cavalry officer. Service in the Indian Wars against the Apache chief, Geronimo, immediately followed his graduation and occupied four to five years. After this campaign he found time to gain a Bachelor of Laws degree in 1893 at the University of Nebraska, before his next operational assignment, which was in Santiago, Cuba, during the Spanish-American War. He was awarded the Silver Star for gallantry in this campaign, and was assessed at that time by his brigade commander, General S. B. M. Young, as: "... the coolest man under fire I ever saw".

In the Philippines between 1901 and 1903, Pershing was to display outstanding leadership in the anti-Moro campaign in Mindanao. Immediately after this campaign, in 1905, Pershing served as an observer of the Russo-Japanese War in Manchuria.

Before proceeding to Tokyo and Manchuria, Pershing married Helen Frances Warren, the daughter of Senator Francis E. Warren of Wyoming, on 26 January 1905. The marriage was only to last ten years. The transient nature of the Pershing’s family life is that short time is illustrated by the birthplaces of their children: Helen was born in Tokyo on 8 September 1906; Anne in Baguio, Luzon, Philippine Islands, on 24 March 1908; Francis Warren in Cheyenne, Wyoming, on 24 June 1909; and Mary Margaret in Zamboanga, Mindanao, Philippine Islands, on 20 May, 1912.

In 1906, Captain Pershing was promoted direct to Brigadier General over the heads of over 800 more senior officers. This accelerated promotion is reported to have caused bitter feelings amongst the officer corps. He returned to the Philippines for a second tour of duty between 1907 and 1913, this time as Commander of the Department of Mindanao and Governor of the Moro Province.

Brigadier General Pershing’s next military expedition was on the orders of President Woodrow Wilson to lead an expeditionary force into Mexico and “pursue and disperse” the band of Francisco (Pancho) Villa after this
bandit’s surprise raid on the United States Cavalry garrison at Columbus, New Mexico, on 9 March 1916. Virtually at the same time, Pershing’s wife and three daughters burnt to death in a fire in his quarters in San Francisco. His son, Warren, was the sole survivor of this tragedy.

However, personal tragedy was not to daunt Pershing as his force advanced deep into Mexico, brushing aside Mexican troops impeding progress. In a campaign characterized by improvised supply over virtually impassable trails, Pershing’s force failed to capture Pancho Villa, but was successful in effectively dispersing his armed band.

**Pershing and the AEF 1917-1918**

The Pancho Villa expedition was recalled in February 1917. Three months later, Pershing — now a Major General — was in France as commander of the yet non-existent American Expeditionary Force. The United States had declared war against Germany on 6 April 1917; subsequently Major General Pershing was given full freedom as to the organization and composition of the land forces that the United States would commit to Europe. Contemporary photographs of the then 57-year-old general reveal him as a “cold-eyed, granite-faced” personage.³

The Presidential Directive to the Commander AEF stated that: “... forces of the US are a separate and distinct component of the combined forces, the identity of which must be preserved ... you will exercise full discretion in determining the manner of co-operation.”⁴

The policy contained in this directive was the root cause of subsequent verbal battles between Pershing and the High Commands of the British and French forces. Like other Allied commanders (in particular the Australian and Canadian commanders at the time) Pershing had to resist attempts to break up the separate identity of his forces. Pershing was quick to discover that the British and French did not want an “untried” army; rather they wanted United States manpower to fill their own depleted ranks on a reinforcement basis.

On the other hand, Pershing’s policies emphasized a completely disciplined AEF, which would be combat-trained for offensive operations and not restricted to stagnated trench warfare. He envisaged a million American soldiers in France by May 1918, with their own theatre of war and independent lines of communication. With staunch support of War Secretary Newton D. Baker, Pershing was largely successful in achieving these objectives. At the same time he completed plans for a full-scale offensive against the German-held St. Mihiel salient, which jutted into the Lorraine front and threatened the flank of the entire Allied line.

Pershing was promoted to full General on 6 October 1917.

The first major bleeding of Pershing’s AEF occurred in early June 1918, when AEF units reinforced Foch’s command, and the 2nd and 3rd US Divisions stopped the enemy on the line of the Marne at Chateau-Thierry and Belleau Wood. Prior to this a US regimental sized operation at Cantigny in late May by the 1st Division had also demonstrated the combat effectiveness of the American troops.

Pershing’s plans to attack the St. Mihiel salient in September 1918 were threatened by Foch, who wanted the US forces as reinforcements elsewhere. Foch finally conceded to the Americans the St. Mihiel offensive on the proviso that he (Foch) would launch a general Allied offensive on 25 September, and that the full US strength must participate in that offensive by an assault through the Argonne and Meuse Valley.
Pershing agreed to fight and win one offensive (at St. Mihiel), and then launch another major assault — 60 miles away, and within two weeks of the St. Mihiel offensive. It is a measure of Pershing’s generalship that he was able to achieve both tasks. Within 48 hours of launching the St. Mihiel offensive, the salient in that sector had been eliminated and 10,000 prisoners taken, together with 443 enemy guns. Thirteen days later, 600,000 US troops and 2,700 US guns were in action at Meuse-Argonne. The Meuse-Argonne assault commenced on 25 September 1918 through rugged hills and woods and against three highly organised German defensive lines. Further advances were halted on the announcement of the Armistice on 11 November 1918.

**Was Pershing a Great General?**

“Pershing’s achievement in organizing, training and leading the American Expeditionary Force, stamps him as one of the world’s great captains.”

This quotation reflects the popular opinion of Pershing, and is supportable by the consideration that, beginning with meagre resources, and within a span of 18 months, he had produced an army 2 million strong, whose elements in 200 days of battle decisively defeated “German troops hardened by four years of war”.

But let us also look at other appraisals of Pershing — both as a personality and a leader, and also as a general in the broader sense.

As a personality and a leader, Pershing has been described as “harsh to the point of despotism, he treated officers and men alike — ruthlessly. Efficiency was the sole yardstick”. It has also been said that in some ways he was “like Grant — ruthless and a little impersonal in the way he handles his men, not able by the charm of his personality to make men die for him gladly, as Lee could do, but still so solid in personal honour and strength of will that men respect and obey him”.

As far as Pershing’s overall generalship is concerned, one should qualify the effectiveness of his efforts to guarantee the integrity of the AEF and also the success of AEF operations at St. Mihiel and Meuse-Argonne.

There was in 1917-1918 a strong tendency in British and French staffs to secure the assistance of American troops not as a collateral Allied force, but as reinforcements for the British and French Armies. The motive for such pressures was to make the US weight of forces tell earlier. The United States had adopted conscription in order to sustain her war effort, and proposed to send 45 infantry divisions to France — some 2 million men, with rear services included. However training policies and sea transportation problems were to restrict the rapid commitment of the AEF to operations in France.

Pershing subscribed to the Uptonian theory by holding US forces out of the line until training was complete. Strict adherence to this policy was largely a result of the general’s
perfectionism and attention to the basic arts of the infantryman: Pershing placed great emphasis on rifle marksmanship and bayonet training in preparing his soldiers for battle. Although this insistence was seen to pay off in Belleau Wood and at Argonne, it could also be construed as overcautious and hence contributing to an unnecessary prolongation of the war. The 1st Australian Imperial Force had on one occasion fought in close co-operation with the Americans in France at that time; hence the comments of Australia's official war historian, C. E. W. Bean, who had observed events of this period at close hand, are worthy of note in relation to the American commitment:

"The American Government did not wish its troops to enter the trenches until sufficiently trained, whereas the 1st Australian Division had been thrown into one of the most difficult operations of the war — the landing at Anzac — within 6½ months of initial enlistment and had fought a second great and difficult offensive within its first year, the 1st American Division, with a large nucleus of regular officers and men, was not considered fit to be out into a quiet sector until 6½ months after America entered the war, or into an important sector until after 12½ months. America had then been in the war ten months, and the Allies, worn with three years' struggle and with their decisive trial now immediately ahead of them, saw little prospect of American troops giving more than trifling assistance before that decision had occurred".

At that time the United States was also faced with a shortage of sufficient shipping to achieve a rapid build-up of the AEF in France. By the end of January 1918, instead of the forecast nine or ten American divisions, only four — and part of a fifth — had arrived at the theatre of war. Bean, in another part of the Australian Official War History, cites Pershing's disingenuousness in using a British offer to provide shipping to speed up the transportation of the AEF to France, only to subsequently renege on an undertaking to support the British with six divisions if such shipping was provided. Only two out of the six divisions promised, and eventually a few troops from a third, fought as part of the British Army.

**Conclusion**

Pershing's generalship is summarised in Russell F. Weigley's 'History of the US Army':

"He was able but he never displayed the qualities of a transcendentally great captain. His most important single achievement was the construction of the American Armies in Europe for whose integrity he fought so long."

Richard O'Connor, in his biography 'Black Jack Pershing' maintains that Pershing had "two serious deficiencies in his nature which barred him from military greatness". The first was his inability to inspire his subordinates in such a way as to gain their willing co-operation; it can be said that he actually despised the common touch. His second deficiency, according to O'Connor, was his strong conservatism, manifested by his reluctance to accept "unorthodox men, new weapons and methods". He was still anxious to employ horse cavalry as late as the Meuse-Argonne offensive in 1918, and in the 1920s he remained sceptical on the use of the aeroplane as a military weapon.

Whatever his failings, Pershing's accomplishment of the missions assigned to him throughout his long career bear absolute evidence of his dedication and competence as a professional soldier. His achievements in the Philippines — particularly during his second tour of duty there between 1907 and 1913 — were models in their intelligent and human approach to the Moros. Indeed, these achievements are well worth the study of today's student of counter-insurgency operations. And in the pursuit of Pancho Villa in Mexico, Pershing behaved "with dignity, discretion, and forbearance — exactly what was required of him".

His role in the raising and employment of the AEF in France was appraised by Captain Liddell Hart in these words:

"There was perhaps no other man who would, or could, have built the structure of the American Army on the scale be planned. And without that Army the war could hardly have been saved and could not have been won."

In making an overall comment on General Pershing, it would be hard to improve on the final verdict in O'Connor's biography:
"What he was, and what he stood for, both as a man and a general, will always be a part of the American military tradition. If he did not achieve the romantic designation of great captain, he was one of a larger but no less worthy company. He was a good soldier in every hour of his life."  

NOTES


5 *Encyclopedia Americana, op. cit.*, p. 611.


7 *Encyclopedia Americana, op. cit.*, p. 611.


9 US troops had taken part in an attack on Hamel in July 1918 together with the Australians. Of this Australian attack, Pershing was later to write, "it was... somewhat of a surprise to learn on the following day that four companies of the 33rd Division had taken part in the attack". From C. E. W. Bean, *Official History of Australia in the War of 1914-1918*, Vol. V., The AIF in France 1918, Angus and Robertson, Sydney, 1943, p. 335.


BIBLIOGRAPHY


HOW did the US and the Soviet Union learn of Israel's nuclear arsenal? It seems likely that both countries monitored the deployment of Israel's nuclear weapons in the 78 hour period at the start of the 1973 Yom Kippur war, the Soviet Union probably by means of a Kosmos satellite and the US through an SR-71A aircraft overflight. Both acted within hours — the Soviet Union despatched nuclear warheads by sea to be fitted to the Scud missiles already in Egypt, and the US issued a world-wide military alert to discourage Soviet (and perhaps Israeli) escalation.

Such close monitoring of trouble spots by the superpowers is now possible that neither side can deploy materiel expeditiously without the other side being informed, and in this sense it has had a neutralising influence. It is also difficult for either of the superpowers to deploy strategic weapons in-country with any degree of secrecy. Military satellites have made it possible for the Soviet Union and the US to maintain regular surveillance of each other's territory, and were an influencing factor in the development of the SALT I agreement and the now unfashionable detente.

There is a general understanding between the US and the Soviet Union that they will not interfere with the operations of each other's 'national technical means' for keeping informed, but details are not spelled out in any specific or formal sense. The Russians had already demonstrated up to 1971 that they could fly inspector/destructor spacecraft, even though these were not used against US payloads, and their satellite kill system has seen constant improvement since that time. It is too early to assess recent reports of laser probing of US payloads from sites in the western USSR. The USAF used to maintain satellite kill system at Johnston Island in the Pacific, but it was deactivated three years ago. (It could be reactivated within six months under emergency circumstances.) For the most part, however, a policy of mutual non-interference has served the interests of both superpowers.

The US and the Soviet Union maintain three types of imagery platform for tactical and strategic purposes; aircraft, remotely piloted vehicles (RPVs) and satellites. The type of imagery system can be photo, infra-red or radar, each producing a photo-like printout. The systems are often data-linked, in other words the imagery is transmitted from the platform to a control station. The major platforms are listed below, and I have tried where possible to make the list comparative.

First of all, aircraft. The Soviet Union has a large variety of aircraft adapted for surveillance/reconnaissance purposes. Most are
better known for their fighter/bomber configurations. The US has two aircraft specially designed for the role; the U-2 and the SR-71. These two aircraft, together with superior imagery systems, have until recently given the

Two versions of the MiG-21 (NATO: Fishbed) supersonic single-seat fighter are equipped as specialised tactical reconnaissance aircraft. The MiG-21R ('Fishbed-H') is basically similar to the MiG-21FMA but has a pod containing forward-facing or oblique cameras, infrared sensors, or ECM devices, and fuel, mounted on its fuselage centerline pylon. The MiG-21RF ('Fishbed-H') carries similar equipment but is based on the MiG-21MF.

US considerable superiority over the Soviet Union, in strategic reconnaissance. In the area of tactical surveillance/reconnaissance aircraft, the scales are more evenly balanced.

Development of the USAF SR-71A strategic reconnaissance aircraft was started in February 1963, to provide a supplement to the same design team's U-2. The prototype flew for the first time in December 1964. Delivery of production aircraft, known unofficially as 'Blackbirds', began in January 1966, for operation by the 9th Strategic Reconnaissance Wing at Beale AFB, California. At least 30 SR/71As are thought to have been built, each carrying complex equipment ranging from simple battlefield surveillance systems to multiple-sensor, high-performance systems capable of specialised surveillance of up to 60,000 sq miles of territory in one hour. Mission details are classified, but SR-71As and Teledyne Ryan RPVs are known to have been the only USAF reconnaissance aircraft to overfly North Vietnam after the cessation of bombing in January 1973. Other sorties were made in the Middle East during and after the Yom Kippur war in late 1973. In September

The Tu-16 (NATO: Badger) is a medium bomber manufactured in the USSR and China. It is employed in a variety of roles including photo reconnaissance.

1974, an SR-71A flew from New York to London in 1 hr 54 min 56.4 sec, at an average speed of 1,806.987 mph. The Lockheed SR-71A reaches a maximum speed of over Mach 3 at 78,750 feet, has an operational ceiling above 80,000 feet, and a range of 2,982 miles. It can be refuelled in flight.

The fastest weapon-carrying aircraft in service with any air force in the world, the MiG-25 has become the standard against which the efficiency of western defence systems must be evaluated. Its existence was revealed
in 1965, when the Soviet Union requested FAI approval for a speed record of 1,441.5 mph set up by an aircraft designated E-266 around a 1,000 km closed circuit, carrying a two-ton payload. Other records followed, including an absolute height record of 118,898 ft. and speed of 1,852.61 mph over a 500 km circuit, which have not been beaten. Identification of the E-266 as the MiG-25 did not come until early 1973, when Dr Robert C. Seamans, then US Secretary of the Air Force, described it as “probably the best interceptor in production in the world today”, adding, “This Mach 3 aircraft performs both interceptor and reconnaissance missions, can operate at 80,000 ft. and has a highly capable avionics and missile system”. During the previous two years, MiG-25s had performed high-speed reconnaissance flights off the Israeli coastline and over Sinai, without hindrance. The Foxbat B is the basic reconnaissance version, with five camera windows and various flush dielectric panels aft of a small dielectric nosecone. The MiG-25 Foxbat B has recently been seen fitted with side-looking airborne radar in addition to its photographic equipment, by Luftwaffe RF-4 Phantoms flying over the Baltic.

The total number of Foxbat Bs based in East Germany and Poland is estimated at about 45 aircraft. It is reported that these currently carry out daily reconnaissance missions over West Germany, Denmark, France and Norway at altitudes of up to 90,000 ft. and speeds of Mach 2.7. Flights are also conducted regularly over the Mediterranean and Middle East. There has been no hindrance from NATO, which so far has no aircraft capable of forcing the Foxbats down. Nike Hercules SAMs with nuclear warheads are capable of intercepting MiG-25s, but their peacetime use would probably provoke an unwanted diplomatic crisis. U.S. Navy F-14s with the 6th fleet in the Mediterranean are also capable of intercepting Foxbats with their Phoenix missiles, but this too would be politically unacceptable in time of peace. The U.S. F-15 has been developed to counter the Foxbat at lower altitudes. It has not yet been deployed outside the continental United States.

Surveillance/Reconnaissance RPVs were first employed operationally by the US in Vietnam. Designated the Ryan AQM-34 by the USAF, there have been 24 versions based on the Teledyne Ryan Model 147 Firebee subsonic target drone. Many hundreds of 147s have been delivered for operational use. The Firebee is air launched from a DC-130 which monitors the RPVs flight, and mid air recovery is by helicopter. The Firebee surveillance/reconnaissance RPV is usually equipped with a nose-mounted camera or other sensor. Its range is variable at low altitude, from 177 miles at 645 mph to 748 miles at 485 mph. Teledyne Ryan has also produced a second generation RPV, the BGM-34C interim multi-mission RPV, for air or ground launch, with modular nose sections for reconnaissance, electronic warfare or strike missions. Recovery is again by helicopter snatch.

Little is known about the remotely piloted vehicles and target drones that are operated by the Soviet armed forces. It is known that RPVs are used for reconnaissance in the manner of the USAF’s AQM-34 family. There is good reason to believe that a number of Soviet RPVs, despatched on reconnaissance flights over such peripheral countries as Sweden, have been shot down by the defences. What, one wonders, would be the public reaction to a suggestion that ‘flying saucers’ observed over countries like West Germany and Sweden have a connection with never-mentioned Soviet RPVs?

Reconnaissance/Surveillance satellites are the only platforms now in use for scanning the US and Soviet Union. The main US satellite is the Lockheed/USAF 467 Big Bird. First launched on 15 June 1971, from Pt Arguello, this highly-advanced photographic reconnaissance satellite is reported to weigh about 25,000 lb and to be 50 ft long. The first Big Bird was launched by Titan III D. Its capabilities included high resolution photography, and it is reported to have ejected a series of capsules for air-snatch recovery. Big Bird is believed to process photographs taken by the cameras and transmit information and photographs to Earth in the form of digital data by radio link. Some reports suggest that it also carries infrared mapping and side-looking radar equipment. Its orbit takes its cameras within range of every point on the Earth twice in each period of 24 hours. It is expected that these spacecraft will continue to
be launched at roughly six-monthly intervals to provide an increasing share of the total US satellite intelligence. They have demonstrated an endurance of up to four months in orbit. (This two month plus period between decay and a new launch is a major weakness in the US system.)

Kosmos designations are given to Soviet reconnaissance satellites and other types of military spacecraft. The original basic reconnaissance satellites appeared to be 7 ft 6 in diameter spheres weighing about 7,000 lb, normally launched at a rate of two a month, the rate rising during periods of tension (such as the armed clashes between Soviet and Chinese forces at Damanski Island in March 1969, and the border clash near Western Mongolia in June 1969.)

Kosmos reconnaissance satellites are launched from the bases at Plesetsk and Tyuratam. Most eject capsules after 8 days and these are presumably recovered. Kosmos 317 appeared to be the first of a new series of operational reconnaissance satellites with an 11-13 day life, instead of the 8 days of early versions. The longer flights could imply that the craft carry a larger film package. If so, the same coverage will be obtained with fewer launches. An unusual characteristic of some of the ‘longer-life’ craft is the ejection of a capsule just before recovery. The ejected capsule goes into a slightly lower orbit, where it remains for several days until it decays naturally.

Kosmos 518, launched on 15 September 1972 from Plesetsk, and Kosmos 519, launched the following day from Tyuratam and involving a rare high-inclination orbit from that site, were presumable launched to obtain supplementary data on NATO naval manoeuvres then being conducted in the North Sea. Specific launches are often made to observe such manoeuvres, and also to cover areas of special political concern. Thus in 1971, Kosmos 463 and 464 were used to obtain photographic coverage of the Indo-Pakistan War, and in 1973 Kosmos 597, 600 and 602 were used to survey the Yom Kippur War. After fighting stopped, the orbits of Kosmos 609, 612, 616 and 625 were such as to indicate that they were monitoring the cease-fire, while Kosmos 630 monitored the withdrawal of Israeli forces.

During 1975, the Soviet Union launched 34 recoverable military photographic observation satellites — the typical one staying up for 12 to 14 days. Some were area search or possible mapping satellites, while most were able to manoeuvre themselves over selected targets. Recently there has been a considerable increase in the number of reconnaissance satellite launches.

A survey of imagery systems would not be complete without some mention of the Chinese capability. The PLA has about 1000 MiG-19s, 100 Tu-16s and 1000 MiG-21s and it seems likely that some of these aircraft are used for photo reconnaissance or surveillance purposes. Several years have gone by since the Chinese first displayed the remains of US RPVs in Peking (RPV overflights were halted in mid-1971), and the Chinese must appreciate the advantages of such vehicles as much as anyone else. No details are available, however, of a Chinese produced RPV. China launched her fifth satellite on 16 December 1975. It is believed that it was a military surveillance satellite designed to provide information about military activities in the USSR (China had previously purchased satellite photography from the US). Chinese launches are usually made from the Shuang Cheng Tzu facility in Kansu Province.
Original requirements for an aircraft capable of carrying out strategic reconnaissance for long periods at very high altitudes over Communist territory resulted in the design of the U-2, which is essentially a powered glider, with sailplane-like high aspect ratio wing and lightweight structure. Fifty-five aircraft are believed to have been built from 1954, including 2 prototypes, 48 single-seat U-2A/B versions, and 5 two-seat U-2CTs. The J57-P-37A turbojet of the U-2A was replaced by a more powerful J75-P-13, adapted to run on low volatility fuel, in the U-2B. This was later upgraded to produce the U-2C. U-2s remain in service for special high-altitude reconnaissance and weather flights, with some of the weather reconnaissance aircraft redesigned WU-2. The early Lockheed U-2 reached a maximum speed of 528 mph at 40,000 feet, had an operational ceiling of 80,000 feet and a range of about 4,000 miles. The latest model U-2, the U-2R, is about 50 percent larger and has a greatly increased range. The aircraft is normally painted matt black, without markings.

With the advent of infrared and radar imagery systems, weather and darkness are no longer such hindrances to coverage, although ideally all three systems should be used in conjunction, each having its own advantages and disadvantages. Capabilities of the systems are such that even from satellites it is possible to identify individual vehicles and compute other factors such as speed of movement. The newer aircraft infrared systems are sensitive enough to pin-point individual personnel from body heat.

Many countries have the technology to produce and orbit military satellites, but to maintain such a system is exorbitantly expensive. Launch costs of the Titan are 40-50 million dollars per launch, not including the cost of Big Bird. The next step down the expense ladder is to develop special surveillance aircraft or utilize existing aircraft; the RAAF has adapted the Mirage for photo reconnaissance for example. (I understand that the RAAF is also interested in fitting cameras to the F-111, although the USAF has found aircraft vibration a problem.) The RPV offers a less expensive alternative (at $100,000 each) with low risk to personnel, but expensive backup systems are necessary. The US Army is presently conducting R and D into a low-cost mini-RPV for battlefield surveillance. This will probably be equipped with a TV camera, giving instantaneous feedback, and enter service in the 1980s. The RPV may ultimately be the answer to Australia’s needs.

The ideal situation for any nation is to have a combination of systems at its disposal. For Australia (presupposing that it could be purchased) I would have the new U-2R for coastal and strategic surveillance. This aircraft could cover the whole of Australia’s coastline with 100 mile wide coverage in one sortie. In addition it is very economical to operate. It could also be deployed to monitor any point north, this side of China without refuelling, any point west to Africa, and south to the Antarctic. I would have Teledyne Ryan RPVs for tactical surveillance by the RAAF, and mini-RPVs for use by the army. For any coverage wider ranging than my U-2 I would buy time on a US satellite. Fanciful? Perhaps, but it would be a damned good system!
The confused and bitter war in Spain was seen as an international war fought on Spanish soil. This view was due to the presence on the battlefields not only of foreign volunteers but also a regular military presence by Germany, Russia and Italy, which, for a variety of reasons, became increasingly involved in the conflict. These nations felt, as a consequence of that involvement, that Spain could be an appropriate testing ground for their troops and in particular their doctrines developed since 1918 in a variety of weapons and techniques.

The war received wide newspaper coverage, even in Australia. Military analysts and commentators throughout the world observed the war and attempted to draw lessons from what they saw. Due to the confusing nature of the war itself, however, many of these ‘lessons’ were deceptive, especially in light of what occurred in the first few months of the general European war which broke out in September 1939. Although battlefront censorship hindered many experts in their search for detail, conclusions were drawn which were to have important consequences, especially in the use of armour and airpower. There were other lessons to be learnt from the war in Spain besides those appertaining to armour and airpower (in the use of propaganda for example) but it was the use of armour and airpower which were to have most consequence. In Spain, mechanised forces were used widely by each side—the rebels, Franco’s Nationalists; and the Government, the Republicans—with a wide variety of results. Mechanised forces were relatively new to war, and in view of the development in doctrine since 1918, their use in Spain was watched closely.

The Development of Doctrine

A short review of armour doctrine development until the Spanish war will help place the use of armour in that war into some perspective. Armour development was allowed to lapse in the Allied nations after the Armistice of 1918, although several military intellectuals campaigned unofficially to promote their ideas in military circles—they recognised the potential in armour and tried to have this recognition made official. Britain, France, and the USA, however, were not interested in war or its appendages; a pacifist climate existed which was not to be changed until the late thirties. Isolationism on the part of the USA combined with British and French memories of four years of slaughter was not an environment conducive to progressive military thinkers; nor was the concomitant rundown of armed forces all over the world in the 1920s conducive to financial outlay for armour experimentation. In Germany, despite the fact that the armed forces had been forcibly emasculated by the terms of the Versailles Treaty, some Army officers were keen to learn as much as possible about the weapon which had been a large factor in their eventual defeat. Russia, recovering rapidly in general from defeat, revolution and civil war, was anxious to obtain equality in techniques of war and technical knowledge, especially after
the ill-fated war against Poland in 1920. Italy followed the Allies in the trends of pacifism which appeared after 1918, but after Mussolini gained power, in turn followed the trends set by Germany after 1933.

Modern theories of armoured warfare developed primarily in Britain through the ideas of those military intellectuals such as Fuller, Liddell Hart, and Martel: in France, de Gaulle also had some original ideas, though apparently not as concise. Neither in Britain or France, however, were these ideas officially taken up more than in a perfunctory manner—in Britain, because the C.I.G.S., Earl Cavan, was anxious to ‘quash controversy and non-conformity’; in France the terrible battles of attrition in the 1914–1918 War, such as Verdun, convinced the military authorities that lives should be saved by strong fortifications backed by artillery. Germany and Russia had few qualms about non-conformity in this area, but the Germans did spend large amounts of money on fortifications. The British, in fact, were well ahead in experimentation but lack of funds, and Cavan, stopped development in 1934, although an all tank brigade had been created in 1931. The Germans and Russians, on the other hand, did not lack funds, and development continued apace.

In 1924, Liddell Hart had produced in The Army Quarterly a paper on a ‘New Model Army’, in which he put forward his initial ideas on mechanised warfare. He suggested ‘the expanding torrent’ method of attack should be combined with independent mechanised forces which should exploit a breakthrough by deep and rapid penetration far into the enemy’s rear. The British military did not like the idea, but Guderian, the German tank exponent, did—so much so that he immediately had it translated and issued to the German Army. In 1932, Fuller produced his Lectures on Field Service Regulations III (Operations Between Mechanised Forces). This was also carefully read by Guderian. The Russians issued 30,000 copies to their Army, and later increased distribution to 100,000; but in England, only 500 copies had been sold by 1935. The French, meanwhile, ‘... still thought of tanks as primarily mobile artillery’, and although they had created a ‘Division Legere Mechanique’ in 1931, and were producing some new types of tanks by 1936, the role of the armoured division was that of horse cavalry, with the tanks intended largely for use in the ancillary role of infantry support.

While the British and French vacillated, the Germans were using the ideas of Liddell Hart and Fuller to develop detailed theories backed up by a certain measure of tank development in conjunction with the Russians, who, while not acting on British theory as thoroughly as the Germans, were just as enthusiastic about the potential armour held. By 1934, the Germans had only formed a single tank battalion, but by October 1935, they had three tank divisions! They had begun tank experiments as far back as 1926 in secret testing stations in Russia due to the restrictions of the Versailles Treaty—while the British armour experiments on Salisbury Plain in 1927 ended shortly after, the German experience continued to grow. In 1936, the Spanish War broke out—the Germans and Russians both were given an opportunity to test what they had learnt, and committed tanks and crews to opposing sides.

**Armour in the Spanish War**

Mechanised forces were not the revolutionary weapon expected in the Spanish War. Even when given excellent opportunities to use tanks, the usual practice on both sides was to parcel the tanks out amongst the infantry, with correspondingly disappointing results. Von Thoma, German tank commander (later to become Chief of the Mobile Forces in the invasion of France, and Commander of the Afrika Korps) complains ‘I had to fight ... to use the tanks in a concentrated way’. The general failure of tanks and armoured cars led many military observers to believe that the tank was destined to remain at best an infantry support weapon. But as Guderian was quick to point out in Achtung Panzer (the German Army tank magazine) in 1937, never more than 50 tanks had been used at the one time, the Spanish soldiers were poorly trained and the ground imposed difficulties. The tanks used on both sides, were usually light, inefficient and of poor quality, a fact attested to by contemporary accounts.

As early as 29 October 1936, 50 Russian tanks were involved in a battle against Nationalist horse cavalry. The cavalry were dispersed quickly, but the tanks found it difficult
to hold ground by themselves and had to retire due to lack of fuel. It was a pattern to be repeated throughout the war. Often, lack of fuel was caused deliberately by the crews who only half filled their fuel tanks to give lack of fuel as the excuse to leave the battlefield when things got too hot, such was the lack of confidence in their machines. This lack of confidence and obvious low morale was so endemic amongst the German tank crews, that Von Thoma was forced to replace four of his twelve tank companies with superior Russian machines (probably BT or T.26).

Considering the characteristics of the tanks involved in Spain, it is not surprising that this problem occurred. The German Panzer Kampfwagen (Pz.Kpfw I), for example, had armour which was only 6-15 mm thick, hardly adequate against even the most rudimentary anti-tank gun. The Italian Fiat tank was no better — 4-18 mm — and neither was the Russian BT — 8-15 mm. The Russian tanks were relatively superior in cross country performance, but their greatest asset lay in its quickfiring gun, a 37 mm (later 47 mm) compared to the Pz.Kpfw I's twin machine guns.

The use of anti tank guns in Spain achieved effects out of all proportion to their deployment. It led the French High Command to '. . . believe that the plan of long-distance mechanised raids is no longer possible due to the existence of the anti-tank gun'. Often the most rudimentary weapons were used to combat tanks — petrol ignited by grenades, even grenades themselves in one action reported in the Australian press, and occasionally the so-called 'elephant pits' which the narrow trackbase of the tanks found impossible to negotiate. Ernest Hemingway, in his novel based on his experience as a correspondent in the Spanish War, For Whom The Bell Tolls, writes: 'Is that the famous tank, Inglies?'

'That's a baby one,'

'. . . if I had a baby bottle of gasoline I would climb up there and set fire to him.'

On 5 January 1937, the Nationalists opened an offensive at Guadalajara. German tanks, preceded by an air and artillery bombardment, broke through the Republican lines everywhere, but, 'In every case tanks still left their infantry behind', and were forced to retire prematurely. Italian troops involved also failed to make headway when they renewed the offensive on the 8 March. It was an object lesson in how a mechanised attack should not be launched, but nevertheless, '. . . led the General Staffs of Europe (notably the French) to conclude that motorised troops were not as effective as had been suggested'.

A report in the Australian press noted the Italian reaction — 'Italian military experts consider that mechanised warfare was just received a setback in Spain. A military critic, writing, in the journal Regime Fascista, of Cremona, says: 'The Spanish War has marked the eclipse of nearly all hopes placed in tanks. Tanks may be used for breaking resistance of an already defeated enemy, and then pursuing him, but even this task is better performed by aircraft. Probably the best use of heavy tanks is as carriers of mobile artillery'.

Guderian, as has been noted, had already spoken out in defence of mechanised warfare in Achtung Panzer, and the German contempt for Italians as soldiers may have been a strong factor in rejecting criticism of the tank concept. But the experiences of the January offensives were not lost on some German critics either; Guderian was to have a difficult time before his views were accepted — a report from Berlin noted 'Military experts here say that the Spanish War has shown that modern weapons have failed to revolutionise war in the way expected. They point out that prolonged and intense fighting for narrow strips of land is proceeding in Spain as it did in the world war, and that no change has been made even when the most modern weapons have been deployed. "Thus", the experts claim, "a return to mobile warfare and the tactics of Napoleon seems as distant as ever"'.

Guderian wasn't the only tank exponent whose ideas were in doubt. The Russians, despite some success early in 1937 with tanks around Madrid where the tanks had been massed for a shock attack by Pavlov, the Russian tank specialist (rather than parcelled out with the infantry), were discouraged to the point of rejection of all they had pioneered. Pavlov returned home to spread the impression that the French were right in claiming that only when tanks attacked deliberately with infantry were they likely to succeed.
This was due in no small part to the Russian experiences in the Battle of Brunette, 29 October 1937, 15 miles west of Madrid, where despite a major breakthrough of 11-12 miles, the tanks could not hold ground and were forced to withdraw. Moreover, the performance of the tanks was so poor that the main armament could not fire effectively whilst traversing rough ground. The same failure was met a year later, when on 28 October an attack through Madrid from Aranjuez towards Sesena and Equivias broke through the Nationalist lines, but advanced too quickly for the infantry, who were held up by machine guns which resumed firing once the tanks had passed. The tanks ... were unable to consolidate without infantry and were forced to withdraw. The Italians, while they had failed miserably at Guadalajara in 1937, had at least attempted to overcome this problem by taking the infantry behind the tanks in trucks. This development, although initially vulnerable as the Italians found out, was expanded further by the Germans in the following years with the Panzer Grenadier concept where the infantry accompanied the tanks in tracked and armoured personnel vehicles, hence solving the cross country problem and to a lesser extent the problem of vulnerability.

Defence Remains Paramount

Most of the lessons to be learnt from the Spanish War were to be seen quite early in the conflict. The most common observation made was that the defence was paramount, a not unreasonable comment in light of the failure of mechanised forces generally. Temperley, a Major General involved with British Mechanisation trials, wrote in a 1937 paper, 'The first and most unmistakable lesson is the ever increasing power of the defence. The development of the tank in the Great War restored to the infantry the ability to break through; and it dominated the battlefield until the end of the war. But a new phenomenon has now appeared ... the anti-tank gun. A frontal attack by tanks can now be brought to a standstill ... we thus see the heavy preponderance in favour of the defence, which had been disturbed by the advent of the tank, to some extent restored by the invasion of an efficient anti-tank gun.' He does point out, however, that "The failure of tanks in a particular action may have been due to the fact that they were in inexperienced hands rather than to any defect in the weapon itself." Of course tanks were not intended to be wasted on frontal attacks — in the new theory, they were designed to search out a weak spot through which to penetrate (the tactical thrust point or 'schwerpunkt' in German theory), or exploit a gap provided by a combination attack by artillery, aircraft, infantry and armour.

Yet it is interesting to note that Liddell Hart reached the same conclusions as Temperley, despite his theories about the use of armour — in Europe in Arms, published in 1937, he writes '... the ultimate general effect of mechanisation will be towards enhancing the power of the defence, through increasing rapidity of reinforcement and countermove, rather than reviving the power of the offensive.' He goes on to say 'On land, ... the defence is paramount at present. There have been few successes gained merely by manoeuvre.' Still, mechanised forces had achieved some successes in Spain, but these successes were limited not only by the way the tanks were used, but also by the quality of the tanks themselves in many instances. The Germans were not discouraged by the results of mechanised forces in Spain — the campaign in Poland and then in France was to prove that. Moreover, the German armoured forces contained many men who had fought in Spain. 'Here they gained battle practice; they tested new techniques and the mechanical capabilities of their machines; and they saw the fate which befell tank forces that were put into battle dispersed in "penny packets".' That fate was that of the French in May 1940, when they were defeated in detail by German armour which had penetrated a weak point in the French defences. Certainly after 1940, the views of the military intellectuals of the post 1918 years were fully vindicated — the Germans at least, had gained additional experience from the war in Spain; and yet the operational technique of the Russian armoured forces responding to 'Barbarossa' in July 1941 can only reflect to some degree the influence of Pavlov's reports on return from Spain.

Conclusion

The Spanish War had highlighted armour only to the point where Temperley could write
In Spain, tanks have not proved as successful as was hoped by either combatant. The war in Spain was a deceptive testing ground, but was more valuable in training crews and gaining battle experience rather than proving or disproving the theories of mechanised warfare. While the conditions and conduct of the war may have been deceiving, so were the lessons. In the hard fought battles of attrition the French theories seemed correct, in the battles of pursuit Fuller’s theories seemed correct, with little correlation between one sort of battle and another. Cavalry played just as important a role as it always had. So the only conclusion to be reached from the use of armour in the Spanish War may be that it was possible to achieve success, but only under certain conditions. Certainly armoured forces were not capable of achieving success by their own efforts — ‘Even the tanks that carried cannon failed when they attacked infantry alone’ — and should not have been used in heavy combat by themselves and been expected to provide a breakthrough.

In this short article I have tried to place the use of armour in Spain within the larger context of its effects in 1939 — what Spain represented to the various combatants and observers in terms of the use of armour in the first war involving large mechanised forces since 1918. Although the conclusions were generally negative, they are still compelling enough to remember the fate of the Israeli tank brigade decimated in a matter of minutes in Sinai in the 1973 Arab-Israeli War after being committed without adequate support.

NOTES

1 According to Goering in 1946, the bombing of the town of Guernica in April 1937 was regarded as a testing ground for bombing techniques.
3 Ibid., p. 72.
4 Col. H. C. Rogers, Tanks in Battle, Sphere, 1972, p. 93.
7 See Imperial General Staff (Australian Section) Australian Intelligence Diary Part II 2-G/9/1937 Intelligence Section, General Staff, Army Headquarters Melbourne 29 Oct. 37; and also A. C. Temperley, Military Lessons of the Spanish War, p. 38.
8 Australian Intelligence Diary, op. cit., p. 207.
9 K. Macksey, op. cit., p. 97.
10 Temperley, op. cit., p. 36.
13 Macksey, op. cit., p. 96.
14 Thomas, op. cit., p. 501.
15 The Sydney Morning Herald, 16 June 1937, p. 15.
16 The Sydney Morning Herald, 2 April 1937, p. 11.
17 Later shot by Stalin for 'incompetence' as Commander of the Belorussian Front in 1941. Another Russian in Spain, who fought under Pavlov, was Koniev, later a Soviet Marshal and commander of a tank army.
18 Macksey, op. cit., p. 96.
19 Australian Intelligence Diary, op. cit., p. 207.
21 Temperley, op. cit., p. 35.
22 Ibid., p. 35.
23 B. Liddell Hart, Europe in Arms, Faber and Faber, 1937, p. 324.
24 Ibid., p. 331.
26 Temperley, op. cit., p. 37.
27 H. J. Reilly, Blitzkreig in 1940 in Foreign Affairs, 18, 1940, p. 259. 'In the battle of Fuente de Ebro seven companies of Franco’s infantry unsupported by artillery, decisively defeated from 90 to 100 tanks attacking alone.'

The Book — 207 pages — 72 pages of photographs or illustrations.


JAMES MRAZEK, a former commander of a glider infantry regiment, has catalogued some 70 different gliders that were developed during World War II and, although primarily of interest to the enthusiast, the profusely illustrated book contains some fascinating information of general interest.

Over 26,500 gliders were produced during the war and the Waco CG4A (or British Hamilcar) of which over 14,000 were manufactured holds a production record only exceeded by the B.24 bomber, the P-47 Thunderbolt and P-51 Mustang fighters. In addition to impressive quantity figures gliders also held size records: the German 200 man transport glider the ME321 (giant) being the largest aircraft produced during World War II having a wing span greater than the C141 Starlifter of today.

The Russians trialled a biplane glider using a six ton tank as the fuselage. The controls of the glider were inside the tank and once the glider was released from the two-plane the tank's engine was started and the tank treads moved slowly. As the glider approached the ground the tank treads were accelerated reaching maximum speed just prior to landing. On impact the tank was quickly disengaged from its wings and drove off. It is perhaps fortunate that this concept was not further developed when one considers the number of tanks the Russians now have and the possible spectre of massed flying tanks raining down on Western Europe.

Apart from other oddities documented, such as a glider version of the DC-3, float gliders and a German intercept glider mounting twin 30mm cannons designed to swoop on allied bomber formations at speeds of up to 560 mph, Mrazek points out that many of the later glider designs had features which have now been incorporated into modern transport aircraft such as the C122, C123 and C130.

All in all, Fighting Gliders of World War II is a very readable reference work and supplements the previous books by the author on glider operations.

† Available in Australia from Methuen of Australia, 301 Kent Street, Sydney, NSW 2000.


Reviewed by Lieutenant J. P. Barr, Royal Navy (Retd.), Member Air Britain, The International Association of Aviation Historians, Aviation Historical Society of Australia.

COMMANDER LAMB was inspired to write this book by the late Evelyn Waugh who advised him that all naval officers "retire to their country estates to write their memoirs and be beastly to the vicar". The author retired in 1958 with one of Mr Duncan Sandys "golden bowlers" and has taken some time to take at least the first part of that advice. Fortunately the delay has been well worth while.

The 'Stringbag' of the title is the Royal Navy's Fairey Swordfish — an antiquated-looking biplane strike aircraft which equipped more than half of the Fleet Air Arm's operational squadrons in 1939. It says a great deal for the qualities of this anachronism that on VE Day it was still the Fleet Air Arm's third most numerous operational aircraft type despite a performance inferior in many respects to that of today's Iroquois helicopters. Crews held their aircraft in some degree of affection, an affection which is reflected in this book.

Charles Lamb's 'War in a Stringbag' began on 3 September 1939 when he was already
serving with one of the Swordfish squadrons of HMS Courageous. The first phase ended only 14 days later when the ship was torpedoed in broad daylight while engaged on anti-submarine patrol duties. The author describes those early confused days well and gives a lucid description of the sinking. In modern days of sophisticated anti-submarine warfare, it is incredible to read that when the torpedoes struck, Courageous was at cruising stations with no aircraft airborne despite having despatched two of her four destroyer escorts to assist another vessel.

Within a month the survivors from Courageous’ Swordfish squadrons were formed into a new squadron which spent a period shore-based flying mine-laying sorties to German ports and supporting the Dunkirk evacuation with anti-E-boat patrols. Time was short however, and before the retreat from France was over Lamb embarked with his squadron in the new armoured carrier HMS Illustrious which had a short work-up and then joined the Mediterranean Fleet.

Ship and squadrons were quickly in action and followed a spell of convoy support and short strikes by the mounting of a long planned raid on the Italian Fleet Base at Taranto. The author piloted one of the flare dropping aircraft and had a grandstand view of this classic attack in which three battleships were disabled and three cruisers, a destroyer and shore installations damaged for the loss of only two Swordfish. His description is excellent and shows considerable appreciation of the problems of the Italian defences.

Following the crippling of Illustrious two months later (which the author also witnessed from the air) her squadrons were sent to Crete and Greece in support of Allied ground forces. Commander Lamb gives interesting details of this little documented period, in particular of the time his squadron together with some RAF bombers operated from a secret airfield in the Albanian mountains—well behind the enemy lines.

On his return to Egypt after the evacuation from Crete, Lamb was sent to Malta with the task of ‘sorting out’ the resident squadron whose results had shown marked deterioration over recent months. He found a unit worn out by 10 months of continuous night operations and whose rest was continually interrupted by air raids on their base. The remedy was drastic and involved the replacement of many of the aircrew including the Commanding Officer. However, an efficient squadron was soon operating again and the author found time to open another role for the Swordfish when he began ferrying Allied agents to and from Vichy controlled Algeria. One of these operations led to the end of his ‘War in a Stringbag’ when his aircraft turned on its nose when landing on a muddy lake bed. Lamb and his observer were captured by the Vichy authorities and interned.

Many books have been written about prison camp conditions but I do not believe that the Algerian internment camps have previously received any attention. From the author’s description it would seem that conditions in these camps were worse than those experienced by the majority of service prisoners in Europe but he and others released by the invasion of North Africa in 1942 were asked to remain silent in the interests of the Allied advance. Only now does Commander Lamb feel able to reveal the sufferings of these prisoners of a so-called neutral government and he has done the job with considerable restraint.

Following his release, the author spent a convalescent period on a recruiting tour for the sadly depleted Fleet Air Arm. When fit he joined HMS Implacable as Lieutenant Commander (Flying) but was severely injured in a flight deck accident in June 1945 and spent VJ Day in a United States Navy Hospital on Manus Island. Subsequently he recovered sufficiently to fly again and to command a small ship before his premature retirement.

Commander Lamb’s book describes a number of aspects of World War II that have been poorly covered in earlier memoirs. Of particular interest are his descriptions of the early days in 1939 and of the problems and symptoms he encountered when dealing with the disheartened squadron in Malta. His style is particularly readable and carries the reader easily from one stage to the next. Illustrations are apt and there is a good index. ‘War in a Stringbag’ compares favourably with other memoirs of the war in the air and can be recommended both for the specialist and the general reader.
Reviewed by Commander B. Nobes, RAN
Department of Defence (Navy Office), Canberra.

As the author states in his introduction, it would require a very long book to do complete justice to submarines. In this short volume (143 pages) an attempt has been made only to skim the surface of the subject and little depth of knowledge can be obtained from the text. In fact, only the equivalent of about 44 normal size pages of text is included. On the other hand the author has gone to great lengths to obtain a very wide range of photographs, drawings and paintings covering his subject from early times. It is from this point of view that the book will appeal to anyone interested in submarines or in twentieth century maritime warfare, or more likely to the younger person as an introduction to the subject. The author gives a short and very incomplete list for further reading at the end of the book and this shows, perhaps, that his intention really is to stir interest in what is truly a fascinating and remarkable story.

Reviewed by Lieutenant Colonel R. D. Manley, BA, ALAA, Army Office.

James Clavell is a successful author, and also a producer and director of some entertaining films including The Last Valley. He was a Captain in the Royal Artillery during World War II, and was captured by the Japanese and imprisoned at Changi. As an involuntary guest of the Imperial Japanese Army he took the opportunity to study the Japanese psyche. Clavell's experiences in Changi formed the basis of his previous novel King Rat.

Shogun is a colossal historical novel of some 1243 pages. It is gory and bawdy, the usual ingredients for a best seller. The author has set his narrative in the early years of the Tokugawa Period (1600-1867), when seppuku or self disembowelment became a highly formalized and ritual act. The hero of Shogun is a carbon copy of a real life Englishman named Will Adams. Adams was a better-than-average navigator employed by the Dutch as a ship's pilot. In 1600, he became the first Englishman to reach Japan after his ship was wrecked off the main island of Honshu. Adams became a favourite of Ieyasu the first Tokugawa Shogun or commander-in-chief. Shogun was the ultimate rank that could be achieved in Japan, and only one daimyo (noble) at a time could possess the title. As a military dictator, the Shogun had absolute power to rule in the Emperor's name. With the help of Adams, Ieyasu (whose domain was near present-day Tokyo) assumed the title of Shogun in 1603. Adams introduced Ieyasu to the military arts and technology of the West, including shipbuilding, and as a special envoy he helped the Shogun in his trade relations with the Netherlands and Britain. Adams became a Samurai, and so does the hero (Blackthorne) of this book. Under the influence of Adams, the enmity between Britain and Spain rubbed off on Ieyasu, which caused him to continue the persecution of Japanese Catholics who had been converted by Spanish and Portuguese missionaries. All this, and the code of behaviour known as bushido, is cleverly fictionalized by Clavell. The core of bushido in the Tokugawa era was the belief that the Samurai owed absolute devotion to their feudal overlords. In return for the loyalty and service rendered by the samurai to his lord, the samurai expected both protection and reward. Whilst there are many examples of samurai who remained loyal to the code of bushido—there are also numerous instances of outright treachery and transference of allegiance from one side to the other, even in the heat of battle. The main shortcomings of this book are its inordinate length and an over dramatic Hollywood movie script style. Nevertheless, some readers will devour every sentence, and if you have an appetite for popular historical novels based on feudal Japan, then Shogun is your fare.

PANZER* by Philip Warner, London, Weidenfeld and Nicolson, 1977, 144 pages, 28 cm x 22 cm.
Reviewed by WO2 A. H. D. McAulay.
HQ FF Comd.

This is a simply written, easy to read general view of the development and employment of German armour 1922-1945 that could be suitably sub-titled 'An Introduction to German Armour'.
In 144 pages, many of which are full page illustrations, Mr Warner presents in an easy flowing style the general history of the German armoured forces. The book is necessarily a ‘broad brush application’, but includes brief mention of careers of major exponents of armour woven into the general fabric of the problems confronting the Germans in the twenties when they were forbidden armoured fighting vehicles by the Versailles Treaty, lack of training areas and of equipments with which to experiment and develop their concepts.

He also discusses the problems confronting all AFV designers trying to achieve the perfect relationship between the requirements for armoured protection, mobility, fire power and crew performance.

The operational employment of the German armour, beginning with the march into Austria, is also described in general terms dealing with the major battles and trends in the Western, Eastern, African and Italian Fronts.

Mr Warner departs from his general view of the subject to devote a chapter to the Herman Göring Division and to go to some lengths to lump the Waffen-SS with the Gestapo, extermination camp organization and concentration camp guards. He even lists each Waffen-SS Division with brief denigratory remarks, though less than one-third of the 38 Divisions were armoured, i.e. classed as ‘Panzer’.

Perhaps the space used in this brief, but general denigration could have been used to explain such matters as the introduction of ‘Zimmerit’ anti-magnetic paste, the armoured skirting of turrets and hulls and measures taken to counter Allied air superiority and provide mobile anti-aircraft defences.

The text is not complemented by the many illustrations and their captions. Many of the pictures are out of context and the captions are disappointing in a book published with the information now available. In a book entitled Panzer, it is not too much to expect the vehicles to be identified, e.g. “PzKw III of 9th Pz Div” rather than “German Tank”.

Armoured cars are called light tanks, “Elephant” tank-hunters (“Panzer-Jäger”) are also tanks, and why use the Soviet caption “Nazi equipment” when “Panther” is more accurate? Some of the captions are just plain wrong, and to cap it all, three of the four photographs in the “Defeat” Chapter show SS armoured cars advancing in 1939, 40 and 41, and the fourth is of a Panther advancing in the Ardennes.

Perhaps collaboration between Mr Warner and Weidenfeld and Nicolson did not extend to allowing him much say in the actual layout of the book and photo selection and captioning.

However, the faults above apart, the book would be very useful to someone requiring only a general view of German armour, i.e. tanks, in the 1922-45 period, or for someone just acquiring an interest in the subject.


Reviewed by Major A. E. W. Stormer, RCT
UK Liaison Officer, Canberra, ACT

Sir John Smyth has selected thirty-two stories of the Victoria Cross ranging from its earliest introduction as an award up until the end of the Second World War. It is a difficult task to cope with. As he says in his introduction selecting the stories was difficult and comparisons are odious. One thing all have in common is the incredible bravery and self sacrifice of the recipients of the VC. Inevitably in such a collection of stories some are better described than others; indeed some I thought got scanty attention. I suspect this is because Sir John is obviously more at home with the land battle so the air and sea actions are generally not so well portrayed and, secondly, some stories are obviously better documented than others so the descriptions can be better illuminated.

In describing an action some general description of the background is necessary. The author has unfortunately often spent too long on this aspect. The result is that the description of the campaign is not long enough and the VC story involved too short. Neither are done justice. In the description of some campaigns I became irritated by what appeared as unsubstantiated subjective statements about strategy and the actions of certain commanders which are unnecessary in this book.

The actions of gallantry described are, as one would imagine, incredible. As I have said some are told better than others and I must admit that at times I found the reading of such amazing acts of courage becoming tedious. This is because I think there are too many stories and although Sir John is an experienced
and efficient author his writing does lack a descriptive sparkle. The combination of this and the slightly long descriptions of some of the campaigns involved dulled this book for me. Nevertheless I learnt a lot about the award, and the courage of all the men involved never failed to shine through. It is difficult to single out any one story but surely the exploits of Captain Albert Ball of the Royal Flying Corps can never be equalled. This young officer only flew in action for one year, from 1916 until 8 May 1917, when he was killed. In that time, apart from winning the VC, he was awarded the DSO and three bars, the MC, the Russian Order of St George and the Legion of Honour as well as receiving numerous mentions in despatches. When he died he was only twenty-one years of age.

Despite the critical points I have regarding this book it does achieve one thing the author hoped it would. It wets one’s appetite to learn more about these heroic deeds. I hope that future works concerning the VC will contain fewer stories in more detail with perhaps more emphasis upon the individual involved. Courage has been described as a contradiction in terms because it is a strong desire to live taking the form of a willingness to die. Why do men and women rise to such deeds of courage? What makes them suddenly willing to put their life on the line sometimes for a split second, sometimes for hours or even days? These are questions that interest me and perhaps a more detailed analysis of the VC actions would help provide the answers as well as provide a more totally enthralling book.

* Available in Australia from Hodder and Stoughton (Australia) Pty. Ltd., 2 Apollo Place, Lane Cove, NSW 2066.


Reviewed by Dr L. H. Barber, Department of History, University of Waikato, New Zealand.

UNIT histories, though sometimes slender in size and limited in perspective, can play an important role in contributing to the total picture of a campaign. James J. Atkinson’s The Kapyong Battalion is a useful addition to Australia’s catalogue of regimental and battalion histories, providing its readers with a clear and well illustrated account of the operations of the 3rd Battalion of the Royal Australian Regiment in the Korean War. In concise phrases the battalion’s activities, from late September 1950 until embarkation for Australia on October 1954, are described and contextualised. The author’s eight page narrative of the Battle of Kapyong is accompanied by four useful battle maps and by a set of photographs that establish the contour of the battle site. Although tantalisingly brief this account provides, as Major General C. M. I. Pearson notes in his foreword, “a great contribution to the history of the Regiment and its battalions and will be valuable in time to come in any analysis of the Korean Campaigns”.

The narrative chapters are followed by a nominal roll, list of casualties, list of prisoners of war and a catalogue of battle honours. The particular bravery of Private H. W. Madden who resisted enemy torture and neglect, and who eventually died of ill-treatment in Changsong Prison Camp, stands out in Spartan simplicity.* A chronology of key events in the battalion’s Korean campaign is a useful conclusion to this timely record.

Military historians involved in our analysis of Australian and New Zealand involvement in the United Nations Peace Keeping operation in Korea should be grateful to James J. Atkinson for his contribution to a neglected area in army history.

* See Courage in Captivity by Captain D. T. Read in DFJ No 8 (January/February 1978).

WARSHIPs OF AUSTRALIA by R. Gillet, illustrations by C. Graham, Rigby, 344 pp, $39.35.

Reviewed by Mr R. F. Wright, Defence Central.

In one volume Ross Gillet has successfully produced both a naval history of Australia and a reference work on the ships which contributed to that history.

Some 100 pages are devoted to our naval history, starting from before the First Fleet and covering Government colonial vessels from 1789 to 1855, the Royal Navy in the Pacific and on the Australian Station, the Colonial Naval Forces, and the subsequent development of the RAN. Thereafter the book is concerned with the technical details and careers of indi-
vidual ships. In addition to all RAN and Colonial vessels, the RN vessels on the Australian Station between 1859 and 1913 are included. Some lesser vessels are only briefly covered, but the book compensates for this with other data. Details are given of the RN submarines based in Sydney from 1949 to 1975. Appendices included aircraft and squadrons of the Fleet Air Arm since 1948, and a list of RAN warship conversions and modernisations since 1946.

The very readable text is supported by about 30 of Paul Webb’s fine plans, and by about 350 photos, many of them in colour. A number of the older photos are previously unpublished from the Australian War Memorial Collection.

The comprehensive nature of the book and of the research which must have gone into it is best illustrated as follows. Among the colonial vessels the author lists an unnamed cruiser which was to have been completed in the early 1890s for the Victorian Naval Forces. Details are given of the two designs considered. The author notes that a letter dated 26 October 1888, aboard HMVS *Nelson* to the Minister of Defence, recommended that the chosen design be for a vessel of 195 feet in length, 1040 tons displacement, 16 knots and armed with three 6" guns (one twin forward, one single aft), four 40 pounders, eight 3 pounders and two Gatling guns. The project apparently died in 1889 before the vessel was laid down. Elsewhere in the book, other previously unpublished information is also to be found.

Inevitably, there are a few minor errors but most of them appear to be the fault of publisher rather than author (eg several pictures are incorrectly captioned). In one point of substance the author states, “No known naval vessel of any type was operated by Western Australia”. Though possibly technically correct, mention might have been made of the 337 ton steamer Georgette, requisitioned in 1876 to carry a Company of Infantry and a 12 pounder field gun in an unsuccessful attempt to recapture six Fenians escaping in the barque Catalpa.

This book is strongly recommended. The naval enthusiast will require both it and John Bastock’s “Australia’s Ships of War”, as each book contains information not available in the other.

**German Generals of World War II** by Major General Friedrich von Mellenthin, University of Oklahoma Press, 300 pp, $10.35. (This copy from Napoleon’s Military Bookshop, 375 Pitt Street, Sydney.)

Reviewed by WO2 A. H. McAulay, HQ FF Cond.

**Major General von Mellenthin** served as a staff officer during the Polish, French, Balkan, North African, Russian and West European campaigns. In this book he has set out to describe fourteen German generals with whom he served, either as a member of their own staff or with whom he worked closely.

The aim of the book is to portray “something about the characters and human side of German generals of World War II”. Von Mellenthin has given his analysis of each commander’s character, temperament, leadership, politics and what he considers to be flaws, both minor and major.

The generals range from von Fritsch, C-in-C of the German Army 1934-38, who built it up from the 100,000 man Army, to Rommel, Guderian, von Manteuffel, Sepp Dietrich of the Waffen-SS, von Pannewitz who raised and led the Cossack divisions to fight the Russians, and General Herman Balck who rose from Lieutenant Colonel in 1939 to command Army Group G in 1944.

The book does add some depth to otherwise little known generals who did not receive the PR effort expended on Rommel, von Rundstedt or Guderian.

General von Mellenthin describes his relationship to and length of service with each of his chosen subjects, relating his qualities as a man and as a soldier and gives one or more examples of each one’s performance in battle, under stress or with the occasional humorous anecdote.

There is the story of Dietrich of the Waffen-SS, an organization that held life to be cheap, reviewing the death sentence on a young mother’s boy who could not stand life as a member of a tank crew in 1945 and left, going home to mother. He was caught, tried and sentenced to death. Dietrich had the boy paraded, read the documents, stood up, boxed the lad’s ears and told him to go and see his
mother for a week, then come back and be a good soldier. The boy is said to have done just that.

The book succeeds in fleshing out the bones of people who are often bare skeletons of names, and in today's high cost of books is worth the price.


Reviewed by Dr L. H. Barber, University of Waikato, New Zealand.

The other day I discovered I am middle-aged. This shocking revelation occurred when I referred to an event that took place in my childhood, a happening that every one of my contemporaries is well aware of, and my teenage audience looked bewildered. The event was 'Dunkirk', the massive, brilliant and perhaps 'miraculous' rescue of over 338,000 allied troops from the jaws of the German armies in 1940.

Because I was brought up on the legend of Dunkirk; on tales of small boats lifting exhausted soldiers to safety and memories of Britain standing alone after the fall of France, I expected my teenage listeners to react knowingly and emotionally to my reference to 'Dunkirk'. I realised that I was at last middle-aged when my mention of 'Dunkirk' met with a bewildered, puzzled and bored response.

Some four events in history deserve better than that from a new generation. The New York Times predicted on the 1 June 1940 that 'so long as the English tongue survives, the word Dunkirk will be spoken with reverence'. I think it should be and that is why I welcome the publication of A. J. Barker's readable, well-documented and usefully illustrated description and analysis of a recovery once called 'a miracle'.

A. J. Barker's *The Great Escape* is meant for the ordinary reader. In 229 pages this retired officer, the author of twenty books on military history, traces the story of the British defeat in France from the uneasy peace of the late 1930s to the confusion of retreat in late May 1940. Then in eight chapters that draw on British, French and German sources, Barker paints his grim picture of the bravery, futility, misunderstanding and, in the end, determina-

tion, that were the hallmarks of Dunkirk. He describes the hastily organized divisions of clerks, new recruits and cooks, thrown into battle to face the unexpected violence of the German tank attack. General Gort, the British Commander-in-Chief, emerges as a brave soldier who sensibly abandoned any further futile defence of France in order to bring as many of his army as possible back to beleaguered Britain. Dunkirk ended Gort's military career, with accusations of betrayal from the French and with Churchill using him as his scapegoat for a British defeat. Barker suggests that Gort did brilliantly—in gaining time for Britain's defence and in bringing most of Britain's professional army home at a time when invasion seemed imminent.

Individual acts of initiative and valour have their place in Barker's narrative. A company of British troops armed only with rifles destroyed a squadron of German tanks by laying crockery plates on the road and then shooting the crews as they gingerly dismounted to examine these strange looking anti-tank mines. A decimated Guards Battalion marched along the beach to the rescue boats, exhausted, hungry and half-naked—but with weapons clean and ready for action.

On the larger station Barker makes clear that Operation Dynamo, the actual evacuation, was no haphazard affair. He notes that 'The statistics . . . have been interpreted many times before, and most of the analysts have stressed the contribution of the “little boats”'. In doing so they have helped to create and perpetuate a legend. But the facts behind the legend must not be forgotten; Operation Dynamo was a military operation—an operation organized and carried out by the Royal Navy, whose ships are entitled to no less than eighty per cent of the kudos'.

The facts support Barker's contention. Royal Navy vessels lifted out over 171,000 troops while private motor boats uplifted 5,000. Dunkirk: The Great Escape also corrects another myth, the damaging claim that the Royal Air Force neglected the interests of the troops trapped on the beaches. Barker confirms that RAF bombers attacked German formations closing-in on Dunkirk, day and night, during Operation Dynamo, and that RAF fighters flew 2,739 sorties over Dunkirk during the nine days of the evacuation.