Illustrations by members of the Army Audio Visual Unit, Fyshwick.

Printed and published for the Department of Defence, Canberra, by Ruskin Press, North Melbourne.

Contributions of any length will be considered but, as a guide, 3000 words is the ideal length. Articles should be typed, double spacing, on one side of the paper and submitted in duplicate.

All contributions and correspondence should be addressed to:

The Managing Editor
Defence Force Journal
Building C Room 4-25
Russell Offices
CANBERRA ACT 2600.

(062) 65 2682 or if unanswered 65 2935
A Journal of the Australian Profession of Arms

Contents

3 Editor's Comments

4 Letters to the Editor

8 Army Force Development
   Major G. L. Cheesman

23 Australia's War-time Security Service
   Captain C. D. Coulthard-Clark

28 Sentinel Military Observer Group
   Lieutenant Colonel D. A. Gough, psc

32 Validation of Training: Retrospect and Prospect in the RAN
   Lieutenant Commander C. V. Baker, MA, BEd, ThA, RAN

41 The Future of Infantry — a reply to a friend
   Lieutenant Colonel J. Wood, ED, BA, MA

46 Bruno and His Guns
   Major D. N. Brook

57 Book Reviews

Permission to reprint articles in the Journal will generally be readily given by the Managing Editor after consultation with the author. Any reproduced articles should bear an acknowledgement of source.

The views expressed in the articles are the authors' own and should not be construed as official opinion or policy.

Contributors are urged to ensure the accuracy of information contained in their articles: the Board of Management accepts no responsibility for errors of fact.

© Commonwealth of Australia 1979
Mirage III 0 of 20CU, RAAF Williamtown

(Sgt Alan Meadows, Defence Public Relations)
AFTER the trauma of the last two issues, due mainly to the changeover from hot metal to computer type-face, it is hoped that we can settle down to a more studied routine. Computer type-setting does have its problems, not least the fact that it takes more effort to correct the final page proofs than in the old system. This calls for accuracy at an early stage of the production process and here authors of articles, book reviews and letters can help by proof-reading their manuscripts.

Talking of manuscripts, it would help the typesetter greatly if they could be typed, double-space, leaving a wide (3 cm) margin on each side of the page. Pages should be numbered, for example, 1 of 12, 2 of 12 etc, so that when staples are removed pages do not go astray. Remember that a long work may be handled by more than one operator, so the manuscript may be divided into two or more sections, spread around the printing works.

Unfortunately, I do not have my own typist and, therefore, cannot undertake retyping of manuscripts, so it is essential that they be presented clean and readable.

At the present count, there are some twenty-one book titles for review outstanding. It is not fair on the authors, publishers, or the readers to delay a book review for many months having first undertaken the task. I shall be writing to all those reviewers on my records in an effort to clear the backlog. There has always been an encouraging flow of books from the publishers. Considering the present price of books, this is likely to dry up if we can’t give them a return of a timely review which is, after all, not too much for them to ask of us.

If anyone specialises in reviewing war fiction, I have books about each World War on offer. Two are on land warfare, one on air warfare. Please contact me as soon as possible if you are interested.

I hope you found the last issue (March/April) looking good. It is now entirely computer typeset, and Steve Crowe and his colleagues in Audio Visual have set a new style in illustration attuned to the new process. It is our intention continually to improve readability within the limits of our budget, while keeping a dignity befitting a professional house journal. I think it is still a good many years off before we have a centrefold, for instance, but not so long, hopefully, before we can introduce colour, a distinctive cover for each issue and, dare we hope, a monthly production. There is no shortage of material, although I would appreciate a renewal of interest from the RAAF, especially on air matters.

You will notice that we now include the date on which an article was received at the bottom of the first page. This is particularly important for articles on current problems, as it gives the reader some idea of the material available to the author at the time of writing, which may have been superseded by subsequent events. While every effort will, of course, be made to update articles before going to press, this is not always possible.
IN DEFENCE OF WARSHIPS OF AUSTRALIA

I have just read an amazing so called ‘book review’ of Mr Ross Gillett’s Warships of Australia, in Defence Force Journal No. 12 (September/October 1978), and I am at a loss to see how this review is justified. I fail to see how the reviewer reaches his conclusions, and by his comments it seems very doubtful as to his capabilities of reviewing a book of this type.

After reading Midshipman Goldrick’s words of wisdom I wonder if he actually read the book at all.

Regarding the so-called errors and poor presentation by the editor, or author, I find many interesting contradictions. In one instance Mid. Goldrick states, “The first Anzac’s career is well detailed but the date she paid off is strangely concealed among the S & T class.” This is very far from the truth, as Anzac (1) is placed in its correct position before her flotilla, and all dates included in the section allotted to her.

For Midshipman Goldrick’s information, there was no ‘T’ class of destroyers until the Emergency Flotillas were built during World War II.

Mid. Goldrick seems to think that the book will have to be revised to some great extent before he will give it “more than a grudging pass”. How odd, seeing that he went to no trouble to get his own copy autographed by the author.

For some constructive criticism, there are mistakes in Mr Gillett’s book, as indeed there are quite a few mistakes in Mr John Bastock’s Australia’s Ships of War. Has any book ever been free from mistakes? If Midshipman Goldrick locates a few actual errors he might be qualified to review the book.

Apart from the obvious “sour grapes” that appeared in Mid. Goldrick’s review, I find that the inclusion of a review such as his in the Defence Force Journal very upsetting. Indeed, I feel that your journal itself becomes suspect. I fully realize that in a democracy a person is entitled to “say his piece”, but I feel that the accuracy of reviews such as this should be checked.

As for Midshipman Goldrick, I can only say this. If and when, he can produce a work of this calibre, I for one would be delighted to review his work.

Mr Gillett spent quite a few years in gathering the data for Warships of Australia, and is to be highly commended for his effort. It would appear that Midshipman Goldrick opines that it was a hasty exercise. Nothing could be more far from the truth.

I quite agree that the price of $39.95 is steep, but then again, all books today are expensive and for what is contained in Warships of Australia the price is justified. There are many books on the market more highly priced than this one, and containing very much more dubious information.

In conclusion, I find that this review of an outstanding work is very poor, a fact proved by the acceptance by the ex-naval fraternity in general. Many ex-matelots have bought copies...
LETTERS TO THE EDITOR

5

of Warships of Australia, and are very vocal in their praise of it. One point to bear in mind is that many of the owners of this book knew many on the ships concerned, and are fit to judge. Many of these ships had been disposed of before Mr Goldrick ever decided to join the RAN, and indeed before his father joined it. It is very hard to give an accurate detail of past history, and any writer must sift out the facts that have been recorded and draw his own conclusions.

I anxiously await a book of reference pertaining to RAN ships written by James Goldrick. If it ever does materialize, I would hope that it will be as factual as Warships of Australia. Frenchs Forest, NSW H. C. Adlam

THE AUTHOR REPLIES

I was somewhat disturbed to read Mr Adlam's letter 'In Defence of Warships of Australia.' I set out to review the work; what I wrote in the article that Mr Adlam so dislikes was neither an attack on Warships of Australia, nor a publisher's notice. I wrote that I gave the work 'a grudging pass', but it was a pass nonetheless — and I might say that if the second edition were produced it would be the nearest thing to the definitive work on the subject yet published.

To consider some of the points raised by Mr Adlam; first, the fact is that the date that Anzac (1) actually paid off — or, rather, was replaced, is on page 156 among the S&T class. The text reads:

"Tattoo . . . Recommissioned in lieu of Anzac 31-8-31 . . ."

The Anzac (1) section does read, "Paid off 30-7-33", but it has always been my understanding that Tattoo replaced her in commission in 1931. On page 85 of John Bastock's Australia's Ships of War the author notes that Tattoo recommissioned in 1931 and on page 82 that Anzac (1) paid off in that year. I should perhaps have said "... the correct date that she paid off is concealed amongst the S&T class."

I am not quite sure that I understand Mr Adlam's vehement statement that "There was no 'T' class . . . until the Emergency Flotillas . . .", but if I am right he is critical of my labelling Success, Swordsman, Stalwart, Tasmania and Tattoo as members of the S&T class.

According to Admiralty records the type was known as the 'Modified Trenchant' or Admiralty 'S' class. Because of the mix of 'S' and 'T' names, they did become known colloquially as the S&T class. Perhaps Mr Adlam knows better than I, but it is worth noting that Mr Gillett uses the label S&T class four times on page 151 and once on page 156.

As to the matter of the Encounter, I used the word 'plan' in the usual sense, rather than that of the naval architect. In fact, the colour drawing facing page 129 is, in that latter sense, neither a 'plan', nor a 'profile', but an elevation. And it is not a very good one. A comparison with photographs of the ship will show many errors. Working from forward aft, the anchor is too low, the bow gun embrasure is too tall, there were three rows of scuttles on the hull and not two, the fore-top (and I do not mean the lower platform) is too small, the funnels are incorrectly raked and have several non-existent horizontal lines drawn upon them, there are no gaps in the midship bulwarks for each gun position . . . to name two most obvious errors at the time when Encounter . . . was first commissioned into the RAN.

Many of the same things can be said of the elevation of the First Class Cruiser Powerful immediately below, as well as those of the Royal Arthur and Protector in the same section, and of other colour views.

The key notes of such a work as Warships of Australia should be consistency, correctness and detail. It was for this reason that I criticized the attempt to include an outline history of the R.A.N. in the book; it was an attempt to do too much on too little and I think that the space would have been better spent on describing the ships themselves.

Similarly, Warships of Australia could have done with more time in proof. It is a hideously difficult job to ensure that any work on this scale is properly proof-read. Jane's Fighting Ships, for example, only maintains a very high level of accuracy because after it emerges each year the Editor receives a torrent of letters noting errors and omissions. Publishers in Australia will not give enough time for proof reading. It is notable that academic publishers in America or Britain will give their authors near as much time as they want to sort matters
out. Australian popular book publishers are a very different matter.

Is not a desire for perfection in what is produced about the R.A.N. and its ships a good thing? In many ways Warships of Australia is a splendid production, but I am still quite sure that a second edition would enable it to be splendid in every way.

At £39.95 — and still less at the Naval Historical Society price — I do not think that the book is very expensive; on the contrary, I think the price quite 'reasonable' — as I wrote in the review. I am sorry if Mr Adlam and any of his colleagues might have thought my criticism destructive, but I would be even sorrier if I thought that he and they consider Warships of Australia to be a finished and perfect product.

Man is perfectable, is not a book of reference?

HMAS Stalwart

J. V. P. Goldrick,

Sub Lieutenant, BA, RAN

I should point out in fairness to Sub Lieutenant Goldrick that his review was unsolicited and using his personal copy, not one sent by the publisher, as was Ron Wright's review of the same book which appears in March/April 1978 (Issue No. 9). I am grateful to Mr Adlam and Sub Lieutenant Goldrick for contributing to a lively discussion. — Editor.

AIRSHIPS FOR SURVEILLANCE

Much has been said regarding the lack of surveillance of our coastline, particularly to the north and west. From the various reports and articles available in the media, it appears that a suitable surveillance system should have the following qualities:

- mobility with:
  - a long range vehicle;
  - a vehicle capable of carrying the latest AEW radar, plus digital data link equipment;
- no special large-scale ground installations;
- an overall economy of operation; and
- the smallest possible capital outlay.

I believe these criteria are all fulfilled if the surveillance is carried out by airship-borne radar equipment. To avoid any chance of readers thinking there has been a misprint, I am recommending a modern blimp.

Such a craft exists in prototype; Britain and Brazil have jointly produced an airship which is considered viable as commercial transportation. The concept of adapting a commercial product is not new, in fact the recent strategic rationale which resulted in the Nomad aircraft being proposed for the surveillance role could well be applied to an airship. Unfortunately there is not at present a locally made commercial airship.

To date I have not been able to get a knowledgeable reaction to the prospect of a surveillance airship, so I urge any reader who has expertise in any field which could have a bearing upon this proposition to give it serious consideration: for example, in the fields of defence policy, strategy, tactics, economics, logistics, engineering, training and joint warfare.

One criticism which is a recurring theme when talking in terms of airships is their unreliability due to weather. This 'problem' did not stop the Zeppelins from issuing — and adhering to — timetables in the 1930s!

This letter is necessarily short on facts because I am not sufficiently versed in matters of policy and aeronautical engineering. However, it is submitted as a basis for serious discussion to determine the feasibility and desirability of purchasing (say) two airships.

RAAF, Williamstown, NSW

J.C. May

Flight Sergeant

Air Defence Supervisor

(See also p. 22)

Award: Issue No. 15 (March/April 1979)

The Board of Management has awarded the prize of $30 for the best original article in the March/April 1979 issue (No. 15) of the Defence Force Journal to Colonel P.W. Blyth for his article The Professional Army Officer.

Reviewed by Lieutenant Colonel R.L. Guest, Australian Joint Warfare Establishment

THE Battle of the Falaise Gap in August 1944 resulted in the virtual destruction of the German 5th Panzer and 7th Armies. Now over 30 years later the German point of view is presented in a well structured though rather complex account of this famous battle.

The Falaise pocket was formed by an encircling movement of US forces breaking out from the Normandy beachhead on the south western and southern flank of the German defences coupled with pressure from British forces in the north and north-west. Although the German High Command had time to extricate their forces from the potentially dangerous situation developing, Hitler ordered the Mortain offensive which effectively kept the two German armies within the pocket. As the northern and southern allied advances approached each other a gap was formed near Falaise. The German efforts to keep the gap open to allow the withdrawal of their armies was met with equally strong determination on the part of the allies to close the escape route; thus the battle of the Falaise Gap eventuated.

In part one of the book, the authors, who are both on the staff of the Imperial War Museum, provide an excellent background to the battle with details of allied and German plans, the terrain and tactics used and the forces and senior commanders involved.

Using selected formations and units to represent the whole, part two contains a detailed description of the fighting that took place on all flanks of the pocket. This attempt to simplify the extremely confused fighting associated with a major withdrawal in contact, only partly succeeds. The use of unfamiliar symbols in the map legends and insufficient and poorly placed maps (for example the situation on the 21 August is in the chapter on the 18/19 August) unfortunately combine to make this not the easiest of books to read. However, this is a small point overall and the book should be well received by both students of military history and the general interest reader.

The author’s desire to produce a book that does justice and honours the officers and men of the German armies involved has been achieved and one can’t help but be impressed with the professionalism of the individuals and units so poignantly described.

TIME-LIFE BOOKS, WORLD WAR II.

Prelude to War, Robert T. Elson and staff; Blitzkreig, Robert Warrick and staff; The Rising Sun, Arthur Zick and staff; The Battle of the Atlantic, Barrie Pitt and staff.

Reviewed by Major R.E. Dillon, R.M. Australian Joint Warfare Establishment

THESE four volumes comprise a word and picture collage of four of the main ‘strands’ of the early part of World War II. In order to create these albums Time-Life has brought together a wealth of literary talent, and their photographic researchers have produced some rare and fascinating pictures.

The series so far must be adjudged a great success. This is due to a number of factors and these are in general reflected throughout the four volumes. In the first place, each ‘strand’ is picked up some considerable time before the wartime events occur. This puts a much clearer perspective on the often confusing history of the early part of the war, and allows the layman a better chance to comprehend the significance of those events as they happen. Secondly, the pictures produced are of great quality, and really bring alive the history of those times. They create an atmosphere and a flavour that gives these volumes a three-dimensional effect, and make for totally absorbing browsing. Thirdly, and perhaps most unusually, the volumes all contain examples of the art produced during those times and inspired by those events. The paintings and sculptures reproduced give a unique insight into the moods and character of the nations concerned, and once again, the editors have succeeded in conveying a very real impression of the atmosphere that must have prevailed in the various nations involved in those early wartime days.

These volumes are not for the researcher, but are for the layman (of almost any age) who is interested in World War II. There is not a boring page amongst them — buy them!
THE withdrawal of U.S. (and Australian) forces from most of South East Asia, and the limitations placed on future U.S. support of its allies by the Guam doctrine have had two important effects on Australian defence. The first is that Australia has had to abandon its past policy of forward defence in favour of an approach which concentrates on the defence of the Australian mainland, its approaches and other national interests. The second effect is that Australia must now assume prime responsibility for her own defence, certainly in situations of regional conflict and probably in higher level contingency situations as well.

While these implications of strategic change are now well understood, subsequent discussion has tended to concentrate more on alternative force options than on the adequacy of the process by which such options are developed. This article argues that the present size and structure of the Australian Army needs to be changed in order to meet its strategic objectives as they can be deduced from the 1976 Defence White Paper. The restructuring of the Army should generally aim at reducing the size of combat units to sub-unit level without a corresponding reduction in their capability or firepower. While the key to such an approach lies in recent developments in technology, current bureaucratic procedures and institutional thinking may prevent its implementation. Some shortfalls in Australia's present force development process and in the development and utilisation of officers are discussed.

Strategic Guidance and Army Development

In spite of the wide range of strategic options considered for the defence of Australia, most authors agree that a more comprehensive and systematic approach to defence policy formulation must be adopted where the final defence posture that is chosen should be derived from an assessment of our regional and international strategic environment. Any assessment of Australia's defence capability must now take into account an increasing range of diverse factors like "the clarity and coherence of the defence policy and doctrine, force training and flexibility of the force structure, the contribution of the civilian 'tail', the efficiency of command and control procedures, the adequacy of the industrial support and of other elements of the defence infrastructure, the quality of civil defence efforts, the extent of economic self-reliance and the viability of the national economy in given circumstances, etc."

In terms of force development, there would seem to be a need for a more precisely defined system of force analysis and development than may have existed in the past. Ideally such a system would allow for the systematic development of appropriate force structures from an assessment of possible external threats and their probability of occurrence. It would also need to take account of continuing strategic and technological change and should seek to fully integrate the different components of national defence. The broad process linking strategic assessments to resultant force structures could be expected to be similar to that shown in Figure 1. The strategic basis would be used by Defence to develop a set of national strategic objectives which would encompass military and non-military objectives. The draft Defence objectives would
be assessed with other functional objectives (diplomatic, trade, economic, etc.) by Cabinet which would either request the objectives to be modified or provide appropriate endorsement and guidance. The finally approved defence objectives together with strategic guidance would then be used as the basis of force development.

While relatively straightforward in theory, the actual process of developing force structures to satisfy strategic assessments is not as easy in practice as we might hope. The primary difficulty stems from the reluctance, or inability, of our strategic analysts to provide force planners with a concise set of planning guidelines which in turn prevents the development of realistic national and military objectives. This absence of detailed strategic guidance has been attributed to a number of factors, but in particular the uncertainty of events and the difficulty in identifying likely contingencies. While these factors are at least partially valid, and therefore add weight to the view that the strategic basis should not be seen as “an immutable major premise from which to deduce all manner of policies”, they do not alter the fact that decisions are made each year which set the pattern for equipment procurement and force development for oncoming periods of five years or more. This length of time between being able to initiate changes in defence policy and seeing their eventual results in terms of new organisations or increased capabilities can be expected to increase as a result of the escalating cost of weapons and their support systems.

As future defence preparation times are likely to be much less than five years, very little change will be made to an existing force posture prior to an operational response being required. At the outbreak of hostilities, Australia will be forced to use the force structures that are in existence at that time, regardless of the nature of the threat or its appropriate response. The argument therefore that defence and force development policies derived from a consideration of specific contingencies or threat situations could, under the present uncertainties, lead to Australia being committed to a defence posture that proves ultimately to be wrong (with all the costs that that event would entail) would seem to be apply equally to an approach based on inadequately defined guidance or no guidance at all. The currently favoured core force concept for example, which provides for small numbers of a fairly wide range of high-technology defence equipments in order to maintain the ‘state-of-the-art’ within the services as well as provide a suitable expansion base for an unspecified range of medium to high level threat situations, would seem to spread an already small defence vote even wider with the result that it must further reduce the capability of the armed forces to meet a specific contingency when it arises.6

Despite the uncertainties involved in strategic assessment, it is reasonably clear from the 1976 Defence White Paper that the importance of proper strategic guidance in determining the final composition of Australia’s armed forces is being recognised. The importance given to contingency assessments, for example, is shown by the statement that defence planners “use contingency studies as a means of systematically exploring future uncertainties and of developing judgements on possible requirements for defence preparedness in such matters as the force structure, military concepts and command arrangements”.7

**Army Objectives**

From an assessment of Australia’s strategic environment and “other factors existing at that time”, the 1976 Defence White Paper also summarises the present and future requirements of Australia’s military forces.8 From these requirements, the long-term military objectives of the Army can be deduced to be:
the maintenance of a suitably structured force-in-being which is capable of "timely expansion against a range of contingencies of various types and timings, as indicated by the strategic guidance from time to time and having regard to the long lead times of certain equipments and skills", and

• the development and maintenance of expertise which is seen to have the dual advantage of presenting a conventional deterrent posture to likely regional aggressors and of providing a demonstration of our own military competence to the U.S. and other potential allies.

In addition, the present force-in-being must "be capable of performing current and foreseeable tasks and dealing with selected shorter-term contingencies" as well as develop "a substantial capability for independent operations" and be able to continue to operate effectively with allied forces.

While these objectives are largely described in terms of short and long term contingencies, not surprisingly perhaps, neither type of event is described. The disadvantage of this lack of information is that it makes it difficult to judge from outside the Department of Defence whether the Army's evolving force structure is an adequate reflection of its strategic guidance. It will be argued shortly that even the more informed judgements of defence personnel may also be unduly clouded due in this case to a lack of detailed knowledge of the factors contributing to Australia's strategic environment or by an undue adherence to pre-conceived notions of how Australia's defence requirements should be met.

The Army's present solution to the broad objectives just described centres on an organisation consisting of a Field Force and its support organisation, where both components consist of Regular and Army Reserve units. The Regular Army element of the Field Force is based on an infantry division which at 18,000 is one of the largest of its kind in the world. New generation technologies and capabilities (in armour, air defence, surveillance and radar for example) are generally used to supplement traditional force structures rather than replace them. Current tactical doctrine relates to the infantry division engaged in conventional operations where ground force defensive concepts in particular remain dominated by the position or area defence. While the evolving concept of operations emphasises the importance of tactical mobility and dispersion, the supporting maintenance and logistic system is forced to utilise a variety of large scale distribution points, maintenance areas and logistic installations in order to provide the scale of resources that is required by the combat forces. The question of protection of this vast logistic system is virtually dismissed by making all administrative units responsible for their own defence against ground threats and by utilising dispersion, camouflage and deception to minimise the consequences of air attack.

Despite some window dressing then, the general force posture that is evolving in the Army is not substantially different to that which existed before the Second World War. This is despite the fact that significant and wholesale changes have and are occurring in Australia's strategic and technical environment. (A description of some of these latter changes is given later in the article.) On the surface, it is somewhat difficult to believe that the general force structure and concept of operations that were applicable in 1939 should still be the most appropriate today and for the future. In order to answer this question, it is necessary to first ascertain how well the present Army force structure meets its strategic objectives. Such a task is certainly not easy, but it may be simplified, to the extent that an indication of the adequacy of Army's present size and force structure is obtained, by considering its short term deployment capability and its ability to expand very quickly in order to meet a much higher level threat situation.

**Low Level Contingencies and Force Deployment**

While the number of possible low to medium contingency situations is large, it would seem reasonable to assume that this type of event would not require resources initially beyond those already contained within Australia's regular forces and that contingencies requiring limited unit or formation deployments would occur in a remote location, possibly in support of a regional ally or as part of an international force. It could be further assumed that in most of these cases Australia would be required to provide the bulk of the necessary logistic and maintenance support and that the period of
deployment would extend beyond a single tour of duty.

It can be shown (Annex A) that in peacetime, the size of a force that can be sustained within a theatre of operations is primarily determined by the size of the standing Army. The composition of the deployed force will consist of combat and combat support units as well as a number of non-combat units required for command and control, maintenance and additional logistic support. The ratio of the combat to non-combat components in the force will depend on the type of operations to be conducted, the size of the area of operations, the extent of allied support and so on. Figure 2 shows the relationship between the size of the standing Army and the number of personnel that can be sustained in a deployed force for the case of servicemen undergoing a 12-month tour of duty, followed by a minimum respite period of 24 months, and for a time of involvement of the deployed force of at least two tours of duty. The different wastage and ineligibility rates are approximately equal to those which occurred during Australia’s Vietnam involvement.

From Figure 2, it can be seen that for the case of a one-to-one ratio of combat to non-combat soldiers, an army of approximately 48,000 would be needed to sustain a combat force about the size of an independent task force. A 34,000-man regular Army could only be expected to support a 3,800-man combat force (the actual total deployed force would total some 7,600). If the ratio of combat to non-combat soldiers was required to be 1:2, then a 34,000-man Army could only sustain a combat force equivalent in size to three infantry battalions (see the table in Figure 2) and a 70,000-man Army would be required in order to sustain an independent task force in operations. Quite clearly, under these circumstances, Australia’s present and projected Army strength is insufficient to sustain in operations a balanced combat force much greater than a battalion group.

High Level Contingencies, Warning Times and Force Expansion Lead Times

The uncertainty of obtaining U.S. combat support in any medium to high level threat situation means that Australia must plan to respond to such a situation alone. Under these new conditions there may be little choice as to whether and when Australia’s armed forces are committed to undertake defensive operations. Far more than in the past, that basic decision-making prerogative will be dependent upon the opponents’ activities. Accordingly, the time that it takes to recognise that a threat exists and the time required to develop an appropriate response to that threat become crucial planning parameters. It is of little use devising a force expansion strategy that provides a required force capability in five years when the response is needed in less than six months.
would, or should, take place during the first period and so the effective warning time becomes the period from the acceptance of the existence of a specific threat to the time a significant operational response is required. It is not hard to see that political considerations alone would result in governments delaying for as long as possible any decision to mobilise and so the actual time available to increase force capabilities could be quite small.

The possibility that in the future Australia could be faced with very short defence preparation times is supported by the results of a recent study of warning times associated with major conflicts that took place in the period 1939 to 1973. The study concluded that if warning times continued to follow the same pattern, then, for a conflict between two powers of unequal military strengths, where the conflict is deliberately provoked by the stronger power, there is only a 50% probability that the weaker nation will receive more than 12 months preparation time and almost no chance that the defence preparation period will exceed two years.

For the Army, a significant increase in force capability will require large increases in both manpower and equipment. The overall lead times associated with increases in these two resources depends on a variety of factors ranging from individual and collective training times, through the size and shape of the expansion base to the type of expansion process that is selected. The sheer number of these expansion variables, together with the uncertainty in the composition of the target force, has resulted in very little serious study being made of likely expansion options and their effect on force structure. In the light of the extremely short force preparation times described earlier, it is clear that different expansion strategies must be developed and tested in order to ensure that force expansion represents a viable force option, and if it does, to identify critical skill and equipment lead-times associated with a particular expansion.

In order to investigate whether present-day forces do provide a reasonable expansion base, a simple model of the individual training system has been used to calculate the total number of soldiers at any time who have been trained to DP3 standard. This figure can then be used to provide the number of trained soldiers available for posting to non-training units and an indication of the training facilities that may be required during the expansion. The approach used (described in more detail in Annex B) assumes that each recruit must undergo eight weeks basic training followed by an average of eight weeks specialist training before he can be posted to a unit. The capacity of the training system is described in terms of the ratio of trainee to instructional and support staff where the training output can be increased by increasing the size of the training component. Neither unit or formation training have been included and so the actual force expansion lead times would almost certainly exceed the figures derived here.

The model has been used to consider two broad expansion strategies, the first uses the ARA as a training base to expand an Army Reserve component which initially totals 30,000. The second option involves an expansion of a 34,000-man ARA only. While the results should only be regarded as indicative, they nonetheless show reasonable agreement with the results of other similar studies.

Figure 3 shows the total number of trained soldiers that are produced by both strategies when a number of trained personnel equal to zero, 30 and 90% of the training output are continually fed back into the training system. Figure 4 shows the number of trained soldiers
that are available for posting to non-training units (NNT) for an expansion of the Army Reserve with zero and 90% feedback. The total number of trained soldiers for each case in the latter example is included for comparison. From these results it can be seen that none of the expansions considered will provide for very large manpower increases over a period of 12 months or less. In addition, while the most rapid expansions are achieved by simultaneously expanding the training organisation, in the short term (two years for the case shown in Fig. 4) the number of trained soldiers available for either operational deployment or collective training is much less than the case where the size of the training organisation remains fixed. On the basis of these simple calculations, it would seem that for relatively small expansions conducted over short periods, the size of the initial non-training component of the expansion base is more important than the rate of expansion. For higher order expansions over longer periods, the rate at which the training organisation can be expanded becomes important. An indication of the extent of the training facilities required for this second type of expansion is shown in Figure 5 where it can be seen that the equivalent of some 3,000 additional recruit training facilities would need to be constructed over the three-year period.

While there are obviously many other factors that will determine the suitability of the present Army force approach, particularly for the case of meeting high level threat situations, from the standpoint of the simple criteria of viable force expansion lead times and the potential for a force deployment in peacetime it would seem that the Army's present size and broad force posture will not meet either of its high- or low-level military objectives (not to mention the distinct possibility of having to meet both simultaneously) without fairly significant increases to the present manpower and equipment levels of both its regular and reserve components. Such a conclusion is certainly not new. The previously cited Report of the Senate Standing Committee on Foreign Affairs and Defence, concluded "That a Regular Army of approximately 38,000 is necessary to ensure the maintenance of a viable and efficient force and that Australia should strive to attain this goal as soon as practicable." Even assuming a 38,000 ARA is sufficient, however, and it obviously isn't, it is also reasonably evident that in today's strategic, economic and political climate, any such wholesale increases are out of the question (increases above 38,000 for example would probably require some form of conscription). The dilemma faced by the Army then (assuming it is even aware of it) is whether to continue with the present broad force posture, knowing its limitations, or whether to attempt to institute a new,
and even unfamiliar, approach which will better meet national objectives. Does such an approach exist? While it is not intended to present a detailed discussion of the alternative force options open to the Army, one approach that may provide for a more cost effective solution than the current one will be briefly described.

Assuming a continuation of the present economic and political constraints to Defence spending, the most viable option, in the short term at least, would seem to be to in some way increase the capability of present force levels without substantially increasing the actual number of men and amount of equipment required to do so.17

Perhaps the most obvious way of achieving an increased defensive capability without necessarily increasing defence expenditure would be to equip the services with nuclear weapons. Many arguments exist for and against such an approach,18 but on balance it would seem that in the present strategic climate, the adoption of a nuclear capability by Australia would pose as many dangers as benefits and therefore at this stage at least would be politically unacceptable. Recent developments in conventional explosive devices however have begun to close the gap between the minimum yield of deployed nuclear weapons and the maximum explosive power of conventional weapons.19 These developments, together with recent advances in other weapons and support technologies, could provide the key to any change in the Army’s basic force posture. In order to understand why this is so, it is necessary to consider the changes that have and are occurring in Australia’s technological environment.

Advances in Technology

In the last two decades, advances in technology have revolutionised almost every area of scientific and human endeavour. It has been the march of technology more than any other single factor, that has determined the evolving nature and structure of society and its armed forces. In the military sphere, the combination of large scale integrated micro-electronic circuitry with metal-oxide semiconductor magnetic storage devices has led to the development of relatively inexpensive, real-time, microprocessor-controlled, surveillance and weapons delivery systems. Mass production of these techniques is resulting in an increasing array of sophisticated weapons systems being placed within the reach of small and developing nations. Technological advances have increased the accuracy and destructive potential of precision guided weapons to such an extent that if a target can be seen it will be hit, and if it is hit it will be destroyed. Our ability to hear and see over vast distances, at night and in all weather, has been improved, as has the speed with which we can transport information, people and material. We are now witnessing the introduction of dual tactical and strategic weapons such as remotely piloted vehicles, cruise missiles, ‘smart’ weapons and fuel air explosives.

Nor is the present rate of change of technology likely to slacken. In the not too distant future we could expect to see significant advances in passive surveillance techniques such as ionospheric forward scatter ‘radar’ systems, very ‘smart’ weapons that can stalk an opponent over long periods of time, high energy lasers capable of destroying remote targets after nearly zero time-of-flight and inexpensive mini-submarines that are extremely hard to detect and can carry advanced weapons such as MIRV Cruise Missiles.20 The expectation of future technologies has even led some authors to suggest that modern armies are on the “threshold of a true revolution in conventional warfare ... (which has) profound implications for the future operational requirement and officer development” particularly for the Australian Army.21

A major implication for the military of these technological developments is that more and more destructive power is being placed at the disposal of smaller and smaller units. This increased firepower, together with higher precision delivery systems, is placing a greater premium on the dispersion, concealment and rapid movement of ground forces. The conventional battlefield of the future will most likely see the deployment of large numbers of relatively inexpensive and mobile weapons which are highly accurate over large distances, capable of enormous destruction and relatively simple to operate.22 Under these conditions, traditional strategies and tactics based on manpower intensive organisations will no longer be effective. Recent developments in anti-armour capabilities, for example, have resulted in the fact that “of some 50,000 tanks
in existence, every one can be penetrated by present designs of small, hand-held, highly accurate and cheap weapons".23 The development of relatively inexpensive battlefield guidance systems and highly destructive area weapons in particular would seem to provide additional scope and flexibility for the defender, especially against older military technologies.24 Fuel-air explosives for example could enable the erection of formidable barriers to large scale armoured and infantry penetration as well as provide for considerable defence in depth without the deployment of large numbers of units and personnel.25 In a highly mobile and fluid battle situation, where the traditional advantages afforded by terrain and darkness are significantly reduced by electronic measures, control of the battlefield becomes crucial and will be gained by the side with the least vulnerable and most effective support infrastructure.

The escalation which is occurring in the cost of skilled manpower and equipment in modern armed forces26 is also bringing traditional operational concepts into question. In order to reduce the vulnerability to precision guided weapons of present large-scale combat logistic support systems for example, the military is "being forced to adopt expensive equipment fits and elaborate defensive operational tactics in an attempt to ensure their continued survivability on the modern battlefield. These defensive reactive measures are very complex and expensive and almost all imply a very great degradation in total system cost effectiveness in that system's traditional role function".27

Technology can also provide its possessor with a significant advantage over an opponent whose forces may be more numerous but not as technically advanced. This potential to technically surprise an adversary need not necessarily stem from new weapons systems based on a new science or technology. It may also involve old systems being used in a radically new way. The key factor in the exploitation of a technological advantage lies "not only in knowing the technology . . . but also in the recognition and awareness of the impact of that technology and decisiveness in exploiting it".28 The ability to surprise, or be surprised by the technical innovations of an adversary, highlights the fact that continuing technological superiority can never be assumed.

Once a defence position based on technology is chosen, considerable effort must be expended in staying abreast of new developments and exhausting all of the operational possibilities of the old. The interdependence of technology, force structure and tactical doctrine has, in the past, been ignored by the military until the situation has become so bad that commanders (or politicians) have been forced to implement change. In an era where the first battle may well be the last, it is essential that the doctrinal and other implications of new technologies be fully developed in advance.

From the above, it would seem that technology could provide the key to an Army (and defence) force approach that is more suited to Australia's changing defence needs and her limited manpower resources. The restructuring of the Army could be achieved in a number of ways but would generally aim at reducing the size of combat units to sub-unit level without a corresponding reduction in their integral firepower. Certainly the new developments in technology provide a further indication that the Army's current manpower intensive organisations and its evolving tactical and logistical doctrine may not be the most appropriate for the future operational environment.

The apparent failure of Australia's military leaders to appreciate the benefits or consequences of changes in technology should be viewed with some concern. Is it that different force options have been considered and the present approach has been found to be the most appropriate, or have our leaders not been provided with all the facts on which proper decisions can be made? A starting point in answering this question has been provided by Hugh Smith, who, in examining the institutional determinants of defence policy formulation, warned of "the possible failure of policy makers to anticipate radical changes that might occur in the international environment. For bureaucratic procedures and institutional thinking may make anticipation of extraordinary developments more difficult and may hinder effective response".29 For force development, the components that constitute "bureaucratic procedures and institutional thinking" comprise the formal process of force development itself and the personal ability and background of the officers who contribute to the process.
The Army Force Development Process

An overview of the present process of development and implementation of Army force structure and capabilities is outlined in Figure 6. It can be seen that the process is substantially entwined within the Defence Five Year Rolling Programme (FYRP). The formal process begins with a series of strategic guidance and force capability documents of which the Strategic Basis is the most important since it is the only guidance that receives government endorsement. Other basic guidance documents such as The Environment of Future Australian Military Operations (EFAMO) and The Environment of the 1980s are not submitted to Cabinet for approval.

The preparation of the Strategic Basis, or the Australian Strategic and Defence Policy Objectives (ASADPO) as its title became in 1976, is the responsibility of the Strategic Policy and Force Development Division of the Department of Defence. This division was formed in 1973, comprises both military and civilian staff and has functions that "are central to the development of overall defence policy and to the processes of determining what force structure and defence capability for the country to recommend to the Government".

The Force Development and Analysis Branch of the Strategic Policy and Force Development Division also uses the Strategic Basis to derive a Defence Force Capabilities paper (DFC) which "informs policy proposals on (required) force levels and weapons procurement". The DFC is used by each service to prepare a summary of capabilities which "outlines those areas in which existing capabilities are least in line with guidance" and which in turn sets the basic framework for future equipment procurement.

The Army uses two additional internal documents to assist in force development: The Basis for Army Long Term Development and The Basis for Core Force Development. The Basis for Army Long Term Development aims to provide guidance to planners on Army’s likely material and non-material requirements in the coming 10 to 20 years while The Basis for Core Force Development provides the likely disposition of facilities and capabilities to be found in the Army force structure in the long term. At the time of writing, neither of these internal documents has been produced in a final form, although an Interim Basis for Army Long Term Development exists.

The ASADPO, summary of capabilities and the two ‘Basis’ documents are used by Army to develop Army Staff Objectives (ASOs) which describe those additional capabilities that are required in the long term for the effective conduct of future operations. The ASOs describe three levels of development. Army development, which provides direction in relation to the total Defence force development requirement and the national infrastructure; core force development which provides for short and longer term Army needs, and functional development which supplements the results of level one and level two ASOs. Where an ASO involves a significant change in military capability, or requires a major equipment decision, the proposal is referred to the Defence Operations Requirements Committee (DORC) which considers it against strategic guidance. Endorsed proposals are further defined by Army Staff Targets and Army Staff Requirements which detail associated force structure, manpower, facilities and cost implications. The final proposals are included in Army’s ‘Major Equipment Proposal’ (DEP), which is submitted annually to Defence Central as part of the Five Year Defence Programme (FYDP).

A second component of the FYDP is the annual confirmation by the services of the previously endorsed commitments made in the preceding FYDP. Here the most important planning document is The 36,000 ARA Structure Manned to 34,000 which projects changes in force structure and details manpower increases in the Regular Army for a growth to 34,000. The rationale presented for the projected changes is based on an assessment of the ASADPO and other strategic guidance papers and on recommendations made by the Farrands-Hassett Committee which, in 1973, conducted a study into the size and shape of the Regular Army needed to provide a viable force deployment and expansion base. The so-called ‘36,000 ARA structure’ relates to the newly established infantry division. Unlike the Basis for Army Long Term Development and the ASOs, which are prepared by the Directorate of Army Development, the responsibility for The 36,000 ARA Structure Manned to 34,000 lies with the Directorate of Operations and Plans.
Figure 6.
Both Directorates however belong to Operations Branch in Army Office.

The two sets of FYDP proposals are submitted jointly to Defence Central for consideration and endorsement by higher level Defence committees. Year one of the final draft Five Year Plan is then submitted to Cabinet as the Department’s budget proposal, with the remainder of the proposal constituting only a tentative plan for years 2 to 5 of the FYDP. With Cabinet approval of the budget submission, each year of the Five Year Plan advances a year and the implementation phase of the development process begins again.

While the force development process would seem to have the potential for providing for an optimum force posture, it does not succeed in doing so primarily because the document which is central to the entire process, the Strategic Basis, does not provide sufficiently detailed guidance. The present Strategic Basis tends to be vacuous, does not adequately address the question of higher level contingencies and does not provide guidance on fundamental defence questions such as "whether an essentially maritime or a ground force posture is the optimum defence posture for Australia to pursue".34 As well, because the Strategic Basis is subject to change at least every three years, its effective validity period can be much less than the perspective demands of a force structure decision making process that embraces the acquisition of long lead-time equipments.35

The effect of this lack of direction on the Army’s force development process is unduly magnified because the process depends on a number of subsequent interpretations of the strategic basis by different committees and Directorates. The Army has attempted to counter the ill-effects of limited strategic guidance by producing their own guidelines in the form of the ‘basis’ papers which aim at providing Army planners with more definitive information on future needs. Unfortunately these papers are no better than the Strategic Basis in providing guidance relating to specific threats or contingencies. They also suffer the fundamental weakness that they do not carry Defence Central endorsement.

The overall consequence of such poorly defined strategic guidance is that both the military and civilians in Defence are able to justify or refute almost any increase in defence capability they choose depending on their respective interpretation of the Strategic Basis and their position in the force development framework.36 While it can be rightly argued that the Military gain most from this situation, because it is they who initiate changes in force structure or military capabilities, it also leaves the services open to charges of pursuing proposals that seek to protect institutional interests, of devising requirements around favoured brand names, of pursuing a policy of simply replacing major items with newer, more expensive versions of the same equipment without relating their need to the strategic environment, and so on.37

Such accusations may seem to be well founded when it is realised that as yet no Army Staff Objectives, which provide the link between the strategic guidance and Army’s equipment and manpower submissions to the FYDP, have been published, and that the Army, whether directed by Defence Central or of its own accord, is not conducting studies to determine whether its present and projected force posture is the most appropriate for our future strategic and technological environment.38 The recent major reorganisation of the Australian Army to accommodate the infantry division for example, does not appear to have resulted from any significant study into alternative force structures. Yet it might be expected that any significant change in force structure or any discussion of preferred defence capabilities, that may be contained in either the Defence Force Capabilities or the Basis for Core Force Development papers, should be based on such detailed studies.

Officer Development

The inability, or reluctance, of the military to conduct this type of analysis can be partly attributed to their limited representation in important policy development and analytical areas in Defence Central.39 More significantly, the failure is due to shortfalls in the present officer employment and development system which continually enforces the traditional aspects of the profession and ignores the expanding responsibilities of the services in national defence and Australia’s changing strategic environment.40 The current practice of perfecting only those combat oriented skills which will be needed in a time of crisis, promotes an undue concern within the services with day-to-day operational aspects. The less
exciting but equally important bureaucratic and analytical skills are given a lower priority as evidenced by the reluctance of a majority of service officers to serve at Russell Hill and a desire by those who are there to return to regimental duties.

The failure of the Army to take full account of changes in technology also points to shortfalls in the present system of officer development and employment. Most military (and political) leaders have no technical training and therefore cannot easily visualise or predict the probable effects or promises inherent in advances in technology (nuclear weapons present perhaps the only exception to this belief). The consequences of this lack of appreciation of technology or its trends by senior military commanders may be serious because, since "the military has the grave responsibility of saving society when political efforts fail, they plan for the use of weapons, procedures and doctrines in which they have confidence, which are automatically those that worked last time, improved somewhat, but not changed appreciably in the interim".41

The sheer rate of change of technology however, and the lack of significant number of recent large scale conflicts to test new developments and doctrine, tend to make past experience less important in military planning and operations than it once may have been. In an age where increasing numbers of weapons systems pass from the drawing board to obsolescence without being tested in combat, greater reliance must be placed on the results obtained from computer simulations and various force-on-force and conflict resolution calculations than on past combat experience.

The rise of these new analytical skills again highlights the increasing complexity of defence management. Advances in technology and the changes that are occurring in the role of modern armed forces, are expanding the responsibilities of the officer corps well beyond those areas traditionally associated with the 'application-of-violence'. Officers today are required to develop expertise in a whole range of new and complex disciplines as well as to have a more detailed knowledge of existing engineering, scientific and management skills. For the Australian Army, with its limited manpower resources, this requirement for increased pluralisation of the organisation and greater depth of knowledge of the individual, can only be satisfied by using some form of career specialisation for the individual officer at least at lower rank levels.42

The need for specialisation is particularly evident in the fields of force structure and doctrinal development as these areas require "a major investment of time and effort (by the individual) simply to stay abreast of major changes, let alone to think about their implications".43 At present the Army seems to believe that regimental postings provide an officer with sufficient grounding to be able to conduct strategic and technical analysis and be able to devise appropriate force structures and operational doctrine. Furthermore, as officers are presently required to be reposted every two or three years in order to give "the maximum number of officers the chance to experience key jobs",44 it is quite likely that an individual will only ever spend a single two or three year posting within the development area, certainly within any one rank level. It is not hard to see that such an approach is totally inadequate as it belies the complex and time consuming nature of these analytical and policy development fields. The resultant inability of the service officer to compete with his civilian equivalent who specialises in these fields, begins to explain the desire of the officer to return to regimental duties.

**Conclusion**

It has been demonstrated that the present size and structure of the Australian Army is not the most appropriate for our likely future operational environment, nor does it sufficiently meet its short and long-term expansion and force deployment objectives as they can be deduced from current strategic guidance. Within the likely constraints imposed by Australia's present and perceived political and economic climate, there is a need for the Army to adopt a new force posture where the restructuring should generally aim at reducing the size of combat units without a corresponding decrease in size or integral firepower. The key to such an approach would seem to be contained in recent and expected developments in technology.

The adoption of a revised force structure will need to be preceded by a number of other changes. More detailed strategic guidance must be supplied to defence planners, and decision makers must be prepared to adopt a specific
national strategy with its associated force posture. The machinery for more detailed studies into alternative force options or defence capabilities must be strengthened within the present force development framework. The ability of the Army to analyse force options will require the adoption of a system of officer development and employment that enables officers to develop and continue to practice the appropriate bureaucratic, analytic and technical skills needed for such tasks.

While the extent of the resources that are involved in our present force structure are such that the fundamental changes required to be made to our present system would need to be gradually implemented, it must be remembered that "the longer we take to formulate a new defence posture and strategy, the greater is the likelihood that major decisions taken in the interim will complicate rather than ease this transition process".45

ANNEX A

DEPLOYED FORCE CALCULATIONS

The deployed force calculations are based on a concept of individual relief where a regular soldier will either be serving in the theatre of operations or in training for the theatre, or he will be ineligible for service due to compassionate circumstances or because he is in the wrong rank or trade or he will be undergoing a compulsory respite period having just completed a tour of duty.

The size of the force that can be sustained indefinitely in a remote theatre of operations is described by:

Total Army Size = Force Deployed + Ineligibles due to Respite Period + the number of individual undergoing training for the theatre + basic ineligibles + a flexibility factor.

For the case where:
- tour of duty = 12 months
- respite period = 24 months
- training period = 2 months
- Wastages
  - (1) in theatre = 25% p.a.
  - (2) ineligibles = 13% p.a.
  - (3) training = 7.5% p.a.
- basic ineligibles = 40% of total Army
- flexibility factor = 21% of deployed force.

Total Army Size = 4.37 Force Deployed.

ANNEX B

FORCE EXPANSION CALCULATIONS

The various levels of individual and collective training undergone by the soldier before he is ready for combat, essentially comprise recruit training, corps and specialist training, unit training and finally formation training. The individual training phase can be represented by the following simple model:

\[
\begin{align*}
N_0 &\rightarrow N_1 \\
N_1 &\rightarrow N_2 \\
&\vdots \\
N_{n-1} &\rightarrow N_n
\end{align*}
\]

Where

- \( N_i \) = the number of recruits entering the training process and is dependent on training facilities available, instruction and support staff, etc.,
- \( N_\alpha \) = the number of recruits that are discharged for medical and other reasons,
- \( N_f \) = the number of trained soldiers that are fed back into the training system as instructional or support staff, and
- \( N_o \) = the number of trained soldiers becoming available for non-training units.

At any time therefore, the number of trained soldiers that are available for posting to non-training units is described by

\[
N_o = N_\alpha - (N_\alpha + N_f) + N_f
\]

where \( N_\alpha \) = the number already available.

For any expansion, it can be shown that

\[
N_{D_n} = (1 - m)N_{ij} \cdot (1 + m)N_n - 1 + B_n n = 0, 1, 2, \ldots
\]

where

- \( m = \text{feedback factor} \)
- \( N_{ij} = \text{the size of the recruit input to the first training cycle} \)
- \( k = \text{wastage factor} \)
- \( s = \text{the student to staff ratio} \)
- \( n = \text{training cycle} \).
For a linear expansion, where the capacity of the training system remains unchanged throughout the expansion \((N_t = 0)\), it can be shown that

\[
N_t = nK_{11} + B
\]

NOTES

1. The author wishes to acknowledge the helpful comments provided on a draft of this article by Majors K. R. Sydney, M. I. Carr and G. T. Hickey.


6. The trend towards equipment oriented armed forces, longer equipment lead times, and the increased probability that future armed conflicts may be decided very quickly, would seem to accentuate the importance of force potential inherent in the Core Force concept, in favour of forces-in-being and their immediate deterrent capability. For likely defence preparation periods of less than twelve months (see later), the idea of air force and naval 'core forces' is quite redundant.


8. Ibid., p. 13.

9. Similar criticisms have been made of the U.S. Army by Z. B. Bradford and F. J. Brown in "Implications of the Modern Battlefield", Military Review, Vol. 57, no. 7, 1977, p. 3, who argue, for example, that "despite revolutionary changes in tank and anti-tank capabilities, there have been no major changes in tank or infantry organisations since the Second World War". See also I. C. Brinkley, "A History of U.S. Army Force Structuring", Military Review, Feb. 1977, p. 67.

10. In its Report on the Australian Army (AGPS, 1974), the Senate Standing Committee on Foreign Affairs and Defence recommended that Australia 'should maintain an ability to deploy overseas on a continuing basis an operational task force on short notice and, from within this force, a battalion group with immediacy. At the present time we estimate the Army (then totalling 31,185) has the latter capability but not the former'.


13. I, M. Speedy appears to have used the same source in his article, "The Trident of Neptune" (DFI, Jan-Feb. 1978, p. 7) to predict sixteen weeks as the 50% probability figure. This figure actually represents the probability found for conflicts between opponents of equal military strengths and began by mutual escalation. In addition, Speedy's use of warning time corresponds to the defence preparation time described above.


15. In 1941, Australian defence planners considered that an Army of 300,000 plus a Volunteer Defence Corps of 50,000 would be required to defend the mainland against a Japanese invasion (see A. R. Black, "The Second Time Around, Can Australia Survive?", Defence Force Journal, Nov.-Dec. 1976, p. 7). On the basis of the calculations described above, it would take a minimum of two to three years to reach that level today.


17. Taking our present inability to expand rapidly enough to meet a high level threat situation, there are two broad approaches to reducing force expansion lead times below the level of likely force preparation times. These are:

- reduce force expansion lead times by increasing the size or inherent capability of the forces-in-being or by adopting a purely expansion oriented force posture that will provide for maximum expansion rates; or
- extend the force preparation/warning time by improving our capacity to collect and analyse intelligence or by providing a capability to deploy a holding force/forces.

Each of these approaches should be fully explored where the effectiveness of different options would be measured initially in terms of time (whether force expansion lead times are reduced) and then the various costs, etc., of each option. Due cognizance would need to be taken of the likely interdependence of different options and the requirements of low level contingencies.

18. These have been well summarised by Paul Mench in "A Nuclear Defence for Australia? Some Thoughts on a Role for Nuclear Weapons", Defence Force Journal, Jan-Feb. 1978, p. 49.


LETTER TO THE EDITOR (See also pp. 4 to 6)

ADFA

I refer to the article "Some Thoughts on ADFA" by Captain Hollander (DFJ No. 14, Jan/Feb 1979) which is one of the most uninformed and inaccurate articles I have read.

To take just two examples. How on earth did Captain Hollander arrive at his curious belief that there will be "a single (officer) stream based on ADFA" and, compounding this error by repeating it, that ADFA will create "a single initial stream for the three Services"? This is simply untrue. And to arrive at a "conclusion" on costs which is based on "suspicion" which is in turn based on newspaper speculation is simply not good enough.

I appreciate the problems associated with the encouragement of free expression of contributors' views in the Journal. But bearing in mind its source and the standards and reputation it aspires to, I believe that the publication of such an article which had not researched readily available and published facts on ADFA, does neither the Defence cause nor Captain Hollander any credit.

May I conclude by saying that I am ready to explain the concept of ADFA to anyone who seeks an informed understanding of the project.

Rear Admiral (RL) Development Council Chief Project Officer
The activities of Australia’s security services have been the source of endless public fascination and speculation in recent years. Given the amount of attention devoted to the subject, little tangible or authoritative information has been presented to the public, nor has there been any real attempt to document the course of development of the intelligence services currently possessed by this country. It is not really surprising, therefore, that even after 30 years the nature and extent of Australia’s wartime security services remain unknown outside the limited number of recipients of the reports of Mr Justice Hope’s Royal Commission on Intelligence and Security. Few Australians would know that from the time of the 1938 Munich Crisis national security was chiefly the responsibility of the Army. Under provisions formulated at the time, other bodies involved in security — chiefly the Commonwealth Investigation Branch of the Attorney-General’s Department — were to automatically hand over to military intelligence and cease security activities on the outbreak of war.

At Cabinet direction an interdepartmental committee had investigated the idea of setting up a Defence Security Organization in February 1939. This committee debated whether to create a new organization as an adjunct to the Defence Department and remove security activities from Investigation Branch, or to extend the functions of Investigation Branch. The majority of the committee’s members favoured the view that, as Defence in any event required an organization to ensure the security of defence works, efficiency and economy was best served by Army undertaking prime responsibility. The tasks of Investigation Branch were, after all, principally in the realm of ordinary law, such as investigation of alleged offences against Commonwealth Acts and matters of departmental concern, collection of monies owed to the Commonwealth and the serving of bankruptcy notices and summons.

The co-operation envisaged in these provisions was effectively achieved between the Army and State police forces. In New South Wales in 1938, for example, a special squad of 30 police officers were placed under military control, and as the likelihood of war increased Army officers were placed full-time in Police Headquarters and directed the work of the Police Commissioner’s Military Police Intelligence Section. By 1941 these two groups had between them devised a records system which was held up as a model for emulation in other states. Questions such as the number of subversives living in a particular Sydney street, or the number of aliens living in a particular country town, could be answered within minutes from records and dossiers held on more than 12,000 people and firms.

The Investigation Branch was, however, more reluctant to co-operate. Although some personnel and records were passed across to the Army, the Branch did not cease its security activities. The Military Board complained of this situation in September 1939 but received no satisfaction, and the Army’s subsequent complaint that its reports on individuals were frequently given less credence than Investigation Branch’s reports also went unheeded. The sorts of problems arising from competing agencies handling security affairs were demonstrated in the arrests of 20 members of the Australia First Movement in March 1942. Investigation Branch and the Army had produced conflicting assessments as to the threat actually presented by this group, as Hasluck’s volume of the Official History dealing with the Government and the People 1942-1945 reveals.

On 5 June, 1940, War Cabinet approved of a Defence Security Organization to operate for the three services under the direct control of the Chief of the General Staff. The new body was
to be achieved by the expansion of the existing military security establishment and would liaise with Investigation Branch, the State police and other civil authorities. This decision apparently prompted R.G. Menzies, Minister for Defence Co-ordination, to submit to War Cabinet on 25 June a recommendation for a whole new government department to be set up. His suggestion for a "Department of Internal Civil Security" would have placed a Minister in charge, with a Chief Administrative Officer as Director.

No action was apparently taken on Menzies' proposal and nine months later War Cabinet approved the establishment of a Defence Security Bureau to be known as Security Service. This formed and attached to the Attorney-General's Department on 31 March, 1941. Lieutenant Colonel E.E. Longfield Lloyd, then Deputy Director of Investigation Branch, was appointed Director and established his headquarters in nine rooms at the Patents Office in Canberra.

This organization took over national security duties previously shouldered by the Army on behalf of all three services, although civil and internal security in the Northern Territory and that part of Western Australia north of the Tropic of Capricorn still remained an Army responsibility. The Army also retained responsibility for censorship and all matters concerned with internment. Although constituted as part of the Attorney-General's Department the heads of the new organisation's state sections were all Army officers (except in South Australia) and in Perth, Hobart and Darwin, the sections operated within the Army's Intelligence Section of the General Staff. Little in fact had changed. Lloyd's organization, moreover, had only investigatory and reporting powers. Executive power to deal with subversive activities was still vested in the Attorney-General while that for controlling aliens rested with the generals commanding the Military Districts in each state.

Later in 1941 the Victorian Police Commissioner, Mr Alexander Duncan, was appointed to investigate Security Service. His report of January 1942 pointed out a number of unsatisfactory features and advocated a change of personnel, including the appointment of a Director-General of Security in Canberra and the appointment of the various Police Commissioners as State Directors in place of the existing State Security Officers. He said, however, that Security Service should continue to function in a advisory capacity.

The Director of Military Intelligence, Colonel C.G. Roberts — the son of the famous Australian painter Tom Roberts — was critical of Duncan's findings, arguing that there was no need for a Director-General if the powers of Security Service remained unaltered. He favoured an organization distinct from the Army but in close liaison with it which would possess full executive power, but he also felt that the emergency situation then existing with a threat of a Japanese invasion was hardly a propitious time to effect radical change in the organization. He was concerned, too, that the name being put forward for Director-General — that of W.J. Mackay, New South Wales Commissioner of Police — was regarded by some military circles as unsuitable for the task.

The Chief of the General Staff, Lieutenant General V.A.H. Sturdee, was in agreement with Roberts as to the type of organization that was needed. The problem was, he said, simply that too many authorities were involved, and Duncan's recommendations would do nothing towards combining executive and investigatory powers in one body or organization. He wanted the Army left to its primary role of preparing to defend the country and, unlike his DMI, he wanted the change effected irrespective of the emergency. He strongly recommended to the Minister for the Army, F.M. Forde, the immediate setting up of a Security Service divorced from the Army and placed under the Attorney-General's Department. He did, however, suggest a senior Army officer to fill the post of Director-General, Brigadier B. Combes, then serving as Commandant of the Royal Military College, Duntroon. Combes had, as Director of Military Operations and Intelligence, been largely responsible for pre-war security arrangements and for putting these into effect in the first 14 months of the war.

Forde had himself already formulated some thoughts on the subject. He felt that what was desperately needed was "a ruthlessly efficient and quick moving body" which would counter the dangers which were "walking up around Australia and inside Australia", although he felt such a centralized, organization should still be within the ambit of his own department.

The question was resolved on 9 March at a
Brigadier W.B. Simpson, Deputy Judge Advocate-General (Middle East) May 1942.

conference of the Attorney-General and the ministers of the three services. It was agreed that time did not allow the full implementation of the Duncan report but that a Director-General of Security would be appointed. Police Commissioner Mackay was chosen for this post and his appointment became effective on 17 March. More importantly, however, it was also decided to give the Director-General both executive and investigatory authority.

The powers listed in Mackay’s charter were many and wide-ranging. They included responsibility for investigation and action such as surveillance, prosecution, restriction or internment against hostile, alien, subversive and pacifist individuals or organizations; for dealing with sabotage; administering five sets of National Security Regulations covering aliens, subversives, explosives, etc; the control of passport and visa issuance; the control of passengers and crews of ships and aircraft landing in Australia; personnel vetting; security of factories and establishments engaged in war production, and of all wharves and the ships alongside; security of information and prevention of harmful rumours; and collation of security information derived abroad. The Director-General later also assumed responsibility for all radio security measures in Australia and the direction of radio interception for security purposes.

As was recognized at a conference of security chiefs on 1 April, Security Service had been effectively reconstituted as an entirely new organization, and it was the unanimous decision of this second conference that the new Security Service “should be considered and built up as a permanent and not merely as a war-time organization”. H.V. Evatt, the Attorney-General, evidently squashed this concept, as in August he told Forde that he considered “the recent re-organization of Security Service was on too extensive and too expensive a scale” and the organization’s budget was more than halved from £225,000 to £100,000.

Mackay showed no great imagination in his appointment and seemed inclined to think of the new Service as a Police empire. At a conference at Russell Street Police Station in Melbourne on 20 and 21 March, he proposed for submission to the Minister a recommendation repeating the Duncan Report’s suggestion that State Commissioners of Police should have powers as deputies of the Director-General to launch prosecutions under the National Security Regulations. The Director of Naval Intelligence, Commander R.B.M. Long, flatly disputed this in principle later telling Roberts, the DMI, that he feared that if the whole of the Security Service’s very extensive powers were put in the hands of the police, an unscrupulous government could impose Gestapo-style control over the country. The resolution was ultimately agreed to unchanged, although Long’s dissent was recorded.

The departure of Evatt overseas meant that Forde was the minister responsible for administering the new Security Service until August 1942. At a conference on 2 April Forde ruled that the Director-General’s representatives in the State were to be Federal officers and not the State Commissioners of Police. Mackay submitted a framework organization for Forde’s approval which, while technically complying with the Minister’s direction, attempted to circumvent it by leaving actual control in the commissioners’ hands. Forde would not consent to this interpretation and spelled out the position as he wanted it.

Because Mackay’s new organization now had both executive as well as advisory powers, Investigation Branch was restricted to departmental investigations and confidential enquiries outside the security field. The new organization was to have representatives of the US FBI and British MI5, as well as a representative of US Forces in Australia. The US Legation was asked in June 1942 to allow its Assistant Military Attaché to act as this liaison officer between General Headquarters, South West Pacific Area, and the Director-General. Mackay would also have at his disposal a secret fund to allow discreet financing of certain of Security Service’s activities. The Service was to absorb such Army personnel engaged on security work as it wanted; those it still wanted after three months were to lose their status as service personnel and would be engaged as civilians. These provisions caused considerable discontent among Army personnel thus co-opted and among many there was reluctance to make the transfer. Not all the Army’s personnel had gone across to Security Service in any event; some were required for the Army’s own Field Security needs to ensure protection of military personnel, materiel and
establishments, but in New South Wales a few at least had elected to remain with the Army in other capacities because of doubts about their status with Security Service.

By June Mackay was concerned enough to ask for Army personnel to be allowed to remain on the active list but shown as seconded to a civil appointment. Later again, he asked for an Army establishment to be allocated at Land Headquarters to allow for the required Army personnel to be attached on loan for an indefinite period. The Army representatives objected that the Commander-in-Chief, General Sir Thomas Blarney, was opposed in principle to military personnel being subject to direction of civilian authorities, and that provision of a further 80 men requested, in addition to the 160 already with Security Service, would be difficult because of the Army’s manpower problems. Mackay said he would settle for the 160 he already had, but stressed that if he could not be sure of having Army personnel the alternatives were to hand Security Service back to the Army or to establish the Service using the State police forces quite apart from the military authorities.

Mackay won his point and an establishment was issued for what was termed “Security Service, Australian Intelligence Corps” late in 1942. From Security Service’s inception, therefore, even though the Army was attempting to divest itself of a responsibility it did not want and which was outside its normal sphere of activities, Army personnel comprised the major part of its staff. Figures shown that in September 1943 55 percent of the Service’s staff of 678 were Army personnel, the rest being drawn from police, civilians and a very few members of the Air Force and Navy. This proportion varied but did not drop below 50 percent except with demobilization at the end of the war.

This use of Army personnel presented some problems, especially because members of the SS AIC, although working full-time and in civilian clothing for the Security Service, were part of a formed Army unit on loan, were paid by the Army and were subject to Army discipline. At first this dual identity presented no real difficulty, especially as Mackay’s appointment had been only for six months to get the Service established on a sound footing and he was accordingly replaced on 23 September, 1942, by Brigadier W.B. Simpson. This meant the Director-General of Security had military command over SS AIC personnel. However, on 16 September, 1944, Simpson retired from the Army, and although he remained Director-General his appointment became a purely civil one.

This situation prompted trouble when in August 1944 General Blamey tried to have the 312 Army members then with Security Service returned to the Army for absorption in other arms. Simpson said he could not afford to lose these people. Not only could he not administer the 54,000 aliens and 1155 internees then in Australia with the 38 administrative officers, 46 investigators and 134 clerks, typists and records assistants which would be left, but Army personnel held the majority of responsible positions inside the organization. He also argued that although Australia’s security position had eased as the tide of the war went against Germany and Japan new security problems had arisen or were anticipated, and he could not answer for Australia’s internal security if Blamey’s request was granted. He had, however, reviewed his staffing arrangements and could see his way to release 75 Army members back to their parent service. War Cabinet decided in Simpson’s favour, allowing the Army to increase its authorized strength by whatever number of Army personnel were seconded with Security Service.

Simpson was appointed Justice of the Supreme Court of the ACT on 24 October 1945, and resigned as Director-General of Security. The following day, Longfield Lloyd was appointed his successor. Consequently, when Security Service was disbanded on 15 December its activities and records were taken over, or merged, with a specific Security Section contained within the Commonwealth Investigation Branch. Its powers remained unchanged from those originally entrusted to it, although control and registration of aliens had been assumed by the Department of Immigration.

Longfield Lloyd remained as Director-General of Security until 1949, when he was succeeded by Brigadier C.C.F. Spry, formerly Director of Military Intelligence at Army Headquarters for the previous four years. Spry was to head the new Australian Security Intelligence Organization spawned from Investigation Branch, or Service as it had become, and thus the pattern had been set.
For some time the news media has been pointing to our de facto open-door policy in northern Australia and we are assured that illegal immigrants, drug runners and contraband smugglers come and go at will with little fear of detection, let alone apprehension.

Constant 'eye-ball' patrolling of our northern coastline by the Navy and Air Force has been called for and is now conducted on a limited scale; however, the cost of such operations is considerable and has proved to be only minimally effective.

The establishment of a coast guard system has also been mooted but, even if conducted on a mainly volunteer basis, the cost of setting up and running such an organization, would also be an expense we can hardly afford especially in the present financial climate.

Two extremely effective and proven detection systems are presently available in the form of airborne sensors. These are the Grumman Aerospace Corporation's E2C Hawkeye and the Boeing Company's E3A AWACS (airborne warning and control system) aircraft. Both are operational with the USAF and Japan and Israel are currently equipping their airforces with the E2C. The E2C is also under consideration by the RAAF.

These aircraft have a proven detection range in excess of 1000 miles; however, their initial cost is exorbitant. Total project cost for each aircraft including necessary ground support equipment is between $50-560 million. To this base cost must be added the operational expense of having the system permanently airborne.

A less expensive system, yet unproven, is the Australian defence — science JINDALEE project. Project JINDALEE is presently being developed from a base at Alice Springs and is an attempt to use particular atmospheric conditions in the Australian area to 'bounce' radar waves earthwards and then to reflect what they see back into the stratosphere for collection by the sending antenna array. In its ideal form, the system would detect aircraft flying thousands of miles away and also track the movements of ships across the oceans to our north and west.

According to some reports, JINDALEE has already exceeded initial expectations in limited arc scanning, and the next step is to develop it further to a degree that the designers hope will give accurate long range detection over distances up to several thousand miles from zero feet up to very high altitudes with a 360 degree coverage. JINDALEE has the advantage of comparatively low initial cost and, being ground based, minimal operational cost. It is an obvious cost-effective option to the E2C and E3A systems... if it performs up to expectation.

Despite the proven qualities of the E2C and E3A systems, and the promising test results of Project JINDALEE, these systems are still only means of accurate and early detection, not a means of interception or apprehension. In addition, introduction into service of any of the systems, is still a long way off.

**NATURE OF THE THREAT**

Before examining the problem further, it is important to study the nature and extent of the threat which, it is claimed, necessitates a more intensive watch on our north.

The recent silent invasion of Darwin by Vietnamese, Cambodian and Chinese refugees has proved that a source of likely illegal immigrants exists and that we have
considerable difficulty in detecting their approach prior to their immediate arrival, despite the fact that they presently only select Darwin as their destination. How worse off would we be if a flotilla of these boat people chose to land at Borroloola (Gulf of Carpentaria) instead, and over a space of a few weeks managed to put 5000 of their number ashore? Detection en-route would have been even more difficult and, in such an isolated area, they would probably have reaped their first crop of rice before we even knew they were there.

Would world opinion look kindly on our efforts to evict them if we chose to do so and where could we deport them to anyway? The simple fact is, with our de facto open-door policy and our under-populated North, we have virtually issued an open invitation to illegal immigrants to settle our neglected territories. Not only an invitation to political refugees, but also to other less privileged people's who view Australia as God's (or Allah's or Buddha's) own country.

Such an unauthorized inflow of settlers is also cause for concern with regard to possible accompanying diseases from which Australia is presently spared; not only human diseases but animal ones also. Almost without exception, refugee boats arriving in Darwin have had their complement of cats and dogs. If, in the future, such people intended to land in isolated areas instead and planned to settle in such places permanently, they would no doubt also bring with them the normal quantity of pigs, goats and cows which are so necessary for their form of subsistence farming.

Is this scenario a real threat or an unlikely possibility? I would suggest that Darwin has proved that the threat exists and that the number of refugees still in Asian camps indicates a growth potential. No refugee has yet been evicted, they have all been welcomed generously and given every assistance to settle permanently. Why should potential Borroloola settlers think they would be treated any differently, especially if they intended to be self-supporting? Strength in numbers would also be seen by them as being to their advantage, since how could Australia possibly throw 5000 helpless refugees back into the sea?

Our past civilized approach to such problems is hardly likely to act as a deterrent in the future. People in desperate situations will go to extraordinary lengths to improve the living conditions of their families as proved by the Vietnamese refugees who, with limited navigational skills and in leaking coastal craft, set off on perilous voyages to Australia. The illegal migration of European Jews to Palestine immediately following World War II is another example of the determination demonstrated by under-privileged people who sought safe and decent living conditions for themselves and their families. Their reception in Palestine could hardly be compared with that which we have provided in Darwin and yet they continued to fight their way through Royal Navy blockades in ever increasing numbers.

Given the determination of such people, how would we handle the hypothetical situation at Borroloola? Of course our Navy could intercept most of those that followed the initial group, once the destination was known, but what patrol boat skipper would turn away a sinking hulk filled with sick and starving men, women and children? We would probably appeal to the UN Commission for Refugees for a solution, but would we attract too much sympathy given the fact that we own a vast area of rich coastal land which is largely unpopulated?

Our first internal reaction would possibly be to seal off Borroloola by positioning a containment force around it whilst a solution was argued in Canberra. We could probably manage that with our existing military strength (albeit for a limited period); however, what would happen when the hermit who lives at Kalumburn, reports on his quarterly visit to Wyndham, that he now shares his retreat with a further 5000 settlers from across the sea?

Is such a situation really just to far-fetched? If you think so, imagine yourself as a refugee living in a squalid camp with your family in either Thailand, Malaysia or Indonesia and you receive a letter from a relative who illegally travelled to Australia some months previously.

"Our boat was met 100 kilometres north of Darwin by an Australian patrol boat. The crew came aboard, cared for our sick and replenished our meagre supply of food and water. We were then taken in tow and a few hours later we arrived in Darwin harbour. We were met by a team of doctors who treated our sick and gave us medical examinations and inoculations. We were then taken to a reception centre in the city"
and given new clothing, clean beds and a hot meal. Each adult was also given $50 as an “advance on welfare payments” — we didn’t even have to do any work for it!

Two days later we were flown to Sydney and allocated an apartment in an immigration hostel which had a communal kitchen where, if we didn’t like the set menu, our wives were free to cook our own national dishes.

I now spend most days going for job interviews and half our number have jobs already. My friend has a job cutting grass and receives $170 a week in wages. He is already planning a trip back to Thailand to visit his relatives who are still in camps.

I have yet to secure a job but the Australian government gives me over $100 a week until I do.

I hope you are accepted as an official immigrant soon. I understand Canada and America have agreed to take small refugee quotas sometime next year*.

... the boat building business in South-East Asia must be booming.

Apart from the illegal immigrant problem the airborne drug and contraband traffic has also increased dramatically over recent years. Due to a very limited radar surveillance of our northern approaches and the preponderance of deserted airstrips in our underpopulated northern areas, the risk of detection of unauthorized aeroplane flights is slight. Even if detected the likelihood of apprehension is remote. The monetary rewards, in the drug trade especially, compared to the minimal risks involved must be very attractive. This is borne out by the fact that Australia has the unenviable distinction of having the world’s greatest growth rate in the illegal use of hard drugs. The vast majority of these drugs are smuggled in from overseas.

Whilst the drug traffic undermines the health and future of our young people, the smuggling into Australia of other contraband items, in turn, also undermines our country’s economy. The quantity of watches, radios, diamonds, gold and other numerous items landed in Australia without control or the payment of duty is impossible to determine but the amount probably does not present too serious a threat to our economy. This is not to suggest that nothing should be done to counter such illegal traffic but it is less of a problem than the growing drug trade which has serious and horrific long term effects. This we must counter by every possible means within our power.

Australia is faced with two serious problems which demand early and effective attention. Whilst we have a large, underpopulated and comparatively rich country, illegal migration from less privileged countries will continue. Australia is also a country relatively free from the scourge of drugs but it is a growing market offering huge financial return for those who would profit from this insidious trade. Both problems will get worse in the future unless we do something soon, at least to contain them. We can’t completely overcome them but I believe containment is well within our capacity.

S.M.O.G.
('Sentinel' Military Observer Group)

Accepting the fact that we are incapable of completely halting the growing traffic in illegal immigrants and hard drugs, it is never-the-less suggested that something further can still be done, at least to contain the present situation, and the cost could be relatively small. One proposed partial solution is for the establishment of a ‘Sentinel’ system manned by a military observer group.

In general terms the scheme envisages field posts spread across the breadth of northern Australia from which two man motor cycle teams would patrol within set areas of responsibility. The aim of such patrols would be to detect and, where possible, apprehend, illegal immigrants or drug/contraband smugglers.

Although such a scheme would require detailed investigation an initial map reconnaissance would indicate that a force of approximately 230 all ranks would be necessary for the task based on the establishment of approximately 40 Field Posts controlled by 8-10 Field Stations. The practicalities of such a scheme are:

- Manning.
  Each Field Post would be manned by 5 men, allowing for two teams on patrol and one member on radio watch.
  Each Field Station would comprise 3 members, one of whom would be conducting liaison trips to field posts under command.
  An assignment to SMOG should be on a volunteer basis for a period of three months detachment. Such volunteers...
would be drawn from any Service unit within Australia (Navy, Army or Air Force). Whilst each Field Station should be commanded by a Lieutenant Colonel or Major, all other positions could be filled by any rank from Private to Captain, with the senior member being OC Field Post.

**Accommodation/Rations.**
Members would live under field conditions (tentage) and be supplied with hard rations (composite ration packs) supplemented by any available small game or fish.

Posts and Stations should be located in areas with permanent fresh water supplies.

Field Stations should be located in areas that permit the landing of STOL aircraft (Caribou or Nomad).

**Transport.**
Field Posts would be provided with four trail-bike type motor cycles.

Field Stations would be provided with three trail-bikes which would include reserves for Field Posts and in addition, one Landrover. This would necessitate the purchase of approximately 190 trail-bikes.

Field Posts located on the coast or on rivers would also be equipped with small craft.

**Resupply.**
One Caribou aircraft based at Darwin, Wyndham or Cairns would be a weekly ‘milk-run’ to all Posts and Stations, airdropping at Posts and landing at Stations. An appropriate number of Nomads could be used in lieu.

**Communications.**
Patrols and Field Posts would be linked by radio to respective Field Posts and Stations.

In turn each Field Station would be linked to a controlling HQ (probably Darwin). Existing radio stocks, of suitable range, are presently available.

**Personnel Movement.**
Personnel on posting to or from SMOG would travel by Caribou or Nomad to Field Stations and then to Field Posts by either Landrover or trail-bike. Parachute qualified personnel could be parachuted directly into Field Posts.

**Arms.**
All members of SMOG should be equipped with small-arms and be granted the same powers of arrest, search etc. as Commonwealth Policemen.

**Patrolling.**
Each Field Station would be allocated an area of operations which would be divided into Field Post areas of responsibility.

The patrol programme would be co-ordinated by the parent Field Station.

Patrols would be conducted by a team of two observers for safety reasons.

The direct advantages that would flow from such a scheme are that most unauthorised landings on our northern shore-line or at points inland, could be detected within a relatively short time and the chance of apprehension greatly increased. Secondly the mere presence of such a force would act as a considerable deterrent. Finally, most of the cost is already in the form of committed expenditure and deployment of the force could be effected quickly.

Indirect advantages of such a scheme are:

- Very few servicemen have experienced living and working conditions in northern Australia. This proposal would provide this experience to a growing number of our members at every rank level.
- Skills would be developed or refreshed in map reading, navigation, field living, survival, radio communications, leadership, man-management and air-dropping.
- Detailed knowledge would be built up of our under-populated areas.
- Limited civil aid functions could be performed.
- Those Servicemen dulled by what they see as the boring routine of present day military life would have available to them an exciting and invigorating new experience.

The establishment of the ‘Sentinel’ Military Observer Group would effectively change our de facto open-door policy and act as a partial and yet significant deterrent. Together with the eventual introduction into service of electronic detection systems such as the JINDALEE, E2C or E3A, we could not only be no longer blind to activities in our far north but also have a physical presence on the ground to enable something to be done once unauthorized intruders were detected.

The proposed scheme is within our present capacity and no increase in manpower is required. It could be established quickly and operated for little extra cost to the Defence budget.
INTRODUCTION

VALIDATION is one phase of the RAN Training System that has been much neglected in the past. In large measure this is due to the fact that the problems are varied, complex and not easily resolvable.

Through opportunity and circumstance the author has been fortunate enough to have collated and researched most of the literature on the topic and to have thought beyond the superficial level of what is meant by the term. The dialectic presented and the recommendations made, therefore, although my own, are solidly based on experience gained in the training environments of all three military Services in the United Kingdom, spanning the period September 1975 to mid-February 1977.

I would also stress from the outset that, although our efforts in this area are embryonic and emergent, we are not too far behind our military counterparts in that country in relation to the degree of importance devoted to this aspect of training. As an example, I cite the training support infrastructure for SEME, Bordon (approximately 2,000 personnel under training), where for a field force school of some considerable magnitude, only one Warrant Officer is assigned to carry out external validatory procedures.

Historical Developments

A number of short articles1, 2, 3, 4, published in the Naval Training Journal, details ab initio attempts to introduce and formalise validation in the RAN. The current problems and limitations of our external, centrally controlled procedures for obtaining user feedback have also been identified5, and are summarised later in this article. The underlying thesis to be essayed is that, if we wish to break the cycle of these problems, then we must move away from external authority towards a system that is less rigid and stereotyped and which facilitates more flexible lines of communication between users and parent training schools.

AIM

The principal sources of disputation concerning validation centre on the problems of:

- DEFINITION — What precisely is meant by the term?
- IMPLEMENTATION — What organizational framework is necessary to obtain user feedback?
- MEASUREMENT — What data-gathering techniques are relevant?

The aim of this paper is therefore to make recommendations about implementation and measurement based on a concise definition of the epithet per se.

THE PROBLEM OF DEFINITION

Esoteric Terminology

The RAN Training System Model (Figure 1) distinguishes two separate phases of feedback: an EVALUATION phase and a VALIDATION phase. However, the procedures are identical, for whether we are applying them internally within the formal training environment or externally within the work environment, we are attempting to assess, or appraise, or adjudge, or evaluate training efficiency and effectiveness. It is consequent upon both internal and external evaluation that consensus can be reached regarding whether the training was valid, or indeed invalid, to meet the needs of the job. The RAN is thus anchored at present to training technology jargon which I suspect is wrong.
Specific research substantiates my belief that what the RAN calls Validation is really Summative Evaluation.

The two separate phases in the RANTS strategy are unfortunate for another reason: they imply two divorced and unrelated sets of feedback procedures when in reality they represent complementary and overlapping aspects of the one all-embracing procedure, currently referred to as Quality Control.

**A Comparative Analysis**

When we return to the grassroots philosophy of systems training, outlined by its founding father in the United Kingdom, Brigadier Mellor, in his report (1966), we observe no mention of the term validation. He refers to a “Training Evaluation System”, which was subsequently changed to a “Training Validation System” by the British Army c. 1972 (primarily to avoid the notion of worker evaluation which has tended to become an unpopular word in industrial circles).

The Mellor Loop (the colloquial description now given to the Training Systems Model that appeared in the Mellor Report and currently used by the British Army, Royal Air Force, certain NATO military training environments, the Australian Army and the Royal New Zealand Navy) manifests the notion that in a circular, self-closing system (Figure 2), validation of training and job analysis are but the obverse and reverse of the same process, only that the former seeks to refine the end-product of the latter. To this end, it is not surprising to see the British Army at present using CODAP computer-based occupational analysis procedures as tools of validation rather than as tools of job analysis (as they were developed originally by Dr. Raymond Christal).

The Canadian Forces' Training System (CFTS) regards the whole system (Figure 3) as the means of controlling the quality of training, and Evaluation and Validation are but subsets of the quality control process along with the Analysis, Design and Conduct phases. As can be observed from the model, the CFTS steps to validation are limiting in their conception of the meaning of the term.
The Australian Army's distinction between training efficiency and effectiveness (Figure 4) helps dissipate much of the confusion between internal validation (RANTS Evaluation phase) and external validation (RANTS Validation phase). It is significant to observe that in order to validate training externally we must know job incumbents' capacities to perform satisfactorily at their work before formal training is given. It is axiomatic that without such data we cannot assess the effectiveness or otherwise of training in bridging the gap between pre-training standards and job performance standards.

A recently-convened BACIE Think Tank in the United Kingdom has identified three conceptually different models of feedback, and with adaptation to suit our military culture, I present them schematically in Figure 5:

- The 'two-level' concept is based on the belief that both internal and external evaluation are mutually supporting. The 'three-level' concept takes cognizance of the need to:
  - check that training is internally valid: that is, that the required efforts have occurred in the work situation; and
  - attempt to put a value on these efforts in terms of the contribution they will make to the achievement of the overall operational objectives of the organisation.

The 'four-level' concept differs only in the addition of the 'reaction level' of feedback: a continuous checking process covering reactions of users and ex-trainees as well as trainee motivation whilst on course. 'Reaction level' feedback represents much of the feedback data available to schools at present. I suspect.

The Notion of Quality Control

ABR 5286 (Royal Australian Navy Training System Manual — Volume I) defines the quality control process as embracing both evaluation and validation. In equation format:

Quality Control = Evaluation + Validation

By simple transposition, a definition for Validation ought to be obtainable:

Validation = Quality Control — Evaluation

However, this is obviously too simplistic and indeed incorrect.

The sequential nature of the quality control process reveals some interesting anomalies. Figure 6 raises some of the more important issues; namely that:

- Trainers can only validate courses of training which are known to be internally valid to begin with.
- Validation equates to the evaluation of the on-the-job component of training, together with further evaluation of the effectiveness of formal training in helping ex-trainees to become master performers.
- Quality Control is a subset of the Validation process (rather than the converse as asserted in the RANTS Man-
VALIDATION OF TRAINING

Validation of training (that is, the completion of task books) must have been completed before validation can commence.

Additionally, validation must be seen as more important than on-the-job training since the former will identify inefficiencies in the latter.

On-the-job training (that is, the completion of task books) must have been completed before validation can commence.

Any dysfunction such as turbulence, resulting from the change, is more perceived than real and was certainly short lived both in

Figure 7: The Mismatch where Operational Performance Standards ≠ Training + On-the-job training.

Figure 7 exhibits yet another problem area in validation; namely that Management's notions of desirable job performance standards can be too unrealistic and unachievable. User expectations can, therefore, be misaligned vis à vis the training effort being ineffective.

In Summary

The foregoing analysis, although in large part an academic exercise, focuses on the abstruse nature of the term validation, and widens the loci of ill-definition to include the term quality control.

I believe most problems of definition recede when stress on the differences between Quality Control, Evaluation and Validation are removed. The term "Quality Control" (which savours of assembly line procedures) and the term "Evaluation" ought, in my view, to be dispensed with as soon as is practicable, retaining the term 'Validation' to refer to the total process.

The Training Validation Officer (ex-Quality Control Officer) would then be responsible for both the internal and external aspects of the validation process.

Any dysfunction such as turbulence, resulting from the change, is more perceived than real and was certainly short lived both in

The training validation officer (ex-Quality Control Officer) would then be responsible for both the internal and external aspects of the validation process.

Any dysfunction such as turbulence, resulting from the change, is more perceived than real and was certainly short lived both in

In Summary

The foregoing analysis, although in large part an academic exercise, focuses on the abstruse nature of the term validation, and widens the loci of ill-definition to include the term quality control.

I believe most problems of definition recede when stress on the differences between Quality Control, Evaluation and Validation are removed. The term "Quality Control" (which savours of assembly line procedures) and the term "Evaluation" ought, in my view, to be dispensed with as soon as is practicable, retaining the term 'Validation' to refer to the total process.

The Training Validation Officer (ex-Quality Control Officer) would then be responsible for both the internal and external aspects of the validation process.

Any dysfunction such as turbulence, resulting from the change, is more perceived than real and was certainly short lived both in

In Summary

The foregoing analysis, although in large part an academic exercise, focuses on the abstruse nature of the term validation, and widens the loci of ill-definition to include the term quality control.

I believe most problems of definition recede when stress on the differences between Quality Control, Evaluation and Validation are removed. The term "Quality Control" (which savours of assembly line procedures) and the term "Evaluation" ought, in my view, to be dispensed with as soon as is practicable, retaining the term 'Validation' to refer to the total process.

The Training Validation Officer (ex-Quality Control Officer) would then be responsible for both the internal and external aspects of the validation process.

Any dysfunction such as turbulence, resulting from the change, is more perceived than real and was certainly short lived both in

In Summary

The foregoing analysis, although in large part an academic exercise, focuses on the abstruse nature of the term validation, and widens the loci of ill-definition to include the term quality control.

I believe most problems of definition recede when stress on the differences between Quality Control, Evaluation and Validation are removed. The term "Quality Control" (which savours of assembly line procedures) and the term "Evaluation" ought, in my view, to be dispensed with as soon as is practicable, retaining the term 'Validation' to refer to the total process.

The Training Validation Officer (ex-Quality Control Officer) would then be responsible for both the internal and external aspects of the validation process.

Any dysfunction such as turbulence, resulting from the change, is more perceived than real and was certainly short lived both in

In Summary

The foregoing analysis, although in large part an academic exercise, focuses on the abstruse nature of the term validation, and widens the loci of ill-definition to include the term quality control.

I believe most problems of definition recede when stress on the differences between Quality Control, Evaluation and Validation are removed. The term "Quality Control" (which savours of assembly line procedures) and the term "Evaluation" ought, in my view, to be dispensed with as soon as is practicable, retaining the term 'Validation' to refer to the total process.

The Training Validation Officer (ex-Quality Control Officer) would then be responsible for both the internal and external aspects of the validation process.

Any dysfunction such as turbulence, resulting from the change, is more perceived than real and was certainly short lived both in

In Summary

The foregoing analysis, although in large part an academic exercise, focuses on the abstruse nature of the term validation, and widens the loci of ill-definition to include the term quality control.

I believe most problems of definition recede when stress on the differences between Quality Control, Evaluation and Validation are removed. The term "Quality Control" (which savours of assembly line procedures) and the term "Evaluation" ought, in my view, to be dispensed with as soon as is practicable, retaining the term 'Validation' to refer to the total process.

The Training Validation Officer (ex-Quality Control Officer) would then be responsible for both the internal and external aspects of the validation process.

Any dysfunction such as turbulence, resulting from the change, is more perceived than real and was certainly short lived both in

In Summary

The foregoing analysis, although in large part an academic exercise, focuses on the abstruse nature of the term validation, and widens the loci of ill-definition to include the term quality control.

I believe most problems of definition recede when stress on the differences between Quality Control, Evaluation and Validation are removed. The term "Quality Control" (which savours of assembly line procedures) and the term "Evaluation" ought, in my view, to be dispensed with as soon as is practicable, retaining the term 'Validation' to refer to the total process.

The Training Validation Officer (ex-Quality Control Officer) would then be responsible for both the internal and external aspects of the validation process.

Any dysfunction such as turbulence, resulting from the change, is more perceived than real and was certainly short lived both in

In Summary

The foregoing analysis, although in large part an academic exercise, focuses on the abstruse nature of the term validation, and widens the loci of ill-definition to include the term quality control.

I believe most problems of definition recede when stress on the differences between Quality Control, Evaluation and Validation are removed. The term "Quality Control" (which savours of assembly line procedures) and the term "Evaluation" ought, in my view, to be dispensed with as soon as is practicable, retaining the term 'Validation' to refer to the total process.

The Training Validation Officer (ex-Quality Control Officer) would then be responsible for both the internal and external aspects of the validation process.

Any dysfunction such as turbulence, resulting from the change, is more perceived than real and was certainly short lived both in
to specify whatever modifications are necessary.

- **Internal Validation** is the process of determining how successfully a course of training enables achievement of the training objectives specified for that course.

- **External Validation** is the process of determining how appropriate are the training objectives of an internally valid course in the light of job requirements.

The changes would also permit greater uniformity in the use of terminology within the Training System, prefixing the word training to most responsibilities; for example, training analysts, training designers, training development officers, training research units, training technology, training consultants, *inter alia* and now training validation officers.

**THE PROBLEM OF IMPLEMENTATION**

**In Retrospect**

The first attempt to introduce formal validation into the RAN, was made by the Director General of Training (DGT) in September 1972, in a letter to the Fleet suggesting the formation of a validation team — to be humoursomely titled the TRAVAL team.

Navy office¹, in those early days, perceived the need for Fleet refinement of job analyses to remove imperfections and for regular updating to accommodate change. It saw feedback as being far too infrequent and imprecise although Navy Office demanded such feedback in writing at one or two yearly intervals prior to visits by the Training Committee to specific schools. The format for providing feedback was not disclosed but it may be assumed to have been unsystematic and unstructured for (and I quote): "What the most cost-effective method of obtaining feedback is, has yet to be determined."

Support was given to the view that the process should NOT be undertaken by parent schools but rather by an external authority.

In May, 1973, DGT directed the Training Research Unit, TRU², to research the most cost-effective method of training validation (using ABUC training as the research vehicle). In August, 1973, TRU² recommended:

- The formation of a Training Validation Team comprising a training technologist and a senior sailor.

- An initial questionnaire followed by interview as the most cost-effective method of training validation.

In 1975, the Fleet Validation Officer³ cited the advantages of having validation vested in the Fleet Staff as being:

- An independent and external body considers the job and the training,
- A link between the training schools and the user is provided,
- The school is able to continue functioning without seriously disrupting the training programme and without requiring extra staff,
- Consistent methodology and improved techniques can be applied to validation,
- Feedback which is usable and specific will be obtained. This feedback will provide the data on which proposals to modify Training Objectives can be based.
- A form of quality control is exercised due to the independence of the team which does not have a vested interest in the category.

Some of the advantages stated above are difficult to support in hindsight and assume the Fleet Validation Team has access to sufficient subject matter expertise to be able to validate in-depth the gamut of category courses, regardless of trade specialisation.

The non-universality of much of the data collected (ie. such data has tended to be highly group or situation-specific) would also seem to militate against “consistent methodology” (see above) — methodology which unfortunately has tended to be immethodological in kind. Inferences about behaviour or job performances per se have far too often been drawn from data concerning attitudes towards such behaviour or job performances, without any attempt to differentiate between the two sets of data.

**Change in Strategy**

Before alternative strategies could replace existing procedures, policy statements may well need to be made in order to overcome predictable attitudes of ‘empire encroachment’ by the Fleet and gaining Establishments to the suggestion that the Training Validation Officers of individual schools complement/substitute the activities of the Fleet Validation Team.

Presuming TVOs were approved to carry out external validation, who could they be from the staff of schools?
Training Designers?: Yes, as far as feedback relates to their efforts in the system.

Instructors?: Maybe. They are certainly good judges of trainees' achievement on Training Objectives; but are not good judges of the merits of the Training Objectives themselves.

Managers of Training?: No. Officers-in-Charge must be aware that training in their respective schools does not take place in a vacuum but their involvement centres on making sure external as well as internal validation data is gathered, evaluated, and implemented where necessary.

Trainees?: No, but they are the only human constant involved in every aspect of their own training. They are the major source of feedback but such feedback is highly subjective at face value.

Existing Quality Control Officers?: Definitely yes. They are responsible for maintaining standards and occupy a powerful position from which to influence training decisions and be some of the first to realise when validation may be necessary.

Who should initiate the external validation?

The BACIE research referred to earlier in this article is definitive about this question of who should initiate validation procedures. Concerning external validation, the research concludes:

"Members of the think tank (judge) this area (to) be the responsibility of (those) commissioning the training."

In other words, it is the users/employers who should first identify the need and initiate the requirement for external validation.

Who should generate the validation data?

There is considerable merit in individual parent schools carrying out their own external validation procedures:

- They are aware of internal inadequacies in their training.
- They will be sensitive to negative feedback from users and therefore more likely to want to improve their end-product.
- Organisationally, it harnesses greater capacity to carry out external validation than is the case at present.

Problems arise when the Fleet Validation Team is complemented or substituted by parochial Training Validation Officers:

- Disruption on the job and in the training environment would increase, but only marginally as the validation would have been user-initiated in the first place.
- Existing resources would be strained from time to time.

Communication links between school TVOs and users would have to be shortened. This would overcome two overt problems relating to the FVT; namely that:

- with a centralised approach, the FVT may not be sensitive to the felt needs of individual schools and thus may tend to generate its own work!
- many potential users of ex-trainees from the formal training environment are simply NOT located in the Fleet but in the various shore establishments.

Ways of shortening the communication links have been highlighted and are represented pictorially in Figure 8:

![Figure 8: Split Level Communication Procedures](image-url)

As suggested in the diagram two levels seem sufficient:

**Level 1.** Speedy lines of communication — concerning gross failings/disjunctions between course objectives and job needs.

**Level 2.** Slower lines of communication for more in-depth and refined external validation by parent schools following the disclosure of the major invalidities.

Assuming present Quality Control Officers became Training Validation Officers and responsible for in-depth external validation, then:

- the TVOs job would need to be properly defined;
- TVOs would need to be properly selected and trained in order to gain the required knowledge, attitudes and skills;
- TVOs would have to have a clear notion of users' problems as well as the problems of their own training environments;
• TVOs would require access to specialist help from professional training technologists when difficulties arose.

THE PROBLEM OF MEASUREMENT
The matrix in Figure 9 (resource material obtained from the British Army School of Instructional Technology) shows some of the areas of interest with which we are concerned when validating training (internally and externally), as well as the likely sources and the degree of validity/reliability of such information.

<table>
<thead>
<tr>
<th>AREAS OF INTEREST</th>
<th>INTERNAL</th>
<th>EXTERNAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Relevance of training objectives to job</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>2. Appropriateness of standards and conditions in light of job requirements</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>3. Derivation of course content from training objectives</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>4. Developmental outcomes to training achievement</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>5. Sequence of instruction</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>6. Level of instruction</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>7. Time allocation</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>8. Instructional methods</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>9. Instructional media</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>10. Examinations</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>11. Instructional efficiency</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>12. Instructional support to trainee</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

Figure 9: Validation of Training — Sources of Information.

Other techniques of measurement include judgments on data collected from various sources as diverse as:
- newly posted-in instructional staff;
- newly posted-in members for continuation training;
- job incumbents; ex-job incumbents;
- job supervisors; ex-job supervisors;
- tests of job knowledge;
- tests of job performance (on a random/select sample basis);
- examination of job end-products completed by job incumbents;
- interviews;
- questionnaires;
- observation;
- exercise debriefs;
- CODAP procedures (as already mentioned earlier in this paper);
- PPIA forms, reconstituted to return more specific comment on job skills of ex-trainees.
- Task Books, reconstituted with tear-out response sheets. In all cases the minimum training performance standard recorded would be the TPS. External validation would centre on why job performance standards are not greater than the TPS and whether the job incumbent had been undertrained, overtrained, or satisfactorily trained for the job.
- End-of-Course Critiques. These can be a very useful means of gathering data inexpensively, especially where trainees have been working at their jobs before attending course and therefore better qualified to give opinions about whether the skills learnt on course are likely to be of use to them in their jobs. It is clear, however, that in most cases, end-of-course questionnaires are being used as tools of internal and not external validation.
- Monitoring other indicators of change in group performance on the job, in terms of: manning flexibility, damage to equipment, accident rates, user complaints, wastage rates, increased learning time to reach competency, etc.

Questionnaire Method
In fairness to users/employers it should be noted that they often have difficulty in treating questionnaires (and therefore CODAP procedures as well) seriously for a number of reasons:
- Unless a trainee is employed on all the tasks and equipment for which he was trained, large parts of the questionnaire will be quite irrelevant to the respondent.
- The longer the training the longer the associated list of objectives, and the busy manager or supervisor will be irritated if he is repeatedly asked to complete complex questionnaires.
- Trainees are sometimes misemployed and thus comments on their performance will appear to be pointless.
This last point is unfortunate, for accurate information about misemployment may well indicate that a particular area of frequent misemployment should properly be included in the training and added to the existing objectives.

CONCLUSION

In my preparation of this article, I have noted all the adjectives describing validation as it is happening at present; I list them for posterity:

infrequent, imprecise, random, negative, unsystematic, unreliable, subjective, intuitive, unstructured, too late, haphazard, informal, misguided, irregular, fragmentary.

In contrast to the state of the art at present, external feedback procedures ought to be:

simple, continuous, inexpensive, relevant, objective, usable, comprehensive, specific, quantifiable, current.

Travel between parent schools and user ships and establishments is anticipated to be minimal when the full matrix of measurement procedures is employed to gather the data.

Once defined, however, external validation focusses attention upon the relevance of the training objectives and their associated standards and conditions. The problem, then, is how to gather reliable information about the accuracy and relevance of these objectives. This information must be made available, for without it the training objectives cannot be adjusted to cope with the ever-changing environment and job. Indeed, without a form of external validation that really works there can be no such thing as a systems approach to training.

Information upon which to base a review of objectives may be gathered from performance on the job itself, or during units of training which succeed the basic training, or both. To be of any value this information must be current. Within the organisation, it is essential that the parties most directly interested be given both the responsibility and the authority to obtain this information; without this responsibility and authority, it is unlikely that objective, relevant and useful data will be obtained. The administrative load will increase but must be evaluated in terms of the greater effectiveness of training and thus job performance that it will produce.

RECOMMENDATIONS

Prospect

Major recommendations, stemming from this article, that I believe would enhance the prospect for external validation of training in the RAN are:

• that the term QUALITY CONTROL be abolished as soon as is practicable (as it seems to be ill-defined, inappropriate and anachronistic) and that the term TRAINING VALIDATION be adopted in its stead.

• that the term VALIDATION be used to subsume both internal and external procedures of assessing training efficiency and effectiveness.

• that External Validation checks be initiated only for system’s oriented courses and where the on-the-job component of training is completed.

• that Quality Control Officers in training schools be known as Training Validation Officers and be tasked with generating external validation data on a continuous basis to complement existing internal validation procedures.

• that the Fleet Validation Team be retained and tasked as at present but should, in addition, become the co-ordinating authority for all contacts between the Fleet and Training Validation Officers in particular schools. The lines of communication would be those suggested in Figure 8.

• that the techniques employed be wide-ranging as possible (as suggested in the first two paragraphs of the problem of measurement section) in order to keep travel to a minimum. Travel to user establishments and the licet would be confined to user-initiated requests following disclosure of disjunctions in the training process.

NOTES


11. Sample Questionnaires of Note
   - "Validation of Training — B3 B2 Employment Training" — Royal Army Pay Corps Training Centre, Worthy Down, Hants, UK.
   - "Report on the External Validation of Survey Staff Specialist Training" — Training Development Team, School of Military Survey.
   - "Questionnaire for External Validation of Army Pilot' Training" — Army Air Corps Centre.
   - US Army Validation Procedures known as MOS's: "Military Occupation Specialisations".

**Additional Source Material**


**BOOKS IN REVIEW**

The following books reviewed in this issue are available in various defence libraries:

Hill, A.J., Chauvel of the Light Horse (p. 57)

Russell.

Mitchell, E., Light Horse (p. 57)

Russell, ASC, 1MD, Defence Regional Library (Victoria)

Ball, D. (ed.), The Future of Tactical Airpower . . . (p. 58) 1MD, 2MD, 5MD, AAVNC (Oakey), RAFA Academy, AIWE, Butterworth, Williamtown, Campbell Park, RAFA ECS (Froggall), HQOC, Inf Centre, JSSC, OCS, OTS, RSC, Russell (Air), Russell, SMI, DRL (Vic), RANSC.

Barker, A.J., British and American Infantry Weapons . . . (p. 61) 1MD, 2MD, 4MD, 6MD, Campbell Park, EDE, Inf Centre, LWC, RAAOC (1969 ed.)

Defence Forces of Australia (Army Quarterly) 2MD, 7MD, Albatross, Cerberus, Campbell Park, Leeuwin, North Queensland, RAAOC, Russell, Russell N, DRL (Vic), RANSC.

Fielding, J. and O'Neill, R., Select Bibliography of Australian Military History . . . (p. 63) 4MD, 5MD, 6MD, Campbell Park, ASC, NQ, RANSC, DRL (NSW), Williamtown.

The Time-Life series are on order for various Libraries. (p.7)
Dear friend,

WHAT a surprise and a pleasure to receive your letter. As I searched back through my memories I admitted with some embarrassment and no little sadness that in the present period of so many distractions I have forgotten so much of what could be drawn from my earlier experience.

How to reply? Your letter causes me some difficulties as it did also to some of my friends to whom I showed it. No doubt you expected me to use your letter as a stalking horse to attract some discussion and even a little controversy; unfortunately you overlooked a most important principle basic to the Australian environment i.e. 'the fallacy of the invisible hand'. You might better remember it in its more colloquial form "She'll be right!". Somehow and for some reason we as people have a commendable and profound faith that things will, in the end, come good. Part of this faith is based, not very firmly I am afraid, on the misconception that 'somewhere' 'someone' 'is' or 'should be' 'doing' 'something' about 'it'.

I have heard this principle argued passionately in many areas of endeavour, particularly in military circles, but when I press my interest more closely I have cause for concern. Certainly there are those who do much to advance our professionalism, those who prosecute our doctrines and those who look ahead to new ideas. But with all this admitted we come back to the bulk of opinion, to those of my colleagues who read conscientiously a letter such as yours and respond with comments like "very interesting" or "good stuff" or "I suppose he meant reserve slope not reverse slope" or with no comment at all. Overwhelmingly the response was favourable but I am left with the impression that people are reluctant to pursue a point for long or to put pen to paper. My colleagues, I am afraid will assume that someone, say the Directorate, or the Centre or one of the regular

Lieutenant Colonel Wood contributed a previous article 'The Future of Infantry — a letter to a Friend' in Issue No. 9 (March/April 1978). He has since served as Infantry Instructor at the Tactics Wing, 3 Trg. Gp. and, in February this year, became CO Melbourne University Regiment.

Article received Jul 78
battalions or someone, well surely someone is doing something about it.

Quite possibly someone is — our further difficulty is a communications problem. Despite the resources available we are not good at spreading the word widely or getting people together to discuss, debate and develop it. Well I am going to take your advice and attempt a contribution. It maybe that as a Reserve Officer my experience is pretty limited but in the absence of other contributors . . .

I was particularly interested in your scheme for the neutralisation (or destruction) of the enemy’s main fire power. To what extent your challenge to generally accepted practice will go unchallenged I do not know, but we do have a dilemma. We attempt to locate and neutralise, primarily by our counter bombardment programme, the enemy’s fire support before and during the infantry battle. However, in terms of priority, within the attack, the physical destruction of the enemy’s fire support systems normally comes as a postscript to the destruction of his main battle position. My proposals do not preclude a continuation of this practice where circumstances so dictate.

If we could at least consider, more often than we do at present, a reversal of this priority and go for his fire support first then we need a careful rethinking of our present tactics. Such a course of action would have several consequences. First the enemy would be forced to defend his guns (and other fire systems) — not only diverting additional resources to the actual defence of these guns but it may well be he will be forced to seek the best defence location rather than the best gun location. Should he follow this course he would be further disadvantaged — one response for him would be to concentrate his fire support resources and in so doing offer us a much more attractive target whilst lessening his flexibility and reducing his mobility. However, if he chose to disperse his force he would both penny packet the effect of his fire and make it easier for us to destroy his dispersed forces.

To consider for a moment the disadvantages. The first is the challenge to our present predilection for doing things in a certain order. Well we could overcome this by a rigorous re-appraisal of our tactical doctrine. The second disadvantage would be the additional time the actions of location and neutralization would build into the time taken to prepare for the main battle. There are those who keep reminding us, as you have done, that we must cut this time drastically if we are to come to grips with the speed of modern warfare. Nevertheless we should not be blinded by our present concern for the established order of things and miss the opportunity to reduce our casualty rate and weaken the enemy infrastructure before we prosecute the main attack.

The third disadvantage, and one with which we will not come to grips easily, is the fluid nature of this new requirement — I imagine the cynics will see us lashing here and there trying to locate the enemy’s guns. We have some obvious resources to help us in this regard and could make better use of others but the primary hurdle would be that of setting a force loose to seek out an advantage but without the guarantees we seek for our more traditional form of attack — eg. a firm base, secure flanks . . .

I hope you will not think me too bold when I suggest a refinement of your idea. Obviously to make our fire suppressant force effective it would need to be of sufficient size and versatility to overcome the enemy fire support positions and the expected enemy counter attack force. With this in mind it seems logical to develop both the task and range of our force in order to clean out all the enemy’s main fire positions within range of our primary infantry objective or alternatively reduce the number of these enemy fire units to that sufficient to allow us to concentrate our counter bombardment resources on those remaining.

These suggestions must in turn have some effect upon the composition of our force. Some of the requirements are obvious — the force would have to be mounted and self sufficient in terms of direct and indirect fire power and organisation as well as have a high degree of autonomy. A less obvious option is to so equip this force as to enable it to put immediately captured resources to good use in our own cause.

That we as an Army have come to that point where we include in our manuals the concept of austerity then this suggestion is not as strange as it may at first appear. Some of our more recent adversaries taught us this lesson well practiced on others. We would be foolish to let a false pride distract us from the best use of all resources that come our way.

I see yet another advantage of this pursuit of the enemy’s fire support. As already mentioned
our actions could force the enemy to defend these resources against direct attack and will influence both his fire plans and his counter attack plans. Possibly equally as important it could serve to distract the enemy from his primary objective — the defence of his main position. Further it may be possible to unsettle the present solidarity of his defensive layout and tactics thus conferring on us more opportunity for mischief i.e. can we decentralise his defence?

The other aspect that would warrant further study is how to attract and neutralise or destroy one other important component of the enemy fire support resources — those of his direct fire weapons most probably concentrated in the counter attack force sent to counter our fire suppressant force. If we can draw this counter attack force out of a prepared position to fight on terms more advantageous to us then probably we have made a major contribution to the eventual outcome of the infantry battle. We would have thus come into contact with the two most flexible elements of the enemy force — his fire support and his counter attack force, before we commit the bulk of our force to the main attack.

You will be quick to see the problems for us — how do we control and support this mongol-like sweep; are we flexible enough to adjust our tactics to a much more fluid landscape; do we have the leaders who could be quick to exploit a weakness yet practiced enough to avoid a disadvantageous engagement?

So far in this letter I have been concerned with the neutralization of the enemy’s main fire support but I must also consider that fire which remains to harass and destroy us between the time we come into effective range of his major fire weapons and the time when we have advanced onto his main position from which much of his more intimate fire would come.

As I see it, if we have already savaged his main fire support resources, much of what remains will come from the weapons of his main defensive locality and would be a mixture of anti-personnel and anti-vehicle fire.

Our first difficulty at this time is to locate his anti-vehicle weapons before they fire and inflict losses upon us. I wonder whether we could draw the teeth of this fire by say use of dummy vehicles, remotely launched and controlled so as to encourage him to declare his assets as well as mislead as to our intentions. (I could see a similar use for this type of vehicle to prove enemy minefields). Secondly we will have to make more use of surveillance devices to seek out, prove, identify these weapons and thus facilitate our counter action. Thirdly I wonder whether our boffins could provide a device that would immediately provide a pin point reference to a direct fire weapon that has just fired so that we could return the fire before the weapon moves. I suspect that some of my colleagues will argue that this systematic destruction of the enemy’s fire resources would be such a time consuming business as to merely slow us down unnecessarily.

The other alternative to the destruction of these main position weapons is neutralization. As an army we have yet to spread throughout our corporate consciousness the employment of those devices that will blind or upset the electronics system of our opponent’s weapons (or of our own) and in my dreamier moments I see the attraction of having some device to act as a giant magnet drawing his missiles to destruction.

Finally what can be done about the enemy’s small arms fire? How can we distract his firers? Could we by heat or sound or other mode set off his ammunition stocks? At present we have little that will seriously inconvenience a well dug in enemy — our manuals admit that our field artillery and much of our aircraft ordnance would have only a limited effect. Until we can improve upon these options we will need to pay more attention to the value of our direct fire weapons and concentrate this fire upon the immobility of a well entrenched enemy.

The other aspect of the battle I wish to consider is mobility, particularly the question of how to bridge that dangerous gap between myself and the enemy. I wonder whether it would be possible to air assault infantry by helicopter directly onto a defended objective? You will respond immediately that such a suggestion flies directly in the face of established policy. Surprisingly we accept as tactical doctrine ground assault by infantry in APCs and we expect in the final balance to take casualties caused by the enemy’s anti-armour weapons. As we employ devices to assist on APCs through this awkward phase why not use similar devices to protect our air assault?

Our main concern about air assault is the expectation of heavy losses to personnel and helicopters but there are a number of
arguments that promote a more careful assessment of this proposition. One advantage of a helicopter-borne assault is the prospect of covering the distance between ourselves and the enemy at a much faster rate. If we compare the speed of a helicopter against the speed of an APC or infantry dismounted then it is possible to demonstrate that the enemy has much less time to sight and guide his anti-vehicle (including anti-air) weapons although obviously he also has more weapons to use against our present helicopters which are vulnerable to small arms fire. (No doubt a scientific study could compute the odds for us).

The second advantage of the helicopter-borne assault is that we could revolutionize the plane or dimension — through which our attack is launched. If for illustrative purposes we use a ground approach to an objective the enemy has at least two advantages. First, he can assess and give priority of defence to the most likely approaches to his position. In most cases he would probably so deploy his forces as to limit the number of approaches available to us and thus be able to concentrate his defences accordingly. Second, he could assume that when we use these channelled approaches we will do so at ground level and move only in a horizontal plane. In other words he could probably ascertain with some accuracy a number of fairly small sight pictures upon which to focus his weapons.

However, if we assault by helicopter we would be able (often) to attack from any direction of the circle in the horizontal plane but additionally through the wide options of the vertical plane. The enemy as a consequence would have to spread his limited resources much more thinly with the complication of less time to aim and guide his weapon and probably by virtue of the vertical plane from a less convenient stance. (I have assumed an attacking force would apply similar measures to that employed by a ground force to conceal its approach and to neutralize the enemy response during this approach).

A third advantage to us would be to remove from our path those impediments, particularly minefields and artillery defensive fire, placed across our most likely approaches to an enemy position to cause casualties and impose delay. To be able to step across or through these impediments would be of enormous assistance to our efforts.

Fourth, and this would require some additional options in our present arsenals, it should be possible to make much more effective use of the helicopter as a significant direct fire weapon during our approach to and assault of the objective. We have had already some experience with the preparation and securing of landing zones and airmobile assaults and could well capitalize upon the inconvenience factor (ie. noise, dust, confusion) of both the assault and the helicopter approach and the selective use of smoke, preliminary and supporting fire.

The fifth advantage of the helicopter-borne assault is the scope for disorientation of the enemy. Traditionally he has been able to presume a ground attack along certain approaches but a helicopter has the capacity for sudden manoeuvre and can put down in the most appropriate spot. How to take advantage of this capacity? Maybe it will become more acceptable to also use a helicopter as a glider or put down through a thick blanket of smoke. As well the pinpoint delivery capability of the helicopter and the potential for rapid build up of forces make it possible to concentrate at points of vulnerability rather than have to follow through along a developed approach to that point of vulnerability with consequent delays in reaching that point and inflexibility in direction.

What are the disadvantages of helicopter borne assault? The first and most obvious is the vulnerability of our present helicopters to small arms and more lethal fire. Maybe we could find ways to suppress this fire, and I have made some suggestions already on this. Hopefully there will be built into our helicopters more effective resistance to this type of fire.

The second disadvantage is the complexity of control. To some it will occur that this overwhelming concentration of force at a vulnerable point is too complicated a manoeuvre. I think not, we have had much practice in the techniques of control although our difficulty would be to adjust to the new tempo.

As I look through our manuals and at our attitudes to these matters I admit there are other disadvantages. Nevertheless I cannot see that what we have done for many years in the ground assault cannot be repeated in the air assault.

To consider for a while the other vehicle we have for movement — the Armoured Personnel
Carrier. My first observation is a fairly simple one — why is it we are so restricted in vision when we travel in them? Certainly the driver can see but what about the passengers? Maybe it is this combination of noise and disorientation that have contributed to the slowing down of infantry — even a short ride in an APC convinces us, at least until the shot and shell commences, that we would much prefer to walk. I wonder therefore why the manufacturers have not installed in our APCs one or more submarine type periscopes so that our infantry section commanders and their companions have not only the advantage of being able to see where they are going but at a magnification and at a height off the ground as to improve enormously infantry capacity to reconnoitre a route or an objective.

How to make better use of our APCs? We are already well aware of their built-in and effective firepower but how to improve upon our use for mobility. During an approach to an objective, rather than channel our approach, could we not adopt a more generous frontage until we discover a weakness and then quickly concentrate, thus combining the requirement of a superior force on a narrow front with the capacity to reinforce and exploit quickly. We are prepared to adopt this method at formation level but I see little evidence that we are good at using it at unit level.

Our armoured vehicles are renowned for the range and quantity of fuel and ammunition they require for resupply. What devices are there to enable our APCs to take with them additional stocks — is there an equivalent to those old drop tanks of the World War Two aircraft? Could they not pull a container around with them until the time has come to prepare for action? Certainly for our infantry it would mean that our momentum is less liable to interruption. (I like your suggestion of dropping stocks forward so that forces can replenish at will).

Throughout this letter I have accepted your thesis that we have to get our infantry off their feet for much of the time. I would now like to consider the combined use of APCs and helicopters. I do not presume that nothing has been done, or is being done in this field but rather I seek acceptance of the view that we should use these two resources as a matter of course rather than as an optional extra, in much the same way you drew attention to the Cinderella role of the night attack.

To fully exploit the facilities of fire power and mobility available in the helicopter and the APC we will need to accept their employment as an assault vehicle not merely, as is most often the case at present, as a transport vehicle to get us close to the fight. I recognise with the current shortfalls in equipment and availability we have to do with what we have but my concern is we will accept this state of affairs and by default become less innovative in our tactics.

Some suggestions. The first is for us to accept both vehicles as assault weapons. This would encourage us to be less timid with their employment and help eradicate the belief that we are more concerned about our vehicles than we are about our men. As a first step in this attitude it could be with the bulk of our forward infantry mounted in APCs we could hold the remainder on standby in helicopters and as soon as the battle is joined saturate the enemy position with our reserves assaulting from helicopters.

Secondly we could encourage more the practice of taking our APCs right onto the objective thus reducing the safety distances for supporting fire, and exploiting the direct fire support of our tanks and the immediacy of the APC weapons. Maybe if we drove our APCs into the defending infantry, we could by the selective use of the APCs’ weapons, smoke and area weapons such as claymores fitted to the APCs, clear a zone around the APCs into which our infantry could disembark prior to an APC supported assault through the enemy’s weapon pits. One direct benefit of this intimacy of engagement would be a closer identification of purpose between our infantry and our APC crews.

If we could then combine the shock effect of the APC-borne assault with the coincidence of a helicopter-borne assault we could more effectively and more quickly bring to bear the local superiority of fire and strength which we constantly seek. You will notice that these ideas, if accepted, would mean a fairly basic reorganisation not only of our tactics but also of our helicopter and APC organisation.

I must close. I am very conscious that at the moment we have to make do with what we have, for the moment there is frustration because we would like to do more, nevertheless, as you have reminded me, we have a unique opportunity to reassess what we are doing. Please keep in touch.

Your optimistic friend.
Bruno and his Guns

Major D.N. Brook
Royal Australian Artillery

Introduction

This is the story of two differing Naval Guns and their common Railway mounting. A rather unusual combination particularly when one gun and the mounting were of German origin and the remaining gun of British origin in the service of the Royal Australian Navy.

The German equipment is of course the Amiens Gun, now reposing at the Australian War Memorial minus the mounting. The other series of guns are the main armament of the RAN former County Class Cruisers, the 8 inch Mark VIII.

In the following pages, the early technical history of both equipments is examined and then finally in some detail, how the two assisted in the Australian Munitions industry from 1943-1947. The capture, movement to Australia and eventual display of the Amiens Gun has previously been described in the April 1975 edition of the Army Journal.*

Many of the officers and soldiers who were involved in the project during the Second World War have long since retired and in some cases died. Consequently, this article has been written from information gleaned from many sources. Where former members have been interviewed, an attempt has been made to corroborate their comments but this has not always been possible. The period from 1949 to early 1963 has hardly been mentioned, principally because little happened to the mounting during that time. Notes and sources, together with data table are to be found at the end of the article. Some of the terminology used may be unfamiliar to the general reader but it is hoped that explanations will be adequate.

The assistance of all who helped in the preparation of this brief history is gratefully acknowledged.

The Problem

The wire wound 8 inch guns mounted on the RAN cruisers Australia and Shropshire (HMAS Canberra had already been sunk), needed to be relined after firing about 550 equivalent full charges (EFC). Failure to reline the barrel meant that undue dispersion would occur between guns because of a loss of muzzle velocity. This would upset spotting and fire control calculations. As an indication of these high rates of fire, the Captain, HMAS Shropshire in his Report of Proceedings dated 25 October 1944 wrote:

"... she had fired 2396 rounds of 8 inch shells since December 1943".1

This was from 8 barrels and no doubt 8 inch cruisers of the RN serving in the British Pacific Fleet would also need barrel changes.

This relining process which involved in simple terms the replacement of the worn inner, rifled tube by a new tube, was probably one of the most technically difficult tasks faced by the factories of the Directorate of Ordnance Production and could only be done in large and

properly equipped Ordnance Factories. It had never been attempted before in Australia and it was feared that because of abnormally high rates of fire, resulting in barrel wear, relining would have to be done in the United Kingdom. This would naturally mean a long out of action time for such barrels, with always the risk of their being lost through enemy action either in transit or during the possible bombing of Royal Ordnance Factories.

Eventually with the help of the United States Navy Bureau of Ordnance Authorities, a section of Ordnance Factory, Bendigo (OFB) was established to reline the 8 inch guns. So far so good, but what about Proof of the barrels after relining?

Proof at sea was out of the question and so the then Inspection Department looked around for a mounting capable of holding an 8 inch barrel for proof on land. What was available?

The heaviest modern Land Service mountings were for 9.2 inch Coastal Equipments. However, these had been emplaced at very great expense in various batteries around the coastline in 1938 and were in short supply. The smaller calibre such as 6 inch could not physically take the larger barrel. The 9.2 inch Howitzer was completely inadequate. Eventually after a feasibility study, it was decided to use the mounting of the 'Amiens Gun' which had proved to be such a popular attraction in Canberra.

The Amiens Gun

Railway guns made their debut during the United States Civil War in the form of cannon mounted on flat top railway trucks. These were very makeshift affairs and about 35 years elapsed before the first properly designed Railway gun was made by the French. However, this equipment, made by Schneider, was never taken into official use because the French tactical doctrine at the time was against the employment of such heavy guns. On the outbreak of World War I, the belligerents found that the widespread railway network which existed in Europe made the Railway gun a popular choice for a mobile, rapidly deployable and hard-hitting source of fire power. Germany, in common with France and the United Kingdom, had little heavy artillery and therefore looked to the German Navy to provide the ordnance and technique. Most people know of the 'Paris' gun but that equipment was only one of many varying calibres which was eventually used.

It is against this background that the barrel now displayed outside the Australian War Memorial, and known as the 'Amiens Gun', was converted. By its description "28 cm SK L/40" this signified that it was a Schiff's Kanone of 28 cm calibre and 40 calibres long, ie. 1120 cm. The barrel was mounted on "Eisenbahn und Bettungsschiessgerust" and this means that it could be fired from a railway, concrete or demountable iron platform. This was Bruno. Throughout this article, the name signifies the mounting rather than the complete equipment. This is in accordance with the Proving and Experimental Establishment (P&EE) usage of the time. The origin of the name is unknown but the christening of railway guns with distinctive names was a common German practice and continued during the Second World War.

The Bruno Railway Mounting

This consisted of a longitudinal box girder supported on two five axle bogies. The girder rested on ball and socket joints which permitted curves of 180 metres radius and slopes of 1 in 36 to be negotiated.

Two parallel walls riveted together from angle-iron and metal plates formed the girder. The trunnion bearings were fixed to the upper chord and the bearing for the pivot stand and platform traversing gear to the lower. The drive for the elevating gear went between the trunnion bearings. At the rear end of the girder, the traversing winch for fine traverse was mounted.

The cradle enclosed the gun and the whole was then connected to the recoil-recuperator system. Trunnions affixed to the cradle were supported in the saddle. This in turn was riveted to the mounting. A balance weight (or equilibrator) made of individual steel plates which had to be separately stowed and the elevating arc completed the assembly. Elevations of up to 20 degrees could be made without the balance weight.

The total weight of gun, mounting and bogies was 185 tons. Various component weights were; mounting 80 tons, each bogey wagon 15 tons and the central pivot 7 to 10 tons. No reasons for the variable weight of the pivot can be given. Overall length from buffer face to buffer face was 72 feet and girder length...
was 55 feet. Travelling width was 9 feet and overall height from top of rails to top of gun was 13 feet 8 inches. A roof was built over the platform of the girder and this supported a shell hoist and traveller.

The cartridges were passed by hand. Additional folding side platforms and hand rails were provided for the detachment and side screening gave some protection against shell splinters. A barrel clamp and gun lashing were removed on coming into action. The normal railway braking system, buffers and couplings were attached to the bogies. Wheel diameters were 3 feet 9\frac{1}{2} inches and gauge was standard 4 feet 8\frac{1}{2} inches used widely in Europe.

Lifting jacks were fixed to each corner of the longitudinal box girder for use when the concrete or demountable platform was used. When firing from railway track, the rear jacks were raised to prevent their fouling the bogies during fine traverse.

The basic sighting equipment consisted of a panoramic telescope, traversing sight, traversing winch for fine adjustment when firing from the track, traversing gear for firing when mounted on the platform and the elevating gear. Compensation could be made for rail super-elevation on curves and ascending or descending rail track by using a 'T' shaped breech clinometer plane on the gun and a field clinometer. The traversing sight was graduated with zero on the left and 2880 on the right. The distance between graduation lines was one sixteenth degree.

When firing from the track, wide traverse was taken by setting up the mounting on a curved track or by means of rails arranged in the shape of a star. To take up fine traverse, the traversing winch was operated and this caused the front of the mounting to pivot around the front pivots on their bogey, while the rear portion slid over a curved rail fixed to the rear bogey. This was technically known as "warping the mounting across the bogies".

Once in position the weight was taken off the ball and socket joints by compressing the suspension springs and allowing the recoil forces to be transmitted directly to the axle bearing.

The load per axle was 15 tonnes when travelling and increased to 30 tonnes when firing at an elevation of 45 degrees. Part of the "Coming into Action" drill was to secure the carriage brakes and fix a clamping wedge to the rail behind the wheel. Obviously this was done after wide traverse had been taken up and before compressing the suspension springs.

The 28 cm SK L/40 Barrel

The design of this type of barrel dates from 1901 when it was originally mounted in the Deutschland and Braunschweig classes of predreadnoughts. In 1914 the gun was modified for Coast Artillery use and from then on formed the basis of a series of 28 cm designs that differed little except in length.

The Imperial War Museum has advanced that interesting theory that Barrel Number 77 may well have seen service aboard the Deutschland during the Battle of Jutland. After this battle, the ship was decommissioned and used as an ammunition ship. The guns were dismantled and may have been used in railway mountings. Attempts to confirm this with the Militargeschichtliches Forschungsamt in Freiburg have been made but as there were ten ships each carrying four 28 cm SK L/40 guns the chance is remote. The girder along which the shell hoist and traveller ran is embossed "Krupp NP 16" and the date of the original German Operating Instructions referred to in Note 2 is dated 1917. Do these dates add weight to the 'Jutland Theory' advanced by the IWM?

However it has been ascertained that gun numbers 79 to 82 were mounted aboard SMS Lothringen. This was a ship of the Braunschweig class built between 1901-1906 and it is likely that gun number 77 was consequently mounted in a ship of this class.

Even though the calibre is larger, it follows German practice as being a Quick Firing (QF) gun. That is, breech obturation is effected by a cartridge case. On firing, the gas pressure expands the case more tightly against the chamber wall and effectively prevents the escape of gas to the rear.

The means of ignition is contained in a primer which is screwed into the base of the cartridge case. On firing, the gas pressure expands the case more tightly against the chamber wall and effectively prevents the escape of gas to the rear.

The means of ignition is contained in a primer which is screwed into the base of the case. The primer contains its own obturator in the form of a plug which gas pressure forces into a tapered seating.

The built up barrel, made of cast steel comprises the tube, jacket and breech ring. The customary manufacturers data is found on the rear face of the tube and "axis of the bore" scribing lines are at both rear and front faces. A note on a very old blueprint which obviously was drawn up during a technical evaluation of the gun, described the rifling thus:
"Approximate twist of rifling 72 in from muzzle ¼ turn, 148 in ½ turn and at 244 in from muzzle ¼ turn. Further results not obtainable owing to wear of bore."

The horizontal sliding wedge shaped breech block is opened and closed by means of a worm screw which must be turned through 637 degrees and movement of the block is to the left. The ring is of the tied-jaw type to facilitate loading. In accordance with Naval custom, breeches either opened to the Right or Left, depending on the barrel position in a multi-gunned turret. This particular barrel, Registered Number 77 is a 'Left' barrel. On opening the breech after firing, the cartridge case is ejected automatically and the gun recocks. The barrel as displayed at the Australian War Memorial, is covered by the original roof over the platform of the girder.

The 8 Inch Gun

Breech loading 8 inch guns have a lengthy history in British service. Both Vickers Sons and Maxim (VSM) and the Elswick Ordnance Company (EOC) (Sir W.G. Armstrong and Company) produced guns of this calibre many years before the introduction of the Mark VIII Naval Gun in 1924.

In this particular instance, the normally accepted British gun making practice of developing a gun from its predecessors was not followed. Indeed, the 8 in Mark VIII gun and mounting were something of a 'secret weapon' when introduced.

The old Colonial Naval Vessels Protector, Gayundah and Paluma each had one old 8 in gun made by EOC. These were completed in 1884 and fired a 180 lb shell with a muzzle velocity of 2030 feet per second to a range of 7500 yards. One of these guns has recently been found in Brisbane and no doubt will be restored and placed on display.

An 8 in gun was proposed in 1898 and preliminary design provided a 250 lb shell fired at a muzzle velocity of 2700 feet per second. However the Royal Navy preferred a gun firing a 200 lb shell which could be handled by 2 men. Hence the 7.5 in naval service equipment was introduced. But none of these guns can be considered predecessors of the Mark VIII gun.

One class of ships which also adopted early VSM 8 in guns were the Russian Imperator Paval Class and the lone Rurik. These were 8 in 50 cal with a muzzle velocity of 3300 feet per second and firing a 216 lb AP Shot. The date of building of these vessels was between 1906 and 1909.
After adoption by the RN from 1924 onwards, the next interesting development was their conversion for coast artillery purposes.

Here there is a parallel with the 28 cm SK L/40 gun. Locations where 8 in guns were installed were Hougham and Capel Batteries which were part of the Dover defences. These batteries of three 8 in guns were established in 1941 and finally dismantled in 1956.

It may be of interest to readers to know that there is probably only one 8 in 50 cal gun cruiser afloat in the world today. This is the Spanish Navy’s Canarias which is a variant of the RN former Kent Class. Its guns were made by a VSM factory probably about the same time as those mentioned in this article. A total of 168 guns were produced between 1925 and 1943.

The Mark VIII Barrel

This is of steel and wire construction and consists of an ‘A’ tube, wire, ‘B’ tube, jacket and breech ring.

The ‘A’ tube extends from the obturator seating to the muzzle and it is slightly tapered externally. The ‘A’ tube is rifled on the polygroove system, having 48 grooves of plain section with a uniform right-hand twist of one turn in 30 calibres.

The steel wire ribbon is wound in tension nearly the whole length of the ‘A’ tube in successive layers, and is secured by steel fastening rings. The actual length of wire ribbon is unknown but as an indication, the BL 15 in. gun had 185 miles. A steel ring is shrunk over the wire at about \( \frac{1}{3} \) the length of the gun from the breech end to provide a stop for additional wire to be wound at the breech end.

The ‘B’ tube is tapered throughout its length and is shrunk over the forward wiring. At the rear end of the tube is an external shoulder formed as a stop for the jacket. The jacket extends approximately half the length of the gun and is shrunk over the wire at the rear portion of the ‘B’ tube.

The breech ring is formed on one side to take the breech mechanism operating gear and breech mechanism, and a clinometer plane is machined at the top and bottom. It is provided at the front end with internal threads which engage corresponding threads on the jacket. At the rear end it has two steps which engage corresponding steps on the exterior of the ‘A’ tube.

The breech ring is secured by two screws in the breech face.

The breech mechanism is of the interrupted stepped screw type mounted on a swinging carrier, which is hinged to lugs on the side of the gun. The mechanism, with the exception of the water squirts, is reversible for Left and Right Guns. It is operated by a single hydraulic cylinder through link gear which first unlocks the screw and then swings the mechanism open. It can also be operated by a hand wheel mounted at the side of the gun, provision being made by a clutch lever to connect up the operating gear when hydraulic power is cut off.

The propelling charge is contained in one or more bags of a material which is completely burnt on firing. Obturation is therefore incorporated in the breech closing arrangements. A resilient pad (obturator) fits in a coned seating (obturator seating) formed at the rear end of the chamber. The pad is secured by a bolt vent axial and mushroom head to the breech screw. The bolt vent axial is free to move axially within the breech screw.

The means of ignition (a ‘tube’) is separate from the propellant charge, and is carried in a tube chamber situated in the rear of the bolt vent axial. On firing, burning gun-powder pellets from the tube pass down a fire channel drilled axially through the bolt vent axial, and ignite the propellant charge in the gun chamber. Because of the power of the tube used in the 8 in. gun, no gun powder igniter pad was necessary on the bagged charge.

On firing the chamber pressure acts against the mushroom head forcing it to the rear. This squeezes the pad against the front face of the breech screw and causes it to expand radially forming a gas tight seal. On opening the breech after firing, it was necessary either to squirt water into the breech or sponge it out to extinguish any burning fragments of material remaining. The spent tube was ejected separately.

The Relining Procedure

When the rifling was worn, the ‘A’ tube was forced out by hydraulic pressure and a new tube fitted. All this was done without the requirement to completely dismantle the gun and unwind the miles of wire and then carry out the reverse procedure.

Vertical ‘building’ of the barrels took place in a deep pit and in brief, barrels fell into two
categories. These were, those that had been previously relined, and those being relined for the first time. The operations were different in that in the second category, it was necessary to bore out the worn rifling and then, machine the ‘A’ tube to accept the tapered inner ‘A’ tube.

It was then necessary to manufacture and insert new inner ‘A’ tubes (for Mk VIII guns), refit existing Breech Blocks and Breech Mechanism.

All in all there were something like 95 operations to be carried out before the relined barrel was ready for proof. It was difficult to place an average time on completion of the factory tasks but on one occasion when a single barrel was required extremely urgently, the operation took 12 weeks with the factory working 24 hours a day for mostly 7 days a week.

It must be remembered that OFB had to instal new machinery, furnace equipment, train its personnel, develop the capability and satisfy a war time delivery requirement.

The Solution

The site selected at the P&EE for the mounting was near the Plate Butts where a 30 ton travelling gantry crane had been installed in 1939. The crane would be invaluable during barrel changes and in order to allow for the height of hoist, a hole was dug to emplace the mounting. This hole eventually measured in its finished form 66 feet long, 23 feet wide and 8 feet deep. An automatic pump took care of drainage. The contractors for this portion of the work were Hansen and Yuncken, a well known South Australian firm of builders and contractors. Certain other earthworks were carried out, much concrete poured and eventually in great secrecy, the mounting was delivered to the P&EE on 16 November 1943. Plans show that 10 degrees traverse Right and Left was provided when the mounting was emplaced in the pit. However, because of safety it is unlikely that this was ever made use of.

Unit files record that the mounting was to be delivered by rail to Port Wakefield Railway Station. However no heavy cranes or other lifting devices were available locally and so the mounting was offloaded at Mile End goods yard by a South Australian Railway heavy crane onto a 16-wheeled low loader. This low loader has solid rubber tyres as befitted the period. A police escort was provided and the 100 km drive to the P&EE commenced. Portion of the road to the P&EE was unsealed at that stage, and therefore great care had to be exercised. Some minor incidents such as wheels breaking through the road surface occurred but these did not seriously upset the progress up the Port Wakefield road.

Assembly of the mounting was supervised by a Warrant Officer J.H. Carey with the assistance of six AEME tradesmen from the DDME, SA L of C Area Workshops in Keswick Barracks. This took about three weeks. It involved fitting “several truckloads of new and reconditioned parts”. A telegram discloses that 50 pieces of gun components made up the loads. Warrant Officer Carey, it is believed, was later commissioned and employed on the staff of the Army Inspection Department.

The original designers in Krupp’s factory almost balanced the weight of 28 cm barrel forward of the trunnions with the weight of barrel and breech mechanism aft. An equilibrator or balancing gear was required to avoid strain on the elevating gear according to the translated User Handbook when elevations exceeded 20 degrees.

With the great change in barrel weight when the 8 in gun was mounted, breech preponderance had to be overcome. A simple system of counterweights on cables which ran over pulleys attached to a frame and then to the cradle overcame this problem. The frame built over the upper structure can clearly be seen in the photograph taken when the mounting and 8 in gun were finally assembled. So that re-
designed difficulties can be more readily understood, a data table comparing both guns has been drawn up.

A recuperator stand was set underneath the mounting on the floor of the emplacement in order to carry the recuperator system which was disconnected during barrel changes. For this operation, the piece was elevated to a maximum thereby allowing the system to be slid onto the stand and held in position by holding screw clamps. The barrel was then changed and the system re-connected.

The loading tray as designed and manufactured, along with all the other components, at Ordnance Factory Marybyrnong (OFM) was never used. Instead a local pattern loading tray with four lifting handles was made and used. Traversing gear was modified so that the mounting pivoted below the trunnions while the rear portion ran along a traverse track on four rollers. The pivot and traverse track were concreted into the floor of the pit. A winch was grouted in at the rear of the pit to assist in barrel changes. The operations required to prepare, mount and secure a barrel for proof were involved and time consuming. Twenty-eight separate operations involving several hours work, the use of the 30 ton crane, a special assembly stand, the winch, and twelve fitters and gunners was normal practice. The former Gun Captain has written, "Strong language and a 16 pound hammer were good assets".

Because the original cradle was used, special sleeves were bolted around the rear of the gun to increase the diameter from about 30 in. to 45 in. Hence the need for an assembly stand to make this task simple. This stand was bolted on the concrete apron behind the mounting.

The final action was to adjust the pressure in the recuperator to 900 psi and top up the buffer cylinder. The liquid used for this purpose was a mixture of lime water and glycerine in equal parts.

Adapters were made to permit the 9.2 in Mark 10 Coast Artillery barrel to be fitted as well, but plans are the only source of information. If this did happen, it certainly did not take place until after the majority of wartime staff were discharged. Considering too the EFCs which the guns in the seven batteries probably fired, neither relining nor Australian manufacture of shell should have been necessary.

**Proof**

The day came on 10 January 1944, when the modified mounting and 8 in barrel S53L were to be fired for the first time. This was to be a check on the mechanical design rather than a gun proof firing. Two preliminary rounds, one three quarter and the other full charge were fired to prove the general assembly.

The duties of the detachment are best described by the Gun Captain at the time, SSgt. H.W. Fearn

"The crew consisted of 9 Gunners plus 1 SSgt, who was the Gun Captain as it was then termed.

The duties consisted of:

a. The SSgt would lay his gun to the point of impact on the plate so marked with chalk or red lead. He would do this by means of observation through the open bore. He would then order the velocity screens to be moved left or right to ensure a good line. This method was used for line as it was not possible to traverse the mounting or the piece. Elevation was checked with the clinometer and noted.

b. Four gunners would then load the projectile by means of a local pattern loading tray with four handles. This was followed up by four men manning the rammer.

c. The service charge was then loaded and pressure gauges positioned by loading numbers.

d. The Tube Electric was placed in the lock and leads connected by the No. 1 and finally elevation was checked before doubling to the splinter proof."

For those readers who are not familiar with the term ‘Proof’, it relates in gunnery to the firing of a series of rounds at service and overpressures. In the case of the 8 in. gun, Proof was one round at service pressure followed by one P1, one P2 and 5 service rounds. A round fired at P2 pressure is gun design pressure minus $\frac{1}{2}$ ton f/in$^2$ and a P1, $\frac{115}{120}$ of P2. The Design Pressure, 20.5 tons f/in$^2$, is the Chamber pressure for which the gun was designed and the Working or Service Pressure is the highest pressure to which it is considered the gun should be subjected to under service conditions. It is generally the same as Design Pressure. The Proof Pressure is the pressure to which a gun is subjected at Proof and under no circumstances did it exceed 27 per cent increase
over the Working Pressure. In a half worn 8 in.
gun, Service Pressure dropped to 16 ton f/in\(^2\). 
P1 and P2 pressures were 23.6 and 24.6 ton 
f/in\(^2\) respectively.\(^{25}\)

After successfully passing this stage, the new 
liner was stamped at the P&EE with the letter 
‘P’ signifying that it had passed Proof and 
returned to OFB for examination and 
subsequent issue to the appropriate RAN 
dockyard.

Once the initial barrel proof was underway, 
proof of ammunition and components took 
place and as a result, a variety of propellant, 
cartridge, tube and shell proof firings were 
carried out until the 8 in programme was 
stopped in 1947.

The prime mover and low loader which had 
originally brought the mounting to the P&EE, 
were used to carry barrels for proof from Mile 
End. Because of the urgency of barrel proof, 
this vehicle used to wait while the barrel was 
being proved and then return to the rail head 
with it. With the end of the war, speed was no 
longer paramount as disclosed in a letter from 
the Director of Ordnance, Torpedoes and 
Mines, to the P&EE.

A total of 18 barrels were relined by the time 
the programme concluded late in 1946. They 
were a mixture of VSM and EOC made barrels. 
14 were of wire wound construction and 4, 
originally belonging to Shropshire were made 
from higher strength steel. These 4 did not have 
wire winding on the ‘A’ tube.\(^{26}\) Records show 
that only one relined barrel (S/55L) failed 
proof. This was caused by faulty obturation 
and took place on 12 August 1944. Reproof of 
this barrel took place on 2 November 1944 and 
was successful.\(^{27}\)

P&EE files disclose that some trials took 
place at Port Wakefield with a Council for 
Scientific and Industrial Research Counter 
Chronograph. This activity started about May 
1944 but because firing elevation was limited to 
sure recovery of shell, it is understood that 
the full range of elevations could not be trialled 
and thus the results were inconclusive.\(^{28}\)

The Last Act

One of the conditions for the loan of the 
mounting was that the Department of the Army 
would return it to Canberra and restore it to 
original condition with the barrel remounted. 
Correspondence between the War Memorial 
and the Inspector General of Munitions 
regarding its return commenced in 1949. The 
eventual plan was for railway lines to be built at 
Mount Pleasant and the complete equipment 
would then be again placed on display.

However Australia was now at peace and 
one the various permutations and 
combinations involving estimates of costs to 
return the mounting were examined, it was 
decided to look at alternatives. Transportation 
and assembly was now estimated at £7,850 
which was a far cry from the £500 in 1943. 
This was sufficient to suggest that the mounting 
should remain at the P&EE for the time being 
and be stored in a dismantled condition.

A letter to the P&EE from Army 
Headquarters, Melbourne, dated 20 May, 1963 
reads in part:

“...This gun carriage was originally obtained 
on loan from the War Museum, Canberra, 
and on several occasions in recent years 
representations have been made for its 
return. The transfer of the carriage has been 
held in abeyance on the authority of DCGS 
due to excessive transportation cost. 
Consequently it will be retained at P&EE 
Port Wakefield pending further 
instructions”.

Eventually after much high level corres­
pondence, it was decided to cut up the mount­
ing in situ and sell the steel as scrap. The bogies 
had already been sold in 1961 for £68.14.1.\(^{29}\)
This was after they had been offered to the 
New South Wales Government Railways. 
However after the NSWGR had carried out a 
study of conversion costs, the offer was 
declined.

In reversing its original decision, the 
Australian War Memorial Board of Man­
agement was uncertain whether the great size of 
the gun and mounting would be suitable as an 
exhibit in the grounds of the Memorial.\(^{30}\)

Unfortunately maintenance is often 
forgotten in outdoor exhibits and costs for this 
would spiral as time progressed. One only has 
to see the many field guns scattered around in 
parks to appreciate this.

On 20 August, 1963 notification of final 
approval was given by the Board of Trustees of 
the Australian War Memorial via Army 
Headquarters Melbourne. This disposal form 
submitted by the P&EE had to bear the 
following in the Remarks column:

“This mounting is the property of the 
Australian War Memorial and in authorising
disposal, the Board of Trustees has requested that proceeds of the sale should be paid to the Australian War Memorial".  

Hines Metals Pty Ltd were awarded the contract and utilised a local scrap metal dealer, the late Mr W.A. Jones of Port Wakefield to cut up ‘Bruno’. The price paid was £534-13-1. It took him and his two employees about one week to cut up and remove the steel work. The scrap steel was delivered direct to the wharves at Port Adelaide where it was loaded on a ship sailing to Japan. On arrival at the ship, some old shells were found among the scrap steel of the counterweights. The ship’s Captain objected to these being carried and so a detachment from the P&EE removed these inert shells prior to the ship sailing. By the middle of November 1963, nothing of any consequence remained at the P&EE.

The last act was the handing over of the gun record plate by the Officer Commanding, Major W.J. Keane RAA to the Commander, Central Command Brig W.W. Wearne OBE. It is ironic that the date of Bruno’s arrival and his final departure is nearly the same. This plate is now in the Australian War Memorial and a photograph of it records the following:

**GERMAN 28 cm (11 in) RAILWAY GUN CAPTURED NEAR HARBONNIERES, FRANCE BY THE AUSTRALIAN CORPS 8TH AUGUST 1918**

This plate is made from metal taken from a 15 in. gun which was captured by the Australian Corps near Chignes on the 23 August, 1918 and which was presented by the Australians to the City of Amiens.

All that remains at the P&EE today of the 8 in. programme is one Left 8 in. Barrel Regd No. S105L (247 EFCs) and manufactured by Vickers Sons and Maxim at Barrow-in-Furness in 1927, some inert projectiles, the two 9.2 in. counterweights of the elevating gear, the OFM loading tray (which was never used) and a dummy half charge. Two 8 in. Barrels (S55L and S61L are currently located at OFB where it is believed that they will eventually be placed on display. The breech block opened to the Left. The ‘hole’ of course still remains and it has resisted all attempts to be converted into either a swimming pool or squash court.

There is a good photographic coverage of the mounting’s demise. In fact the full circle was completed because on 20 January, 1944 a Sgt H.H. Bartram from LHQ was despatched to take a series of photographs of the newly completed 8 in. proof mount with barrel S51.

There were required for historical purposes and no doubt are somewhere still filed away, forgotten, in the LHQ records.

Throughout his service at the P&EE, it appears that ‘Bruno’ gave little trouble. The principal difficulty appeared to be with oil leaks in the glands of the buffer and recuperator. A letter by the OC, Major F.M. Spence on 20 June, 1945 to the Headquarters, Army Inspection Division states in part:

"The above mounting has been giving trouble by excessive leaking from the glands — buffer and recuperator — so it was decided to strip and overhaul these units. Two leather washers were found in poor condition and have been replaced. In addition, a considerable quantity of wood (jarrah) chips were found in the recuperator.
liquid cylinder. These were badly mashed up and small pieces had lodged in the relief valve seatings’.

This problem had first become a difficulty 12 months earlier and it would appear that no action had been taken.

‘Bruno’ attracted many visitors to the P&EE throughout his service, particularly when any firing was to take place. His cutting up and conversion to so many tons of scrap steel has caused much controversy and most would agree now that perhaps he should have been left in situ and allowed to join other historic pieces in the P&EE Museum. However, the maintenance problem would have remained and access by the public difficult.

His original designer from the Essen factory of Friedrich Krupp would not have been disappointed with his years of service albeit, some of which were for an enemy.

Modern technology has rendered the Railway Gun obsolete. Any student of Artillery will soon discover that these heavy equipments played an important part in warfare when the railway line and steam engine was far superior to horse draught, unsealed roads and early mechanical transport.

Today, it would probably not be difficult to determine whether the Railway Gun was cost effective. It required immense effort to bring its fire to bear. However, as examples of the Ballistician’s theoretical calculations, the Gun Makers’ art and the Gunners’ skill, they still remain awesome to the public at large.

A general view of the front of the mounting showing the pivot, the recuperator stand, elevating gearing and trunnion bearings.

(NOTE)

3. Curwood, E.A. Ordnance Factory, Maribyrnong. MSD plans have been placed on microfiche but unfortunately no other records can be found. An Inspection Department letter, ID 16074 dated 13 June, 1942 confirms a verbal request to the AWM for the ‘Bruno’ mounting and is the first formal correspondence held on their files. It is noteworthy that in 1919, the British Government had similar plans for ‘Bruno’ and it was only the forcefulness of the Australian Prime Minister that caused the gun to come to Australia.
5. “Notes on the Construction and Operation of the 28 cm SKL/40 German Gun”. (Henceforth called ‘Operating Instructions’). This is an English translation by the German Government of ‘Beschreibung der 28 cm SKL/40 in’ held by the Australian War Memorial. A copy of the translation was issued to the P&EE sometime in 1943. Information concerning the Barrel and Mounting comes from this source.
6. ‘Bruno’ was the official name of the original German 28 cm SKL/40 equipment. All heavy equipments received a name which identified the class of Gun. A possible explanation for the nickname may be found on p. 386 of The Arms of Krupp by William Manchester, Michael Joseph, 1969. On that page, there is reference to a Krupp Director, George Karl Friedrich ‘Bruno’ Baur.
8. Campbell, N.J., Navel Ordnance Historian, Ryde, Isle of Wight, United Kingdom (Letters to Author).
10. See also Cooper, H.M., A Naval History of South Australia, Hassell, 1950, p. 96. See also Jane’s 1914 and An outline of Australian Naval History, Department of Defence (Navy), AGPS, 1976. However there is an apparent conflict in data when one examines Garbett, Captain H., RN Naval Gunnery, George Bell, 1897, p. 114. Technical data for an 8 in gun was MV 2150 fs, shell weight 210 lbs. Gun weight was 15 tons, length 29.61 calibres and rifling was 32 grooves increasing from 1 in 110 to 1 in 55. The gun mounted on Gayundah was different again by having an enlarged chamber.
14. A series of ‘Jane’s’ has information, eg. Jane’s

14. BR 959.


16. Irwin, M.G. Letter to author dated 23 May, 1977. He was an engineer at OEB during the 8 in. relining programme.

17. P&E Port Wakefield File R707/6/2. All available material dating from 27 July, 1943 and relating to 'Bruno' has been placed on this file. This information was obtained from MC 115.6-25 MCO 2076 dated 9 November, 1943. Departure time from Mile End was to be 0140 hrs Tue 16 November, 1943 and arrival time at the P&E 0600 hrs on the same morning. A note on this letter warns "THE GREATEST CARE MUST BE TAKEN BY ALL CONCERNED TO OBSERVE THE GREATEST SECRECY REGARDING DATES, DESTINATION AND TIMES OF MOVEMENT".

18. Fearn, H.W. Letter to author dated 23 May, 1977. He was the former Gun Captain who fired the first round.


22. "Schedule of Operations for Assembly and Removal of 9.2 in. and 8 in. Barrels into Range Mounting at Proof". This document dated 27 June, 1943 was found at the P&E and used by the Armament Artificers and Gun Detachment to change barrels. Its source and author are unknown but it could easily have been drawn up by the combined resources of Ordnance Factory, Maribyrnong and the P&E.


27. P&E R707/6/2.

28. Ibid. See also Mellor, D.P. for continuation trials with HMAS Adelaide.


31. Army Headquarters letter ASD 96/1/19 dated 20 August, 1963. See also HQ Log Comd File 1030-X3-1 for correspondence between the AWM and AHQ(M).

32. Greenlees, Major D.N., letter to author dated 19 July, 1977. He was a former Assistant Proof Officer. MSD Plan W57099 shows 210 25 pr. and 80 18 pr. concrete filled shell and set in concrete as being in each 8 in. gun counterweight. The 9.2 in. counterweight need only to be a third the size because of differing barrel weight distribution.

34. Keane, Major W.W., letter to author dated 27 June, 1977. He was a former Officer Commanding. AWM letter 748-3-62 dated 4 November, 1963 formally accepted the record plate from the P&E after being advised of its availability by Major Keane on 30 September, 1963.

35. For details of this former German Naval Gun see Bean, C.E.W., Official History of Australia in the War of 1914-18 Vol. VI, the AIF in France 1918, Angus and Robertson, 1942, pp 744 (photograph) 749 and 750n. An additional photograph is Plate 531 of Vol. XII. Photographs are recorded as E5128 and E4405 in the Australian War Memorial. There is a discrepancy in its calibre however.

COMPARATIVE DATA TABLE

<table>
<thead>
<tr>
<th>Maker</th>
<th>Friedrich Krupp, Essen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Manufacture</td>
<td>1903</td>
</tr>
<tr>
<td>Actual Measured Calibre</td>
<td>263 mm</td>
</tr>
<tr>
<td>Designated Calibre</td>
<td>48 cm (18.9 in)</td>
</tr>
<tr>
<td>Method of Construction</td>
<td>Built Up</td>
</tr>
<tr>
<td>Length of Gun</td>
<td>1120 cm (441.04 in)</td>
</tr>
<tr>
<td>Rifling Length</td>
<td>847 mm (333.54 in)</td>
</tr>
<tr>
<td>Number of Grooves Twin</td>
<td>84</td>
</tr>
<tr>
<td>Diameter Breech Ring</td>
<td>15.7 in</td>
</tr>
<tr>
<td>Diameter Muzzle</td>
<td></td>
</tr>
<tr>
<td>Breech Mechanism</td>
<td></td>
</tr>
<tr>
<td>Method of Firing</td>
<td>Right Hand Progressive</td>
</tr>
<tr>
<td>Ammunition - Charge</td>
<td>Greatest Diameter 45.5 in</td>
</tr>
<tr>
<td>Weight HE shell weight</td>
<td>665.5 lb (483.0 kg)</td>
</tr>
<tr>
<td>Weight of Bare Gun</td>
<td>444 - 89 - 09 - 104 (45,428 kg)</td>
</tr>
<tr>
<td>Weight of Breech Mechanism</td>
<td>17 L - 15 - 09 - 13 (1073 kg)</td>
</tr>
<tr>
<td>Muzzle Velocity</td>
<td>2313 ft</td>
</tr>
<tr>
<td>Maximum Range</td>
<td>26,000 yards</td>
</tr>
<tr>
<td>Maximum Elevation</td>
<td>45 degrees</td>
</tr>
<tr>
<td>Loading Elevation</td>
<td>18/16 degrees (11° 07’ 30” Right and Left) by warping grider across rear bogey</td>
</tr>
<tr>
<td>Maximum Top Traverse</td>
<td>2300 ft</td>
</tr>
<tr>
<td>Recoil/Recoaperator System</td>
<td>Hydro Pneumatic</td>
</tr>
<tr>
<td>Pressure</td>
<td>85-95 mm (3325-3507 psi)</td>
</tr>
<tr>
<td>Recoil Length</td>
<td>As 560.35 mm Max 789 mm (22.25 in)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BL 8 in Wire 30 Cal Mk VIII* Gun Regd No. S105 Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vickers-Sons and Maxim, Barrow-in-Furness</td>
</tr>
<tr>
<td>1924</td>
</tr>
<tr>
<td>1927</td>
</tr>
<tr>
<td>8 in</td>
</tr>
<tr>
<td>Wire Wound</td>
</tr>
<tr>
<td>481.1 in</td>
</tr>
<tr>
<td>436.3 in</td>
</tr>
<tr>
<td>48</td>
</tr>
<tr>
<td>Right Hand Uniform 1 to 30</td>
</tr>
<tr>
<td>30 in</td>
</tr>
<tr>
<td>18.8 in</td>
</tr>
<tr>
<td>Interrupted stepped screw either power or hand worked</td>
</tr>
<tr>
<td>Electric, with tube vent electric 1 in Mk IV</td>
</tr>
<tr>
<td>Separate loading bagged charge</td>
</tr>
<tr>
<td>66 lb Full, 33 lb Half, P1 72 lb, E2 75 lb (using Coddle SC205)</td>
</tr>
<tr>
<td>256.16 cm 6 CRI</td>
</tr>
<tr>
<td>161 - 14 - 39 - 75 (17,809 kg)</td>
</tr>
<tr>
<td>07 - 75 - 29 - 09 (1381 kg)</td>
</tr>
<tr>
<td>2800 ft nominal, 2725 ft Range Table</td>
</tr>
<tr>
<td>29,200 yards</td>
</tr>
<tr>
<td>45 degrees in 'Bruno' mounting</td>
</tr>
<tr>
<td>Zero degrees in 'Bruno' mounting</td>
</tr>
<tr>
<td>Not in 'Bruno' mounting</td>
</tr>
<tr>
<td>Not in 'Bruno' mounting</td>
</tr>
<tr>
<td>1250 psi (890 psi in 'Bruno' mounting)</td>
</tr>
<tr>
<td>24 in (26 in in Stops)</td>
</tr>
</tbody>
</table>
THE LIGHT HORSE: TWO APPROACHES

CHAUVEL OF THE LIGHT HORSE, by A. J. Hill. Melbourne, Melbourne University Press, 1978, xx and 265 pp., $25.00; and

Reviewed by Major D. M. Horner, Australian National University.

So much has already been written about the Australian Light Horse that it may be wondered if there is any more to say. But most of the books were written soon after World War I, and were overshadowed by the exploits of the Australian infantry on the Western Front. These two recent books are, therefore, a welcome addition to Australian military history. Furthermore, A. J. Hill's biography is the first study of the leadership of the Australian Light Horse.

Sir Harry Chauvel was exceedingly well qualified to lead Australian Light Horse. For his first thirty years horses were not just the background to his development, they were his life. Brought up on a cattle run, he served with the Upper Clarence Light Horse, and when his family moved to Queensland, with the Darling Downs Mounted Infantry. In 1896 he became a permanent soldier as adjutant of the Moreton Regiment and fought in the South African War with the Queensland Mounted Infantry. By 1914 he was a colonel and Adjutant-General of the new Australian Army.

When, after the outbreak of war, Australia offered to raise an infantry division and a light horse brigade, Chauvel received command of the latter. He led the 1st Light Horse Brigade at Gallipoli, then the Anzac Mounted Division in Sinai and eventually the Desert Mounted Corps in Palestine and Syria. Thus he became the first Australian to reach the rank of Lieutenant General and to command a corps which, as the author reminds us, was not an Australian Corps and included troops from all corners of the Empire. Shortly before the end of the war the GOC of the AIF, Sir William Birdwood, wrote:

Of General Chauvel's record... it is hardly necessary for me to speak, for the magnificent results of his brilliant leadership speak for themselves. His record is second to none not only with Australian troops, but I may say among the more senior officers of the British Army serving anywhere in this war.

After the war he became Inspector-General and Chief of the General Staff, retiring in 1930.

A. J. Hill has combined meticulous research and a deep insight into soldiering to provide a valuable account of not just a great Australian, but of the army wherein Chauvel made his name. With engaging style he describes Chauvel's cool performance at Quinn's Post on Gallipoli, his careful planning at Romani, his disappointed exclamation "But we have Gaza", when ordered to withdraw from that town, and the triumph of his advance from Palestine to Damascus of which Allenby said, "Such a complete victory has seldom been known in all the history of war". And in each battle Chauvel led from the front; an exceptional approach for a World War I Corps Commander.

The dash of the Light Horse and the romance of the lean, sunburnt, natural horsemen should not lead one to believe that Chauvel, their leader, was anything but a professional. At almost the same time that the Australians were gaining a reputation as independent and casual soldiers, Chauvel was developing his views on the need for discipline. He knew that commanders ought never to seek popularity at the expense of discipline. "I have never forgotten," he wrote, "that if you look after your men well in the way of their food and comfort they will forgive any amount of sternness."

Drawing upon Chauvel's private papers the author throws new light on the role of T. E. Lawrence at Damascus, and the charge at Beersheba is shown not to be a "forlorn hope" provoked by a curt message from Allenby's headquarters, but a calculated manoeuvre initiated by the terse order "Put Grant straight at it", given an hour and a half before the GHQ order. The account of the Australian Army between the Boer War and World War I, and between that war and the next, serve to whet the reader's

BOOK REVIEW
appetite for a more extensive account of these important periods of development.

This is a sympathetic biography and Chauvel’s personality is well drawn — shy, determined, courteous and kind — but the reader may still be left with a number of questions. What was Chauvel’s mental calibre? How much was he a politician? Did he not have any faults? But the restrained style of the book rescues it from what might otherwise have been an unabashed piece of ‘hagiology’. The result is an unsurpassed biography of an Australian military commander and a fine analysis of his generalship.

It is inevitable that Elyne Mitchell, a daughter of Sir Harry Chauvel, should cover similar ground to Hill, but Light Horse compliments Chauvel of the Light Horse and has a different purpose. It is a well-produced ‘coffee-table’ book with superb illustrations and an easy style which gallops along like, well . . . like the 4th Light Horse Brigade at Beersheba. Drawing mainly from secondary sources, but also inspired by tales from her father and his friends, the author has woven an account of the Australian Light Horse from Sunnyside Kopje to Damascus which captures the spirit of the campaigns with sensitivity and understanding. This book should be of interest to all Australians, not only for its stirring tale of bravery and endurance, but also because it provides some insight into the development of the Australian character.

THE FUTURE OF TACTICAL AIRPOWER IN THE DEFENCE OF AUSTRALIA, edited by Desmond Ball, Strategic and Defence Studies Centre, Australian National University. Reviewed by Wing Commander W. Pearcy, RAAF

The sub-title of this book explains that it is the proceedings of a conference organised by the Strategic and Defence Studies Centre in November 1976. As I had the pleasure of attending that conference, I was most interested to see how it had translated into book form. This has been achieved most successfully.

The bulk of the book consists of seven papers which were presented at the conference. To these have been added a number of subsidiary papers which amplify points which were raised in discussion at the conference and an introduction. The latter not only sets the papers in context but also draws conclusions from the diverse material and points of view presented. As such it is a handy summary of the topic.

The first paper, by Bob O’Neill, sets the strategic scene. In it he derives appropriate guidelines for Australia’s defence strategy and deduces from these the role airpower should play. That these guidelines and roles should need to be deduced rather than being publicly available is in itself significant. His conclusions regarding appropriate roles for tactical airpower in Australia are worth reading in the light of subsequent events.

The next three papers concentrate on operational usage aspects of modern tactical fighters. Ross Babbage highlights the implications of rapidly changing technology not only in relation to the aircraft themselves but also the electronic environment in which they must operate and the weapons they will have. Des Ball then goes on to examine in detail a wide range of criteria which would be appropriate in any evaluation of a tactical fighter for Australia. Naturally the emphasis given to each criterion varies with the roles which are given priority. Lastly Joel Langtry critically examines the necessity for the RAAF, and particularly the tactical fighter force, to provide support for the Army. He concludes that a reordering of priorities is needed.

The last three papers go together naturally because they examine the industrial aspects of new aircraft acquisitions. Firstly Kevin Foley looks at the connection between operational and support capacities and illustrates the implications for force effectiveness of trade off between the two. David Rees and Lois Irving follow this with a review of the general history of industry participation in defence projects in Australia with particular comment on the shortcomings of the defence industry relationship. The final note is provided by Peter Smith’s paper which gives a clear exposition of ways in which industry can make the best use of the opportunities provided by the acquisition of a new tactical fighter.

All in all these seven papers cover the main issues involved both in sufficient detail and breadth to give the reader a most complete grasp of the subject. A lapse of two years has not significantly affected the relevance of what was discussed at the conference. Indeed the passage of time has only served to confirm the worth of the opinions expressed there.
The only thing the book does not, and cannot communicate is the atmosphere of the conference itself. The air of personal commitment by those attending and the value of the informal exchange of views were most memorable. I would suggest that anyone thinking of attending a similar conference in future should not be deterred from doing so.

I have no hesitation in recommending this book as required reading for those wishing to understand the full implications of Australia’s purchase of a new tactical fighter.


Reviewed by Captain R.J. Linwood, Adjutant 3 RNSWR

PETER R. SENICH is recognised as an expert on military sniping and also as a military historian.

His aim in writing the book is to provide an instrument of historical reference. Its purpose is to illustrate the activities and equipment of the United States Army and Marine military sniper in the limited war settings of Korea and Vietnam.

The book is divided into seven chapters, each of which deals with a specific aspect of sniping equipment. At times the author digresses from the strict limited war period in order to amplify a point or to clarify some development aspects of particular weapons and theories.

Many stories and misconceptions abound about sniper feats throughout history. This is particularly so in the modern press where virtually any gunman is instantly afforded the sensational title of sniper. Readers would be particularly interested then to read about the trials and achievements of true military sniping such as 50 calibre sniping in both Korea and Vietnam where kills were verified at ranges up to 2000 yards.

Chapters on the progressive development of the Springfield and Remington M1903 series sniper variant rifles and the subsequent target rifles (commercial weapons) versus issued military weapon argument are most informative and detailed. Good examples are given of each case. Emphasis is also paid to the fact that sniper successes improved dramatically with the use of match ammunition and National Match standard weapons in Vietnam.

The M1 Garand receives much attention as the first semi-automatic weapon to be used for Sniping both in World War II and Korea. Excellent coverage is provided of attempts at silencing the sniper weapon and of giving the sniper a night vision capability. The respective development of each of these perennial problems that have plagued riflemen for centuries is clearly outlined. On one hand, some of the early attempts at sound suppression and the use of infra red lights are almost comical. On the other hand, the deadly efficient combination of the M21 Sniper System (M14 accurized rifle and ART Scope/AN/PVS-2 Starlight Scope fitted with the Sionic noise suppressor) represents what may well be the most refined state of the art at present. Mention is made of the use of subsonic ammunition together with various forms of silencers in combat trial situations.

The final chapter deals exclusively with the current US Army sniper system — the M21 — and traces the factors leading up to the final adoption and use of this weapon system in Vietnam.

Overall, the book is extremely well illustrated with many technical as well as field use photographs. Technical information abounds throughout the book and various trial reports and specifications provide the technical reader with much information. Whilst the book is extremely valuable in that it fills a very substantial gap in this field of military knowledge, its major shortcoming is that there is very little attention paid to the human skill factor of sniping. This is a factor that other Western armies believe to be a critical one in the field of sniping. There are regrettably all too few detailed examples of how snipers actually operated, or how they were operationally employed.

The author does however, reach the same conclusions about U.S. sniping as his Western army counterparts have. This is the fact that too often, it has not been until the war was almost over before full official recognition, understanding of and full scale support has been given to the sniping endeavour. He also observes that often individuals and formations were responsible for setting up their own sniping training and equipment as the result of an urgent user need, in the absence of official understanding and support. In the case of the US Army, it was not until the late stages of the
Vietnam war (1972) that official backing led to the adoption of the M21 system as a universal one.

For the present weapons or sniping enthusiast, the book is invaluable and a must for the technical information and ideas. To the general reader, it is absorbing and interesting, particularly in view of the fact that it is superbly illustrated and constantly makes a point that properly chosen, trained, equipped and employed, the military sniper produces results out of all proportion to the expenditure incurred.


Reviewed by Captain B. Cameron, MC, RAAC

THROUGHOUT World War II British Intelligence Services were able to decode the German and Italian Armies' most secret radio messages. The resulting texts were code-named "Ultra". The information made available was considered so important by Churchill that he demanded to personally see Ultra signals each day, wherever he went. The decoding of such messages was one of the best kept secrets of the War. One, in fact, that was maintained throughout the post-war period also.

It was not until 1974 that the all-encompassing ban on information concerning Ultra was relaxed. Authorization was given for the publication of a book entitled The Ultra Secret. The account provided was based on the author's personal experiences at the decoding centre, Bletchley Park, in England. Station X, as this Centre was also known, was referred to in another book published two years later, A Man Called Intrepid. Mention of the Ultra capability was a dramatic revelation for those who were still unaware of its significance. Military Historians were now debating how much advance information had been available to commanders in the field; what previous unrealized advantages had thus existed; and whether all reputations had been justly earned. It was even suggested that a large part of the history of World War II would require rewriting.

In 1977 this speculation was ended. The British Government decided to release a substantial number of actual Ultra signals. For the first time it became possible to determine the effect of this source of intelligence on the conduct of the War. It is for this purpose that Ronald Lewin (author of Slim the Standardbearer) has written Ultra Goes to War.

Information contained in the signals has been coupled with that provided from scores of interviews with those associated with the Ultra operation at all levels. The picture revealed is startling. Vast strategic, as well as tactical, decisions resulted from the timely provision of Ultra material to Commanders throughout the War. One is led, as a result of this insight, to ask "What Ultra information was available?" when considering any campaign. The actions of Commanders involved are seen, as a consequence, in a different light. It is in this area that the book is most absorbing. It reveals that some defeats could have been avoided if this intelligence had been acted upon; whilst some victories, previously considered to be triumphs of planning, were assured in advance.

Ultra Goes to War also comprehensively describes the means by which enemy messages were deciphered, as well as the organization set up to disseminate the resulting information throughout the theatres of the War. By its nature the account is a specialist one. It is of necessity crammed with relevant detail and, although it is not easily read as a 'story', it holds immense value for those interested in the conduct of World War II.


Reviewed by WO 1 K.J. Hebblewhile, HQ 1 Military District.

This is not a book that will appeal to the majority of readers; rather it is a book for the dedicated weapon enthusiast, who wishes to delve into the side issues of the subject and study not only the man who gave his name to the gun, but also the weapon promotion politics that existed prior to and during the World War I.

The author has portrayed the central character, Colonel Isaac Newton Lewis in a manner that provides a fascinating glimpse into the life of the man who took the basic invention of another person, developed and improved it and took the major role in promoting the weapon that bears his name. A career officer in the United States Artillery, Lewis, a brilliant in-
ventor in his own right, battled scepticism, departmental apathy and personal dislike from a superior officer of such intensity that it bordered on paranoia. His endeavours to have the weapon adopted in America were to no avail. Like many before him, and many more who followed him, Lewis sought and found ready markets in more militarily enlightened countries. Somewhere in that enigma there must be a moral.

Meticulously researched and lavishly supported by photographs, the book is what it purports to be, a Pictorial History of the gun that brought new dimensions to World War I and profoundly influenced succeeding conflicts. The Infantry found themselves in possession of a light, magazine fed, air cooled and above all, thoroughly reliable weapon with a mobility from which evolved a tactic not previously thought possible. Even the fledgling Royal Tank Corps saw, appreciated and exploited the potential of this weapon.

Strange to relate and despite the popularity and effectiveness of the Lewis Gun in the trenches, it was in the air that the gun found its true potential. Mounted in an airplane as a sales promotion tactic in 1912 to recreate flagging interest following a disastrous demonstration, the gun revolutionized aerial warfare. The airplane developed 'teeth' and the forerunner of the modern fighter aircraft was born. With its coming, chivalry in the air died and the battle for the skies became as bloody and dirty as the war on the ground.

The author of this history is subjective in his writing. The man and his gun can do no wrong; they are portrayed as shining examples of perfection. Faults obvious in both are glossed over and not given due recognition. Nevertheless, the author's prejudice in no way detracts from the publication. The photographic illustration is superb and a constant source of interest. It portrays vividly the gun, the uniforms, the aircraft and soldiering in a bygone era. For this alone the book is well worth having and would be an invaluable addition to a military library.

Mr Truby is to be commended, as he has wrested from obscurity a man who for far too long has been overshadowed by the gun which bears his name. Now at least they both bask equally in the light of fame.

Certainly, this book is not essential reading; indeed one's military education would suffer little if the word was never read. But, should temptation exist and the member succumb, the short descriptive text which gives continuity to what otherwise would be merely a series of photographs, will provide an insight into the personalities and politics from which the Lewis Gun developed.


Reviewed by Major B.J. Caligari, Department of Defence, Canberra

With over twenty books to his credit A.J. Barker will be no stranger to those interested in military history and infantry weapons. Commissioned into the East Yorks Regiment in 1936, and after extensive service in the Middle East and Asia, the author retired in 1958. Immediately prior to his retirement A.J. Barker was on the Directing Staff at Royal Military College of Science, Scrivenham.

A.J. Barker has written extensively on infantry weapons employed by Axis and allied armies during World War II. The book under review forms part of this series and was first printed in 1969 (reprinted in 1978). The range of British and American infantry weapons featured includes small arms, mortars, anti-armour weapons, flame throwers and grenades. In the introduction the author provides a brief insight into the relationship between British and American weapons and ammunition, highlighting the reasons for the adoption of certain weapons and the rejection of others. The author displays his considerable knowledge not without touches of wry humour. For example in reference to anti-armour grenades he notes that the "Sticky" Grenade was dangerous to use because it often affixed itself firmly to the thrower as he swung his arm, and results were usually fatal.

The book features a commonsense balance of background information, illustrations, technical data and comparison tables. This provides ready access to relevant information in a digestible form.

This book is of general interest but may also provide a handy reference for the more technically minded and for those who have an interest in or even affection for, infantry weapons.
FULFILMENT OF A MISSION. THE
SPEARNS MISSION TO SYRIA AND
LEBANON 1941-1944 by Major General Sir
Edward Spears, KBE, CB, MC. Leo Cooper,

Reviewed by Associate Professor John Robertson,
University of New South Wales
R.M.C., Duntroon

GENERAL Spears (1886-1974) played an in­
fluential role in the difficult processes
whereby France's Syrian Mandate became the
independent nations of Syria and Lebanon. He
was head of the Mission to General Charles de
Gaulle, the Free French leader in the Middle
East from March 1941, and from 1942 to 1944
British Minister to the Republics of Syria and
the Lebanon. His account of the events in
which he was a main actor cannot fail to be
useful to the historian. Unfortunately, the
book, completed after Spears' death at the age
of eighty-seven, may do less than justice to his
role, the precise nature of which does not
emerge clearly from the narrative, which is
strong on anecdote and weak on analysis.

Most of the book deals with four main
events: the wrangling which preceded the Allied
invasion of Syria in June 1941; the subsequent
armistice negotiations; the struggle to impose
an equitable wheat distribution scheme on the
unwilling Free French; and the French attempt
in November 1943 to prevent the operation of a
democratic, nationalist Government in
Lebanon by arresting the President and
Cabinet. The French coup failed, British sym­
pathies being with the locals, and de Gaulle was
obliged to recognize the end of the Mandate.

Spears writes scathingly of French rule in
Syria. He denounces most of the French there
as corrupt, with many not being interested in an
Allied victory, and presents an extremely
unflattering picture of a petulant and intransigent
de Gaulle, who became very obnoxious
as he grew more furious while watching France
being robbed of a piece of her Empire. For
those interested in French colonies of much
greater strategic significance to Australia in
1940 and 1941, Indo-China and New
Caledonia, the book should give useful
comparisons on French 'touchiness' and willingness
to treat with Britain's enemies. The Levant
itself Spears ranked early in 1941 as 'apart from
Britain', the most important theatre in the
world at war. So it would have seemed perfectly
proper to him that Australians should have left
their unimportant homeland in order to help
fight Britain's battles in the vital area of the
world.

Australia figures, with varying degrees of
prominence, in the main events Spears
describes. It provided most of the force for the
invasion, the garrison force for the first year or
so of the occupation, and Casey was Minister
of State in Cairo from 1942 to 1943. Spears
praises him warmly for his competence, sincerity
and dedication to the task of winning the war, and contrasts him with men in the Foreign
Office whose weakness encouraged the French
to be more unreasonable. Lavarack, who com­
manded the Australians in Syria, is not assessed,
but Spears prints his low opinion of General
Maitland ('Jumbo') Wilson, who was overall
commander in Greece and Syria. He emerges as
an unpleasant personality who made the worst
of a bad job in Greece, and in Syria provided
the historian with 'the best possible example of
how a campaign should not be conducted'.

Spears repeats a common mistake in saying that
the Curtin Government, against Churchill's
wishes, recalled two Australian divisions from
the Middle East in early 1942. In fact Churchill,
in December 1941, first suggested that the move
be made, and it was January 1942 before the
Australian Government agreed.

In early 1941 Spears was one of the those
most anxious for Britain to seize Syria. He was
convinced "that if the Germans seized Syria we
could not win the war" (p. 94), and was hor­
rified at Wavell's resistance to the campaign. It
now seems that Wavell's judgement was much
sounder than Spears', and that Germany,
preoccupied with preparing for Barbarossa,
was not about to take over Syria.

Over 400 Australians were killed in Syria.
Spears refers to Australian troops fighting in
the campaign, and makes some quite generous
comments on their valour. But, he devotes far
more space to Australian peccadillos, whether
it be souveniring General Catroux's superb
gold-leafed cap as the armistice talks were
about to begin, stowing away on a plane so as
almost to cause it to crash, a busload of
"inebriated Aussies" wrecking an estaminet,
or drunken Australians in a commandeered
vehicle charging up and down the tarmac during
a Free French parade to farewell one of the
mighty.
Those acquainted with a piece of 2nd A.I.F. folklore, the alleged contrast between the wild adventures of the 6th Division and the ‘deep thinkers’ of the 7th, will be interested to know that Spears accepts as fact that there were two Australian Divisions in the Lebanon ‘of entirely diverse origin and outlook’. I have never seen any convincing evidence to support this notion, but it might make an interesting subject for investigation by a research student.

THE DEFENCE FORCE IN AUSTRALIA,
Reviewed by Major P. Milke, Australian Joint Warfare Establishment.

To the military enthusiast, this book provides a concise and valuable source of information about the Australian Defence Force. Produced as one of the series — Defence Forces of the World — this publication contains articles from such distinguished leaders as the Chief of Defence Force Staff, General A.L. MacDonald, CB, OBE; the Secretary, Department of Defence, Sir Arthur Tange, AC, CBE; and the Service Chiefs of Staff of the Australian Defence Force.

For the first time since the re-organization of the individual Departments of Defence, Navy, Army, Air and Supply in December 1973, into a single Department, this book includes the brief history, traditions and factual information about the Australian Defence Force — its geography, demography, economy, government, foreign and defence policies of Australia. In addition, articles covering the Higher Defence Organization and each Service have been contributed by the Secretary and each Service Chief, each of whom is highly qualified to speak on his respective area of responsibility.

The book points out that Australia’s future quite clearly lies with the future of Asia and the Pacific region. Although a military threat to this country has been assessed as unlikely in the foreseeable future, our security inescapably depends on developing and maintaining an independent defence capability. In pursuance of this objective, Australia has defence agreements under the ANZUS Treaty and is a party to the Five Power Arrangement with Malaysia, Singapore, Britain and New Zealand. Australia is also actively engaged in defence cooperation programmes and maintains strong relationships with countries in the Asian and Pacific regions. This book highlights these concepts and accordingly must be recommended reading for all Service and those Public Service officers involved and interested in defence matters.

Reviewed by Lieutenant Colonel E. J. O’Donnell
Australian Staff College, Queenscliff

The teflon frying pan is said to have been a by-product of space research. This book is also a by-product of research; in this case it was research done by the Armed Services Working Party to gain the information needed to select and edit the 560 military entries in Volumes 7-12 of the Australian Dictionary of Biography. And while this bibliography may not prove to be as popular as the teflon frying pan, it is in its own way just as useful.

The members of the working party who carried out this research spent much of their time initially assembling their materials. In doing so they uncovered a number of Aladdin’s caves in Canberra, treasure troves of military source material which not only enabled them to carry out their own work but which they realized would be valuable to other students of military history now and in the future. This bibliography is the result.

An introduction by Dr O’Neill explains more fully how the bibliography came into being and why it is ‘select’ rather than ‘complete’. The contents are almost entirely those to be found in the major repositories in Canberra such as the National Library, the War Memorial, the Australian National University and the Bridges Memorial Library. Mainly because of financial restrictions it was not possible to include material from such sources as the state libraries. Dr O’Neill freely acknowledges this limitation and expresses the hope that “some future national network of military historians” will be able to carry the project further forward. Seeing the number of chapter sub-sections with ‘nil’ listings, one can only share his wish. Likewise, one hopes that a similar bibliography will emerge when it comes time to write the post 1939 volumes of the Australian Dictionary of Biography.
Separate chapters of the bibliography list the available sources on the South African War, the Boxer Rebellion, World War I and the periods of peace between the various wars, as well as one chapter which lists material dealing with most or all of the period from 1891-1939. Each chapter is divided into six sub-sections so as to separate for instance ‘formation and unit histories’ from ‘manuscripts and papers held outside the Australian Archives.’ This organizational structure is one of the strengths of the bibliography and certainly simplifies research. All three services and the Department of Defence are comprehensively represented.

A shortcoming of the bibliography is the disparity between the thorough coverage of the wartime years and the relatively thin coverage of the periods of peace. This was perhaps inevitable given its origins. However, one must regret that the sub-sections listing books and major journal articles covering the immediate pre-Federation period and the years between the World Wars are not more complete. For instance, the Report of the Senior Officers Conference of 1920 (known at the Monash Report) and important articles in the 1920s and 30s by soldiers such as H. D. Wynter and H. C. H. Robertson which appeared in The Army Quarterly surely deserve specific reference.

A glance through the pages can lead to the same feeling of fascination one gets from looking surreptitiously at bookshelves in a house one has entered for the first time. What are we to make of this entry in the chapter on the South African War: BURNS, John, Stop the War; the trail of the financial serpent, 1900 (np, nd); or TAYLOR, George Augustine, Wanted at once! an aerial defence fleet for Australia; a national call to Australians (Sydney, Aerial League of Australia, 1911); illust.; or WENTWORTH, W. C., Demand for defence: Being a plan to keep Australian White and free (Sydney, author, 1939); maps.

Despite these occasional titillations, the bibliography could hardly be described as ‘a good read’. However, as an aid to research it will find an honoured place in many public and private libraries. Dr O’Neill and Mrs Fielding and their helpers have made a major contribution to the study of Australian Military history.

THE OBSERVER’S BOOK OF FIREARMS
by Nicholas Du Quesne-Bird, London, Warne, $3.95*
Reviewed by W. O. I. K. J. Hebblewhite

W RITING this review on ‘FIREARMS’ written by Nicholas Du Quesne-Bird has not been easy; a review of a book with nothing to offer seldom is.

Whether due to our materialistic society or the uncertainty of our future I know not, but the fact remains that collecting or hoarding, depending on your point of view, has become the trendy thing to do. All who collect seem to share the same naive trusting faith of being offered never less than a million for their efforts and this in turn has spawned a breed of writers who tell the world how to ‘collect’.

Mr Nicholas Du Quesne-Bird has joined such a group; unfortunately his name is far more impressive than his book. The book itself is small 3½ in. x 5½ in., well illustrated and of good quality and little else. Like all books of its type it endeavours to encompass the entire scope of the subject and fails to do so.

A subject is diversified as firearms cannot be covered in one book and certainly not in a work as small as the Observer’s Series. In attempting to cover the subject it touches upon such facets of collecting as: Display and Storage; Insurance and Security; The Law; Forgeries; Repairs and Restoration and devotes over one hundred pages to weapons from fifteenth century hand cannon, through duelling pistols, silenced Patchetts to hand-made EOKA terrorist weapons. All in a book of one hundred and ninety two pages. Something had to suffer and it was the detail.

I can only assume that the book was aimed at the schoolboy market in order to titillate their curiosity and start them on the road to collecting.

Militarily the book is useless. I cannot recommend it at all. Far too many other books do a more worthwhile job than that written by Du Quesne-Bird.

Without being too cynical I think the worth of the book lies in the fact that it is number seventy-five in the Observer Series and perhaps one should buy the other seventy-four and become a collector of Observer books.

*Available in Australia through Methuen of Australia, 301 Kent Street, Sydney, NSW 2000

CORRECTION

On page 56 of issue No. 14 (Jan/Feb ’79) (Book Reviews) the name of the Granada Publishing Ltd., P. O. Box 9, 29 Frogmore, St. Albans, Herts, AL2 2NF was mis-spelled. The Editor apologises for the mistake.