

## CHAPTER 27

### DEFENCE

#### Department of Defence

##### Functions of Department of Defence

The functions of the Department of Defence include: defence policy; joint Service matters and matters having an inter-departmental defence aspect; the financial requirements of defence policy and the allocation of the funds made available; the supply aspect of defence policy including the review of production programmes and capacity; important matters of policy or principle affecting the Defence Forces and their requirements, including the strength, organization and disposition of the forces, higher appointments in the Services, their weapons and equipment, and defence research and development.

##### Organization, higher defence machinery and the control of the joint Service machinery

The joint Service and inter-departmental advisory machinery of the Department consists of various committees headed by the Defence Committee, the Chiefs of Staff Committee, the Defence Administration Committee, and the Joint War Production Committee.

The Defence Committee is a statutory body consisting of the Secretary, Department of Defence, who is Chairman; the Chairman of the Chiefs of Staff Committee; the Chiefs of Staff of the three Services; the Secretary, Prime Minister's Department; the Secretary, Department of External Affairs; and the Secretary to the Treasury. Its function is to advise the Minister for Defence on: the defence policy as a whole and the co-ordination of military, strategic, economic, financial, and external affairs aspects of defence policy; matters of policy or principle and important questions having a joint Service or an inter-departmental defence aspect; and such other matters having a defence aspect as are referred to the Committee by or on behalf of the Minister for Defence.

The Chiefs of Staff Committee meets regularly for the discussion of technical military matters on a joint service basis, and is responsible in peace for the preparation of military appreciations and plans. The functions of the Defence Administration Committee are the regular review of the progress of the Defence Programme, the co-ordination or integration of Service activities where appropriate in the interests of improved efficiency and economy, and the improvement of methods and organization. The function of the Joint War Production Committee is, briefly, to examine the Services' requirements for war *matériel* and to recommend whether industrial capacity is adequate to meet them. The major committees subordinate to the Defence Committee and/or the Chiefs of Staff Committee comprise the Principal Administrative Officers Committee (Maintenance and *Matériel*), the Principal Administrative Officers Committee (Personnel), the Defence Research and Development Policy Committee, the Joint Planning Committee, the Joint Intelligence Committee, and the Joint Administrative Planning Committee.

In addition, the Defence Business Board furnishes advice on business matters of common interest to the three Services, or important subjects on which the collective advice of the Board is desired from the business aspect, with a view to promoting efficiency and economy in the execution of the Defence Programme. The Board comprises businessmen who serve in a part-time honorary capacity and consists of an independent chairman and deputy chairman and the business advisers of the three Service Departments.

##### Basis of current defence policy

The objectives of Australia's defence policy are:

- to provide for the security of Australia and its island Territories;
- to pursue close friendship and co-operation with non-communist Asian countries;
- to seek the support of particularly the United States and the United Kingdom for promoting co-operative arrangements between the United States, the United Kingdom, Australia, New Zealand, and south-east Asian countries for collective security purposes in this area and for the defence and security of Australia;
- to counter communist aggression in south-east Asia;
- to support the development of the United Nations as an effective instrument of collective security.

These aims are pursued through a series of defence programmes which are designed to give progressive effect to the objectives of policy approved by the Government and are capable of adjustment in the light of strategic developments and changes in the international situation.

Because of the increased strength which comes from collective security, Australia participates in a policy of collective defence in south-east Asia, which is the area of primary defence interest to Australia. The SEATO, ANZUS and Commonwealth arrangements in which Australia participates are a fundamental part of current Australian strategic thinking and outlook, and much of the Government's defence effort is directed to supporting these alliances in a measure commensurate with national interests and resources while at the same time making appropriate provision for the immediate defence of Australia and her territories in the light of assessed threats. The provision by Australia of a site for the United States Naval Communication Station at North West Cape is a most important contribution to the mutual purposes of the ANZUS Pact.

General or global war is considered unlikely except as a result of miscalculation, but armed conflicts short of general war could develop at any time in areas of tension throughout the world. The prospects in south-east Asia are such that Australian defence policy must be based on the probable continuance of pressures and hostilities in the area which could in some circumstances develop into conflict on a larger scale. There is therefore a range of military situations in which Australia must be prepared to contribute forces and sustain them for a period. Should the situation change and Australia itself be directly threatened, our collective defence arrangements would be of great importance in maintaining the security of Australia and its territories.

### **The defence programme**

The defence programme must be maintained at a level that will enable Australia to meet its regional and home defence responsibilities. In the present strategic circumstances the main aim of Australian defence preparations is the continual improvement of the capability of the forces to make a prompt and effective contribution to any allied effort required in a limited war or emergency situation in south-east Asia, while at the same time having the capacity for independent action to meet the initial shock of an emergency. To achieve this aim emphasis is placed on progressively increasing our military capacity and preparedness through the availability of highly trained regular forces, backed by appropriate reserves and citizen forces, and possessing a high degree of mobility to conduct operations throughout the area of Australia's strategic interests. The forces are being extensively re-equipped with modern conventional weapons which are standard or compatible, as far as possible, with those used by United States forces with whom Australia is associated in defence arrangements.

*Navy.* The naval programme provides for the continuing modernization and development of the Royal Australian Navy into a well-balanced fleet with emphasis on anti-submarine capabilities. Details of ships in commission and in reserve and of the current ship-building programme are shown on page 1056. In addition a wide range of naval projects is being provided. These include support facilities for the Charles F. Adams destroyers, a missile firing range, development of a submarine base and support facilities and provision of a submarine rescue vessel, replacement of harbour support craft and fleet boats, and modernization of Wessex helicopters. The Navy personnel requirement by June 1968 is 16,990. The Navy Emergency Reserve has been raised with a planned strength of 2,000 and enlistment is proceeding.

*Army.* The Regular Army is to be increased to an effective strength of 35,000 and a total strength of 40,000 by 1967. This will be achieved by the call-up of young men in their twentieth year at the rate of 8,400 per annum for compulsory selective service, in addition to voluntary enlistment. Selective service trainees are required to serve for two years full time with the Regular Army followed by three years in the Reserve, and are liable for service overseas. The field force organization is being expanded with emphasis on a substantial increase in the combat elements and high priority logistic units. More infantry battalions are being provided in a division. Seven battalions have already been raised and the eighth battalion is to be raised in the latter half of 1966. The new divisional re-organization is designed to give greater flexibility to meet requirements for cold and limited war situations, to improve further the Army's air mobility and to obtain maximum value from the increased availability of air transport support. A major formation is being located in the Townsville area in North Queensland. The target strength of the Citizen Military Forces is 35,000, and additional battalions have been raised in accordance with approved changes in the organization. The Regular Army Emergency Reserve with a planned strength of 4,000 has been raised and enlistment is proceeding. The Pacific Islands Regiment is being increased to three battalions with a total strength of some 3,500 by June 1968. In order to provide for the increased strength of the Army, major accommodation programmes are being undertaken in Papua/New Guinea and at Puckapunyal, Enoggera, Holsworthy, and Townsville.

Expenditure on Army equipment has been planned at a substantially higher level of \$150 million during the period 1965-66 to 1967-68. Of this, \$100 million is being spent in buying additional equipment similar to that already in service or on order. The remainder is to be used to purchase new equipment such as low level anti-aircraft weapons, air portable armoured

fighting vehicles, new artillery and infantry weapons, and combat surveillance equipment. Seventeen Sioux helicopters were delivered in 1965 and, together with the purchase of seven additional Caribou aircraft and twelve C130E Hercules heavy transport aircraft for the R.A.A.F., form part of the continuing programme for improving the tactical mobility of the Army.

*Air Force.* The operational units of the Royal Australian Air Force comprise three bomber squadrons, five fighter squadrons, two maritime reconnaissance squadrons, three transport squadrons, one surface-to-air missile squadron, two utility helicopter squadrons, and three control and reporting radar units. The fighter squadrons are being re-equipped with the supersonic Mirage III-O jet fighter, of which 100 have been ordered. Deliveries from combined Australian-French production have been coming forward since early 1964 at the scheduled rate. Twenty-four F111A strike reconnaissance aircraft have been ordered from the United States of America to replace the Canberra bombers, and deliveries are scheduled to commence in 1968. Twenty-five Caribou short take-off and landing transport aircraft have been delivered. Twelve C130E Hercules aircraft have been ordered from the United States for an additional medium range transport squadron. These are to be delivered over the latter half of 1966. Ten Orion P3B aircraft are to be ordered in 1966 to replace the squadron of P2E Neptune maritime reconnaissance aircraft. Seventy-five Macchi all-through jet trainers have been ordered. The initial batch of the aircraft are to be imported from Italy and the balance assembled in Australia. A further order for thirty-three aircraft is to be placed in later years. Ten dual Mirage training aircraft have been ordered, and eight HS748 aircraft are being obtained from the United Kingdom for navigational and radio training purposes. Seven new V.I.P. aircraft have been ordered, comprising two HS748 and two BAC 111 aircraft from the United Kingdom and three Mystere 20 aircraft from France. Contracts have been arranged for the supply of two new control and reporting units from the United Kingdom. The modernization of a third unit is in the planning stages. A network of modern operational airfields has been established and is being extended. This includes a second airfield in the Northern Territory at Tindal; construction of a new airfield at Boram near Wewak in New Guinea; the rehabilitation of the old wartime airfield at Nadzab and development of the airfield at Daru and other smaller airstrips located between Daru and Boram. The airfields at Learmonth near North West Cape in Western Australia and at Cocos Island are also to be developed. The number of personnel required for the operation of the R.A.A.F. by June 1968 is 21,000. In addition, the Air Force Emergency Force with a planned strength of 1,300 has been raised, and enlistment is proceeding.

*Research and development.* In this field Australia is making its principal contribution through the Long Range Weapons Project which is a joint effort with the United Kingdom. Australia also participates in the European Launcher Development Organization and is associated with the United States in many space and defence projects. The Australian executive authority in these matters is the Department of Supply.

#### Defence expenditure

Details of defence expenditure for 1964-65 and the allocation of the defence vote for 1965-66 are set out in the following table.

#### DEFENCE EXPENDITURE, 1964-65 AND DEFENCE VOTE, 1965-66

(\$'000)

Service or department	Maintenance, aid programmes, etc.	Capital material requirements, machinery, plant and equipment	Capital buildings, works and acquisition of sites	Total expenditure
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#### DEFENCE EXPENDITURE, 1964-65

Defence . . . . .	5,852	161	294	6,307
Navy . . . . .	86,615	44,230	5,163	136,008
Army . . . . .	145,236	36,312	18,413	199,961
Air . . . . .	110,984	60,601	14,345	185,930
Supply . . . . .	55,543	6,269	4,932	66,744
Other . . . . .	13,690	342	..	14,032
<b>Total . . . . .</b>	<b>417,920</b>	<b>147,915</b>	<b>43,147</b>	<b>608,982</b>

DEFENCE EXPENDITURE, 1964-65 AND DEFENCE VOTE, 1965-66—*continued*  
(\$'000)

Service or department	Maintenance, aid pro- grammes, etc.	Capital material requirements, machinery, plant and equipment	Capital buildings, works and acquisition of sites	Total expenditure
<b>DEFENCE VOTE, 1965-66</b>				
Defence . . . . .	6,947	2,017	182	9,146
Navy . . . . .	100,702	82,328	7,904	190,934
Army . . . . .	173,476	41,322	43,034	257,832
Air . . . . .	124,568	78,984	13,746	217,298
Supply . . . . .	58,666	8,510	5,294	72,470
Other . . . . .	23,697	341	124	24,162
<b>Total . . . . .</b>	<b>488,056</b>	<b>213,502</b>	<b>70,284</b>	<b>771,842</b>

#### Logistic arrangement with United States Government

A logistic arrangement has been agreed with the United States Government in respect of Australian equipment purchases during the programme period up to 30 June 1968. This arrangement is in effect a 'package deal' covering all the items required instead of negotiating each separate purchase as it arises, and by this method Australia has obtained more advantageous financial terms together with assurances of better delivery dates to meet our requirements. Under this arrangement, instead of paying for the equipment roughly in line with deliveries, the Government is enabled to spread payments over an extended period, and this will mean reduction in defence expenditure on equipment in 1966-67 and 1967-68. Deferment of payments to later years will cause a reduction in the currently approved programme of defence expenditure in 1966-67.

#### Personnel strengths

The personnel strengths of the Services at 31 March 1966 are shown in the following table.

#### PERSONNEL STRENGTHS: SERVICES, 31 MARCH 1966

Category	Navy	Army	Air Force	Total
Permanent Forces . . . . .	14,483	(a)30,455	18,809	63,747
Emergency Reserves . . . . .	673	584	149	1,406
Citizen Forces . . . . .	3,741	30,747	870	35,358
<b>Total Forces . . . . .</b>	<b>18,897</b>	<b>61,786</b>	<b>19,828</b>	<b>100,511</b>

(a) Excludes 1,613 Pacific Islanders.

#### Changes in defence legislation

Under amendments made to defence legislation in 1964\* the Citizen and Reserve Forces may be called out by proclamation for continuous full-time service in a 'Time of Defence Emergency'. The particular circumstances giving rise to the proclamation of a time of defence emergency could be varied, but would occur in a situation where the Regular Forces needed the full-time support of the Citizen and Reserve Forces in hostilities short of general war.

The legislation also provided for the establishment of volunteer Emergency Reserves for the three Services. These Reserves provide a ready means of supplementing and reinforcing operational units and may be called out for continuous full-time service when the Governor-General considers it desirable to do so.

Provision was made in new defence legislation enacted in 1965 for the inclusion in the Permanent Military Forces of national servicemen who are obliged under the National Service Act as amended in 1964 and 1965 to render two years continuous full-time service in the Regular

\* *Air Force Act 1964, Defence Act 1964, National Service Act 1964, and Naval Defence Act 1964.*

Army Supplement and three years part-time service in the Regular Army Reserve. The amendment also provided for extension of the liability to render continuous full-time service in time of defence emergency and in time of war. National Servicemen in common with all members of the Defence Force may be required to serve either within or beyond the territorial limits of Australia.

The amending legislation repealed the former provisions of the Defence Act under which persons called up for compulsory service in the Citizen Military Forces in time of war were not required to serve beyond the territorial limits of Australia unless they volunteered to do so. Liability for overseas service became mandatory for all persons called up for service in the Defence Force in time of war. The war-time powers of call-up for compulsory service were extended to apply to service in the Navy and Air Force as well as in the Army. New provisions dealing with registration, allotment and exemption from compulsory service in time of war were also enacted.

#### **Australian forces serving overseas**

Australia has participated with the United Kingdom and New Zealand in the Commonwealth Strategic Reserve in Malaya since it was first established in 1955. The strength of the Australian component normally serving with the Reserve is as follows:—Navy—two destroyers or frigates, with an annual visit by an aircraft carrier; Army—one infantry battalion and supporting units; Air Force—one light bomber squadron, two fighter squadrons and supporting units. At the request of the Federation of Malaysia, the Strategic Reserve continues to be stationed in Malaya to assist in border security operations against the communist terrorists. The Australian Government has also agreed, following a request by the Malaysian Government, to provide additional forces to the Strategic Reserve to assist Malaysian and British forces in the defence of Malaysia's territorial and political independence. Australian forces are providing assistance in countering infiltration of insurgents into Malaysian territory and for engineering construction in the Borneo States, and some air transport and anti-aircraft defence support. In January 1965 the Government decided that the Australian battalion in the Strategic Reserve should be made available for service in Borneo in rotation with other battalions. A Special Air Services Squadron has also been sent from Australia for service in Malaysia, including Borneo.

In pursuance of its obligations under the SEATO Treaty, at the invitation of the Government of Thailand, Australia deployed to Thailand a squadron of Sabre fighter aircraft which is an integral part of the air defence system for that country.

In response to an invitation of the Government of South Vietnam a team of Australian Army advisers has been provided since 1962 to assist in training Vietnamese in jungle warfare, village defence and related activities. The present strength of the team is 100. A detachment of six Caribou transport aircraft, together with the R.A.A.F. personnel required to fly and maintain them, was provided in 1964. In April 1965 the Australian Government also agreed to a request from the South Vietnamese Government to deploy an Australian battalion and supporting elements for combat service. A further 350 support troops were contributed in August 1965 to bring the Army combat force up to a battalion group. In consultation with our allies and at the request of the Government of South Vietnam the Government decided in March 1966 to treble the Australian contribution by providing a self-contained Australian task force of some 4,500 men under Australian command. The task force contains, in addition to its headquarters, two infantry battalions, a Special Air Services Squadron and a substantial force of combat and logistic support units. To provide close helicopter support the task force includes a flight of eight R.A.A.F. Iroquois helicopters. Provision of the flight of Caribou aircraft and of the team of Army advisers will continue.

#### **Defence support aid**

In support of Australia's strategic policy of contributing to the common defence of south-east Asia the Government provides substantial financial aid to our Asian allies in the form both of direct defence assistance to support the armed forces of these countries and to increase their defence capability and of civil aid and technical assistance.

Under this programme assistance to the extent of \$2,320,000 will be provided for South Vietnam, Thailand, Pakistan, and the Philippines during 1965-66. This will include material assistance, the training of service and civilian personnel both in their home countries and in Australia and, in the case of South Vietnam, special aid in the form of the provision of surgical teams to staff surgical blocks at the Long Xuyen and Bien Hoa hospitals, an engineering team to carry out a water supply project at Bien Hoa, the printing of school text books, and the supply of galvanized iron for housing of Vietnamese servicemen and dependants.

Malaysia is also being further assisted to strengthen its defence capability by the extension of the \$6 million aid programme commenced in 1965. Additional aid to be given to Malaysia will total about \$19 million up to 31 December 1967. This will take the form of ammunition, military vehicles, weapons, small craft, engineer equipment, and general stores. Malaysian servicemen will continue to be trained in Australia, and the number of Australian servicemen seconded to Malaysia will be increased.

Provision of defence support aid to India and Pakistan is being kept under review in the light of the situation in the area.

### Naval defence

Prior to 1901, naval defence systems were organized under the State Governments. Information regarding these systems is given in Year Book No. 2, page 1084. An outline of the development of Australian naval policy is given in Year Books No. 3, page 1060, and No. 12, page 1012. An account appears in Year Book No. 15, pages 921-3, of the building of the Australian Navy, its costs, the compact with the Imperial Government, and other details. The growth and the activities of the Royal Australian Navy during the 1939-45 War are shown in Year Book No. 36, pages 1023-7.

Under the provisions of the Commonwealth of Australia Constitution Act the Minister of State for the Navy administers the Department of the Navy. Under the *Naval Defence Act 1910-1964* the Royal Australian Navy is administered by the Naval Board. The Naval Board consists of the Minister as Chairman, four Naval Members and the Secretary, Department of the Navy.

Strong links with the Royal Navy are maintained by a constant exchange of officers for extended tours of duty and by a full exchange of information and ideas. A liaison staff is maintained by the Royal Australian Navy in London and by the Royal Navy in Australia. Advanced training and staff courses in the United Kingdom are provided by the Royal Navy for Royal Australian Navy officers. A liaison staff is also maintained by the Royal Australian Navy in Washington, and a comprehensive exchange of information is provided by this link. Staff courses in the United States are also attended by officers of the Royal Australian Navy.

#### Ships of the Royal Australian Navy

*In commission, March 1966: Melbourne*—aircraft carrier; *Sydney*—fast troop transport; *Supply*—fast fleet replenishment tanker; *Vampire*, *Vendetta*, *Duchess*, and *Anzac*—destroyers; *Perth* and *Hobart*—guided missile destroyers; *Stuart*, *Parramatta*, *Derwent* and *Yarra*—escort ships; *Diamantina*—training and oceanographic ship; *Hawk*, *Gull*, *Ibis*, *Teal*, *Curllew*, and *Snipe*—minesweepers; *Kimbla*—trials ship and boom defence vessel; *Bass* and *Banks*—general purpose vessels; *Moresby* and *Paluma*—survey vessels.

*In reserve, March 1966: Arunta* and *Tobruk*—destroyers; *Queenborough*, *Quickmatch* and *Quiberon*—escort ships; *Gascoyne*—oceanographic ship; *Kangaroo*, *Kara Kara*, *Karangi*, *Kookaburra*, and *Koala*—boom working vessels; *Sprightly* and *Emu*—fleet tugs; *Culgoa*—accommodation ship; *Castlemaine*—training vessel.

*On service overseas.* During the year ended March 1966 the following ships served in south-east Asian waters as units of the Commonwealth Strategic Reserve with Headquarters in Singapore: *Melbourne*, *Supply*, *Vampire*, *Vendetta*, *Duchess*, *Parramatta*, *Derwent*, *Yarra*, *Hawk*, *Gull*, *Ibis*, *Teal*, *Curllew*, and *Snipe*. H.M.A. Ships *Sydney*, *Moresby* and *Diamantina* also made visits overseas. H.M.A. Ships *Perth* and *Hobart* were commissioned in the United States of America.

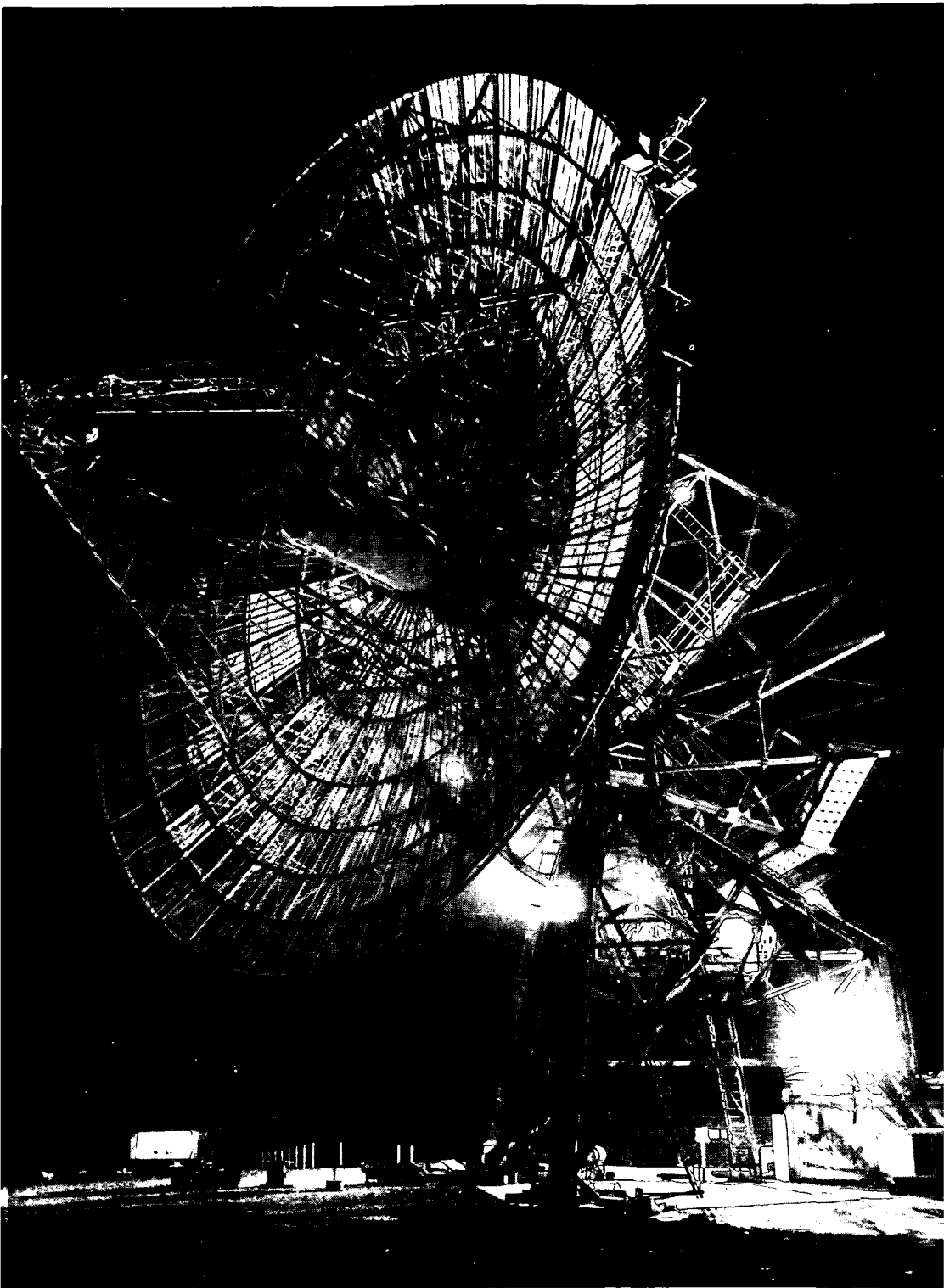
#### Fleet Air Arm

The Fleet Air Arm of the Royal Australian Navy is maintaining two front line squadrons embarked in the operational carrier H.M.A.S. *Melbourne*. This ship is fitted with an angled deck, steam catapult and mirror deck-landing sights. Training and support squadrons for H.M.A.S. *Melbourne's* Sea Venom jet all-weather fighter and ground attack aircraft and Gannet turbo-prop anti-submarine aircraft are based at the Naval Air Station H.M.A.S. *Albatross* at Nowra, New South Wales. Westland Wessex anti-submarine helicopters have been introduced into the Fleet Air Arm and are embarked in H.M.A.S. *Melbourne*. Training and support squadrons for the helicopters are also based at the Naval Air Station.

#### Ship construction and repairs

There are two naval dockyards, at Garden Island, New South Wales, and at Williamstown, Victoria. Also, the dockyard at Cockatoo Island, which is operated by the Cockatoo Docks and Engineering Company Pty. Ltd. by agreement with the Commonwealth, carries out considerable naval work. All three dockyards carry out ship refitting for the Navy.

Included in the present ship construction plan is the building of two destroyer escorts, one each at Cockatoo Island and Williamstown Dockyards, and a 15,000 ton escort maintenance ship at Cockatoo Island. Four submarines of the Oberon class are under construction in the United Kingdom. In the United States one Charles F. Adams class destroyer is being built for the Royal Australian Navy at the DeFoe Ship Building Yard. Fourteen 100-foot patrol vessels are being built by Evans Deakin and Co. Pty. Ltd., Brisbane, Queensland, and Walkers Ltd., Maryborough, Queensland (seven by each contractor). A further six patrol craft will be ordered during 1966. An escort maintenance ship is also being built in Australian shipyards and is expected to be completed in 1967. H.M.A.S. *Melbourne* is to undergo a slightly extended normal refit in 1967 and her fixed wing aircraft are to be replaced by Tracker anti-submarine aircraft and Skyhawk fighter/bomber aircraft. The Daring class destroyers *Vendetta* and *Vampire* are to be



**PLATE 61**

**Deep space station, Island Lagoon, South Australia.**

*Photographs for Plates 61 and 62 by courtesy of Department of Supply.*

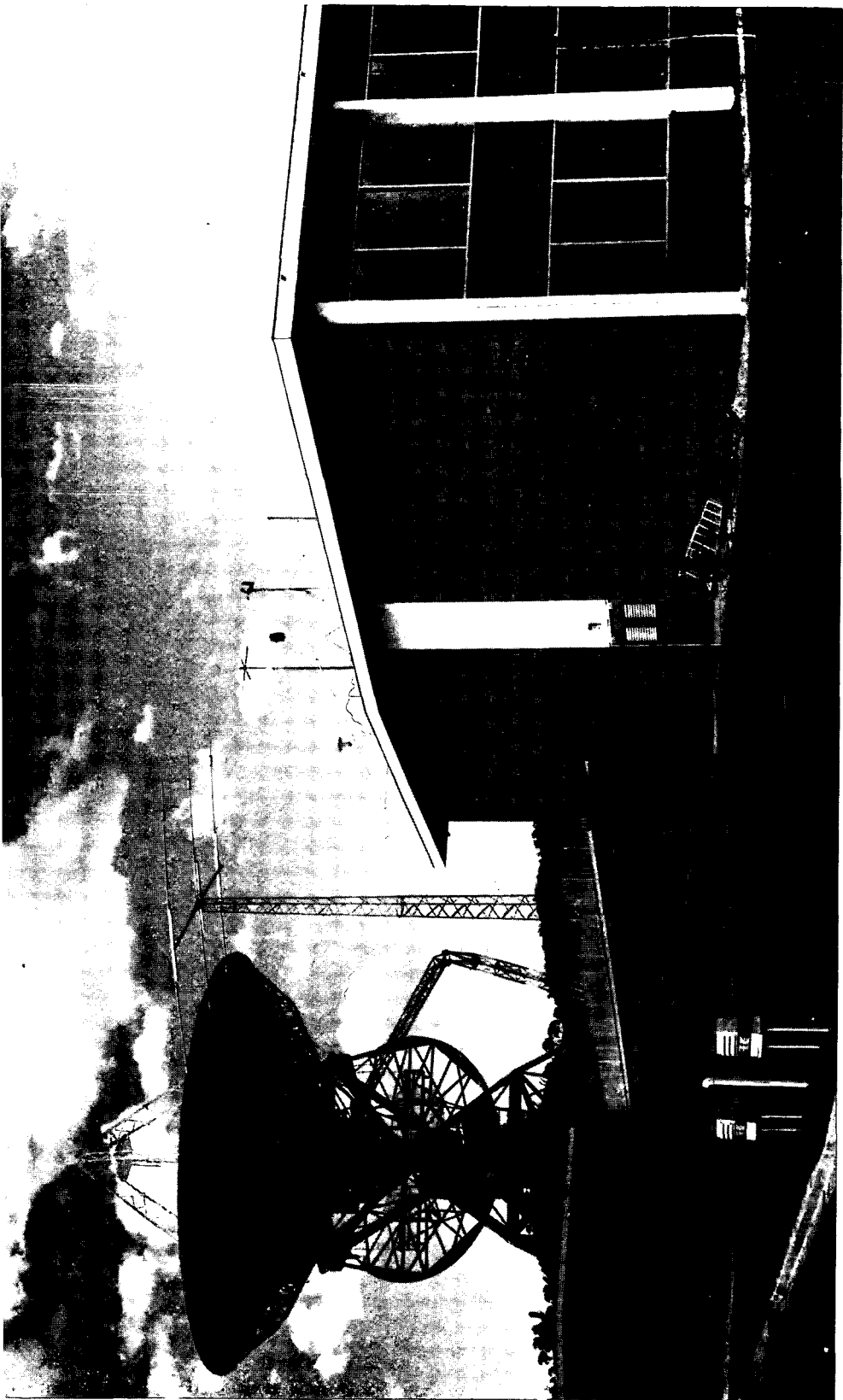


PLATE 62

Deep space station, Tidbinbilla, Australian Capital Territory.



modernized, commencing in 1968. The anti-submarine guided weapon *Ikara*, which has been designed and developed in Australia, is to be fitted into the guided missile destroyers, the *Daring* class destroyers *Vendetta* and *Vampire* and the destroyer escorts.

#### **Personnel, entry, training, women's services, reserves**

*Personnel.* The authorized established strength of the Royal Australian Navy for 1964-65 is 15,606. At 31 March 1966 the actual strength of the Permanent Naval Forces was 1,611 officers and 12,872 sailors, while there were 3,741 in the Citizen Naval Forces.

*Naval college.* The Royal Australian Naval College, H.M.A.S. *Creswell*, is at Jervis Bay. The College was established to provide trained officers for the R.A.N. Junior entry to the College is at the age of fifteen to seventeen years, and senior entry at a maximum age of nineteen and a half years. Subsequent training as midshipmen and sub-lieutenants is in ships of the fleet, at universities or technical colleges and at Royal Navy training establishments in the United Kingdom. In March 1966 there were 132 cadet midshipmen under training.

*Direct entry into Navy.* To meet increasing requirements for officers direct entries are accepted into the Royal Australian Navy. Short service commissions of seven years are granted on completion of training as seamen, supply and secretariat or aircrew officers to suitable applicants who have completed their secondary schooling and who are over seventeen years of age and under twenty-three years of age for seamen and supply and secretariat applicants, and under twenty-four years for aircrew applicants. Other direct entries may be approved outside these age limits from persons with appropriate qualifications and experience.

Opportunities exist for university undergraduates studying medicine, dentistry or engineering to enter the R.A.N. and on successful completion of their studies to commence full-time service in the Navy. Fully qualified doctors, dentists, mechanical or electrical engineers, and instructors may also enter the R.A.N. directly if they are of the appropriate age.

*Training establishments.* H.M.A.S. *Cerberus* at Westernport, Victoria, is the main training establishment for adult sailors in the permanent naval forces, while several advanced training schools are established in New South Wales. The period of initial engagement for sailors varies from six years for tradesmen entry to nine or twelve years, and on completion sailors may re-engage for shorter periods up to the age of fifty.

H.M.A.S. *Nirimba* at Quakers Hill, New South Wales, is the naval school for apprentices. It provides secondary education, as well as technical training in trades, to boys aged fifteen to seventeen years. The school was established in 1956 to meet the R.A.N.'s increasing demand for highly skilled tradesmen. In March 1966 there were 643 naval artificer apprentices under training. H.M.A.S. *Leeuwin* at Fremantle, Western Australia, is the junior recruit training establishment. Entrants must be aged between fifteen and a half and sixteen and a half years. Training lasts one year and instruction is mainly academic, the remaining time being devoted to basic naval and disciplinary training. On completion of the course sailors are posted for a period of sea training, after which they proceed to technical and specialist courses. In March 1966 there were 577 junior recruits undergoing training.

*Women's Services.* The present Women's Royal Australian Naval Service was inaugurated in January 1951. The numbers serving in shore establishments in March 1966 were 17 officers and 564 ratings. The Royal Australian Naval Nursing Service was reconstituted in November 1964, and its strength in March 1966 was twenty-one officers.

*Emergency Reserve.* In November 1964 approval was given to form the Royal Australian Naval Emergency Reserve to provide a readily available source of trained manpower which may be called on for continuous full-time service. The authorized establishment of this force is 2,000 officers and sailors. Members are required to complete thirteen days training annually and are paid an annual bounty.

*Citizen Naval Forces.* The Citizen Naval Forces consist of the Royal Australian Naval Reserve, Royal Australian Naval Reserve (Seagoing), R.A.N. Emergency List, Royal Australian Fleet Reserve, and Royal Australian Naval Volunteer Reserve. Members of the R.A.N.R. are the training reserve of the Citizen Naval Forces. They do weekly training and thirteen days annual continuous training. Officers are commissioned and may serve until retiring age is reached. Sailors engage for periods of three years. Other reserves do not carry out part-time training, but members may volunteer for periods of annual continuous training. Special courses and service for long periods are available to selected reservists.

### **Military defence**

A detailed historical account of the Australian defence forces prior to federation appears in Year Book No. 2, pages 1075-80. See also Year Book No. 12, page 999.

### Commonwealth systems

Under the terms of the Commonwealth of Australia Constitution Act the Commonwealth took over control of defence matters in March 1901. The growth of the Commonwealth Military Forces may be considered to have taken place in a number of phases. For particulars of the phases which cover the period from the welding together of the military forces of the States into one homogeneous Army in 1902 up to the re-establishment of the Military Board and the organization of Commands after the 1939-45 War see Year Book No. 46 and earlier issues.

National Service Training was introduced in 1951 and suspended in 1959-60. In November 1964 the Government announced that National Service Training was to be re-introduced as from June 1965. The scheme provides for a period of two years full-time duty in the Regular Army followed by three years in the reserve. National Service registrants who are members of the C.M.F. or who join prior to the ballot may elect to serve in the C.M.F. for a total of five or six years, depending on length of previous service, as an alternative to full-time continuous National Service Training.

### Organization

Army Headquarters is responsible for the policy and control of the Australian Military Forces. The Military Board consists of the Minister for the Army, President; the Chief of the General Staff; the Adjutant-General; the Quartermaster-General; the Master-General of the Ordnance; the Deputy Chief of the General Staff; the Citizen Military Forces Member; and the Secretary, Department of the Army. After the 1939-45 War Command Headquarters were established to implement Army Headquarters policy and to command and administer those units placed under their authority. Command Headquarters are established in the capital cities of Australia and Papua-New Guinea. The geographic extent of Commands is as follows.

*Northern Command*—the State of Queensland and a small part of northern New South Wales.

*Eastern Command*—the State of New South Wales, less those parts included in Northern, Southern and Central Commands.

*Southern Command*—the State of Victoria and part of southern New South Wales.

*Central Command*—the State of South Australia, plus a portion of south-western New South Wales.

*Western Command*—the State of Western Australia.

*Tasmania Command*—the State of Tasmania.

*Northern Territory Command*—the Northern Territory.

*Papua-New Guinea Command*—the Territory of Papua-New Guinea.

The Army is divided into the Field Force, Forces in Papua-New Guinea and the Australian Support Area, with both Regular and Citizen Military Forces elements in each. The basic formation of the Field Force is the division, which consists of nine infantry battalions with supporting arms and services units. Within the division three task force headquarters can command varying combinations of divisional units. As at 31 March 1966 the substantial parts of the combat elements of one Regular and two Citizen Military Forces divisions had been raised, together with logistic support units. The Regular element of the Forces in Papua-New Guinea consists of two battalions of the Pacific Islands Regiment with a number of supporting units. An infantry battalion forms the major Citizen Military Force element. The Australian Support Area provides the training, administrative and command structure on the mainland.

As at 31 March 1966 units of the Regular Force were deployed overseas as follows. In Malaysia a battalion group was serving as part of the British Commonwealth Far East Strategic Reserve, while an anti-aircraft battery, an engineer construction group and a special air service company were serving at the invitation of the Malaysian Government. In Vietnam a battalion group was serving at the invitation of the Government of Vietnam. This force is to be built up to a Task Force of two battalions with supporting units, including aircraft support to be provided by the Royal Australian Air Force.

### Personnel, training, women's services, cadets

*Personnel.* The effective strength at 31 March 1966 was: Australian Regular Army (including 1,613 Pacific Islanders and 813 Women's Services), 32,068; Citizen Military Forces, 30,747.

*Staff College.* Until 1938 the training of staff officers was carried out in the various Military Districts throughout Australia, except in cases where officers were selected from time to time to attend courses abroad. In 1938 an Australian Command and Staff School, located in the original Officers' Mess at Victoria Barracks, Sydney, was established. Between 1939 and 1945 the training of staff officers was carried out under varying conditions by different schools in accordance with the changing needs of the war.

Early in 1946 the Staff School (Australia) was established at Seymour, Victoria, and redesignated the Staff College in conformity with other Commonwealth training establishments for training officers for command and staff appointments. The College was later moved to Queenscliff, Victoria, where it is at present situated. The course is held annually and is of twelve months duration. The normal intake is sixty-six students, and on successfully completing the course an officer is awarded the symbol 'psc'. The course is designed to train selected officers for appointments in all branches of the staff in peace and war and to prepare them to assume, after experience, command and higher staff appointments.

Included in the 1967 course will be students from the United Kingdom, Canada, New Zealand, India, United States of America, Thailand, Malaysia, and the Philippines. Vacancies on each course are reserved also for officers who may be nominated by the Royal Australian Navy, the Royal Australian Air Force and the Commonwealth Public Service.

In order to ensure common standards in tactical doctrine and staff and command training throughout the Commonwealth of Nations liaison is maintained with other Staff Colleges, and to this end there is also a reciprocal exchange of instructors between the United Kingdom and Australia. An instructor is also provided by New Zealand.

*Royal Military College.* The Royal Military College was established in 1911 at Duntroon in the Australian Capital Territory for the purpose of providing trained officers for the Army. The conditions of entry are laid down in the Royal Military College Regulations. The length of the normal course is four years. While at the College Staff Cadets are wholly maintained, and, in addition, receive payment increasing with each year of the course. The course of instruction is organized into military and civil departments, and instruction is given by officers of the Army and academic staff. On graduation cadets are appointed lieutenants in the Australian Regular Army. The College also trains New Zealand cadets for commissions in the New Zealand Permanent Forces.

*Officer Cadet School.* The Officer Cadet School was established in 1951 at Portsea, Victoria, for the purpose of speeding up the production of junior regimental officers for the Australian Regular Army. Serving members of the Australian Regular Army, the Citizen Military Forces and civilians between the ages of eighteen and a half and twenty-two and a half years are eligible to apply for entrance. A special entry provides for candidates up to twenty-four and a half years. The course is of forty-four weeks' duration, and on graduation cadets are appointed second-lieutenants in the Australian Regular Army. Graduates normally proceed to further training at the Army School of the Arm and Service to which they have been allotted before being posted to regimental duties.

*Officer Training Unit.* An Officer Training Unit has been established at Scheyville, New South Wales, and is responsible for the training of National Service officers.

*Women's Royal Australian Army Corps School.* The W.R.A.A.C. School, established in 1952 at Mildura, Victoria, moved to Mosman, New South Wales, in 1958. It has three wings, one whose primary task is the training of officer cadets for the W.R.A.A.C., one for the training of non-commissioned officers at all levels and for other special courses and one which is a basic training wing. The officer cadets are selected from eligible applicants, who may be serving members between nineteen and a half and thirty-two years of age, or civilians between twenty-one and thirty years of age. The course is of six months' duration and on graduation cadets are appointed lieutenants in the Women's Royal Australian Army Corps.

*Army Apprentices' School.* The Army Apprentices' School was opened in 1948 at Balcombe, Victoria, with the aim of training youths as skilled tradesmen for the Australian Regular Army and to form a background for an Army career with prospects of promotion. The course is open to boys between the ages of fifteen and seventeen years and provides training in a number of highly skilled trades. A three-year course of intensive theoretical and practical work at the Apprentices' School is followed by one year in an appropriate Army workshop or technical unit. At the end of their third year boys are given their Army trade test and also take the Victorian Apprenticeship Commission's final grade public examinations, which ensures that they will be accepted as qualified tradesmen in civil life when they eventually leave the Army. In addition to trade training the Apprentices' School provides general educational facilities up to the School Leaving Standard.

*Other Schools.* Army Schools have been established for the major Arms and Services for the purpose of training officers and other ranks in the up-to-date techniques of their own Arm or Service, to qualify them for promotion requirements and to produce trained instructors. Courses at Army Schools are conducted for members of both the Australian Army and the Citizen Military Forces.

The following Army Schools have been established: *Jungle Training Centre, Armoured Centre, School of Artillery, School of Military Engineering, Transportation Centre, School of Military Survey, School of Signals, Infantry Centre, Army Intelligence Centre, Royal Australian Army Service Corps Centre, Royal Australian Army Medical Corps School of Army Health,*

Royal Australian Army Ordnance Corps Centre, Royal Australian Electrical and Mechanical Engineers' Training Centre, School of Music, Air Support Unit (Army Component), and Air Movement Training and Development Unit (Army Component).

*Women's Services.* In July 1950 approval was given for the enlistment of women into the Australian Regular Army on a limited scale. Enlistment commenced into the Royal Australian Army Nursing Service in November 1950 and into the Australian Women's Army Corps early in 1951. In February 1951 the Royal Australian Army Nursing Service became a Corps and was designated the Royal Australian Army Nursing Corps (R.A.A.N.C.). During June 1951 the Australian Women's Army Corps was redesignated the Women's Royal Australian Army Corps (W.R.A.A.C.). The Women's Services in the Australian Regular Army now comprise two Corps only, the Royal Australian Army Nursing Corps and the Women's Royal Australian Army Corps.

Women's Services are incorporated in the Citizen Military Forces, and one company of the Women's Royal Australian Army Corps is located in each Command excluding Northern Territory Command and Papua-New Guinea Command. Companies of the Royal Australian Nursing Corps are located in each Command excluding Northern Territory Command and Papua-New Guinea Command.

*Australian Cadet Corps.* The Australian Cadet Corps is a voluntary organization. It serves as a training ground to provide, to some extent, the future officers and non-commissioned officers of the Australian Military Forces, and, as such, occupies a foremost position in the scheme of national defence. The Australian Cadet Corps, however, does not form part of the Australian Military Forces. School Cadet units are raised at educational establishments throughout the Commonwealth and Papua and New Guinea, except in the Northern Territory. The minimum age for enrolment is the year in which the applicant reaches the age of fourteen years, and cadets, who, in the large majority of schools receive a free issue of A.M.F. pattern uniform, may remain in the Cadet Corps until they cease to be pupils of the educational establishments concerned. A few units retain their own pattern school uniform and are not issued with A.M.F. pattern uniforms. Provision is made for the appointment of officers, cadet under-officers, warrant and non-commissioned officers on an authorized establishment scale from within school units. School Cadet units may be, and in many cases are, affiliated with Citizen Military Force units. The establishment of the Corps is 46,566 all ranks, and at 31 March 1966 comprised 335 School Cadet units with a posted strength of 42,265, all ranks.

### Air defence

A statement regarding the preliminary steps taken in connection with the development of air defence appears in Year Book No. 18, page 610, and one on the expansion and development and type of operations of the Royal Australian Air Force during the 1939-45 War in Year Book No. 36, page 1027. Details of the current defence expansion as it affects the R.A.A.F. were outlined by the Prime Minister in his speech in the House of Representatives on 8 November 1965.

#### Higher organization

The Air Board is responsible to the Minister for Air for the control, organization and administration of the Royal Australian Air Force and is constituted as follows: Chief of the Air Staff, Air Member for Personnel, Air Member for Supply and Equipment, Air Member for Technical Services, and the Secretary, Department of Air.

The Air Board exercises command and control over R.A.A.F. units in Australia through two commands, Operational Command and Support Command. The guiding principles of the command organization within Australia are to decentralize day-to-day operating activities as far as possible and to streamline the force and make it as efficient as possible. The operational units overseas, working within the broad directives issued by the Air Board, comprise the R.A.A.F. component of the British Commonwealth Strategic Reserve located at Butterworth in Malaysia, a unit in Thailand and the R.A.A.F. component of the Australian task force in South Vietnam.

The members of the Air Board and their staffs are located at the Department of Air in Canberra. A R.A.A.F. representative is located in London and Air Attachés are located in Djakarta, Saigon, Paris, and Washington. *Operational Command* is responsible for the command of operational units and the conduct of their operations within Australia and its territories. *Support Command* is responsible for the recruitment and training of personnel, and the supply and maintenance of service equipment.

#### Organization of units

*Bases.* Each command is established with the units necessary to carry out its allotted function. There is no fixed rule in relation to the number and types of units within each command as this depends upon the nature of its present and future responsibilities.

Where possible, units having similar functions or requiring similar facilities are located together and the geographical locations are known as bases. While in general only units belonging to one command will be located on a particular base, it is sometimes necessary to locate units of both commands at one base.

*Formations*—comprising a headquarters unit to control the activities of a number of units at one location; each formation has a base squadron which provides common services to all units at the location.

*Flying squadrons*—bomber, fighter, transport, helicopter, and maritime reconnaissance squadrons which undertake the operational flying and, in conjunction with operational conversion units, the operational flying training commitments of the R.A.A.F.

*Operational conversion units*—specializing in operational conversion training of aircrew for the bomber and fighter squadrons.

*Aircraft depots*—specializing in major overhaul, etc. of aircraft and equipment and relieving flying units of these commitments.

*Stores depots*—centrally located depots to which stores and equipment ordered by the R.A.A.F. are delivered for distribution to units.

*Flying, ground training, navigation, and radio training units*—schools specializing in the aircrew and ground staff training required by the R.A.A.F.

*Airfield construction squadron*—specializing in the construction of R.A.A.F. aerodromes and associated buildings and works services.

*Royal Australian Air Force Academy*—the training college for officer cadet entrants to the R.A.A.F.

*Telecommunications units*—responsible for the communications services of the R.A.A.F.

*R.A.A.F. Staff College*—trains specially selected R.A.A.F. officers for higher staff and command posts.

#### Aircraft

The R.A.A.F.'s strike force of Canberra aircraft will be replaced in 1968 by the F111A, and by this stage the Avon-Sabre fighter squadrons will have completed conversion to the Mirage III-O aircraft. Transport aircraft currently flown are Caribou, Dakota, Hercules, Metropolitans, and Viscount, with BAC 111, Mystere 20 and a further squadron of Hercules on order. Both maritime reconnaissance squadrons operate Neptune aircraft at present, but the older aircraft are to be phased out of service with the introduction of the Orion in the near future. Two helicopter squadrons operate the Iroquois. Aircraft used for training are the Winjeel, Vampire, Dakota, Sabre, Canberra, and Mirage. Macchi and HS748 training aircraft are on order.

#### Personnel, reserve, women's services

At 1 April 1966 the authorized Permanent Air Force establishment was 20,117, and the Citizen Air Force, 1,081; the enlisted strength was Permanent Air Force 18,809 and Citizen Air Force 870; while the strength of the General Reserve was 6,262. The preceding Permanent Air Force figures include the Women's Royal Australian Air Force, which has an establishment of 967 and strength of 861, and the R.A.A.F. Nursing Service with an establishment of 87 and strength of 81.

### Department of Supply

For information relating to the creation of the Department of Supply and its development up to 1959 see Year Book No. 51, page 1204, and earlier issues. On 18 December 1959 the Department assumed responsibility for the operation and management of space tracking stations in Australia on behalf of the United States National Aeronautics and Space Administration. On 29 March 1962 Australia became a foundation member of the European Launcher Development Organization, and the Department accepted responsibility for the test firing of the launching rocket for that Organization's experimental satellite, using the facilities of the Woomera Rocket Range.

#### Functions of Department

The functions of the Department of Supply include the following.

Defence research and development, including the operation of the Joint United Kingdom—Australia Weapons Research Project, and Australian research and development through the Weapons Research Establishment, the Aeronautical Research Laboratories, the Defence Standards Laboratories, and associated establishments.

Manufacture, acquisition, provision, and supply of munitions (including aircraft) and miscellaneous goods and services required by the defence forces.

Arrangement of contracts for the supply of goods and the performance of services.

Operation and management of factories, workshops and undertakings concerned in the production of munitions (including aircraft), clothing, canvas-ware, and other defence goods.

Operation and management of space tracking stations in Australia on behalf of the United States National Aeronautics and Space Administration.

Test firing of the launching rocket for the European Launcher Development Organization's experimental satellite, using the facilities of the Woomera Rocket Range.

Acquisition, maintenance and disposal of strategic materials.

Planning and establishment of manufacturing facilities for the production of munitions and other defence goods.

Investigation and development of Australian sources of supply in connection with defence.

Sale or disposal of surplus Commonwealth property other than land or buildings.

Provision of Commonwealth transport facilities outside the Australian Capital Territory and the Northern Territory.

Provision and control of stores required for or in connection with matters administered by the Department of Supply and general storage for other Departments as required.

Provision of security services within the Department.

Arrangements for ascertaining costs and the control and limitation of profits in connection with the production of munitions and other defence goods.

The Minister for Supply administers the *Supply and Development Act 1939-1948*, except insofar as it concerns the building (*see also* the chapter Transport and Communication), repair and maintenance of merchant ships and the building, extension, alteration, repair, and maintenance of shipyards, drydocking and repair facilities for merchant ships.

#### Research and Development Division

The Research and Development Division, which is under the control of the Chief Scientist, is responsible for research and scientific development in relation to war *matériel*, including the operation of the Joint United Kingdom—Australia Weapons Research Project. The Chief Scientist is also the Chairman of the Joint Project Board, which is responsible for the administration of the Joint Project undertaking. The headquarters of the Division is situated in Melbourne, and the following establishments are included in the Division: (a) Weapons Research Establishment, Salisbury, South Australia; (b) Defence Standards Laboratories, Maribyrnong, Victoria, Finsbury, South Australia, and Alexandria, New South Wales; (c) Aeronautical Research Laboratories, Fishermen's Bend, Victoria.

#### Weapons Research Establishment, Salisbury, South Australia

This establishment, which occupies an area of about six square miles, includes Edinburgh Airfield, where accommodation is provided for a unit of the R.A.A.F. which carries out the experimental and other flying required. Extensive facilities have been provided for branches of British firms which have contracted with the British Ministry of Aviation to develop weapons systems or components.

The Establishment has four main sections, namely the Trials Wing, the Space Physics Wing, the Weapons Research and Development Wing, and the Engineering Wing. The Trials Wing is concerned with the operation, development and instrumentation of the Woomera Range, also the planning, execution and assessment of trials. The Space Physics Wing undertakes the operation of United States satellite and space tracking stations throughout Australia and conducts research and development in support of the Range, including investigations into the characteristics of the upper atmosphere using sounding rockets. The Weapons Research and Development Wing is concerned primarily with Australian-initiated defence research, but assistance is also given with some phases of the Joint Project programme. The Engineering Wing provides the design and manufacturing effort required to support the work of the Establishment and the Range.

Testing ranges have been established at Woomera, which is approximately 280 miles north-west of Adelaide. A township, together with modern amenities such as hospital, school, kindergarten, community store, swimming pool, and all sporting facilities, has been built at Woomera to accommodate the staff and their families. The population is approximately 5,300.

#### European Launcher Development Organization (ELDO)

By virtue of the major facilities at Woomera for launching space vehicles and the associated technical skills, Australia has become a member of ELDO, which has been established with the object of developing a launching vehicle for placing satellites in orbit for peaceful purposes. Other members of ELDO are Britain, Belgium, the Federal Republic of Germany, France, Italy, and the Netherlands. Test firings of the ELDO rocket will continue at Woomera until 1969.

### United States space projects

Agreements have been signed by the Australian and United States Governments for a co-operative programme for the establishment and operation in Australia of space vehicle tracking stations. The agencies for the Australian and American Governments are the Department of Supply and the National Aeronautics and Space Administration (NASA) respectively.

As part of the world wide network supporting NASA's space programme the stations are designed to track spacecraft in their orbits around the earth or on their journey into space, to receive telemetered data from the vehicle and to issue radio commands controlling the vehicle's manoeuvres. The Department of Supply is responsible for managing, staffing and operating the stations on behalf of NASA. The stations which are now in operation or under construction are at:

- Island Lagoon near Woomera (deep space probes and optical tracking of scientific satellites, *see* plate 61);
- Carnarvon in Western Australia (manned space flights and scientific satellites);
- Tidbinbilla in the A.C.T. (deep space probes, *see* plate 62);
- Orroral Valley in the A.C.T. (scientific satellites);
- Honeysuckle Creek in the A.C.T. (manned space flights, particularly the 'man on the moon' Apollo project);
- Cooby Creek near Toowoomba, Queensland (Application Technology Satellite).

An extensive communications system links the tracking stations with the control centres in the United States.

The orbits or courses of spacecraft determine the area in which tracking stations can be located. Within the area geographical and physical environment and protection from electrical noise determine the optimum location of the station. Being a large land mass in the Southern Hemisphere, diametrically opposite the United States, Australia is ideally situated for support of the United States space programme.

The initial stations near Woomera were managed by the Department of Supply's Weapons Research Establishment and manned by its personnel. With the new tracking stations industry has been brought into closer contact with space activities, contracts having been placed for their operation and maintenance by firms from industry. These contractors are SpaceTrack Pty. Ltd. (Tidbinbilla), Amalgamated Wireless (A'asia) Ltd. (Carnarvon), E.M.I. Electronics (Australia) Pty. Ltd. (Orroral Valley), Standard Telephones and Cables Pty. Ltd. (Honeysuckle Creek), and Amalgamated Wireless (A'asia) Ltd. (Cooby Creek). These firms are responsible for the operation and maintenance of the stations, subject to on-site directions of the Department of Supply Station Director.

NASA'S space projects requiring Australian participation are as follows.

#### *Manned space flights*

Project Mercury—initial manned satellites (now completed).

Project Gemini—extended orbits by two-man spacecraft; development of rendezvous techniques for two spacecraft.

Project Apollo—landing of men on moon and their return to earth.

#### *Scientific and application satellites*

Smaller single experiment satellites (Explorers, etc.).

Large multiple experiment scientific satellites (Orbiting Geophysical Observatories; Orbiting Astronomical Observatories, etc.)

Application satellites for communication (Echo; Applications Technology Satellite) meteorology (Tiros; Nimbus), etc.

Flight testing of technological experiments for application in communications, gravity gradient, meteorology, navigation, radio propagation, etc.

#### *Deep space probes*

Ranger—hard landing on moon; T.V. pictures of moon's surface.

Surveyor—soft landing of instrumented package on moon including T.V. cameras.

Lunar Orbiter—orbiting of moon.

Mariner—probes to Mars, Venus, etc.

### Defence Standards Laboratories

The broad function of these Laboratories is to provide a scientific service to the Armed Services, civilian defence and the factories, branches and establishments of the Department of Supply. It also provides trained groups in specialist fields for which there is no counterpart elsewhere in Australia. This service covers problems arising in the provision and use of defence *matériel* and is given generally within the fields of chemistry, physics, metallurgy, and engineering and, to a limited extent, in those of bio-chemistry and physiology.

### **Aeronautical Research Laboratories**

The work of these Laboratories lies in the fields of: (a) aeronautics; (b) guided missiles; and (c) branches of engineering appropriate to the special facilities, resources or experience resulting from (a) and (b). In particular it comprises aerodynamics, including wind tunnel, free flight model and actual flight testing; structures of aircraft and missiles; metals and other materials used in the construction of airframes and engines; engines of the air-breathing type used for the propulsion of aircraft or missiles; human engineering studies relating to the operation of aircraft and guided missiles; research and development related to Australian-initiated guided missiles; and operational assessment studies on devices and techniques employed or proposed for the defence of Australia.

### **Production of munitions**

The Department is responsible for the production of a wide range of munitions required by the Armed Services. Production is carried out substantially in Government factories, although some orders, mainly for components, are placed with private industry.

The following Government factories are currently in operation: Ammunition—Footscray, Victoria; Explosives and Filling—Albion and Maribyrnong, Victoria; Mulwala and St. Marys, New South Wales; Ordnance—Maribyrnong, Bendigo and Port Melbourne, Victoria; Small Arms—Lithgow, New South Wales; Clothing—South Melbourne and Brunswick, Victoria.

The Ammunition Factory produces the complete round of small arms ammunition and also components for larger calibre gun ammunition, including empty cartridge cases, electronic and mechanical fuses, and primers. The Explosives Factories produce the various types of explosive compositions and propellants required for gun ammunition, rockets and guided missiles. The Filling Factory at St. Marys fills and assembles into complete rounds of ammunition (other than small arms ammunition) the empty components and materials supplied by the other munitions factories and by private industry.

The Ordnance Factories at Maribyrnong and Bendigo are equipped to produce heavy ordnance equipment, such as naval guns and gun mountings; large turbine gears; steel shell bodies; empty rocket motors for guided missiles; trailers and tank transporters; and other items requiring heavy engineering capacity. As well as work for the Services, the Bendigo Factory is producing equipment for projects of national importance, e.g. control equipment for the Snowy Mountains Hydro-electric Authority, components for marine diesel engines for Australian shipping, large heavy engineering items for the coal, cement and steel industries, and coining presses for the Royal Australian Mint.

The Port Melbourne Factory builds large marine diesel engines for the Australian ship-building industry. Major forgings and fabrications for these engines are produced at the Ordnance Factories at Maribyrnong and Bendigo. The Small Arms Factory is equipped to produce the rifles and other small arms required by the Services. Current production is the 7.62-mm. automatic rifle, for which orders have also been received from overseas, and the 9-mm. carbine, which replaces the Owen as the infantry light machine gun. The Clothing Factories make uniforms, clothing and canvas goods for the three Services and also for the Postmaster-General's Department and some other Commonwealth authorities.

### **Production of aircraft and guided weapons**

Production both in Government factories and in industry of military types of aircraft and aero engines and of other aircraft components required by the Royal Australian Air Force is administered by the Department of Supply. Planning of capacity and the negotiations of contractual arrangements concerning aircraft modification, repair and overhaul, and for the supply of spare parts and airborne equipment for the R.A.A.F., the R.A.N. and the Army are also functions of the Department.

The following factories are operated by the Department: The Government Aircraft Factory at Fishermen's Bend and the Final Assembly Workshops and Test Airfield at Avalon, Victoria and the Airframe Repair Workshops at Parafield and Northfield, South Australia. The current aircraft production programme at the Government Aircraft Factory comprises the French Mirage supersonic fighter for the R.A.A.F. and the Jindivik radio-controlled target aircraft, which has been or is being supplied to Britain, Sweden and the United States, as well as to the Weapons Research Establishment and the Royal Australian Navy. Apart from the Government Aircraft Factory, the Commonwealth Aircraft Corporation Pty. Ltd. is the only major aircraft manufacturer in Victoria, and this company is currently producing the French Atar turbo-jet engine for the Mirage fighter and also some sections of the airframe. The corporation has also been appointed the prime contractor for the Australian production for the R.A.A.F. of the Italian Macchi jet trainer and for the production of the British Viper engine that will equip this aircraft.



Other major activities carried out in the Government factories or by various private contractors are the manufacture of airframe and engine spare parts; the overhaul, repair and modification of military aircraft and engines currently in service with the R.A.A.F., R.A.N. and Army; and the reconditioning and servicing of aircraft instruments and other ancillary equipment.

The production of the Ikara anti-submarine missile is continuing with the high level of activity at the Government Aircraft Factories at Fishermen's Bend. Production of the complete Ikara system, covering broadly the missile, motor, propellants, guidance equipment, launcher, and magazine handling equipment, is a combined effort by departmental establishments and industry directed and co-ordinated by the Department.

Planning is well-advanced towards the establishment of a facility, within the area of the St. Marys Munition Filling Factory, New South Wales, to repair and maintain the Tartar surface-to-air missile supplied by the United States for Australia's new missile destroyers. Later the facility will be expanded to cater for other Service missiles.

The Department is responsible for the technical aspects of production and procurement from local industry of telecommunications and electronic equipment for the Australian Forces and for certain other organizations such as Colombo Plan and SEATO. A wide range of these equipments is obtained from industry; some of the more important projects are the complete equipping of several major automatic telegraph relay centres for Army and Air; the local manufacture of ultra high-frequency ground station equipment for communication with Mirage and Sabre aircraft, automatic direction finders for the Macchi aircraft, remote-controlled target ranges for the Army, electronic guidance equipment for the Ikara system, and the development and production of a transistorized field transceiver for the Army.

Contracts have also been arranged for the local development of a lightweight magnetron of United States design for use in radar systems, of a high stability quartz crystal oscillator, and of other high stability electronic components such as various types of fixed and variable resistors, mica and tantalum capacitors and matched crystals.

#### Contract Board

Under the *Supply and Development Act 1939-1948* the Contract Board is the authority responsible for the arranging of contracts for the performance of services and the purchase of supplies for the Naval, Military and Air Forces of the Commonwealth, as well as for the Department of Supply. The Board is also responsible for the sale or disposal of all surplus or unserviceable Commonwealth goods approved for disposal. By arrangement, the Board also arranges purchases on behalf of other Commonwealth departments and authorities which desire to use its facilities.

The Contract Board meets in Melbourne and comprises representatives of the Departments of Supply, Navy, Army, and Air. The Board's administrative organization is the Contracts and Disposals Branch. In each State other than Victoria there is a District Contract Board with an administrative organization similar to that of the Contract Board. The table following shows, in respect of the Contract Board organization, the purchases and realizations from disposals for the years 1963-64 and 1964-65.

#### CONTRACT BOARD ORGANIZATION: PURCHASES AND REALIZATIONS FROM DISPOSALS, 1963-64 AND 1964-65 (\$'000)

State	Purchases		Realizations from disposals	
	1963-64	1964-65	1963-64	1964-65
Contract Board, Victoria . . . . .	93,534	82,632	3,319	4,171
District Contract Board—				
New South Wales . . . . .	14,652	18,528	2,738	2,249
Queensland . . . . .	2,694	3,578	708	975
South Australia . . . . .	5,382	5,591	1,117	1,234
Western Australia . . . . .	809	1,025	349	465
Tasmania . . . . .	173	183	95	115
<b>Total . . . . .</b>	<b>117,244</b>	<b>111,537</b>	<b>8,326</b>	<b>9,209</b>

### Defence supply planning

The central planning authority of the Department is the Planning Branch, whose principal functions are:

- to study manufacturing capacity available for the Services' requirements in peace and war;
- to plan for and to assist in the development of additional production capacity;
- to prepare submissions on defence production preparedness to the Higher Defence Machinery;
- to plan the organization of industrial resources for defence production in war;
- to provide and administer stocks of relevant materials and reserve pools of plant equipment and other requirements needed for rapid expansion of production in the event of war;
- to prepare and advance co-ordinated production programmes against Service orders and to analyse and interpret achievement against these programmes for the information of the Department and the Services;
- to provide advisory services in the field of materials, supply and utilization to Government factories and contractors engaged in the production of munitions requirements;
- to administer the national stockpile;
- to administer oversea aid programmes allocated to the Department; and
- to undertake commercial sales.

A series of Industry Advisory Committees has been established to advise the Minister and the Department on the ability of industry to meet the Services' *matériel* requirements for mobilization and war. The Committees are: Aircraft and Guided Weapons; Chemical; Electrical; Electronics and Telecommunications; Heavy Engineering; Light Engineering; Fibres; Textiles, Clothing and Cordage; Leather and Footwear; Machine Tools and Gauges; Materials; Rubber. Members of the Committees include industrialists of wide experience and the highest ability in their chosen fields.

### Stores and Transport Branch

This Branch, administered by a Board of Management and working under the direction of a General Manager, functions as the central storage authority and the central transport authority for all Commonwealth Departments. It is the authority for the arrangement of furniture removals at departmental expense in all States, but not in the Northern Territory. It has agents in Darwin. It also operates a shipping and customs section and the England-Australia bulk air freight scheme for Commonwealth Departments.

On 30 June 1965 the Branch had under its control land, buildings and works, vehicles, plant and equipment valued at \$24,132,234 and 3,180,000 sq. ft. of storage space, as well as storage facilities for large quantities of chemicals, bulk liquids and explosives.

### Finance Branch

The total expenditure on Department of Supply activities during the year 1964-65 was \$127,554,000, comprising \$66,744,000 (net) from Parliamentary appropriations, and \$60,810,000 from Trust Fund Accounts. The latter included expenditure of \$13,026,000 for Stores and Transport and \$44,690,000 in Government Munitions and Aircraft Factories.