

1947
NEW ZEALAND

AIR DEPARTMENT

(REPORT ON THE) FOR THE YEAR 1946-47

Presented in pursuance of Section 7 of the Air Department Act, 1937

REPORT BY THE HONOURABLE F. JONES, MINISTER IN CHARGE OF THE AIR DEPARTMENT, FOR THE YEAR ENDED 31st MARCH, 1947

MR. SPEAKER,—

I have the honour to present to Parliament the report of the Air Department, embracing the activities of the Royal New Zealand Air Force, the Civil Aviation Branch, and the Meteorological Office, for the year ended 31st March, 1947.

REPORT BY THE CHIEF OF THE AIR STAFF FOR THE YEAR ENDED 31st MARCH, 1947

The Hon. the MINISTER OF DEFENCE.

I HAVE the honour to submit the following report on the Royal New Zealand Air Force for year ended 31st March, 1947.

During the period under review, which is the first clear post-war year, some progress has been made in the planning and formation of the post-war Air Force, in spite of the many difficulties which are the inevitable aftermath of war. This year has witnessed the completion of demobilization (July, 1946) and the re-establishment of the Regular Air Force on a voluntary basis under interim conditions of service required for the immediate post-war tasks. These commitments in order of magnitude have included the custody of war assets pending disposal, the operation of a quasi-civil transport organization within New Zealand and the South Pacific, the maintenance of a weekly Air Force transport service to Japan for "J" Force, the provision of a fighter squadron in Japan, and lastly the retention of a skeleton Air Force organization on which the post-war Air Force may ultimately be reconstituted, which includes No. 14 Fighter Squadron in Japan and No. 41 Transport Squadron, both of which are fully established, No. 5 Flying-boat Squadron in Fiji (nucleus), and No. 75 Bomber Squadron at Ohakea (nucleus). These operational units are to be supported by Flying Training, Technical Training, and Maintenance Units now in process of establishment. The strength of the Air Force at 31st March, 1947, was 652 officers, 3,352 airmen, and 241 Women's Auxiliary Air Force. This figure is inclusive of personnel employed on transient activities such as stores disposal, &c., and recruits.

Efforts to retain sufficient numbers of trained technical personnel to meet the minimum flying commitments have met with only partial success. Unless the position improves in the near future, Air Force activities over the next few years will be seriously reduced and the establishment of any operational units delayed. It is, in fact, upon the success attending the present efforts of the Department to retain a sufficient nucleus of experienced flying and technical personnel that the efficiency and economy of the Air Force in the next decade will primarily depend.

During the year the replacement of United States types of combat aircraft, which are now obsolete and with which the Air Force had been wholly equipped during the war, by a suitable British type received careful consideration. The primary objective was to obtain a type available in sufficient numbers and suitable for a variety of operational and training roles on which the Air Force could be reorganized and trained during the next five years. In any case, there is no new type of British military aircraft developed since the war which, apart from consideration of finance, could be safely recommended for use in New Zealand at the present time. As a result, the Government decided to order 80 Mosquitoes F/B Mk. VI, which have been obtained at greatly reduced prices from the United Kingdom. Many of these aircraft are new. Deliveries are now being effected by air with both Royal New Zealand Air Force and Royal Air Force crews. Plans for a post-war Air Force providing for the establishment of a small Regular Air Force serving on short- and long-term engagements, together with such Territorial units as can be efficiently supported, have been prepared.

During the year I have been able, as Chief of Air Staff, to participate in joint conferences and exercises in the United Kingdom which have been of great value in obtaining a sound perspective towards post-war military problems.

OPERATIONS

One squadron only, No. 14 Fighter Squadron in Japan, has been maintained on a fully operational basis. Its efficiency and morale have been the subject of high praise from the Air Officer Commanding, and notably from the Chief of Air Staff, Royal Air Force, during his visit to Japan. The squadron is employed in air patrols over the Yamaguchi and Hiroshima prefecture of Japan, and in coastal patrols against smuggling and illegal immigration. No. 5 Flying-boat Squadron at Lauthala Bay, Fiji, has been mainly on a care and maintenance basis, but has provided aircraft for air-sea rescue duties, surveys of Pacific bases, and transport of personnel employed in the High Commission for the Western Pacific. By courtesy of the Air Ministry, No. 2 (Bomber) Squadron at Ohakea has been renamed No. 75 Squadron after the famous New Zealand squadron in bomber Command, and this number will remain unallocated in the Royal Air Force. It has been mainly concerned with preparatory training for the ferrying of Mosquito aircraft from the United Kingdom to New Zealand. Fourteen aircrews were despatched to the United Kingdom by Royal New Zealand Air Force transport aircraft, and the first Mosquito aircraft were flown out from England to New Zealand in March, 1947. Six Mosquito aircraft (dual trainers) purchased from the Australian Government were also flown to New Zealand. Restricted flying activities were carried out by the Central Fighter Establishment at Ohakea and by the Instrument Flying School at Whenuapai. Other flying activities include the Forestry Patrol Flight at Rotorua, the Canterbury Project Flight (meteorological research) at Wigram, and the General Purpose Flight (transport duties) at Rongotai. The School of Air Navigation at Wigram has been limited to the training of navigators for Mosquito ferry duties. During the year liaison visits were paid to New Zealand by aircraft from the Empire Air Navigation School, the Central Bombing Establishment, the Empire Radio School, and the Empire Armament School. The visits of these teams of specialists in aircraft fitted with the latest equipment offer a unique method of keeping in touch with the latest developments in the Royal Air Force, and are of the utmost value to the Royal New Zealand Air Force.

A Commonwealth Squadron (No. 24) for world-wide Service transport duties has been formed in the Royal Air Force, to which aircrews from other members of the Commonwealth are seconded. New Zealand supplies two crews to this squadron. The objects behind the establishment of this squadron are to extend the co-operation between the Air Forces of the Commonwealth, to ensure the development of a common technique in air transport, and to provide experience in long-distance flying. The establishment of this squadron represents an important development in post-war relations between Commonwealth Air Forces.

A summary of flying statistics is given in Appendix A.

R.N.Z.A.F. AIR TRANSPORT SERVICES

The Air Force has during the year provided air transport requirements coming within the following categories, namely :—

- (a) Air support for the New Zealand component of the British Commonwealth Occupation Forces in Japan.
- (b) Operation of a quasi-civil service within New Zealand and the South Pacific pending transfer to the New Zealand National Airways Corporation.
- (c) Special flights to the United Kingdom for the transport of Mosquito aircraft ferry crews, as well as a number of special flights arranged for the carriage of Ministerial and departmental officials on various missions.

At the commencement of the year the Royal New Zealand Air Force air transport squadrons were equipped with 27 C. 47 Dakotas, 4 Lodestars, and 4 Sunderlands.

Quasi-civil Services.—During the year facilities have been afforded those members of aircrew desirous of making a career in civil aviation to train and be examined for special civil certificates—namely, First and Third Postmaster-General's Licences, First and Second Navigation, and "A" and "B" Flying endorsements. As a result of this scheme, aircrews on transfer to New Zealand National Airways Corporation are already in possession of the necessary civil qualifications.

During the year the percentage of fare-paying traffic increased rapidly until by December, 1946, 90 per cent. of all passengers carried by No. 40 Squadron and the Sunderland Squadron were civilians.

In December, 1946, the New Zealand Railways, in conjunction with the Air Force, operated a series of special inter-Island air freighting flights in order to meet the shipping emergency. The success of this series of flights was clearly demonstrated when the New Zealand Railways in February, 1947, arranged with the Air Force to operate C. 47 freight aircraft between Paraparaumu and Woodbourne. Up to 31st March, 1947, 2,893 shipping tons of freight had been transported between the two Islands.

Special flights by Sunderland aircraft have been made between Wellington and the Chatham Islands for the carriage of Public Works and other Government officials in connection with the roading scheme.

At the request of the French Minister, a survey flight was made between Aitutaki, in the Cook Islands, and Bora Bora, French Oceania. Following on this trip two further special flights have been made.

Arrangements were well in hand at the close of the year for the transfer of the quasi-civil services to the Corporation. The booking-offices within New Zealand were taken over by the Corporation on the 3rd March, 1947; the aircrews and certain ground personnel of the squadrons were transferred at the end of the month; and the aircraft will pass to the Corporation as soon as the necessary certificates of airworthiness have been issued.

No. 41 Squadron.—Valuable experience has been gained by the aircrews of No. 41 Squadron on the courier service to Japan. Five services a month were maintained until September, when a shortage of trained maintenance personnel necessitated a reduction to four services a month.

The entire personnel of No. 14 Squadron in Japan were repatriated to New Zealand by air and replacement effected between November, 1946, and 31st March, 1947.

The acquisition of Mosquito aircraft by the Air Force and the decision to ferry these aircraft to New Zealand necessitated arrangements for the return of aircrews to the United Kingdom. In consequence, up to 31st March three special flights had been made to England with Dakota aircraft.

Special flights carrying Ministers of the Crown, Chiefs of Staff, and Treasury officials have been made to various points throughout the Pacific area.

A summary of air transport statistics is shown in Appendix C.

ANCILLARY SERVICES

Meteorological.—An efficient Meteorological Service and a Flying Control Service are vital to both the Air Force and civil aviation. It has been decided, in order to ensure unity of control, greater safety, and economy, that only one Meteorological Service and one Flying Control Service shall be maintained.

These must necessarily be organized on a civil basis, although there are certain Air Force requirements for which provision is to be made. The Air Force Meteorological Branch reverted to a civil status in October, 1946, and remained with the Air Department. The report of the Director of Meteorological Services is included in another section of this report.

Flying Control.—The Flying Control Service is due to be established shortly on a civil basis under the Director of Civil Aviation. It is at present providing control service from four control centres and nineteen control towers, with a total staff of 54 officers and 60 airmen in New Zealand and the South Pacific. In addition, at several of the smaller aerodromes aeradio staffs supply control facilities on behalf of the organization. Improved communications made available during the year have enabled the Flying Control Service to keep pace with the increased civil air traffic.

Air-sea Rescue.—The Air Force maintains an air-sea rescue organization consisting of 2 Catalina flying-boats and 2 Hudson landplanes equipped with airborne lifeboats for search and rescue of aircraft and vessels. This is an obligation assumed under the International Civil Aviation Convention and is one which can more economically be fulfilled by the Air Force. It is co-ordinated by the Flying Control Service, which in the case of missing vessels works with the Marine Department and local port authorities. During the year it has taken part in a total of forty-five search and/or rescue operations.

PERSONNEL

The release of all temporary personnel who wished to be demobilized was completed by 15th July, 1946, within the prescribed period of one year from the cessation of hostilities. The unavoidable loss of highly trained war personnel was accentuated in the Air Force by the lack of long-service Regular personnel. This was due to the fact that the Royal New Zealand Air Force had virtually only been established immediately prior to the war. The resulting shortage of key personnel has forced a considerable reduction in flying operations and delayed the resumption of flying training. Comparatively little relief has been obtained from the recruiting programme, as few skilled tradesmen have returned to the Service.

Since March, 1946, enlistments into the Interim Air Force for varying terms of engagement up to 31st March, 1948, have totalled 2,073. These airmen were primarily required for administrative and equipment duties arising out of war activities. Their terms of service did not permit extensive courses, particularly in technical training, to be conducted. Applications were called in November, 1946, from serving personnel for engagements in the Regular Air Force, and 1,337 applications were received. The engagement of personnel (officers and aircrew) to man the General Duties Branch has been satisfactory and some 230 appointments have been made. The manning position in the Air Force at the end of March, 1947, was as follows:—

	Officers.	Airmen.	Total.
Permanent service	61	8	69
Short service (five to eight years)	42	227	269
Interim service (expiring before March, 1948)	549	2,244	2,244
Temporary service (including 241 W.A.A.F.)	549	1,114	1,663
	652	3,593	4,245

It is clear that a vigorous recruiting campaign will be necessary next year to maintain the Air Force, and that a considerable period of training must ensue before any appreciable increase in flying activities can take place.

A system of exchange between officers of the Royal Air Force and the Royal New Zealand Air Force has been inaugurated and two senior officers have so far been exchanged under this scheme, which will prove a great benefit to the Royal New Zealand Air Force. The normal staff and specialist courses overseas are being resumed. The importance of a high standard of training in the Regular Air Force, close liaison with the Royal Air Force, and a higher degree of integration between the three Armed Forces in New Zealand cannot be overstressed.

Honours and Awards.—The total number of honours and awards received by New Zealand air personnel for the year and since the outbreak of war is shown in Appendix B.

Casualties :—

				From 1st April, 1946, to 31st March, 1947.	
				In New Zealand.	Overseas.
Killed or presumed dead	..	..	..	2	6
Missing believed killed	..	..	..	..	..
Missing	..	..	..	..	1
				2	7

Of the 2 personnel killed in New Zealand, 1 was due to a Service accident and 1 to a non-Service accident.

Of the 6 killed and 1 missing overseas, 1 was due to a non-Service accident.

Women's Auxiliary Air Force.—The numbers of serving Women's Auxiliary Air Force personnel is now 241. This small Force continues to be a great assistance in the administrative and catering spheres, but as no enlistments have been made for some time this number will be reduced rapidly.

One Women's Auxiliary Air Force officer and 4 N.C.O.s are on special duties with the Historical Records Section in London, while 1 Women's Auxiliary Air Force officer is serving as a secretary on the Far East War Crimes Tribunal in Japan.

There is scope in the Air Force for the employment of women in certain trades in which they are more satisfactory than men.

TRAINING

Flying Training.—Flying training at Central Flying School, Wigram, was limited to refresher, recategorization, and conversion courses.

Other activities of the C.F.S. were the ferrying of aircraft, provision of aircraft and crews for air-sea-rescue duties, and flight experience and lectures to Air Training Corps Cadets. Experimental flying was carried out in the Meteor aircraft on loan from Royal Air Force to check the application of existing training techniques to modern jet aircraft.

Due to the release of a large number of experienced navigators, it was necessary to reconstitute the Air Navigation School at Wigram to provide Instructors, squadron navigation officers, and crews for the Mosquito delivery flight.

Technical Training.—The Technical Training School was transferred from Nelson to Hobsonville (Auckland), but owing to delays caused by works alterations it was not possible to commence training until August, 1946. At the end of March, 1947, there were 169 trainees undergoing technical courses, and a total of 129 had qualified in short technical courses. The Electrical and Wireless School at Wigram has passed out a total of 53 personnel in various trades. The Recruit Depot at Wigram, Christchurch, carried out a series of short recruit courses for 1,195 recruits of the Interim Air Force.

AIR TRAINING CORPS

The Air Training Corps is a valuable auxiliary to the Regular and Territorial Air Force and will prove an excellent source of recruiting.

The strength of the Air Training Corps during 1946 decreased from 5,862 Cadets at the 1st April, 1946 to 5,170 at the 31st March, 1947. This latter number was made up of 1,873 town unit Cadets and 3,297 school unit Cadets.

During the period under review some 756 Cadets were mobilized into the Interim Air Force, and further 68 made application for service in the Regular Air Force. The decrease in the Air Training Corps strength was largely due to this recruitment into the Service, which, for ground crew, was on a much larger scale than during any previous year of operation.

Accommodation problems during the period have been largely overcome by the co-operation of the Army Department, which has offered the part use of certain drill-halls. The number so occupied is now twenty-three. Twenty-two school and town units have been disbanded and appreciable reductions in staff effected.

Ample supplies of instructional equipment have been available during the past twelve months, and this should continue.

In addition to the forty parades held by each unit during the year, all Cadets had the opportunity of carrying out further practical training at summer camps. A reasonable standard of qualification was achieved by the majority of Cadets.

EQUIPMENT

At the end of the war the Air Force was equipped with a large variety and number of British and United States aircraft, most of which were obsolete and incapable of further flying through lack of spares and maintenance capacity. It is hoped that the available Catalinas and Dakotas, with their associated spares and equipment, will be adequate to maintain a small flying-boat unit and a transport squadron during the interim period. Sufficient and satisfactory training types—namely, Tiger Moths, Harvards, and Oxfords—are also available for flying training requirements during this period. The lack of any United States operational types which could be maintained and the desirability of reverting to British aircraft for this role made it necessary to discuss with Air Ministry the supply of a suitable type for the equipment of the Air Force during the interim period, and pending the availability of proved post-war types. As a result, a total of 80 Mosquito F/B Mk. VI were obtained at greatly reduced rates, and these are now arriving in New Zealand.

At the beginning of the year the Air Force held in the Dominion a total of 1,330 aircraft, of which 577 were United States combat type obtained on lease-lend. Thirteen transport aircraft, comprising 6 Dominies, 6 Lodestars, and 1 Dakota, were transferred to the New Zealand National Airways Corporation and 73 Tiger Moths and 20 miscellaneous civil-type aircraft were sold to aero clubs and private owners. Additional Dakota aircraft are in process of transfer to New Zealand National Airways Corporation. The sale of non-combat-type aircraft realized the sum of £33,458. A total of 496 United States combat-type aircraft and 230 training aircraft, Tiger Moths and Oxfords, have been declared to the War Assets Realization Board as surplus. Every effort has been made by the Air Force and the War Assets Realization Board to explore the outlet for such items with a view to early disposal, but to date no satisfactory arrangements have been made. The Air Force still retains the custody of some 700 surplus aircraft of varying types which, although they had an original capital value of over £20,000,000, have a negligible disposal value.

At the termination of hostilities, Air Force equipment and spares occupied nearly 500,000 square feet of floor space at stores depots. The equipment staff has necessarily been responsible for the classification and survey of this equipment, the declaration of surpluses to War Assets Realization Board, and the subsequent custody and disposal of this equipment. This task has proved a heavy strain on a depleted equipment staff and has prejudiced the resumption of normal Service activities. Of general stores and

spares surplus, some 500 separate schedules have been submitted to the War Assets Realization Board, resulting in some 5,000 private sales and 60 auctions. Auction sales realized a figure of approximately £80,000. The Air Force has assisted the Rehabilitation Department in the provision of hand tools, &c., for sale to ex-servicemen under rehabilitation schemes. Major issues of aircraft spares, plant, and tools have been made to the New Zealand National Airways Corporation and Tasman Empire Airways during the year, thus providing a proportion of the plant, equipment, and spares necessary for their overhaul workshops.

WORKS AND BUILDINGS

The Air Force has now been reduced to the original number of pre-war operational stations—i.e., Whenuapai, Hobsonville, Ohakea, Woodbourne, Wigram, and Taieri. The R.N.Z.A.F. station at Lauthala Bay, Fiji, has, however, still been retained as a R.N.Z.A.F. flying-boat base. The stores depots built during the war at Te Rapa (Hamilton), Mangaroa (Upper Hutt), and Weedons (Christchurch) are still retained. The R.N.Z.A.F. station at Ardmore, also built during the war, is held on a care and maintenance basis. The Air Force has taken over from the Navy Department buildings at Shelly Bay to provide offices for the Air Department and accommodation for personnel in Wellington.

The remaining stations and camps, numbering 65, and containing accommodation for approximately 21,000, have been closed and buildings declared surplus, which now have mostly been removed or otherwise utilized for civilian purposes. In view of the acute shortage of building-materials, temporary-type accommodation erected at the above permanent stations surplus to post-war requirements has been removed. It is, however, clearly uneconomical to demolish such buildings if there is a reasonable expectation that they will be required *in situ* to meet post-war requirements.

The only new works undertaken have been the transfer of the overseas W/T station from Waiouru to Ohakea to economize in personnel, in provision of office accommodation at Shelly Bay involving minor alterations to existing buildings, and the provision of personnel accommodation at Te Rapa to take the place of the temporary wartime hutments, which are no longer fit for accommodation. The most important works programme facing the Air Force is additional married quarters, particularly at isolated Air Force stations, the lack of which is causing the loss of experienced personnel from the Service.

ORGANIZATION AND POST-WAR PLANNING

The commitments of the New Zealand Government under the World Security Organization, or even in respect of Commonwealth security, cannot yet be reduced to specific military plans. Nevertheless, the position is sufficiently clear to warrant the retention of an adequate nucleus Air Force, without which the task of rebuilding the Air Force would become immeasurably more difficult and expensive. The experience gained in the late war and modern developments in weapons will necessarily involve many organizational changes in the post-war Air Force. These matters have been the subject of continuous study during the past year by a special post-war Planning Committee. This planning has been followed by a reorganization of the Interim Air Force as far as existing conditions and resources permit.

The post-war Air Force will consist of a Regular Air Force and a Territorial Air Force. While certain Regular units are now established on a cadre basis, it has not yet been possible to re-establish the Territorial Air Force owing to lack of Regular technical personnel. In this connection it must be emphasized that the size and efficiency of the Territorial Force depends entirely upon the Regular Air Force backing.

The conditions of service in the post-war Regular Air Force are basically the same as those now adopted by the Royal Air Force, and provide for both short- and long-term engagements. The complex nature of Air Force trades makes it impossible to train a competent tradesman to peacetime standards and receive from him a period of productive service in less than eight years. This is the normal initial period of engagement for technical personnel; for others it is five years. Towards the end of the initial engagement a limited number of personnel are to be selected for permanent service, which is pensionable.

To permit expansion of the Air Force in the initial stages of an emergency to be accompanied by a competent standard of supervision in technical trades, it is necessary in peace to build up a reserve of aircraft tradesmen. In the post-war Air Force the ratio of short-term to career posts in the establishment will be approximately 2 to 1. This ratio has been set mainly by reserve requirements and career factors. The short terms of service provide valuable supplementation of the technical capacity of the Dominion, as well as fulfilling Air Force requirements. It is hoped that short-term airmen will have comprehensive assistance in their rehabilitation on termination of their short-service engagements. The airman who makes a career of the Service will be superannuated under the Public Service superannuation scheme as recently modified to suit Service conditions.

Air Force trades have been adjusted in accordance with the advances made in technical developments and practices during the war. The number of trades has been reduced by absorbing allied duties into new trades in the interests of economy and efficiency for peacetime operation, and in general the revision has resulted in a considerably higher technical standard being set in all trades. A Technical Branch has been formed comprising specialist officers in engineering, signals, and armament. Technical Officers will be drawn from airman in appropriate trades and from University graduates in engineering. An Administrative and Supply Branch has been formed in place of the Equipment Branch and the Administrative and Special Duties Branch. These changes will result in increased efficiency in both the technical and administrative services, and a better levelling of career prospects for officers throughout the three main branches of the Service.

The new aircrew scheme lately introduced by the R.A.F. has been adapted to New Zealand conditions; this scheme involves a substantial reduction in the numbers of flying posts filled by officers and creates an entirely new system of ranks, titles, badges, and systems of advancement for aircrew. Airmen of any trade will be eligible for selection for an aircrew engagement as pilot or navigator, while the technical aircrew trades of signaller, engineer, and gunner will be entered from airmen who have served in related ground trades. The new aircrew trades will be filled on a short-service basis and the majority of General Duties officers will be drawn from this source, while the technical aircrew will have opportunity for long service by remustering to their related ground trades or by being commissioned in the Technical Branch.

EDUCATIONAL SERVICES

As the Air Force must, of necessity, consist largely of short-service personnel, it is essential, in order to attract the right type of airmen and to provide better opportunities of promotion from the ranks, that adequate educational and rehabilitation facilities should be provided. As a school for advanced technical training, aviation, and citizenship generally, the R.N.Z.A.F. should appeal to the youth of the country.

During this year the Educational Services have necessarily suffered from a lack of staff, but valuable work has been done, and it is hoped that with the active help of the Education Department, which has co-operated fully, a satisfactory scheme whereby experienced Education Officers are seconded to the Air Force will be shortly established.

Educational Training.—The system of pre-entry examination in force during the war was discontinued and replaced as a temporary measure, by the inclusion of an Education Officer in the Selection Committee. As the general standard of education of recruits on entry to the Air Force was lower than that required, elementary instruction in basic subjects has been continued.

General Education Welfare.—The following is a summary of the various general educational activities which have been in operation over the past year:—

- (i) *Study Courses.*—The study courses produced by Army Educational Welfare Services have been passed to the Technical Correspondence School, Education Department, but are still available to members of the Armed Forces free of charge. The range of these courses has been extended over the past year.

- (ii) *University and Professional Courses.*—A.E.W.S. text-books for University-degree courses remain available on hire, and tuition was provided for students taking accountancy or secretarial courses. Every encouragement was given by the R.N.Z.A.F. to serving personnel who took University and professional courses in order to improve their prospects of promotion or employment either within or outside the Service.
- (iii) *Recreational Libraries.*—Over the past year emphasis has been placed on the supply of general information and on the “library request” function of station libraries, with the result that there has been an all-round increase in library activity relative to the present strength of stations.
- (iv) *Classes at Technical Schools.*—The numbers of personnel attending classes at technical schools have been steady throughout the year. The co-operation of the Principals of the schools in arranging classes suited to the needs of Service personnel was greatly appreciated.
- (v) *Hobby Clubs.*—Educational clubs such as woodwork, metalwork, drama, photographic, amateur radio, and musical appreciation clubs, &c., continued to be popular among Service personnel. As a factor tending to promote good tone and morale they proved their value during the war and are now regarded as an essential part of the welfare organization of the Air Force.

No. 14. Squadron, Japan.—The Educational Section of this squadron has arranged educational activities of its own and, in addition, has worked in close liaison with the R.A.F. Education Section, Iwakuni, and with the New Zealand Army Educational and Rehabilitation Service. A recent report showed that one-third of the total squadron were enrolled with one or the other of the various educational activities.

ACCIDENTS

During the past year, in which there occurred 29 accidents involving R.N.Z.A.F. aircraft, there was only 1 serious accident, which resulted in loss of life and the destruction of the aircraft. This accident took place at Iwakuni Airfield, Japan, and concerned a Corsair aircraft of No. 14 Squadron. Five of the accidents occurred on the ground and the resultant damage was not of a serious nature. There were 19 cases of engine failure in flight, but in every instance successful landings were made. Some of these failures were undoubtedly due to a recession from the high standard of maintenance created by the R.N.Z.A.F. during the war years.

PUBLIC RELATIONS

The small staff remaining in this Section is mainly involved in matters arising out of the war, such as casualty records, graves registration, and correspondence with next-of-kin. It is also responsible for publicity, advertising, notification of awards, &c.

The R.A.F. Missing Research and Inquiry Service, to which a few New Zealand officers are attached, has continued to operate in Europe in an endeavour not only to trace those personnel still reported missing, but also to obtain further facts regarding those already reported during the war by the International Red Cross as having lost their lives. Similar investigations are being carried out in the Pacific by United States and Australian personnel, to which party one New Zealander is seconded. The information obtained has been deeply appreciated by the next-of-kin.

HISTORICAL RECORDS

The Air Force Historical Records Branch was only established towards the end of the war, and some years of work are yet involved. It is divided into two sections: one at Air Department, Wellington, dealing with the Pacific area; and one at R.N.Z.A.F. Headquarters, London, working on the operations in Europe and elsewhere in which the R.N.Z.A.F. were mainly involved. The work of these sections is directed and co-ordinated by the Editor-in-Chief of New Zealand War Histories.

CONCLUSION

The inevitable dislocation following the war, which necessarily involves the employment of staff on unaccustomed duties and shortages of key personnel, has cast a heavy strain on the adaptability and loyalty of the remaining personnel. I wish to express my thanks to all ranks in the Air Force and civil personnel in the Air Department for their efforts to surmount the difficulties inherent in this transition period and to maintain the tradition of the Service.

I have, &c.,

A. DE T. NEYILL, Air Vice-Marshal,
Chief of the Air Staff.

APPENDIX A.—FLYING STATISTICS FOR YEAR, JANUARY, 1946, TO MARCH, 1947

Units.					Flying Hours.
Operational units—					
No. 14 (F) Squadron	..	..	..	..	2,589·35
No. 5 (FB) Squadron	..	..	..	..	2,979·05
No. 75 (BR) Squadron	..	..	..	..	1,619·00
Total	..	..	..	..	7,187·40
Transport units—					
No. 40 Squadron	..	..	..	..	8,336·30
No. 41 Squadron	..	..	..	..	7,648·35
Sunderland Squadron	..	..	..	..	1,170·00
G.P. Flight	..	..	..	..	5,704·35
Total	..	..	..	..	22,859·40
Training—					
Air Navigation School	..	..	..	..	1,930·10
C.F.S.	..	..	..	..	1,344·20
Instrument Flying School	..	..	..	..	1,970·00
C.F.E.	..	..	..	..	1,664·35
Total	..	..	..	..	6,909·05
Miscellaneous—					
Canterbury Project	..	..	..	..	263·25
Jet Propulsion Unit	..	..	..	..	238·25
Miscellaneous station flying	..	..	..	..	636·05
Total	..	..	..	..	1,137·55
Grand total	..	..	..	..	38,094·20

APPENDIX B.—HONOURS AND AWARDS

Honours

	Total conferred, 1st April, 1940, to 31st March, 1946.	Conferred, 1st April, 1946, to 31st March, 1947.	Total.
Companion of the Order of the Bath ..	1	1	2
Knight Commander of the Order of the British Empire	1	..	1
Commander of the Order of the British Empire	8	2	10
Officer of the Order of the British Empire	25	10	35
Member of the Order of the British Empire	46	22	68
	81	35	116

Awards

	Total Awarded, 1st April, 1940, to 31st March, 1946.	Awarded, 1st April, 1946, to 31st March, 1947.	Total.
Victoria Cross	3	..	3
Bar to Distinguished Service Order ..	4	..	4
Distinguished Service Order ..	71	..	71
Military Cross	2	..	2
Second Bar to Distinguished Flying Cross	4	..	4
Bar to Distinguished Flying Cross ..	79	1	80
Distinguished Flying Cross	1,008	7	1,015
Bar to Air Force Cross	2	..	2
Air Force Cross	92	13	105
Conspicuous Gallantry Medal ..	5	..	5
George Medal	6	..	6
Military Medal	3	..	3
Bar to Distinguished Flying Medal ..	1	..	1
Distinguished Flying Medal	179	..	179
Air Force Medal	5	1	6
British Empire Medal	42	14	56
American Distinguished Flying Cross ..	16	2	18
U.S. Air Medal	18	1	19
U.S. Legion of Merit	5	1	6
U.S. Bronze Star Medal	..	4	4
Croix de Guerre (French)	5	8	13
Croix de Guerre (Belgian)	1	..	1
Order of Lenin	1	..	1
Order of Crown of Yugoslavia	2	..	2
White Eagle of Yugoslavia	1	..	1
Czech War Cross	1	..	1
Norwegian War Cross	1	..	1
Polish Virtute Militari	2	..	2
	1,559	52	1,611

APPENDIX C.—STATISTICAL SUMMARY OF R.N.Z.A.F. AIR TRANSPORT SERVICES, PACIFIC AND NEW ZEALAND

At 31st March, 1947, services were being operated by the R.N.Z.A.F. Air Transport over the following routes :—

(a) External scheduled services—

Route.	Route Miles.	Frequency.
Sunderland service—		
Auckland-Suva	1,143	Once weekly.
C. 47 services—		
Auckland-Rarotonga (via Norfolk Island-New Caledonia, Fiji-Tonga-British Samoa-U.S. Samoa-Aitutaki)	3,630	Once fortnightly.
Fiji-British Samoa	605	Once fortnightly.
Auckland-Japan	7,000	Once weekly.

Traffic statistics for these routes for the year ended 31st March, 1947, were :—

Period.	Hours flown.	Ton/Miles Capacity created.	Ton/Miles Capacity used.	Load Factor.
1946				Per Cent.
April-June	2,353	11,151,650	9,774,530	87·6
July-September	2,410	11,413,175	8,791,160	77·2
October-December	2,291	10,281,375	8,310,250	80·8
1947				
January-March	2,056	9,817,340	9,061,445	92·3
Totals	9,110	42,663,540	35,937,385	84·5

Period.	Passenger Miles.	Passengers, in Ton/Miles.	Freight, in Ton/Miles.	Mail, in Ton/Miles.
1946				
April-June	2,368,760	4,841,664	1,514,100	3,418,766
July-September	1,976,540	3,595,540	2,064,715	3,130,905
October-December	3,246,150	4,938,545	2,571,615	800,090
1947				
January-March	2,743,970	5,554,730	2,478,165	1,028,550
Totals	10,335,420	18,930,479	8,628,595	8,378,311

(b) Internal scheduled services—

Route.	Route Miles.	Frequency.
Auckland-Christchurch	479	Once daily in each direction except on Sunday.
Auckland-Christchurch (via Paraparaumu)	505	Once daily in each direction except on Sunday.

Passengers carried.	Hours flown.	Ton/Miles Capacity created.	Ton/Miles Capacity used.	Load Factor.	Passenger-miles.	Passengers, in Ton/Miles.	Freight, in Ton/Miles.	Mail, in Ton/Miles.
49,820	4,145	1,741,000	1,415,433	Per Cent. 81·3	17,453,150	1,356,376	47,881*	11,176

* Of this total, 30,855 ton/miles was carried on behalf of the New Zealand Railways.

In addition, the R.N.Z.A.F. Air Transport operated a non-scheduled freight service on charter to the New Zealand Railways, C. 47 (Dakota) aircraft were used, travelling between Paraparaumu and Woodbourne. A total of 2,040,101 lb. of freight, representing 71,297 freight ton/miles, was carried on this service since its inception on 10th February, 1947.

REPORT OF THE DIRECTOR OF CIVIL AVIATION FOR THE YEAR ENDED 31st MARCH, 1947

The Hon. the MINISTER OF DEFENCE.

I HAVE the honour to submit the following report on civil aviation for the year ended 31st March, 1947.

SECTION I.—ADMINISTRATION

1. ORGANIZATION

As at 31st March, 1947, the staff of the Branch, including personnel seconded from the Royal New Zealand Air Force, totalled 192. This substantial increase over the figure for the previous year was due to the appointment of aeradio personnel, the majority of whom transferred from the Post and Telegraph Department when this Branch took over the operation of aeradio facilities in New Zealand and at certain locations in the Pacific on 15th January, 1947.

Consequent upon the assumption of responsibility by this Branch for the aeradio organization, the Airways Division was established.

On the 28th March, 1947, Wing Commander E. A. Gibson, O.B.E., A.M.I.C.E., A.F.R.Ae.S., A.M.A.Soc.Ce., A.M.I.E.(N.Z.), was appointed Director of Civil Aviation.

2. GENERAL

Mr. E. F. Carpenter, A.F.R.Ae.S., Chief Aeronautical Engineer of the Civil Aviation Branch, visited the United Kingdom, Canada, and the United States of America during the period July–September, 1946. The primary purpose of this tour was to attend the Commonwealth and British Dominions Conference, held by the Air Registration Board in London.

Mr. Carpenter also visited a large number of aircraft-manufacturing firms examining constructional details and technical procedures, and investigated the civil aviation organizations in the countries visited in relation to the technical control of aircraft construction and operation.

In August–September, 1946, Wing Commander I. A. Scott, O.B.E., A.M.I.E.E., A.F.R.Ae.S., represented the Civil Aviation Branch at various demonstrations of the latest radio aids to navigation in the United Kingdom, the United States, and Canada, and also attended the first meeting of the Special Radio Technical Division of P.I.C.A.O. on radio aids to navigation.

The Committee for Air Navigation and Ground Organization and the Committee of Meteorologists established under the South Pacific Air Transport Council met in Wellington from 16th August to 3rd September, 1946, to discuss matters connected with the provision of facilities for air services in the Pacific area. Delegates from the United Kingdom, Australia, Fiji, and New Zealand attended the meetings.

The Committees put forward various recommendations for the improvement of aviation facilities in the South Pacific area, and as a result of decisions reached the "South Pacific Route Service Manual" was prepared in draft form during the meetings in Wellington and drawn up in final form after further discussions held in Melbourne, Australia, during October, 1946. This manual was issued as the 4th Edition of "FANZARO," which prescribes the control, communications, and meteorological organization in the Fiji–Australia–New Zealand area. A further meeting of the Committee for Air Navigation and Ground Organization, at which New Zealand representatives attended, was held in Melbourne between 28th January and 1st February, 1947. This meeting immediately preceded the regional meeting of P.I.C.A.O. referred to below, and in this instance the Government of Fiji was represented by the United Kingdom delegate.

Between the 4th and 22nd February, 1947, representatives of the Civil Aviation Branch attended the South Pacific Regional Meeting of the Provisional International Civil Aviation Organization, held in Australia.

3. INTERNATIONAL AIR SERVICES

Post-war trans-Pacific commercial air services commenced with Pan-American World Airways reopening their services in June, 1946.

A further air link with Canada and the United States of America was established with the commencement of British Commonwealth Pacific Air-lines service from New Zealand on 25th April, 1947.

4. LEGISLATION

As, previously, there was no provision in the Air Navigation Regulations 1933 under which proceedings could be instituted against pilots who had failed to exercise proper care, an amendment was made on 15th May, 1946, remedying the defect. Under the regulations as they now stand amended it is possible to invoke the penal clause for any breach in this respect.

It had been recognized for some time that the comprehensive regulation requiring the installation and maintenance of radio equipment could not be complied with in respect of certain training and aero club aircraft and private machines, nor was the regulation considered necessary as regards such aircraft. Accordingly, on 14th June, 1946, an amendment was made exempting aircraft engaged in transport of mails or goods, purely private machines, and those engaged on aerial work not included in the definition of public transport machines. The regulation is, of course, still applicable to public transport machines for passengers.

On 3rd December, 1946, an Air Transport Agreement was completed between the Government of New Zealand and the Government of the United States of America providing for reciprocal rights for the operation of air services between New Zealand and San Francisco, with provision for extensions to Vancouver, with the object of facilitating the promotion of direct air services between their respective territories.

New Zealand's ratification of the International Convention on Civil Aviation was signed on the 26th February, 1947, and the Instrument of Ratification deposited in Washington on 7th March, 1947.

The Convention came into force on the 4th April, 1947, and the provisional term of the Provisional International Civil Aviation Organization ended on that date. This Organization will therefore henceforth be known as the International Civil Aviation Organization.

SECTION II.—AIR TRANSPORT OPERATIONS

There was a major change in the operation of internal air transport services during the year when the services operated by Union Airways of New Zealand, Ltd., and Cook Strait Airways, Ltd., were transferred to New Zealand National Airways Corporation. By adding to the fleet of aircraft the Corporation was able to increase the frequencies and also commence new services.

The only other civil operator of scheduled internal services at the close of the year was Air Travel (N.Z.), Ltd.

During the year the R.N.Z.A.F. Air Transport continued to operate the South Pacific Regional Service on a quasi-civil basis and in addition made a number of special flights on behalf of the French Government to Bora Bora.

Pending the establishment of New Zealand National Airways Corporation, services were also maintained by the R.N.Z.A.F. between Auckland—Wellington—Christchurch with (C. 47) Dakota aircraft.

In December, 1946, the New Zealand Railways, in conjunction with the R.N.Z.A.F., operated a series of special inter-Island air freighting flights in order to meet a shipping emergency.

A number of special flights were carried out by Sunderland aircraft between Wellington and the Chatham Islands on behalf of the Department of Internal Affairs.

(a) INTERNAL SCHEDULED SERVICES

(1) *New Zealand National Airways Corporation*

At 31st March, 1947, services were being operated by New Zealand National Airways Corporation over the following routes:—

Route.	Route-miles.	Frequency.
Auckland-Dunedin (via Palmerston North, Wellington, and Christchurch)	720	Once daily in each direction (except Sunday), plus two daily return trips Wellington-Christchurch and one daily return trip Wellington-Auckland (except Sunday).
Dunedin-Invercargill	105	Once daily in each direction (except Sunday).
Auckland-Wellington (via New Plymouth and Palmerston North)	355	Once daily in each direction (except Sunday).
Auckland-Gisborne (via Tauranga) ..	215	Once daily in each direction (except Sunday).
Auckland-Gisborne	209	Once daily in each direction (except Sunday).
Gisborne-Wellington (via Napier and Palmerston North)	270	Once daily in each direction (except Sunday).
Auckland-Kaitia (via Whangarei and Kaikohe)	170	Once daily in each direction (except Sunday).
Nelson-Wellington-Blenheim	135	Wellington-Blenheim, seven trips daily in each direction (except Sunday); Wellington-Nelson, five trips daily in each direction (except Sunday).
Total route-miles	2,179	

Traffic statistics for these routes for year ended 31st March, 1947, were—

Route.	Hours flown.	Miles flown.	Passengers.	Freight.	Mail.	Passenger-miles.	Freight Ton-miles.	Mail Ton-miles.
				lb.	lb.			
Auckland-Dunedin ..	3,043	519,621	28,424	168,189	404,234	8,758,515	22,263	60,493
Dunedin-Invercargill	439	62,580	4,756	9,259	22,582	499,170	468	1,059
Auckland-Wellington	1,024	128,365	5,111	28,321	40,650	1,138,445	3,907	5,500
Auckland-Tauranga-Gisborne	214	26,230	1,438	2,966	1,728	233,570	235	139
Auckland-Gisborne ..	609	76,884	3,564	8,169	3,870	744,876	761	361
Auckland-Kaitia ..	193	20,920	1,594	1,987	2,222	169,510	116	114
Gisborne-Wellington ..	823	98,402	5,041	13,438	19,793	867,330	1,194	1,581
Nelson-Wellington-Blenheim	4,102	356,761	36,905	334,853	58,170	2,376,598	9,933	1,931
Totals ..	10,447	1,289,763	86,833	567,182	553,249	14,788,014	38,878	71,178

The following is a summary of traffic statistics for New Zealand National Airways Corporation for the years 1936-47:—

Year ended,	Hours flown.	Miles flown.	Passengers.	Freight.	Mail.	Passenger-miles.	Freight Ton-miles.	Mail Ton-miles.
				lb.	lb.			
31st March, 1936 ..	562	71,575	1,212	861	1,055	278,970	119	108
31st March, 1937 ..	3,000	360,140	7,192	7,160	44,184	1,623,545	772	6,394
31st March, 1938 ..	5,219	648,688	15,909	19,189	108,148	3,603,747	2,156	14,222
31st March, 1939 ..	7,364	922,475	25,119	40,366	190,397	4,907,471	4,505	23,316
31st March, 1940 ..	5,821	766,740	22,113	48,598	141,136	4,515,606	5,990	16,797
31st March, 1941 ..	2,271	322,249	10,370	23,176	73,455	2,638,580	2,728	9,574
31st March, 1942 ..	2,711	394,520	12,035	28,059	109,158	3,363,320	3,339	14,960
31st March, 1943 ..	2,737	387,500	11,990	42,504	163,703	3,351,675	4,596	21,244
31st March, 1944 ..	3,140	461,509	15,213	50,852	172,002	4,815,115	6,278	26,482
31st March, 1945 ..	3,942	609,475	23,501	92,269	225,337	7,368,383	12,492	40,155
31st March, 1946 ..	5,242	727,044	31,189	111,200	336,256	8,152,057	14,144	48,696
31st March, 1947 ..	10,447	1,289,763	86,833	567,182	553,249	14,788,014	38,878	71,178

Aircraft used for the operation of services on these routes were—

Lockheed Lodestar	..	..	..	..	4
Lockheed Electra	..	..	..	..	4
D.H. 89B Dominie	..	..	..	..	6
Total	..	..	..	..	14

This represents an increase of nine over the total number of aircraft operated by Union Airways of New Zealand, Ltd., and Cook Strait Airways, Ltd., during the year ended 31st March, 1946.

The Gisborne-Palmerston North service was extended to Gisborne-Wellington (via Napier and Palmerston North) on the 3rd September, 1946.

The following new services were inaugurated during the year :—

Auckland-Wellington (via New Plymouth and Palmerston North) on 2nd September, 1946.

Auckland-Gisborne (via Tauranga) on 20th January, 1947.

Auckland-Kaiataia (via Whangarei and Kaikohe) on 20th January, 1947.

The following service was operated by Air Travel (N.Z.) Ltd., under charter :—

Route	..	..	..	..	Nelson-Hokitika.
Route-miles	..	..	..	..	163.
Frequency	..	..	..	..	Once daily in each direction (except Sunday).

Traffic statistics for year ended 31st March, 1947, were—

Hours flown	..	..	..	..	..	1,050
Miles flown	..	..	..	..	..	130,179
Passengers	..	..	..	..	..	2,750
Freight (lb.)	..	..	..	..	..	22,472
Mail (lb.)	..	..	..	..	..	18,511
Passenger-miles	..	..	..	..	..	302,453
Freight ton-miles	..	..	..	..	..	1,054
Mail ton-miles	..	..	..	..	..	1,044

The following licences were held at 31st March, 1947, by New Zealand National Airways Corporation staff :—

"B" Licence	..	..	..	..	..	51
Navigator's Licence—						
First Class	..	..	..	..	..	1
Second Class	..	..	..	..	..	13
Radio Telegraph Operators' Licence—						
First Class	..	..	..	..	..	2
Second Class	..	..	..	..	..	3
Third Class	..	..	..	..	..	46
Radio Telephone Operator's Licence	..	..	..	..	..	5
Flying Instructor's Authority	..	..	..	..	..	4
Aircraft Engineer's Licence	..	..	..	..	..	36

(2) Air Travel (N.Z.), Ltd.

Apart from the Nelson-Hokitika service operated under charter for New Zealand National Airways Corporation, Air Travel (N.Z.), Ltd., operated the following services :—

Route.	Route-miles.	Frequency.
Hokitika-Weheka	84	Once daily in each direction (except Sunday). Twice weekly in each direction.
Hokitika-Okuru	135	
Total	219	

Traffic statistics for these routes for the year ended 31st March, 1947, were—

Route.	Hours flown.	Miles flown.	Passengers.	Freight.	Mail.	Passenger-miles.	Freight Ton-miles.	Mail Ton-miles.
Hokitika-Weheka ..	156	15,633	283	lb. 475	lb. ..	20,852	16	..
Hokitika-Okuru ..	645	66,919	582	44,333	33,326	77,733	2,642	1,989
Totals ..	801	82,552	865	44,841	33,326	98,585	2,658	1,989

The following is a summary of traffic statistics for Air Travel (N.Z.), Ltd., for the years 1935-47 :—

Year ended,	Hours flown.	Miles flown.	Passengers.	Freight.	Mail.	Passenger-miles.	Freight Ton-miles.	Mail Ton-miles.
31st March, 1935 ..	315	31,500	595	lb. 2,637	lb. 1,841	10,000 (approx.)	120	75 (approx.)
31st March, 1936 ..	872	87,233	1,030	10,774	17,568	37,270	638	809
31st March, 1937 ..	1,018	101,800	948	13,621	45,417	54,010	638	2,439
31st March, 1938 ..	1,010	102,262	978	20,331	60,524	53,655	800	2,415
31st March, 1939 ..	672	71,177	662	28,346	75,014	67,084	1,476	4,201
31st March, 1940 ..	633	66,095	617	36,895	52,097	63,272	1,846	3,460
31st March, 1941 ..	389	39,890	288	36,792	32,355	32,110	1,899	2,184
31st March, 1942 ..	304	32,372	316	32,292	30,769	36,402	1,882	1,902
31st March, 1943 ..	726	74,391	618	30,588	25,839	66,510	1,618	1,654
31st March, 1944 ..	996	103,502	1,038	24,962	27,951	107,665	1,499	1,772
31st March, 1945 ..	1,027	102,307	1,144	37,722	36,585	123,886	2,078	2,255
31st March, 1946 ..	854	88,576	926	45,523	34,498	106,020	2,710	2,121
31st March, 1947 ..	801	82,552	865	44,841	33,326	98,585	2,658	1,989

Aircraft operated by Air Travel (N.Z.), Ltd., were—

D.H. 83 (Fox Moth)	..	..	..	..	2
D.H. 89 (Rapide)	..	..	..	..	1
D.H. 90 (Dragonfly)	..	..	..	..	1

Licences held by the company's staff as at 31st March, 1947 :—

Pilot's "B" Licence	..	..	..	..	3
Radio Telegraph Operator's Licence : Third Class	..	..	..	..	3
Flying Instructor's Authority	..	..	..	..	2
Aircraft Engineer's Licence	..	..	..	..	3

(b) EXTERNAL SCHEDULED SERVICES

(1) *Tasman Empire Airways, Ltd.*

With the addition of three aircraft of the Tasman class (Short S. 25), this company was able to increase its service to a frequency of six trips weekly in each direction. Route details are as follows—

Route	..	..	..	..	..	Auckland-Sydney.
Route miles	..	..	..	..	..	1,340.

Traffic statistics for the year ended 31st March, 1947, were—

Hours flown	..	..	..	..	..	4,863
Miles flown	..	..	..	..	..	778,704
Passengers	..	..	..	..	..	11,648
Freight (lb.)	..	..	..	..	..	176,687
Mail (lb.)	..	..	..	..	..	278,789
Passenger-miles	..	..	..	..	..	15,608,320
Freight ton-miles	..	..	..	..	..	105,697
Mail ton-miles	..	..	..	..	..	166,776

The following is a summary of traffic statistics for Tasman Empire Airways, Ltd., for the years 1941-47:—

Year ended,	Hours flown.	Miles flown.	Passengers.	Freight.	Mail.	Passenger-miles.	Freight Ton-miles.	Mail Ton-miles.
				lb.	lb.			
31st March, 1941 ..	1,181	174,200	1,507	18,800	78,179	2,019,380	11,246	46,768
31st March, 1942 ..	1,382	211,920	1,959	32,230	167,275	2,625,060	19,280	100,066
31st March, 1943 ..	1,265	192,960	2,256	35,195	101,741	3,023,040	21,054	60,863
31st March, 1944 ..	1,502	229,140	2,924	40,024	94,106	3,918,160	23,943	56,296
31st March, 1945 ..	2,798	427,460	5,803	84,189	142,812	7,796,020	50,363	85,432
31st March, 1946 ..	3,270	293,764	6,100	99,584	214,792	8,174,000	60,019	128,492
31st March, 1947 ..	4,863	778,704	11,648	176,687	278,789	15,608,320	105,697	166,776

Aircraft employed on this service were three Short S. 25 (Tasman class) and two Short S. 30 (Empire flying-boats).

Licences held by the company's staff as at 31st March, 1947, were—

“ B ” Licence 23

Navigator's Licence—

First Class 12
Second Class 4

Radio Telegraph Operator's Licence—

First Class 8
Second Class 1
Third Class 1
Flying Instructor's Authority 6
Aircraft Engineer's Licence 27

(2) *Pan-American Airways, Ltd. (U.S.A.)*

In June, 1946, Pan-American Airways, Ltd., resumed its service between San Francisco and Auckland with D.C. 4 (Skymaster) aircraft, the frequency being one trip fortnightly in each direction. Route miles total 7,928 and intermediate calls *en route* are Honolulu, Canton Island, Nandi, and Noumea.

Traffic to and from New Zealand for the year ended 31st March, 1947, was—

Hours flown 2,730
Miles flown 533,922

Traffic entering New Zealand—

Passengers 833
Freight (lb.) 30,723
Mail (lb.) 24,218

Traffic leaving New Zealand—

Passengers 781
Freight (lb.) 12,916
Mail (lb.) 4,396

(c) INTERNAL NON-SCHEDULED SERVICES

The following is a traffic summary of non-scheduled services carried out by New Zealand National Airways Corporation and Air Travel (N.Z.), Ltd. :—

Trips	..	..	..	..	..	569
Hours flown	..	..	..	..	..	434
Miles flown	..	..	..	..	..	46,198
Passengers	..	..	..	..	..	1,630
Freight (lb.)	..	..	..	..	..	8,645

The aircraft used on these services were as follows :—

New Zealand National Airways Corporation—

Lockheed Lodestar	..	..	..	..	4
Lockheed Electra	..	..	..	..	4
D.H. 89B Dominie	..	..	..	..	6

Air Travel (N.Z.), Ltd.—

D.H. 83 (Fox Moth)	..	..	..	..	2
D.H. 89 (Rapide)	..	..	..	..	1
D.H. 90 (Dragonfly)	..	..	..	..	1

In addition to the above two companies, the following organizations catered for work of a general nature :—

Waikato Aviation Co., Ltd., Rotorua, using one Desoutter, one Avro Avian, and one Piper Cub.

Southern Scenic Airtrips, Queenstown, using one Percival Proctor.

N.Z. Aerial Mapping, Ltd., Hastings, using one Monospar S.T. 25 and one Beechcraft A.T. 11.

(d) EXTERNAL NON-SCHEDULED SERVICES

Tasman Empire Airways, Ltd., scheduled services were supplemented by non-scheduled trips, four of which were operated with D.C. 4 (Skymaster) aircraft by arrangement with Trans-Australian Airlines. Details are—

Trips	..	..	..	..	..	7
Hours flown	..	..	..	..	..	56
Miles flown	..	..	..	..	..	9,380
Passengers	..	..	..	..	..	186
Freight (lb.)	..	..	..	..	..	12,483

(e) R.N.Z.A.F. AIR TRANSPORT

At 31st March, 1947, services were being operated on a quasi-civil basis by the R.N.Z.A.F. Air Transport over the following routes :—

(1) External Scheduled Services

Route.	Route-miles.	Frequency.
SUNDERLAND SERVICE		
Auckland-Suva	1,143	Once weekly in each direction.
C. 47 REGIONAL SERVICES		
Auckland-Rarotonga (via Norfolk Island- New Caledonia-Fiji-Tonga-British Samoa- United States Samoa-Aitutaki)	3,630	Once fortnightly in each direction.
Fiji-British Samoa	605	Once fortnightly in each direction.

Traffic statistics for these routes for the year ended 31st March, 1947, were—

Period.	Hours flown.	Ton-miles Capacity created.	Ton-miles Capacity used.	Load Factor.
1946				Per Cent.
April-June	2,353	1,115,165	977,453	87·6
July-September	2,410	1,141,317·5	879,116	77·2
October-December	2,291	1,028,137·5	831,025	80·8
1947				
January-March	2,056	981,734	906,144·5	92·3
Totals	9,110	4,266,354	3,593,738·5	84·5

Period.	Passenger-miles.	Passengers, in Ton-miles.	Freight in Ton-miles.	Mail, in Ton-miles.
1946				
April-June	2,368,760	484,166·4	151,410	341,876·6
July-September	1,976,540	359,554	206,471·5	313,090·5
October-December	3,246,150	493,854·5	257,161·5	80,009
1947				
January-March	2,743,970	555,473	247,816·5	102,855
Totals	10,335,420	1,893,047·9	862,859·5	837,831·1

(2) Internal Scheduled Services

Route.	Route- miles.	Frequency.
Auckland-Christchurch	479	Once daily in each direction (except Sunday).
Auckland-Christchurch (via Paraparaumu)	505	Once daily in each direction (except Sunday).

Traffic carried over these routes for the year ended 31st March, 1947, was—

Number of Passengers carried.	Hours flown.	Capacity created, in Ton-miles.	Capacity used, in Ton-miles.	Load Factor.	Passenger- miles.	Passengers, in Ton-miles.	Freight, in Ton-miles.	Mail, in Ton-miles.
49,820	4,145	1,741,000	1,415,433	Per Cent. 81·3	17,453,150	1,356,376	47,881*	11,176

* Of this total, 30,885 ton-miles was carried on behalf of the New Zealand Railways.

In addition, the R.N.Z.A.F. Air Transport operated a non-scheduled freight service on charter to the New Zealand Railways. C. 47 (Dakota) aircraft were used, travelling between Paraparaumu and Woodbourne. A total of 2,040,101 lb. of freight, representing 71,297 freight ton-miles, was carried on this service since its inception on 10th February, 1947.

SECTION III.—AERO CLUBS

During the year eight clubs which had been operating prior to the war resumed flying and six new clubs were formed and commenced activities. At 31st March, 1947, a total of eighteen clubs was operating, this representing an increase of fourteen over the total number operating as at 31st March, 1946.

The operations of these organizations during the year may be summarized as follows :—

(a) *Training*

Aircraft in use	..	..	..	..	73
Pupils under instruction at 31st March, 1947	..	..	..	..	504
Hours flown	..	..	..	..	14,203
Membership—					
Associate	..	..	..	..	2,185
Flying	..	..	..	..	2,401

(b) *Commercial operations*

Hours flown	..	..	..	..	1,514
Miles flown	..	..	..	..	151,636
Number of trips	..	..	..	..	3,172
Passengers carried	..	..	..	..	5,512

Club fleets of aircraft were augmented by imported aircraft from overseas and acquisition of aircraft surplus to R.N.Z.A.F. requirements through War Assets Realization Board.

The types and number of aircraft used by the clubs are—

D.H. 82	..	..	..	..	..	56
Percival Proctor	..	..	..	..	..	3
D.H. 94	..	..	..	..	..	3
Rearwin 9,000	..	..	..	..	..	3
Waco U.O.C.	..	..	..	..	..	2
Miles Magister	..	..	..	..	..	1
Vega Gull	..	..	..	..	..	1
D.H. 90A	..	..	..	..	..	1
Taylor Cub J 2	..	..	..	..	..	1
Miles Whitney Straight M 2A	..	..	..	..	..	1
Beechcraft C 17L	..	..	..	..	..	1

OTHER FLYING

Privately Owned Aircraft

There were six privately owned aircraft operating as at 31st March, 1947.

SECTION IV.—AERADIO SERVICES

The wartime arrangements whereby the operation of aeradio services was shared by the Royal New Zealand Air Force and the Post and Telegraph Department continued for the greater part of the year, but during January, 1947, civilian employees of the Air Department replaced the R.N.Z.A.F. personnel. These civilians were recruited, in the main, from personnel or former personnel of the Armed Forces, thus the change-over has resulted in the rehabilitation of a substantial number of servicemen in a sphere where many of them had had the opportunity of acquiring valuable training and experience during the war years.

This transfer followed recommendations made by a joint conference between the Post and Telegraph Department and the Air Department. The recommendation submitted to Government by this conference indicated that it was desirable that complete control of aeradio services be co-ordinated in one authority and, as is the case in most overseas countries, that authority should be an aeronautical body. At certain aeradio stations where a considerable amount of radio traffic other than aeronautical traffic is handled the Post Office is to continue to administer the stations on behalf of and under the operational control of the Air Department. It is expected ultimately that, in the interests of staff economy and certain operational requirements, these stations will be replaced by establishments located in the immediate vicinity of the aerodromes which

they serve. Similar joint operation of aeradio and other communications facilities has been effected in Samoa and Rarotonga, where the aeradio requirements are being met by extension of the existing radio stations operated by the Island Territories Department. The Civil Aviation Branch is operating stations at Aitutaki, Tongatabu, and Nandi, Fiji.

Although the Nandi station was reconstructed only as a temporary measure pending a decision upon the location of the international airport in Fiji, it has been equipped to a higher scale than any of the other aeradio stations and is able to meet the full requirements of an international airport from the communications aspect. Individual transmitters are available for all channels in operation and adequate stand-by equipment has been installed to cope with equipment failures or other emergency conditions. The station was formerly operated by the United States Forces, but has been extended and reconditioned since being taken over by the Civil Aviation Branch. Landline communication between Nandi and Suva is limited, but the difficulty has been largely overcome by the establishment of voice and telegraph radio circuits between the two points.

With the opening of the station at Nandi, the major aeronautical and meteorological communications facilities formerly operated from Suva have been transferred to Nandi and the aeradio station at Suva closed. This station was originally established in January, 1941, to provide facilities for the initial trans-Pacific air services. Suva Aeradio also undertook important communications functions on behalf of the Armed Forces during the war period. Personnel from the station were also employed on coast-watching duties at many widely separated points in the South Pacific, several losing their lives during the Japanese occupation of Tarawa.

Civilian personnel have also replaced the R.N.Z.A.F. staff employed on communications services at Norfolk Island, but it is anticipated that the Australian authorities will shortly undertake responsibility for manning this island.

The change from military to civil status, particularly in the islands, has led to administrative and technical problems, which, however, are rapidly being solved.

A certain amount of reconstruction has been undertaken at various stations in the Dominion, but man-power and equipment shortages have seriously delayed progress. The only new station opened during the year was at Tauranga.

RADIO NAVIGATIONAL AIDS

High-frequency direction-finding stations at Suva, Norfolk Island, Waipapakauri, Musick Point, Ohakea, and Awarua continue to provide the main long-range aid to navigation in the area. They also serve an important function in connection with the Search and Rescue Organization. The medium-frequency D/F station at Suva has been decommissioned, and this policy will be extended gradually as other aids become available. The abandonment of medium-frequency D/F services will permit the siting of aeradio receiving facilities in the administrative buildings of aerodromes in many cases, as the rigid site requirements for direction-finding will not require to be met. This will have a substantial bearing upon staff economy as well as giving added convenience.

Non-directional beacons or "homers" are now functioning at most aerodromes, but the majority of them are equipped with comparatively low power transmitters and have only limited range and value. It is hoped to be able to replace these units with standard "homers" having a power output of 3,000 watts in the near future.

Racons or radar beacons are also installed at all island stations and at some internal ones.

A radio range was installed and brought into service at Aitutaki during the year, and the projected ranges in the Christchurch, Wellington, and New Plymouth areas should be completed this winter.

EQUIPMENT

As the result of the activities of a special Purchasing Mission which extensively toured Pacific bases, a considerable amount of radio, meteorological, and airfield equipment was obtained from American military surpluses. Much of this is still awaiting shipment, but it is hoped that the bulk of it will reach the Dominion within the next few months.

A central Repair Depot and Radio Store has been established at Shelly Bay, Wellington, where radio equipment will be serviced and tested. A sub-store is also being established in Fiji as being the most convenient point for distribution to the other island stations. To simplify maintenance and reduce the range of components which must be held in the sub-store, steps are being taken to replace much of the existing equipment in island stations with units of a standard type. The equipment being replaced is, in the majority of cases, in good order and will be suitable for reinstallation in internal stations, where maintenance problems are much less acute than in the tropics.

GENERAL

The decision to transfer the responsibility for the control of aeradio facilities to Air Department has led to the establishment of an Airways Division in the Civil Aviation Branch to administer the service. The Airways Division should be functioning fully by June, 1947.

RADIO LICENSING AND AIRWORTHINESS

The organization in regard to airborne radio equipment was not altered during the year and continued to operate satisfactorily. Twenty inspections of aircraft radio installations were made, and in each case a certificate of airworthiness was granted, some of these certificates being of a temporary nature only. There were seventy failures of aircraft radio equipment, and steps were taken to eliminate the possibility of their recurrence. Four applicants were examined for Aircraft Engineers' Licences in Category "X," Section VII, all of these being successful.

SECTION V.—AERODROMES AND RELATED GROUND FACILITIES

1. INTERNAL AERODROMES

The period 1946-47 has been one of transition from war to peace conditions, with the primary aim of rehabilitating civil aviation and laying the foundation for expansion both of commercial services and club flying.

In addition to aerodromes in use before the war, Kaitaia, Kaikohe, Onerahi (Whangarei), Tauranga, New Plymouth, and Paraparaumu are now in regular use by commercial air services. Regular aero club activities have been revived at Mangere, Rukuhia, Tauranga, Opotiki, Gisborne, Napier, Hastings, Waipukurau, Masterton, New Plymouth, Stratford, Hawera, Wanganui, Milson, Omaka, Nelson, Harewood, Timaru, Taieri, and Greymouth, with a number of other aerodromes used as subsidiary bases for club training and flying.

By the end of the period, all former civil aerodromes which had served as temporary R.N.Z.A.F. stations during the war had reverted to civil control, with the qualification that at Rukuhia, New Plymouth, Paraparaumu, Harewood, and Taieri the R.N.Z.A.F. retained control over certain buildings and facilities originally provided from War Expenses Account.

During the war, responsibility for control and maintenance of all aerodromes—except Rongotai—was assumed by Government, and administered by the Air Department largely through the agency of the Public Works Department. This arrangement continued through 1946-47 except for a few minor aerodromes which reverted to local-body or aero-club ownership and control. Future policy regarding the control and

ownership of aerodromes has not yet been determined, and is complicated by the fact that during the war the Government purchased or leased many areas of land which were incorporated in existing locally owned aerodromes.

The work carried out during the year has been restricted to maintenance and a multitude of minor improvements which, although not individually large, have absorbed all the man-power and materials which could reasonably be made available. A certain amount of building, using in the main ex-Service buildings, has been carried out to meet the needs of the New Zealand National Airways Corporation, particularly at Onerahi, Kaikohe, and Kaitiaki. It is apparent that much development work is required to bring the aerodromes used by the internal air services up to the standards necessary for the safe and regular operation of modern transport aircraft, but the present severe shortage of man-power, plant, and construction materials, and the huge programme of other national works outstanding, will undoubtedly limit the work which can be undertaken in the near future. The only aerodrome work of any magnitude authorized and commenced was the provision of a new aerodrome at Hokitika.

2. AERODROME FOR OVERSEAS SERVICES

The R.N.Z.A.F. Station, Whenuapai, continued to be utilized as the interim overseas airport and is the only designated regular Customs airport and airport of entry into New Zealand for land-based aircraft on international overseas services. It continues to serve its normal R.N.Z.A.F. function as well. Beyond the provision of minor temporary buildings for air-service operators and for airport functional purposes in handling passengers and of additional apron space for commercial aircraft, no developments of importance were undertaken.

The flying-boat base at Mechanics Bay, Auckland, continued to serve a similar function for marine aircraft, and handles the increased traffic of Tasman Empire Airways, Ltd., to and from Australia. The R.N.Z.A.F. Sunderland service to Fiji carrying civilian passengers also operated from this base. Buildings formerly utilized for Service purposes were converted and handed over to Tasman Empire Airways to assist in meeting their expanded technical commitments.

3. PACIFIC AERODROMES

With the withdrawal of the American Armed Services from occupation of a number of aerodromes in New-Zealand-controlled Pacific islands, opportunity was taken by the New Zealand Government to take over these aerodromes and to acquire from the American authorities aerodrome facilities and assets *in situ*. Such aerodromes were Faleolo in Samoa, Aitutaki in the Cook Group, and Fua'A'Motu in Tonga (British Protectorate). New Zealand's regional Pacific air services (operated in the interim by the R.N.Z.A.F.) stage through these islands to Rarotonga in the Cook Group via Fiji. All these aerodromes are now on a civil basis and are under the administration of Air Department, with New Zealand Public Works Department undertaking the work of maintenance and improvement to civil standards. Without any major works being undertaken, much has been done to convert these aerodromes to their new purpose. The construction of a new aerodrome at Niue has been approved, but a commencement has been deferred for approximately one year.

Fiji

By agreement entered into at the Civil Aviation Conference, Wellington (February-March, 1946), New Zealand, on behalf of the other interested British Commonwealth Governments, is responsible for the administration, operation, maintenance, and development of civil aviation facilities for overseas purposes within the Colony of Fiji. The commercial services of Pan-American Airways commenced to stage through Nandi Aerodrome, Fiji, during the latter part of 1946, while the airport was still in occupation by and under the control of the American Army Air Corps. New Zealand assumed operational control as at 19th December, and took over physical control and complete occupation as from 15th January, 1947.

Excluding a few minor items, the New Zealand Government purchased on behalf of the combined Commonwealth Governments all the American assets and interests at Nandi. This does not include the aeradio equipment and installations for which, although a settlement figure has been determined and the equipment is in the custody of Air Department, final title has not yet been given.

A decision has not yet been reached as to whether the ultimate international overseas airport for Fiji will be established at Nandi or, alternatively, at Nausori, an airfield on the Suva side of Vita Levu. Considerable investigations and engineering surveys have been made to assist in determining this matter, and a decision is expected from the next meeting of the South Pacific Air Transport Council.

In the meantime, Nandi must serve the immediate needs as an overseas airport, and is expected to serve that purpose in approximately its present condition. A considerable amount of work has had to be undertaken to convert this aerodrome from its Service function to provide the minimum requirements and facilities for a long-range regular overseas airport.

SECTION VI.—AIRCRAFT

The increase noted during the previous year in the number of aircraft on the Civil Register has been accelerated during the year, from two sources; the disposal of surplus Service aircraft and importation from overseas. The additions to the Register comprise 7 Lockheed Lodestars (2 imported from Australia and 5 transferred from R.N.Z.A.F.), 2 Lockheed Electra 10A (imported from Australia), 6 Douglas Dakotas (transferred from R.N.Z.A.F.), 6 D.H. 89B Dominies (transferred from R.N.Z.A.F.), 3 Short Brothers' flying-boats (imported from England), 4 Percival Proctor (imported from England), 3 Auster V (imported from England), 57 D.H. 82 Tiger Moths (ex R.N.Z.A.F.), 2 Miles Whitney Straight, 1 Piper Cub, 1 Beechcraft, 3 Rearwins, 5 D.H. 94 Moth Minors, 1 Percival Vega Gull, 2 Wacos, and 1 Miles Magister.

The 9 Lockheeds and 6 Dominies were purchased by the New Zealand National Airways Corporation for use on the main trunk routes. The 3 Short Sunderland flying-boats were hired by Tasman Empire Airways, Ltd., as reinforcements for the Tasman service. The 6 Dakotas were taken over in the name of the Air Secretary for carriage of passengers and freight on the main trunk routes, this as an interim measure pending their conversion to civil standards and absorption into the fleet of New Zealand National Airways Corporation.

On 31st March, 1947, there were 154 aircraft on the Civil Register, comprising the following types:—

D.H. 82 Tiger Moth	..	75	Miles Whitney Straight	..	4
D.H. 60 Moth	..	2	Miles Magister	..	1
D.H. 90 Dragonfly	..	1	Monospar S.T. 25	..	1
D.H. 89A Rapide	..	1	Piper Cub	..	5
D.H. 89B Dominie	..	6	Beechcraft	..	2
D.H. 83 Fox Moth	..	2	Rearwin	..	4
D.H. 80 Puss Moth	..	2	Short flying-boats	..	5
D.H. 94 Moth Minor	..	5	Percival Proctor	..	5
Lockheed 10A	..	5	Percival Vega Gull	..	1
Lockheed Lodestar (18-56)	9		Waco	..	2
Douglas Dakota C. 47	..	6	Auster	..	3
Avro Avian	..	2	Monocoupe	..	1
Desoutter	..	1	Pou-de-Ciel	..	3

Of the total shown, 110 were in possession of certificates of airworthiness, the remainder being at repair stations for rebuild and overhaul.

The disposal of aircraft and engines declared surplus by the R.N.Z.A.F. was continued throughout the year, in conjunction with the War Assets Realization Board. All aircraft and engines were sold "as is, where is" with the exception of those Tiger Moth aircraft which were reconditioned and issued to aero clubs, either on repayment or in discharge of the Government's obligation to replace gift aircraft which had been commandeered at the outbreak of hostilities.

The following is a summary of aircraft and engines disposed of during the year ended 31st March, 1947 :—

Aircraft or Engine type.	Sales to Aero Clubs.	Replacement of Gift Aircraft.	Sales to Private Owners.	Total Disposals Since Cessation of Hostilities.
Tiger Moth ..	36	7	22	86
Moth Minor ..	3	..	2	5
Whitney Straight ..	..	..	2	3
Vega Gull ..	1	..	..	1
Rearwin ..	2	..	..	3
Beechcraft ..	1	..	..	1
Gipsy Major engines ..	..	..	7	7

SECTION VII.—AERONAUTICS DIVISION

SURVEY OF AIRCRAFT FOR CERTIFICATES OF AIRWORTHINESS

Transfers of military aircraft to the Civil Register during the period under review have thrown a high volume of work on this Division.

Statistics for the reconditioning of aircraft to civil airworthiness standards and the issue, renewal, and validation of certificates of airworthiness are as follows—

Reconditioned to certificate of airworthiness standards 78

Surveyed for renewal of certificate of airworthiness—

(a) Dominion certificates 22

(b) Validation of British certificates 10

TECHNICAL INVESTIGATIONS

Thirty-eight (38) engineering investigations were carried through on a routine basis. The granting of certificates of airworthiness on Dakota and Short aircraft was conditional on almost full-time attendance of Branch Surveyors at all stages of the conversion.

The three District Surveyors concerned have been required to cover a mileage in excess of 21,000 miles in connection with such investigations.

"APPROVED FIRM" SYSTEM

In order to ensure the use of airworthy materials, and to verify that all aeronautical work complies with the highest standards of quality and accuracy, the "approved firm" system has been re-established. Visits to some 60 firms and business houses have been made by Branch Surveyors in order to verify that the standards and facilities provided are acceptable under the requirements, resulting in 48 firms receiving formal certificates of approval.

MODIFICATIONS, REPAIR SCHEMES, AND GENERAL MAINTENANCE

In the twelve months covered by this report the Aeronautics Division has approved 40 modifications and repair schemes for aircraft operating in New Zealand, in addition to reporting on 140 drawings covering the conversion of Lockheed Lodestar aircraft for civil use. Conversion of Lodestar and Douglas C. 47B aircraft is being carried out for both the Air Department and New Zealand National Airways Corporation at Palmerston North, Christchurch, and at Essendon, in Australia.

Thirty-one "Notices to Aircraft Owners and Engineers" have been initiated by the Division, together with miscellaneous circular letters affecting firm's approval, and glider airworthiness.

SECTION X.—LICENSING

The demand for the issue of pilots' licences which was experienced during the year ended 31st March, 1946, has not abated during the year ended 31st March, 1947. This is in part due to the expansion of the services being maintained by the operating companies throughout New Zealand, chiefly New Zealand National Airways Corporation, and in part also to the expansion experienced in club and private flying consequent upon the cessation of hostilities and the release of aircraft to clubs and private operators from the Royal New Zealand Air Force. The fact that there are a number of young pilots with considerable experience on twin- and multi-engined aircraft is proving of assistance to the operating companies who are extending their services to the public, and a number of ex-Air Force instructors are now engaged in club flying. During the year the syllabus for the First Class Navigators' Examination was revised in order to bring it up to the standard required for the issue of this licence in the United Kingdom.

Licences issued during the period 1938-47 are shown in the following table, whilst those current at the 31st March, 1947, are shown in parentheses:—

Licence or Certificate.	1938-39.	1939-40.	1940-41.	1941-42.	1942-43.	1943-44.	1944-45.	1945-46.	1946-47.
PERSONNEL									
Pilot's "A" Licence ..	205	86	30	30	3	..	1	224	667 (863)
Pilot's "B" Licence ..	26	20	4	2	4	5	3	44	146 (200)
Navigator's Licence—									
First Class ..	2	9	6	4	..	8	5	14	{ 11 (18) 14 (25)
Second Class ..									
Radio Telegraph Licence—									
First Class ..	..	..	..	..	..	17	9	30	{ 3 (13) 1 (4) 31 (53) 1 (..)
Second Class ..									
Third Class ..									
Temporary ..									
Radio Telephone Licence ..	..	..	..	..	..	5	4	1	6 (8)
Flying Instructors' Authorities ..	..	..	..	..	..	..	..	..	28 (44)
Aircraft Engineers' Licences ..	16	11	8	9	5	19	19	9	32 (125)
AERODROME LICENCES									
Public	5	1	..	..	..	1	..	15	.. (15)
Temporary	12	4	5	..	6	1	2	1	1 (..)

The following examinations were conducted during the year:—

(a) *Pilot's "B" Licence*—

Number of examinations ..	..	..	..	..	..	8
Number of candidates ..	..	..	..	..	..	274
Number of candidates passed ..	..	..	..	..	..	134
Number of candidates failed ..	..	..	..	..	..	140

(b) *First Class Navigators' Examinations*—

Number of examinations ..	..	..	..	..	..	2
Number of candidates ..	..	..	..	..	..	21
Number of candidates passed ..	..	..	..	..	..	9
Number of candidates failed ..	..	..	..	..	..	12

(c) *Second Class Navigators' Examinations*—

Number of examinations ..	..	..	..	..	..	4
Number of candidates ..	..	..	..	..	..	47
Number of candidates passed ..	..	..	..	..	..	24
Number of candidates failed ..	..	..	..	..	..	23

(d) *Aircraft Engineers' Examinations*—

				Sat.	Passed.	Failed.
Category "A" ..	..	..	..	59	15	44
Category "B" ..	..	..	..	8	2	6
Category "C" ..	..	..	..	57	25	32
Category "D" ..	..	..	..	3	1	2
Category "X" ..	..	..	..	24	14	10
Totals ..	..	..	..	151	57	94

The following numbers of *ab initio* trainees trained at aero clubs (indicated) were issued with "A" Licences during the period 1st April, 1946, to 31st March, 1947 :—

Asheburton Aero Club	..	..	..	..	..	1
Auckland Aero Club	..	..	..	..	..	14
Canterbury Aero Club	..	..	..	..	..	9
Hawera Aero Club	..	..	..	..	..	9
Hawke's Bay and East Coast Aero Club	..	..	..	..	..	13
Marlborough Aero Club	..	..	..	..	..	3
Middle Districts Aero Club	..	..	..	..	..	9
Motueka Aero Club	..	..	..	..	..	1
Napier Aero Club	..	..	..	..	..	1
Nelson Aero Club	..	..	..	..	..	11
New Plymouth Aero Club	..	..	..	..	..	23
Opotiki Aero Club	..	..	..	..	..	3
Otago Aero Club	..	..	..	..	..	5
Stratford Aero Club	..	..	..	..	..	2
Tauranga Aero Club	..	..	..	..	..	1
Waikato Aero Club	..	..	..	..	..	3
Wanganui Aero Club	..	..	..	..	..	6
Wellington Aero Club	..	..	..	..	..	1
Total	..	..	..	..	..	115

I have, &c.,

E. A. GIBSON,

Director of Civil Aviation.

REPORT OF THE DIRECTOR OF THE METEOROLOGICAL OFFICE FOR THE YEAR ENDED 31st MARCH, 1947

The Hon. the MINISTER OF DEFENCE.

I HAVE the honour to submit the following report on the work of the Meteorological Office for the year ended 31st March, 1947.

GENERAL

During the last four years of the war the Meteorological Service had been organized as a branch of the R.N.Z.A.F., and during the period under review the reversion to civil status was completed. The Service is now constituted as a civil branch of Air Department. The transition was carried out gradually, but in spite of this it was found impossible to attract sufficient suitable men to fill the civil establishment. Thus the difficulties inherent in the reorganization were greatly increased and the scope and quality of the service which can be rendered at the present time is necessarily below the desired standard.

By agreement with the United Kingdom Government, the New Zealand Meteorological Service during the war accepted responsibility for the organization and operation of meteorological facilities required in British possessions in the South Pacific. The arrangement has been continued in a modified form whereby New Zealand retains technical responsibility, under the South Pacific Air Transport Council, for all meteorological facilities in British territories in the Pacific east of longitude 170° E. Responsibility in the area to the west of this meridian rests with Australia. The costs involved will be shared by the various Commonwealth partners. Under this scheme New Zealand has supplied the professional and technical staff needed to provide a forecasting service, primarily for aviation purposes, in Fiji. The main forecasting centre will be at the international airport at Nandi, but the facilities throughout the whole of the colonial

islands are co-ordinated under a Principal Meteorologist stationed at Suva. During the war a comprehensive weather-reporting network was built up by the Allied Services in the South Pacific, but much of this collapsed with the withdrawal and demobilization of the various military units concerned. It will necessarily take a considerable time to bring the network to the ultimate standard required for civil purposes.

Because weather reports covering a very wide area are necessary for successful forecasting, international co-operation in the field of meteorology is not only desirable, but is an essential feature. During the war the work of the International Meteorological Organization was of necessity very restricted, but, with the cessation of hostilities, full activity has been restored. In particular, considerable progress has been made in the difficult problem of securing world uniformity in the codes by which meteorological information is exchanged. To initiate the post-war work an extraordinary Conference of Directors of the International Meteorological Organization was held in London at the end of February, 1946, and was attended by the Director. A further Conference of Directors is to be held in Washington in September, 1947, preceded by meetings at Toronto of various Commissions. Flight Lieutenant J. F. Gabites, Officer in Charge of Aviation Meteorological Services, who was in London with the Victory Contingent, represented the New Zealand Meteorological Service at the meetings of the Commission for Synoptic Weather Information and the Commission for Aviation Meteorology which met at Paris in June, 1946. The South-west Pacific Regional Commission of the Organization met in Melbourne in February, 1947, and was attended by the Director and the Officer in Charge of Aviation Meteorological Services. At this meeting representatives were present from United States of America, France, the Philippines, the Netherlands East Indies, Australia, and New Zealand. Good progress was made towards the co-ordination and unification of facilities throughout the area, particularly in respect to such matters as weather reports from ships, exchange of meteorological information, regional broadcasts, codes, &c.

Reference will be made in the next section to meetings of the Meteorological Committees of the South Pacific Air Transport Council and of the Provisional International Civil Aviation Organization.

AVIATION METEOROLOGY

The Meteorological Branch has continued to provide detailed forecasts and weather information for both Service and civil aircraft operating within New Zealand, on the overseas routes to Australia, Norfolk Island, New Caledonia, Fiji, Tonga, Samoa, and the Cook Islands, and on sporadic flights to Chatham Islands, the Solomons, Gilbert and Ellice Groups, and French Oceania.

Aviation forecasting offices were maintained at Lauthala Bay (Suva), Mechanics Bay (Auckland), Rongotai Aerodrome (Wellington), Wigram Aerodrome (Christchurch), and Taieri Aerodrome (Dunedin). Similar offices were located at Whenuapai Aerodrome (Auckland) and Ohakea Aerodrome, but had to be reduced in status to observing stations towards the end of 1946 owing to the depletion of professional staffs. Meteorological observing staffs maintained liaison with the appropriate forecasting offices to procure forecasts or other information required at Nausori (Fiji), Fua' Amotu (Tonga), Faleolo (Samoa), Aitutaki and Rarotonga (Cook Islands), Norfolk Island, Waipapakauri (Kaitiaia), New Plymouth, Gisborne, Palmerston North, Nelson, Hokitika, Woodbourne (Blenheim), Harewood (Christchurch), and Invercargill Aerodromes. Forecasts required at other aerodromes were provided by telephone.

During daylight hours the normal three-hourly collection of weather reports was supplemented by hourly reports from about twenty aerodromes within New Zealand. These were exchanged between the eight offices on the meteorological teleprinter network and made available by aeradio to other aerodromes. These reports were passed to the air traffic control centres and to flying control officers on aerodromes as well as being made available to pilots.

Throughout the year a twenty-four-hour forecasting service, seven days per week, was maintained at Mechanics Bay (Auckland), which provided the forecasts for overseas flights from New Zealand, but dwindling staffs necessitated a gradual reduction in the hours of service at other forecasting offices in New Zealand. Forecasts required at week-ends or other times outside their limited hours of service were prepared instead at either the central forecasting office (Wellington) or at Mechanics Bay (Auckland). Plans for establishing an urgently required forecasting office at Palmerston North Aerodrome, the operational headquarters of National Airways Corporation, could not be fulfilled during the year.

At the present time, forecasters are available at too few aerodromes and for too limited hours to provide all the personal briefing of aircrews desired, and the heavy load thrown on the few remaining forecasting offices has limited the amount of attention that can be given to individual inquiries at busy periods.

Several Commonwealth and international meetings relating to aviation meteorological services took place during the year. The first meeting of the Meteorological Committee of the South Pacific Air Transport Council was held at Wellington in August–September, 1946. The Director later attended a meeting of the Council itself at Canberra in December, 1946. A further meeting of the Meteorological Committee in Melbourne in January, 1947, was attended by the Director and the Officer in Charge of Aviation Meteorological services. The latter remained as a member of the New Zealand delegation at the South Pacific Regional Meeting of the Provisional International Civil Aviation Organization at Melbourne in February, 1947.

The type of service being provided for trans-Pacific aviation follows generally the practices recommended by the Provisional International Civil Aviation Organization, but the present observational networks throughout the area are below modern international standards, especially in the direction of radiosonde and radar wind-measuring equipment. Detailed plans to overcome the deficiencies were prepared at the S.P.A.T.C. (Committee of Meteorologists) and P.I.C.A.O. Meetings, and will be implemented as staff, equipment, and accommodation become available.

GENERAL FORECASTING

Forecasts for the general public, the press, and radio were provided from the central forecasting office at Wellington. District forecasts telegraphed at about 11 a.m. to the evening newspapers cover the period to 5 p.m. the following day and are supplemented by a "further outlook" for the succeeding twenty-four hours. Corresponding forecasts telegraphed at 10 p.m. to the morning newspapers apply to the period up to 5 p.m. on the day of publication and are also accompanied by a "further outlook" for the following day. The delay between the time of issue of newspaper forecasts and the time they are read by the public detracts considerably from their usefulness compared with those issued by radio.

Forecasts for the various districts of New Zealand and for Chatham Islands were broadcast from the central forecasting office over the National Broadcasting Service network at 7.15 a.m., 12.30 p.m., and 9.01 p.m. daily. The forecasts issued at 7.15 a.m. cover the period up to midnight on the same day, and those issued at 12.30 p.m. and 9.01 p.m. up to midnight on the following day. City forecasts for Auckland, Palmerston North, Wellington, Christchurch, and Dunedin were issued to the local ZB stations at 7.30 a.m., 1 p.m., and 9.30 p.m. daily. Those for Auckland, Christchurch, and Dunedin were supplied through the local branch offices.

Forecasts for shipping in New Zealand waters were broadcast twice daily through the Post and Telegraph Department station at Wellington. These forecasts are normally for areas within 300 miles of the New Zealand coast, but include advice, when necessary, on tropical or other severe storms further afield. Twice daily on a frequency of 1,840 kc/s a selection of weather reports for the special benefit of coastal shipping were broadcast from the Auckland, Wellington, and Awarua Radio Stations.

The central forecasting office has co-operated with Catchment Boards in the matter of flood warnings. It has been arranged that the forecaster on duty rings the secretaries of certain Catchment Boards whenever heavy rains which may produce flooding are expected in the Boards' areas and subsequently keeps in touch with them until the danger has passed.

Many other special services were provided, including forecasts for photographic work for N.Z. Aerial Mapping, Ltd., forecasts for the State Forest Service during periods of fire hazard, and numerous forecasts for haymaking, harvesting, and other farming operations in response to telegraphed inquiries.

The total number of separate forecasts issued by the central office during the year was over 23,000.

Investigations have been made with a view to improving the accuracy and detail of frost forecasts, but the efforts have been limited by the availability of staff.

Coded weather-map analyses were promulgated every six hours by teleprinter for the information of branch offices in New Zealand and at twelve-hourly intervals, by radio, for meteorological services overseas and for ships.

The collection and distribution of reports by teleprinter and radio were controlled from the central forecasting office. The communications system was efficiently operated by officers seconded from the Post and Telegraph Department.

At Suva, general forecasts for the Fiji area were issued twice daily from the local broadcasting station, ZJV. The Suva office has also been responsible for the initiation of hurricane warnings for the South Pacific area and for the issue of special forecasts as required.

CLIMATOLOGY

Data used in the compilation of climatological statistics have been collected for many years from a large number of observing stations, the majority of which are maintained by voluntary observers to whom once again I wish to express sincere appreciation of their valuable assistance.

During the year 6 new climatological stations were established, located at Kerikeri, Paeroa, Hamilton (Soil Fertility Station, Rukuhia), Musselburgh, Taumarunui, and Aitutaki Airfield. At the end of March, 1947, the total number of such stations under New Zealand control was 99. This figure includes 12 Pacific Island stations, but excludes those based on Fiji and which are being operated on behalf of Fiji and the United Kingdom. Daily readings from these stations include rainfall, temperature, and humidity at 9.30 a.m., together with maximum and minimum temperatures, while certain stations record also barometric pressure, soil temperature, duration of bright sunshine, evaporation, and run of wind. In addition, about 600 observers record the daily rainfall and forward monthly returns for analysis. Fifty new rainfall stations were established during the year. Additional climatological data is available in the monthly returns received from about 110 synoptic reporting stations, at many of which detailed observations are made as frequently as six times each day. The returns are of special value as a source of cloud, wind, and visibility statistics.

In close collaboration with the Technical Committee on Hydrologic Data of the Soil Conservation and Rivers Control Council, arrangements are in train to increase the number of rainfall stations to approximately 1,100 (including 100 self-recording gauges). The location of the additional gauges, together with the finding of suitable observers, is being organized in collaboration with the Council and the various Catchment Boards. During the year an endeavour was made to collect rainfall data from hitherto unco-ordinated records maintained by local bodies, private individuals, &c. In response to a number of circulars sent out, we are now being supplied with copies of an additional 112 current records, and received, in addition, a number of back records. The response to this appeal must be considered very satisfactory, and our grateful thanks are due to those who are co-operating with us in the task of assembling all available rainfall data. This Office has undertaken the preparation of a more detailed analysis of all rainfall returns. While the results will be of special value for the Soil Conservation and

Rivers Control Council, engineers and others interested in hydrology, who, in the past, have been handicapped by lack of basic data, should reap considerable benefit. A start has been made on this work, but owing to lack of staff the full results are unlikely to be available for publication for a considerable time.

During the war the annual publication of meteorological observations was suspended. In the past year some of the leeway was made up with the publication of the observations for 1941 and 1942, while the 1943 and 1944 volumes are ready for printing.

Many inquiries were dealt with from other Government Departments and from the community in general. Of the more important investigations carried out may be mentioned the study of extreme rainfalls in various river catchments, temperature and humidity statistics required in the design of air-conditioning plant, the probable reliability of electric power produced by wind generators, and average weather conditions at various existing and proposed aerodromes and seadromes. Each year increasing use is being made of the information available in the Climatological Section.

REPORTING ORGANIZATION AND INSTRUMENTS

The New Zealand Meteorological Service is responsible for the weather-reporting organization not only within the Dominion, but for all British islands in the Pacific east of longitude 170° E. —i.e., from north of the Equator in the Gilbert Group to Campbell Island in the south, and as far east as Pitcairn Island. New Zealand has also been operating the Norfolk Island meteorological station on behalf of Australia.

Radiosonde stations are established at Lauthala Bay (Fiji), Norfolk Island, Auckland, Hokitika, and Taieri, but, due principally to temporary lack of supplies, observations have been suspended at Fiji, Norfolk Island, and Taieri. Supplies for Auckland and Hokitika were maintained by the use of recovered and other salvaged transmitters which were reconditioned by the Dominion Physical Laboratory.

During the year, meteorological observers were posted to Aitutaki and Rarotonga, and upper-wind observations are now made at the 26 stations listed below. In the four cases indicated, radar methods are used:—

Apia.	New Plymouth.
Aitutaki.	Gisborne.
Rarotonga.	Ohakea (radar).
Tonga.	Wellington.
Lauthala Bay (radar).	Blenheim.
Nandi.	Nelson.
Raoul Island.	Hokitika.
Norfolk (radar).	Christchurch.
Waipapakauri.	Taieri.
Whenuapai (radar).	Invercargill.

During the year, 6 new reporting stations were established within New Zealand, mainly to supply additional reports required by new internal air lines. The stations were located at Kaikohe, Onerahi, Little Barrier Island, French Pass, Havelock, and Invercargill. One station—Motueka—was discontinued. In addition, a greater coverage of reports was arranged from several lighthouse stations and, for fire-hazard forecasting, from selected stations in the central North Island.

The total number of synoptic reporting stations in operation at the end of the period under review was 140, of which 104 are within New Zealand itself, and the remainder in the islands.

The organizing of weather reports from inter-colonial and overseas ships was accelerated during the year, and the position of Officer in Charge of Marine Reporting was established. Barometers were installed on 4 more vessels, and the number of New Zealand selected weather-reporting ships now totals 16. During the past twelve months a total of 5,396 ships' reports were received. The corresponding figure for the twelve-month period before the outbreak of war was 3,911. Regular inspections of vessels calling at Auckland, Wellington, and Lyttelton were carried out, a total of 45 ships being visited.

Increasing attention has been paid to the regular inspection of reporting stations, both in New Zealand and the islands, and every endeavour was made to keep the general standard of observations at the highest possible level. A radiosonde course was conducted at Taieri in November, 1946, at which 14 observers were trained to various stages.

Apart from radiosonde equipment, the supply of meteorological instruments from local and overseas sources has been reasonably well maintained, and, by making minor improvisations, reporting stations were kept supplied with essential equipment. As regards radiosonde material, negotiations were almost completed for the purchase of adequate surplus stocks from the United States Foreign Liquidation Commission, but the equipment was withdrawn at the last moment. Orders have now been placed for supplies from Australia.

Radar wind observations are still being made with wartime equipment. At Fiji, Norfolk Island, and Ohakea, G.L. Mark II sets are in use, and at Whenuapai there is a New-Zealand-built microwave set. Four locally designed microwave wind-finding units are being constructed by the Dominion Physical Laboratory and will be used partly to replace the wartime equipment. At Norfolk Island the set was serviced by the R.N.Z.A.F. Signals Branch, but the other units were maintained by radar technicians attached to the Meteorological Service.

RESEARCH

At present, every member of the professional staff is of necessity being employed full time on routine duties—the majority on continuous forecasting rosters. Under the circumstances, it has been impossible to carry out any systematic research work.

Meteorology is in the developmental stage and there should be no need to emphasize the fact that only by properly organized and painstaking research can we hope to improve the accuracy of forecasts and the value of the general advisory service that can be rendered to the public. Under normal staffing conditions provision is made for two professional officers to be employed full time on research, and, in addition, the establishment is such as to enable each forecaster to devote about one-quarter of his time to non-routine research investigations directed towards improving and developing the service. That such efforts can lead to improvements of great value cannot be denied.

The present position is very serious and if allowed to continue must have far-reaching and detrimental results. The restoration of organized research by the provision of additional well-qualified professional staff is a matter of the greatest urgency.

PUBLICATIONS

In addition to the regular appearance each month of climatological data in the *New Zealand Gazette* and the revision of the article on New Zealand climate in the Year-Book, the following publications were issued from the Meteorological Office during the year under review :—

“Meteorological Observations for 1941.”

“Meteorological Observations for 1942.”

“Maps of Extreme Monthly Rainfall in New Zealand,” by C. J. Seelye.

Meteorological Office Notes—

No. 28 : “Tornadoes in New Zealand,” by C. J. Seelye.

No. 29 : “Notes on the Canterbury Floods of February, 1945,” by E. G. Edie, C. J. Seelye, and J. D. Raeside.

No. 30 : “Variations of Monthly Rainfall in New Zealand,” by C. J. Seelye.

In return for our publications, the Meteorological Office Library in Wellington receives corresponding information from similar institutions overseas. This year has seen an increasing number of publications reaching us from foreign sources. A certain amount of the material is circulated to the branch meteorological offices as received, and, in the case of more important papers, extracts or abstracts are cyclostyled and issued for retention by the branches as N.Z.M.O. Technical Information Circulars, of which Nos. 44 and 45 appeared during the year. N.Z.M.O. Radiosonde Information Circular No. 13 was also issued.

To promote local investigations and to improve the standard of forecasting and observing throughout the Service, members of the staff are encouraged to prepare notes of local interest and significance. These are cyclostyled and issued within the Meteorological Branch as N.Z.M.O. Circular Notes. No. 41 of this series was issued during the year.

Good progress was made in sorting and classifying the Library.

STAFF

To meet full requirements within New Zealand and the islands, the total establishment of observers and professional officers approved by the Public Service Commission numbers 132 and 46 respectively. Towards the end of 1945, positions were advertised in both classes.

The response in respect of observers was satisfactory. A special training school was established at Woodbourne, and two consecutive three-monthly courses were given, the first starting in March and the second in June, 1946. From the two courses a total of 58 observers passed their qualifying examinations and were posted to various vacancies in New Zealand and the islands. Unfortunately, however, 15 men resigned during the year, and in December positions for both observers and professional officers were again advertized. As a result, twelve new appointees are now undergoing their initial observers' training course. Including the 12 trainees, there were in the Service at the close of the period under review 123 observers, or 9 short of the full establishment.

By contrast, the position as regards professional officers is very serious. While operating as a branch of the R.N.Z.A.F. there were in the Service, at the end of 1945, in addition to the 33 officers who were also members of the civil meteorological organization, 39 graduates who had been specially selected and trained as forecasters. It was realized that many of these wartime temporary forecasters would return to their original occupations on demobilization, but it was hoped that enough of them would transfer to the civil branch to complete the peacetime establishment. Of the 39 temporary forecasters, only 6 chose to stay in the civil Meteorological Service. In addition, 2 R.N.Z.A.F. observers and one graduate without previous meteorological training joined the Service, making a total accession of 9 professional officers. But during the same period we lost the services of no less than 10 officers belonging to the civil staff. These included the Officer in Charge of Research, the Officer in Charge of the Climatological Section, 2 highly experienced forecasters, 3 junior officers, and 3 female professional officers. Of the 10, 2 who are on leave without pay appear unlikely to return, and the remainder have either resigned or transferred to other Departments. Thus the additions have failed to balance the losses and no progress has been made towards decreasing the deficiency in the overall establishment. At the end of the year there was a total of 32 professional officers to meet an establishment of 46, and further losses were pending.

Difficulty in obtaining additional staff is common to many Departments, but the loss to more attractive positions outside the Service of so many trained personnel, and particularly of such highly qualified and experienced men as the Officers in Charge of the Research and Climatological Sections, is very serious and far-reaching in its effects. Unless this tendency is arrested, it must inevitably lead to a further and rapid deterioration of the Service.

The shortage of staff has placed a very heavy burden on the remaining members of the Service, and their cordial and loyal co-operation is acknowledged with pleasure.

I have, &c.,

M. A. F. BARNETT,

Director, Meteorological Office.

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