

1939.
NEW ZEALAND.

AIR DEPARTMENT

(REPORT ON THE), FOR THE YEAR 1938-39.

Presented to both Houses of the General Assembly by Command of His Excellency.

REPORT BY THE HONOURABLE F. JONES, MINISTER IN CHARGE OF THE AIR DEPARTMENT, FOR THE YEAR ENDED 31st MARCH, 1939.

MR. SPEAKER,—

I have the honour to present to Parliament the report of the Air Department for the year ended 31st March, 1939.

At the commencement, I wish to express the appreciation of the New Zealand Government to Group Captain the Honourable R. A. Cochrane, C.B.E., A.F.C., R.A.F., for the services that he rendered during his attachment of two and a half years to the Royal New Zealand Air Force. Before Group Captain Cochrane left New Zealand, His Majesty's Government in the United Kingdom agreed to the services of another officer being loaned to the Royal New Zealand Air Force for a further period of two years. Air Ministry in Great Britain selected for this purpose Group Captain H. W. L. Saunders, M.C., D.F.C., M.M., R.A.F., who succeeded to the position of Chief of the Air Staff on the 8th March, 1939. Group Captain Saunders has served with distinction in the Royal Air Force for twenty-two years, and I feel that we are indebted indeed to the Royal Air Force for making available the services of so able an officer to command the Royal New Zealand Air Force during this period of expansion.

The programme submitted by Group Captain Cochrane provided for the expansion of the Air Force by the establishment of two Medium Bomber Squadrons, the establishment of a Flying Training School and a Stores and Repair Base, and the creation of a Territorial Air Force and an Air Force Reserve.

During the year under review, Territorial Squadrons were formed at Auckland and Christchurch and the Wellington Squadron continued at full strength. The Dunedin Squadron is being formed at the end of 1939. The programme has been further expanded to provide for the establishment of a Regular Squadron at Dunedin, and Regular Flights for the Territorial Air Force in Taranaki, Hawke's Bay, and Southland. The Government has also approved of the establishment of a second Flying Training School at Blenheim, capable of an output of 140 pilots a year, and the enlargement of Wigram to provide for the training of an equal number of pilots.

Orders have been placed for large numbers of training aircraft, and delivery has already been received of some "Airspeed Oxfords," "Vincents," "Gordons," and "Baffins." Orders have also been placed for ammunition, bombs, and technical

stores, and delivery has been obtained of very considerable quantities. A substantial addition to the building programme at both Hobsonville and Wigram has been undertaken, and satisfactory progress is being made in the construction work. It is hoped to complete the expansion programme by the 31st December, 1940, when the last Flight of "Wellington" aircraft should have been received.

In April, 1939, the United Kingdom Air Mission visited the Dominion and, after conferring with officers of the Department, submitted a valuable report for the consideration of the Governments of the United Kingdom and of New Zealand. The Air Mission was followed by the Pacific Defence Conference, at which representatives of the Defence Services of Great Britain and the Commonwealth of Australia were represented. Both visits were very much appreciated, affording as they did an opportunity for the most valuable personal contact between representatives of the New Zealand Services and the Services of other parts of the Empire.

The report of the Controller of Civil Aviation shows how great is the progress that is being made in connection with commercial air transport, and it indicates also the increasing readiness of the Dominion public to adopt this form of travel.

Of outstanding importance in connection with civil aviation is the completion of the arrangements for the inauguration of the Empire air service, and it is hoped that before the end of 1939 the trans-Tasman air service will be in operation.

I wish again to express my appreciation of the excellent work that has been done by all associated with aviation during my term as Minister of Defence.

REPORT BY THE CHIEF OF THE AIR STAFF FOR THE YEAR ENDED 31st MARCH, 1939

The Hon. the MINISTER OF DEFENCE,—

I have the honour to submit the following report on the Royal New Zealand Air Force for the year ended the 31st March, 1939.

The expansion programme which was embarked upon following the report presented to the Government by my predecessor, Group Captain the Honourable R. A. Cochrane, C.B.E., A.F.C., has proceeded satisfactorily, consistent with the provision of accommodation at Air Force stations.

PERSONNEL.

Arrangements have been made with the Air Ministry to release a number of ex-New Zealand officers from their service with the Royal Air Force to man the Wellington aircraft which are to be flown to New Zealand during 1939-40. Additional officers will also be released by the Air Ministry for service in other regular units in the Dominion. Under this scheme, some forty ex New Zealand officers with from two to five years' Service experience in the Royal Air Force will be transferred to the Royal New Zealand Air Force.

The output of pilots from the Flying Training School at Wigram is being increased from forty-eight to eighty per annum. The school continues to make good progress, and in spite of handicaps due to shortages of specialized equipment the standard of instruction compares favourably with that of similar schools in the Royal Air Force. The deficiencies in equipment are being met rapidly, and it is hoped will entirely disappear at an early date.

THE AIR FORCE RESERVE.

The importance of having a fully trained reserve of personnel available on the outbreak of war to meet expansion and to replace wastage in operational units was stressed in the report of the Air Department for 1937-38, and requires no further emphasis in this report. During the current year some progress has been made towards building up these essential reserves.

The system under which a reserve of pilots is being built up under an agreement with the Royal New Zealand Aero Club and its constituent clubs has been continued, and on the 31st March, 1939, the strength of the Civil Reserve of Pilots was one hundred and sixty. It is hoped to increase this reserve to three hundred pilots by the end of the current year.

With a view to providing a reserve of trained personnel for maintenance duties in the event of war, a scheme has been introduced with the co-operation of the Railways Department to provide the Royal New Zealand Air Force with an immediate reserve of trained mechanics. Under this scheme, apprentices in the last year of training will undergo a six months' course on airframe and aero-engine work. The provision of the necessary buildings and equipment for this scheme is well in hand, and the instructional staff is being strengthened by obtaining a number of Royal Air Force and ex Royal Air Force instructors from the United Kingdom. The first course under this scheme should commence training at the Hutt Workshops about the middle of July.

In addition to the above scheme, an appeal was made during the year to men between the ages of twenty-two and fifty-five to register for service in the Royal New Zealand Air Force in the event of a national emergency. There was a very gratifying response, and skilled tradesmen and others for whom the need will be most urgent in war are at present being interviewed and assessed with the object of rapidly augmenting the Regular Air Force should the need arise. At present no training is given to these personnel, but, as and when the initial requirements of regular units under the present expansion programme have been met, a scheme for the training of maintenance personnel on the Civil Reserve will be initiated.

TERRITORIAL AIR FORCE.

The Wellington Territorial Squadron was formed in October, 1937, and Territorial squadrons at Auckland and Christchurch have now been established. The strength of these squadrons is as follows:—

					Officers.	Airmen.
Wellington (T.) Squadron	..	..	..	..	18	96
Auckland (T.) Squadron	..	..	..	..	20	77
Christchurch (T.) Squadron	..	..	..	..	17	92

In addition, a further twenty-one Territorial officers are available, but as they are not living within a squadron area they are not attached to particular squadrons. These officers, however, carry out training in the normal way as and when they can find time.

It is hoped to form the Dunedin Territorial Squadron by the end of this year, by which time the building programme at Taieri should be completed.

Annual training-camps were held by the established Territorial squadrons during the year, and a very satisfactory standard was reached in the flying and low bombing practices. In addition to the annual camps, a three months' course of training was arranged for such personnel as could be spared from their civil employment. The response was very gratifying, and was possible only as the result of the very commendable co-operation of employers. Under this scheme twenty officers and ninety-seven airmen are now undergoing training at Wigram, Rongotai, and Hobsonville.

AERO CLUBS.

Very valuable service has again been rendered by the aero clubs throughout the year. With their ground organization at the larger aerodromes, and the public interest they foster in all aviation matters, they play a very important part in the air defence of New Zealand.

One hundred selected candidates of the physical standard prescribed for the Air Force were trained by selected clubs throughout the Dominion for the Civil Reserve of Pilots. In addition, the clubs at Auckland, Wellington, Christchurch, Dunedin, and Wanganui undertook the elementary training of candidates selected for training at Wigram for short-service commissions in the Royal Air Force and Royal New Zealand Air Force. These clubs are undertaking an important duty in training pilots for the Royal Air Force and the Royal New Zealand Air Force, and are doing the work in New Zealand which in England is done by civil flying training schools specially organized for that purpose.

AIR FORCE STRENGTH.

The strength of the Royal New Zealand Air Force on the 31st March, 1938, and the 31st March, 1939, was as follows :—

Regular Air Force—							1938.	1939.
Officers	..	..	..	..	..	..	37	57
Airmen	...	..	..	..	..	..	302	622
Reserve—								
R.N.Z.A.F. Reserve of Officers	..	..	..	..	..	..	13	16
Civil Reserve of Pilots	..	..	..	..	..	..	106	160
Territorial Air Force—								
Officers	..	..	..	..	..	..	73	79
Airmen	..	..	..	..	..	..	75	265
							606	1,199

CO-OPERATION WITH ROYAL AIR FORCE.

At the present early stage in the development of the Royal New Zealand Air Force, the Service is obviously dependent to a large extent on the Royal Air Force for specialist officers and flying training and technical personnel, as well as for equipment, and it is appropriate to acknowledge the very generous manner in which these requirements have been met by His Majesty's Government in the United Kingdom. Without this assistance the difficulties inevitable in an expansion programme of the magnitude now being carried out would have been formidable. The New Zealand Air Liaison Officer at the Air Ministry has been most valuable in dealing with all questions of supply and personnel and in providing up-to-date and authoritative information on equipment, training methods, and other matters of interest to the Service. His appointment has been more than justified by results.

In the past year the system of interchanges between officers of the Royal Air Force and of the Royal New Zealand Air Force has been continued and extended, and a number of officers and men have proceeded overseas for refresher courses or specialist training in navigation, engineering, signals, and armament. The courses serve to bring the training of New Zealand officers up to date and to train selected officers for instructional duties in the Royal New Zealand Air Force.

During the year 144 New-Zealanders were selected and proceeded direct to the United Kingdom to take up short-service commissions in the Royal Air Force. Under arrangements made with His Majesty's Government, these men will return to New Zealand on completion of their service with the Royal Air Force. Some may be absorbed into the Regular Air Force in the Dominion, and the remainder will considerably strengthen the Reserve.

BUILDING PROGRAMME.

The extent of the building programme involved in the Air Force expansion can be most readily appreciated from a brief survey of the work carried out in the past two years. The year 1937 was chiefly devoted to engineering surveys of possible sites for the two operational stations, to the preparation of plans and specifications of the major buildings required at the various stations, and to surveys for ancillary services such as roads, water, and lighting involved in a scheme of this magnitude. By the end of March, 1938, tenders had been accepted for the majority of the buildings, and in some cases new construction, especially at the Flying Training School, Wigram, and the Air Base, Hobsonville, was well under way.

At Ohakea, the Medium Bomber Squadron Station near Palmerston North, building has been in progress since the end of February, 1938. The major buildings, including one of the two concrete hangars, station headquarters, officers' mess and quarters, and airmen's barracks, are nearing completion, and will be ready for occupation in time to receive the first flight of Wellington aircraft about October. The total cost of the contracts in hand at this station is £384,000.

Satisfactory progress is now being made in the construction of the second station at Whenuapai, near Auckland. Work on this station did not commence until approximately nine months after Ohakea, owing to the difficulties experienced in obtaining a suitable site in this district and, subsequently, to the additional design work involved in the heavier foundations required for buildings. Contracts were let at the end of January, 1939, for the two concrete hangars, which should be completed by April, 1940. A contract was also let early in March, 1939, for the airmen's barracks, which should be ready for occupation by the same date. Satisfactory progress has been made with the levelling and drainage of the flying-field, a portion of which has already been grassed.

At the Flying Training School, Wigram, the following buildings, involving a capital expenditure of £75,000, have been completed: Station headquarters, main store, workshop extensions, guard-house, officers' cubicles, garages, additions to airmen's barracks, temporary hutments for airmen, married quarters (thirty-three residences), sergeants' mess, and ration-store.

The following buildings, which involve a further £110,000, are nearing completion: Two concrete hangars, one timber hangar, main store, water-tower, instructional building, officers' mess, sick-quarters.

The majority of these buildings will be completed within the next few months, by which time the station will have accommodation for about sixty aircraft in the five hangars and ninety officers and four hundred airmen in quarters. The administrative and technical buildings will be adequate for the complete Service training of eighty pilots a year.

At the Air Base, Hobsonville (Auckland), which is being converted into a Stores and Repair Depot for the Royal New Zealand Air Force, an explosives area comprising twelve stores for bombs and pyrotechnics has been completed, and additional barracks accommodation constructed. An aircraft-repair shop, four main stores, station headquarters, guard-house, and a wooden hangar are in process of construction. The total amount involved in the buildings completed and under way is £143,000.

Rapid progress has been made in the construction of an additional Air Force station at Blenheim. This station will involve a capital expenditure of £180,000. The construction of two timber hangars, officers' and airmen's messes, and barracks is well under way, and contracts for the remainder of the buildings required should be let before June. It is anticipated that this station will be ready for occupation next October.

At Taieri Aerodrome, Dunedin, a timber hangar is under construction for the use of the Dunedin Squadron, Territorial Air Force, and tenders for the other technical buildings and barrack accommodation required for this unit will be called shortly.

EQUIPMENT.

Early in the year under review five Airspeed Oxford aircraft and twenty-nine Baffin aircraft were received at the Air Base, Hobsonville, erected, and delivered to units. The former were despatched to the Flying Training School, Wigram, for advanced navigational training, and the latter to the Territorial Air Force Squadrons in Wellington, Auckland, and Christchurch. These Baffin aircraft have proved most satisfactory for Service training in the Territorial units, and have already carried out seven hundred hours' flying without any accidents to personnel.

Arrangements have been made with the Air Ministry for the issue of two hundred and fifty aircraft of these types at nominal prices as they can be released from the Royal Air Force. It is anticipated that this number will be obtained within the next two years. Orders have already been placed for twenty-four Gordon and sixteen Vincent aircraft, delivery of which is expected in June and August respectively of this year. Orders for the additional armament, wireless, and navigational equipment required to make these aircraft fully effective for operational duties have been placed, but this equipment has not yet been received.

The orders placed last year for the reserve of bombs, pyrotechnics, and aviation spirit are now being fulfilled, and deliveries amounting to over 50 per cent. of our requirements have already been made. The supply of aircraft spares, aerodrome equipment, including searchlights and beacons for night flying, and instructional equipment such as Link trainers and bombing teachers is slow, but under the conditions prevailing abroad it is most difficult to hasten delivery of this class of equipment. Four Link trainers, which are invaluable for navigational and blind-flying instruction on the ground, have been received, and are in constant use at the Flying Training School and the Territorial units.

Machine tools, specially designed for the reconditioning of radial engines, and test equipment for the examination and overhaul of aeronautical instruments, airscrews, and automatic controls, are on order for the Repair Depot now under construction at Hobsonville, and delivery should be obtained before the new shops are completed.

With the objects of simplifying the method of accounting for Air Force stores and facilitating the task of provisioning, the Powers-Samas system of machine accounting is now being introduced into the Service.

EDUCATION.

Education Officers have been appointed at the Royal New Zealand Air Force stations at Wigram and Hobsonville. The policy being followed is on similar lines to that of the Royal Air Force, the purpose of the system being to provide personnel with education facilities to obtain the requisite grounding in mathematics, physics, &c., so that they will be able to obtain the full benefit of the instruction in technical subjects. The scheme is, however, also designed to equip the men to return to civil life after completion of their periods of service. The importance of this aspect of Air Force training is fully appreciated, and, while very little has yet been done, it is hoped to develop the educational and vocational training as soon as opportunity permits. The Education Department is co-operating with the Air Department, and Mr. E. Caradus, the Senior Inspector of Secondary Schools, is attached to the Air Force in an advisory capacity. All stations are being provided with reference libraries. Debates are arranged by the Education Officers, and, apart from the vocational and general training, an endeavour is being made to improve the standard of education throughout the Air Force.

PHOTOGRAPHIC SURVEY.

Due to the increased training programme and the heavy demands made on personnel and aircraft, no large photographic programme was undertaken during the year. An Airspeed Oxford aircraft, specially equipped for photographic work, has now been delivered, and the organization of a survey flight will be proceeded with as rapidly as possible. The first task to be carried out by this flight is the survey of approximately 1,000 square miles in the North Auckland district for the Lands and Survey Department.

AIR DISPLAY.

In order that the public might have an opportunity of seeing something of the progress that has been made in the development of the Royal New Zealand Air Force, and to raise funds for welfare purposes in the Force, an air display was held at Rongotai Aerodrome on 6th June, 1938. A special illustrated programme was printed for the occasion containing articles of interest on Air Force matters generally. Various phases of air training were demonstrated in the course of the display. Approximately ten thousand people attended the display, and nearly £1,100 was raised.

CONCLUSION.

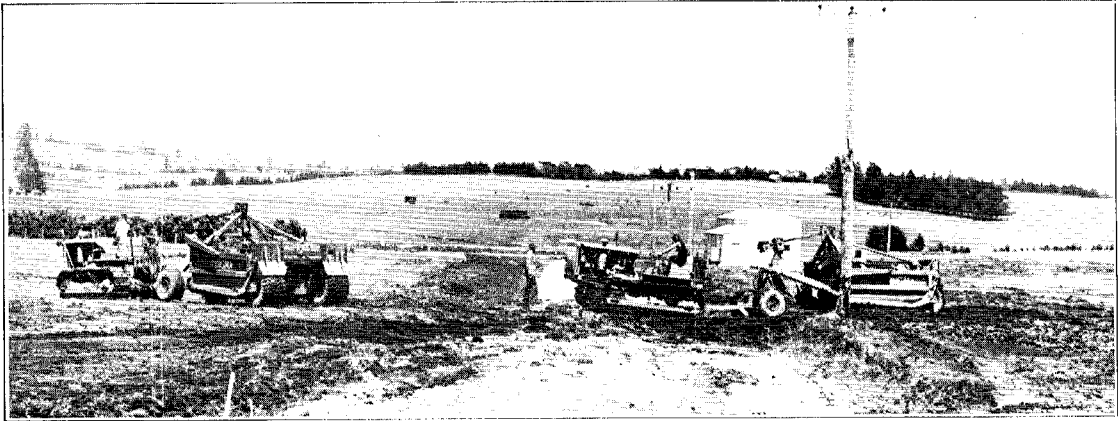
I share the admiration of my predecessor for the manner in which the headquarters staff, both Service and civilian, and also the units, have carried out the very heavy duties that have fallen on them in consequence of the programme of rapid expansion that is being undertaken. Although a great deal remains to be accomplished, much has been done, and I have been very impressed by the ability, initiative, and energy that has been displayed by all concerned.

Great credit is again due to the Engineer-in-Chief and officers of the Public Works Department for the assistance which, in the construction of new Air Force stations and aerodromes and by technical advice, has made it possible to develop the expansion programme.

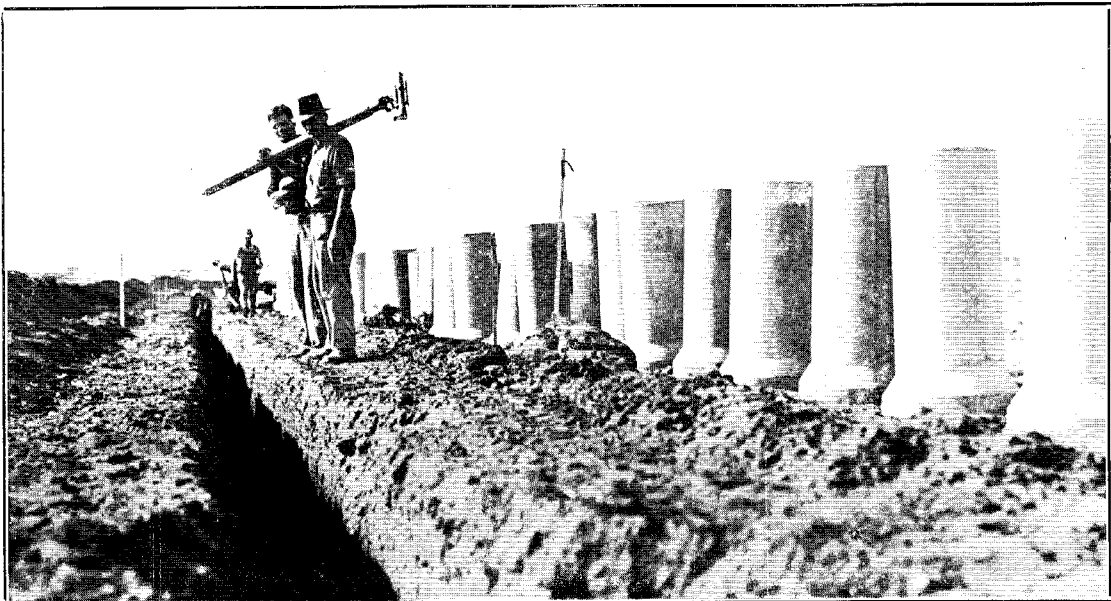
I have, &c.,

H. W. L. SAUNDERS,

Group Captain.



R.N.Z.A.F. STATION, WHENUAPAI, AUCKLAND : COMMENCEMENT OF THE LEVELLING OF FLYING-FIELD,
JANUARY, 1939.

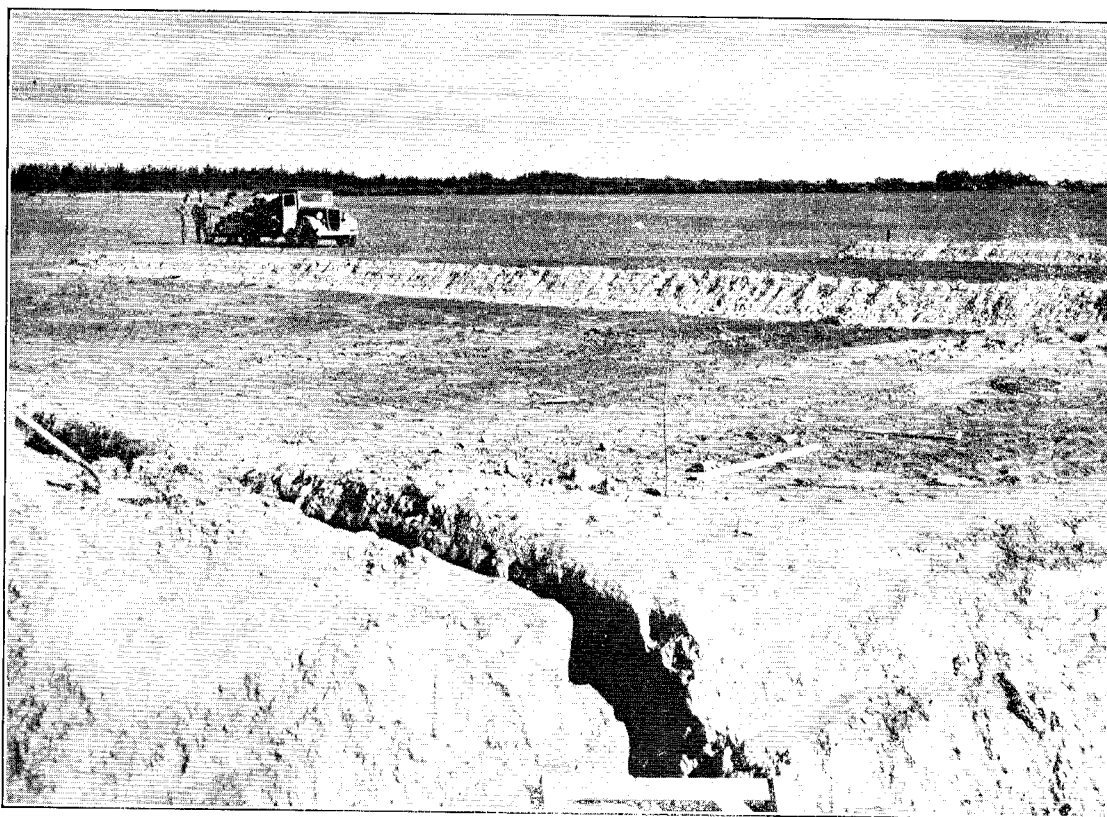


R.N.Z.A.F. STATION, WHENUAPAI, AUCKLAND, FLYING-FIELD : SUB-SURFACE DRAINAGE ON LAND
(MAIN DRAIN), APRIL, 1939.

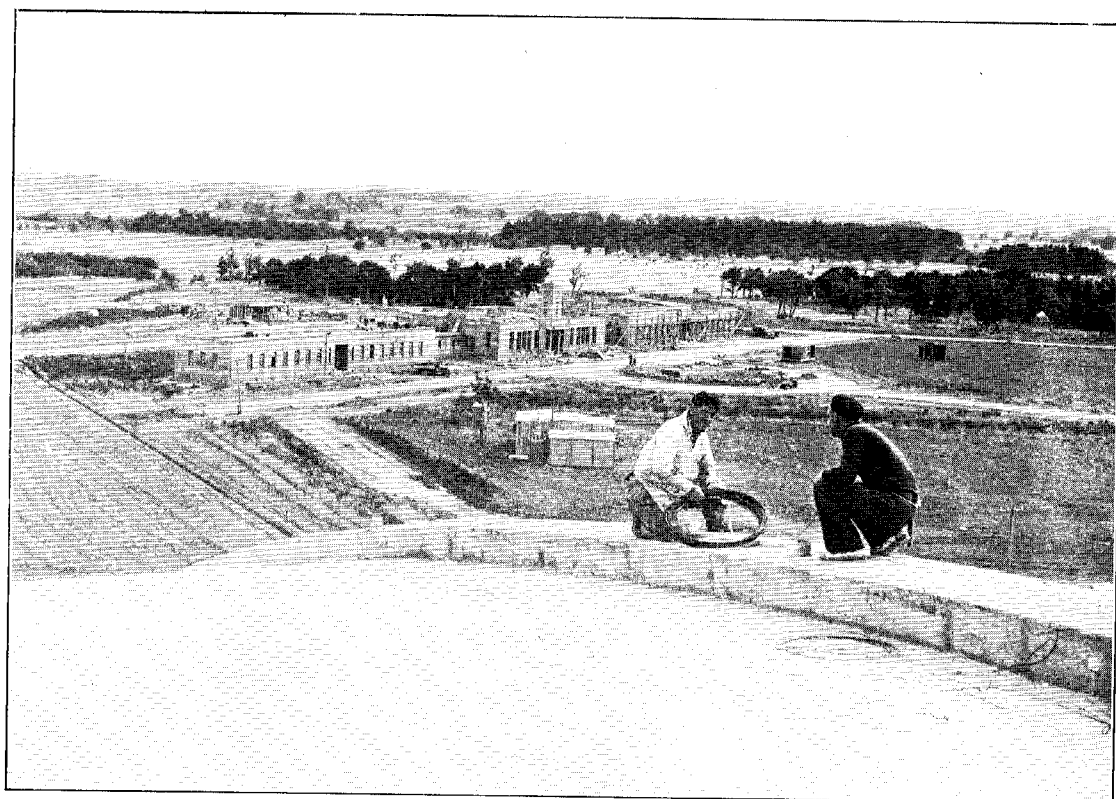


R.N.Z.A.F. STATION, WHENUAPAI, AUCKLAND, FLYING-FIELD : DRAINAGE ON LAND (MAIN OUTFALL
DRAIN), APRIL, 1939.

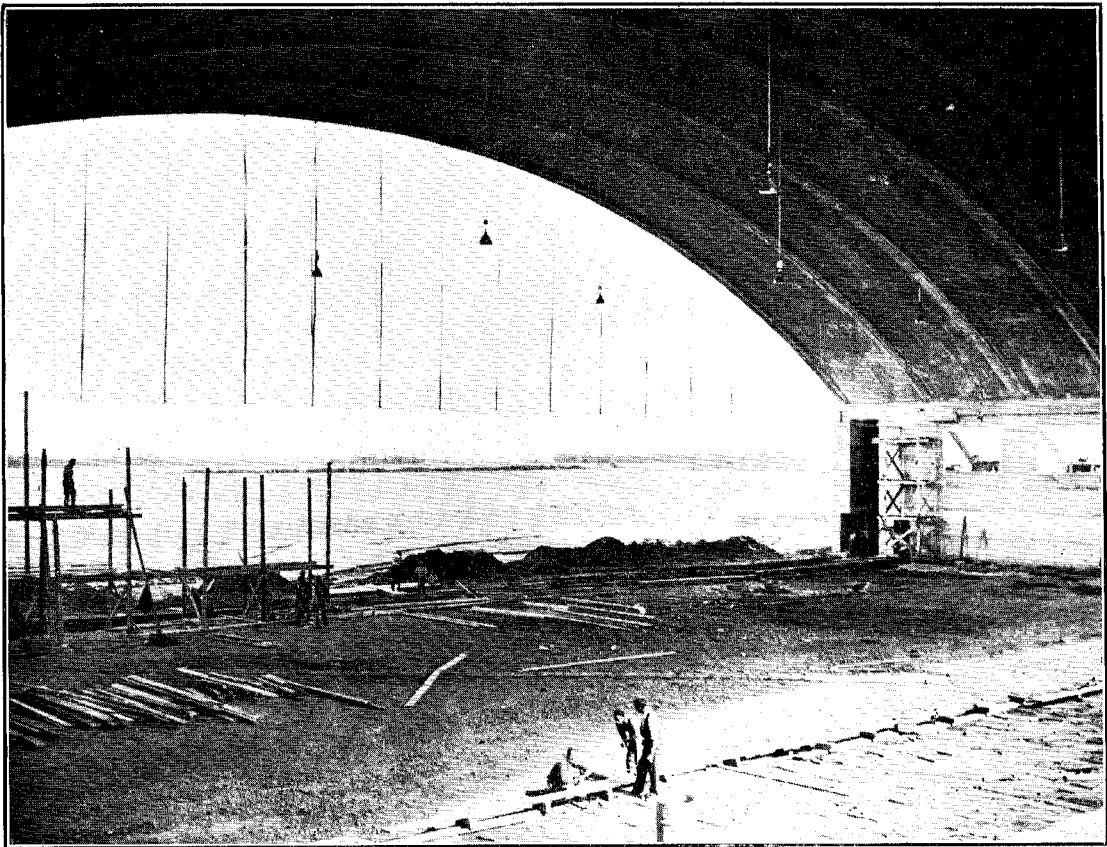
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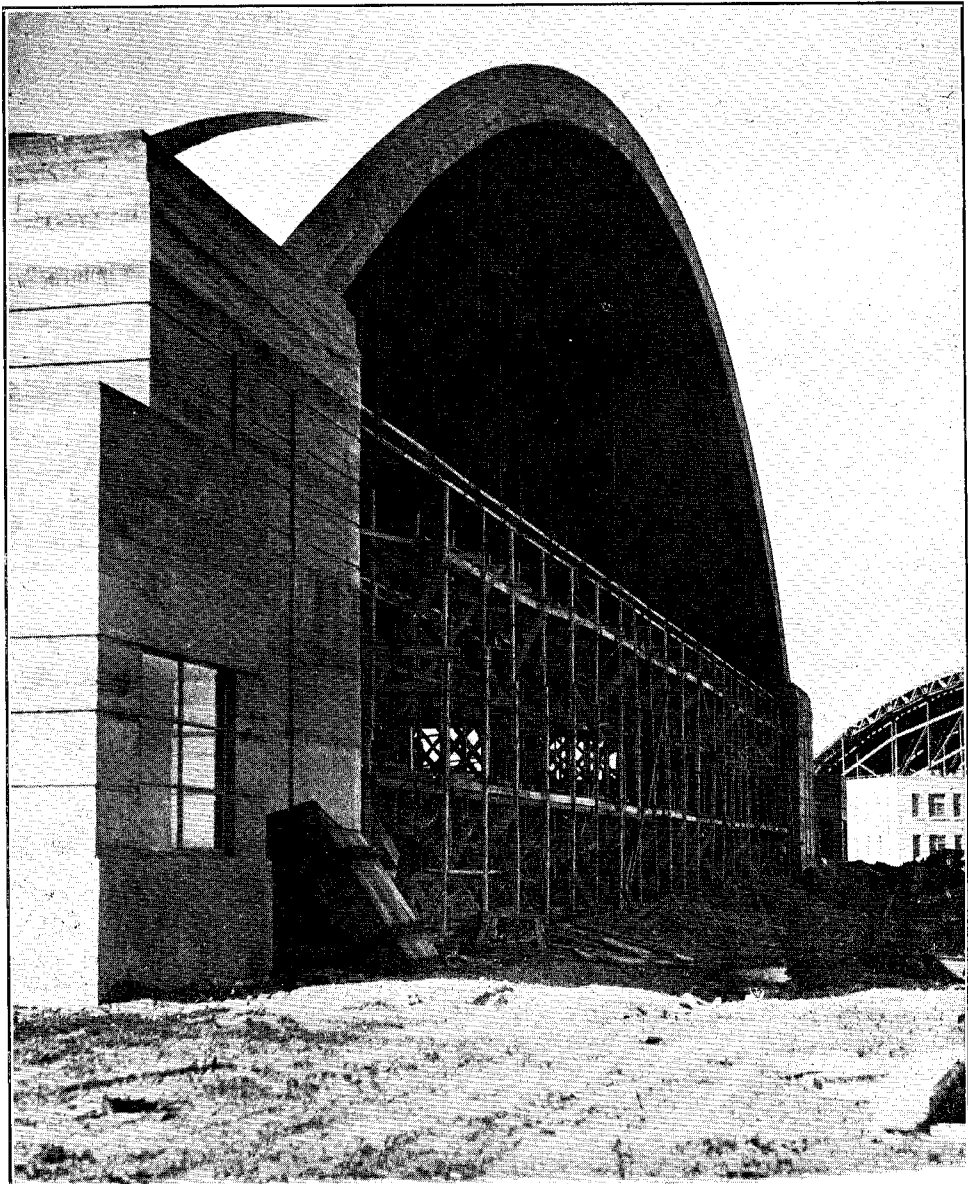
R.N.Z.A.F. STATION, OHAKEA, FLYING-FIELD: LEVELLING COMPLETED AND SOWING OF GRASS IN HAND WITH TRENCHES EXCAVATED FOR SUB-SURFACE TILE DRAINAGE IN FOREGROUND, APRIL, 1939.



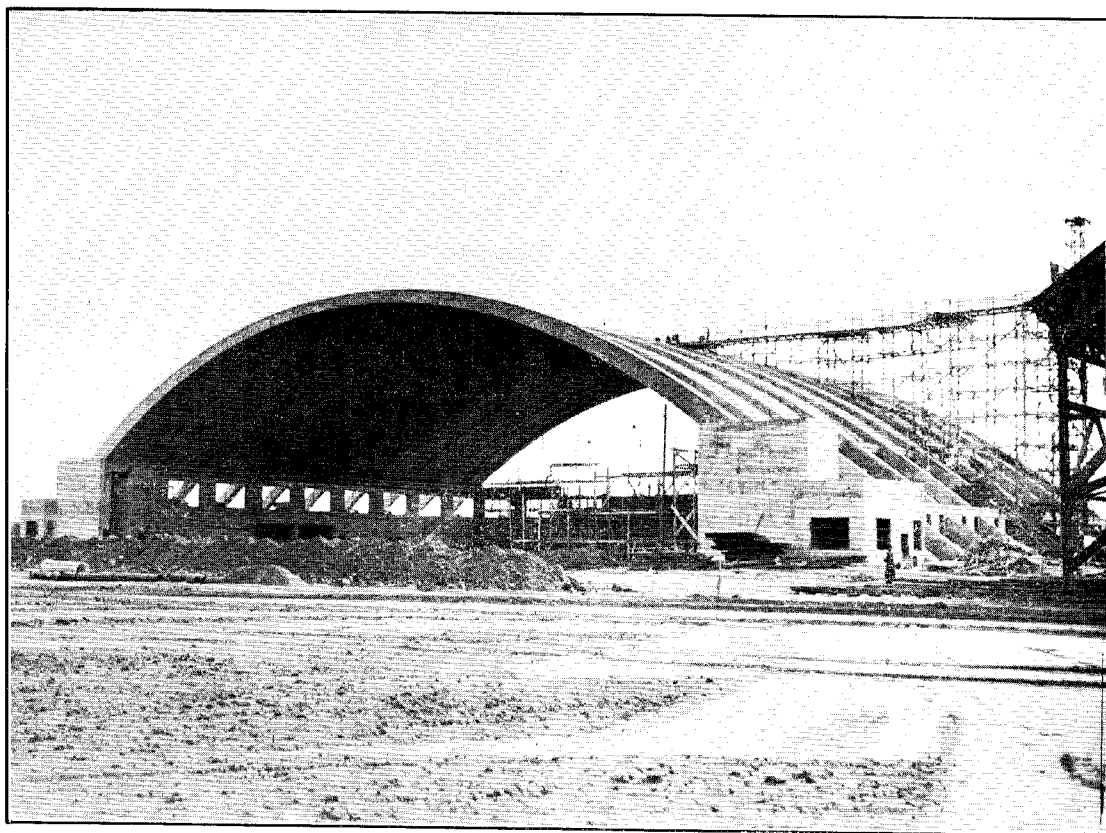
R.N.Z.A.F. STATION, OHAKEA.—VIEW TAKEN FROM ROOF OF NO. 1 HANGAR: OFFICERS' MESS AND QUARTERS UNDER CONSTRUCTION, APRIL, 1939.



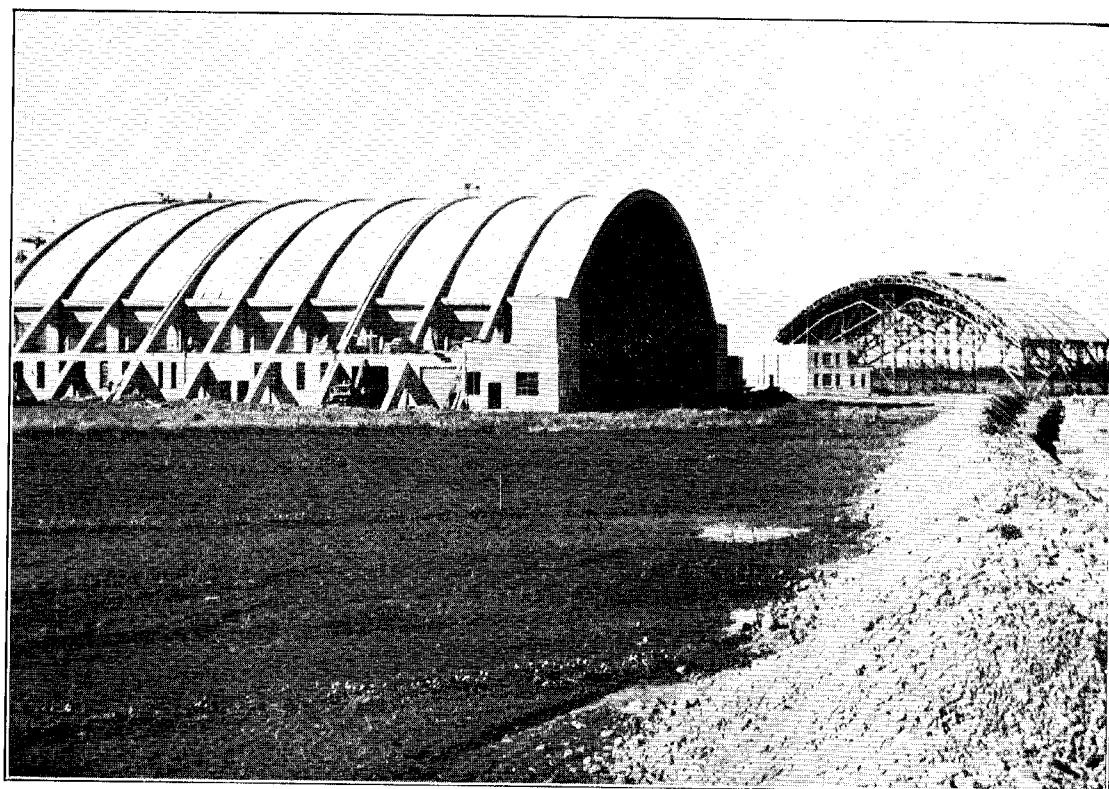
R.N.Z.A.F. STATION, OHAKEA : INSIDE VIEW OF NO. 1 HANGAR SHOWING FLYING-FIELD UNDER CONSTRUCTION IN BACKGROUND, APRIL, 1939.



R.N.Z.A.F. STATION, OHAKEA : NO. 1 MAIN HANGAR UNDER CONSTRUCTION.



R.N.Z.A.F. STATION, OHAKEA : NO. 1 MAIN HANGAR UNDER CONSTRUCTION.



R.N.Z.A.F. STATION, OHAKEA : NO. 1 MAIN HANGAR UNDER CONSTRUCTION, APRIL, 1939.



R.N.Z.A.F. STATION, OHAKEA : AIRMEN'S BARRACKS UNDER CONSTRUCTION.



R.N.Z.A.F. STATION, OHAKEA : CENTRAL BLOCK OF OFFICERS' MESS AND QUARTERS UNDER CONSTRUCTION, APRIL, 1939.

REPORT OF THE CONTROLLER OF CIVIL AVIATION FOR THE YEAR ENDED 31st MARCH, 1939.

The Hon. the MINISTER OF DEFENCE.—

In this second annual report of the Civil Aviation Branch since the establishment of the Air Department some attempt has been made, by comparative figures and otherwise, to indicate the progress of aviation in the Dominion, to the acceleration of which many influences have contributed. Chief amongst these have been the production of civil aircraft of higher performance and greater economy of operation, the development of devices leading to safer and more regular services, and the consequent growth of public confidence in aircraft as a means of transport. The bold policy adopted by most of the airline operators in providing a more frequent time-table and larger and more comfortable aircraft than was perhaps warranted at the time, together with the advance provision of adequate aerodrome and other ground facilities, have also been important factors, however, which have contributed to make the public of this Dominion amongst the most air-travelled in the world.

Many of the early post-war attempts to establish commercial aircraft services met with failure for a variety of reasons, but since the inauguration of a service from Hokitika to Okuru by Air Travel (N.Z.), Ltd., in 1934 the expansion and improvement of airline operations has been continued. The length of airline operated by regular services has increased from 265 miles in 1934 to 2,016 miles in 1939. During the same period the miles flown per annum have increased from 31,500 miles to 1,574,395 miles, the number of passengers carried from 595 to 53,039, freight from 2,637 lb. to 166,278 lb., and mails from 1,841 lb. to 316,380 lb.

It is anticipated that the Empire air-mail service from England to New Zealand will be completed towards the end of 1939, when the Sydney-Auckland service is to be inaugurated by Tasman Empire Airways. How the network of internal services now in operation will secure the maximum benefit to the Dominion from the Empire scheme is illustrated from the fact that a Dunedin citizen will be enabled to reach London within approximately twelve days of first embarking on his journey.

THE AERO CLUBS.

The aero-club movement has maintained its progress, which, indeed, has been continuous since the commencement of active flying operations in 1928 by the first aero club to receive Government recognition. Clubs have accomplished much in the sphere of training and in promoting public interest in aviation. Government assistance has facilitated the provision of satisfactory equipment and organization for flying training, so that in 1937 it was possible to arrange for clubs to carry out the bulk of the *ab initio* training of pilots selected for entry into the Air Force and the Civil Reserve.

In 1929-30, 72 pilots were trained to "A" licence standard by the four clubs then in existence, while for the present year "A" licences issued to aero-club trainees numbered 205, bringing the total of "A" licences secured by aero-club trainees since the inception of the aero-club movement to 1,406.

The hours flown by club aircraft on training have risen from 9,043 hours in the year 1933-34 to 19,656 hours in 1938-39. The total flying of all aero-club machines under this heading up to the 31st March, 1939, stands at 104,474 hours.

SECTION I.—ADMINISTRATION.

CIVIL AVIATION VOTE.

The civil aviation vote for 1938-39 amounted to £50,871. The main items of expenditure, shown for comparative purposes with the corresponding figures for the previous year, were as follows:—

Item.	1938-39.		1937-38.	
	Voted.	Expended.	Voted.	Expended.
	£	£	£	£
1. Salaries	3,491	3,509	1,884	1,863
2. Aeradio services	10,000	4,470	5,000	952
3. Landing-grounds, incidental expenses	5,000	5,149	5,000	4,674
4. Equipment and tools	900	807	500	499
5. Examinations	50	14	..	..
6. International Commission for Air Navigation	250	170	200	234
7. Investigation of accidents	250	194	250	250
8. Loans to clubs for purchase of aircraft	15,000	15,985	10,500	13,100
9. Meteorological services	10,000	9,908	11,500	8,128
10. Purchase of aircraft for loan to clubs	1,200	1,261	6,200	4,645
11. Hawke's Bay flood relief	1,940	1,738	..	..
12. Exchange of personnel	1,500	1,200	..	..
13. Travelling-allowances	1,250	1,591	1,200	1,145
14. Miscellaneous	40	35	..	..
Totals	50,871	46,031	42,234	35,490

In addition to the item for landing-grounds (No. 3 above), there also appeared on the vote for Maintenance of Public Works and Buildings the sum of £350,000 for aerodrome work, of which £70,000 was for Air Force aerodromes.

Allocations to civil aviation were as follows :—

	£
1. Civil aerodromes and emergency landing-grounds	175,000
2. Maintenance of emergency-landing grounds	17,500
3. Radio facilities for aerodromes	52,500
4. Landing-grounds, aeradio and meteorological facilities in New Zealand Pacific Island dependencies	17,500
5. Other aerodrome and air-route facilities	17,500

The vote for civil aviation has, with three exceptions, increased progressively from year to year, and for the purposes of comparison the actual amounts voted and the amount expended are shown hereunder :—

Year.	Voted.	Expended.
	£	£
1929-30	7,300	7,532
1930-31	7,600	7,057
1931-32	2,200	2,093
1932-33	4,750	4,243
1933-34	7,250	1,813
1934-35	14,850	11,316
1935-36	20,014	13,171
1936-37	21,914	21,802
1937-38	42,234	35,490
1938-39	50,871	46,031

AGREEMENTS, CONFERENCES, AND COMMITTEES.

Airworthiness Certificates for United States Aircraft.

The negotiation of an agreement with the United States Bureau of Commerce with regard to airworthiness certificates for American aircraft was interrupted on the reorganization of civil aviation administration in that country, but it is now anticipated that finality will be soon reached.

Meteorological and Radio Facilities for Trans-Tasman Service.

In December the Controller of Civil Aviation and representatives of the Meteorological Branch of the Scientific and Industrial Research Department and of the Radio Section, Post and Telegraph Department, attended a conference held at Melbourne to discuss with representatives of the Commonwealth Government the provision of the meteorological and radio facilities necessary for the trans-Tasman service.

Suitability of Wellington Harbour as Marine-aircraft Base.

A Committee was set up to consider and report on the suitability of Wellington Harbour as a marine-aircraft base. The Committee reported that it would be unwise at present to attempt the regular operation of flying-boats from Wellington, but expressed the view that, due to the rapid development of flying-boats, the time may not be very far distant when they may be able to operate under weather conditions such as are met with in Wellington Harbour.

Extension of Rongotai Aerodrome.

Extensive investigations have also been made by a Committee set up to consider the improvement of Rongotai Aerodrome. The recommendations of this Committee, which set out a scheme of improvement by progressive stages, are at present under consideration by the Government.

LICENCES AND CERTIFICATES.

For Personnel.

Licences for the following personnel are issued by the Controller of Civil Aviation under the Air Navigation Regulations :—

- (1) Pilots—
 - (a) “ A ” (Private).
 - (b) “ B ” (Commercial).
 - (c) Instructors.
- (2) Navigators : 1st and 2nd Class.
- (3) Ground Engineers : In five categories, A, B, C, D, and X.

Certificates of Competency to cover the duties of aircraft radio operators are at present issued by the Post and Telegraph Department, but in order to comply with the requirements of the International Convention for the Regulation of Air Navigation arrangements are being made for the issue of Aircraft Radio Operators' Licences by the Controller of Civil Aviation to applicants who have passed the technical tests required and who are also able to comply with the conditions of the Convention as regards medical fitness and air experience.

For Equipment.

The following licences and certificates are issued in respect of equipment, &c. :—

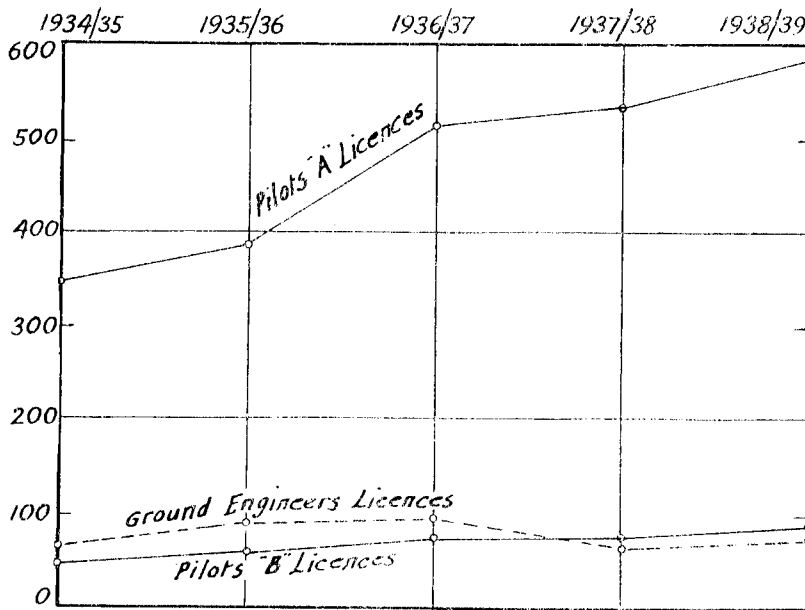
- (1) Aircraft : Certificates of Registration and Certificates of Airworthiness.*
- (2) Aerodromes : Public Licences and Temporary Licences.†

Since 1921, licences and certificates have been issued in accordance with the provisions of the International Convention, but issues were very limited until the aero-club movement got under way in 1929. Previous to this date a few private pilots were trained at the Air Force station at Sockburn, but interest in civil aviation was spasmodic and the amount of civil flying done almost negligible. The table given hereunder sets out the number of licences and certificates issued since 1921 :

Licence or Certificate.	1921-29.	1929-30.	1930-31.	1931-32.	1932-33.	1933-34.	1934-35.	1935-36.	1936-37.	1937-38.	1938-39.
Personnel—											
Pilot's "A" Licence ..	8	72	102	146	100	130	135	146	181	216	205
Pilot's "B" Licence ..	23	10	7	11	11	9	14	16	25	15	26
Navigator's Licence, 2nd Class	..	..	..	..	..	..	..	..	1	1	2
Ground Engineer's Licence	29	15	14	18	4	7	21	30	16	12	16
Equipment, &c.—											
Certificates of Airworthiness ..	1	20	28	14	10	1	5	18	13	15	9
Certificates of Registration ..	1	21	31	11	10	1	9	18	17	33	22
Aerodrome Licences—											
Public ..	..	..	..	..	..	..	24	22	10	11	5
Temporary ..	..	..	..	..	..	..	11	42	34	16	12

The following graph shows the increase in the number of current licences of flying personnel from year to year :—

Current Licences of Flying Personnel.



During the year, 89 series of tests for Pilot's "A" Licences were conducted, in which 202 pupils of the aero clubs qualified for licences, compared with a total of 73 tests for 1937-38, in which 186 pupils qualified. An additional ten non-club pupils were tested and qualified for licences.

In the course of the year two series of technical examinations for "B" Pilot's Licence and one examination for Navigator's Licence were held. The result of the Navigators' Examination, the first to be held in the Dominion, was disappointing, no candidate being successful.

In the "B" Licence Examinations the results of the written papers were as follows :—

	August, 1938.	March, 1939.
Candidates sitting ..	23	18
Candidates passed ..	15	15
Candidates partially passed ..	4	..
Candidates failed ..	4	3

Nine Instructors' Licences were issued during 1938-39, compared with five for 1937-38. Details of Ground Engineers' Examinations are given on page 16.

* See also at page 16.

† See also at pages 13 and 14.

SECTION II.—COMMERCIAL FLYING.

Apart from several experimental ventures, little was accomplished towards the establishment of scheduled services until 1934, when the Transport Licensing (Commercial Aircraft Services) Act was passed and the Transport Co-ordination Board set up to consider applications for the institution of services and the issue of licences for defined routes.

The first company to operate under this Act was Air Travel (N.Z.), Ltd., which commenced a service in Westland in December, 1934. This was followed by the commencement of services between Napier and Gisborne by East Coast Airways in April, 1935, and in December of that year between Wellington, Blenheim, and Nelson by Cook Strait Airways. In January, 1936, Union Airways of New Zealand, Ltd., inaugurated the first trunk service between Palmerston North and Dunedin, and in June, 1937, commenced an Auckland-Wellington service.

SERVICES IN OPERATION.

On the 31st March, 1939, the following services were in operation :

Auckland-Wellington.
Auckland-Gisborne.
Gisborne-Palmerston North.
Palmerston North-Christchurch.
Wellington-Dunedin.
Wellington-Blenheim-Nelson.
Nelson-Greymouth.
Hokitika-Jackson's Bay.
Inchbonnie-Wehaka.

The total route mileage operated on these services is 2,016, as compared with 1,673 on the 31st March, 1938, and the total aircraft engaged nineteen, compared with fifteen on the corresponding date last year.

INTERNAL SERVICES.

1. *Air Travel (N.Z.), Ltd.*

Air Travel (N.Z.), Ltd., was formed in 1934, and commenced operations in December of that year with one D.H. Fox Moth aircraft on the route from Inchbonnie to Hokitika and Franz Josef Glacier. When traffic warranted, a further service from Hokitika to Haast and Okuru was run in addition. So popular has this service become that the fleet has been increased from the original single aircraft to three Fox Moths and two D.H. Dragonflies. Details of the operation of this company since the inception of the service will be found in Section VII.

2. *East Coast Airways.*

The East Coast Airways commenced operations in April, 1935, on the Gisborne-Napier service, using two D.H. 84 aircraft.

The saving in time over road transport was responsible for the first success of this company, but it received a setback through the temporary closing for reconstruction of Gisborne Aerodrome, its northern terminal, for a period of over six months between March and December, 1936.

When the service was resumed in December, 1936, it was found that the carriage of mail under contract to the Post and Telegraph Department and the extra passenger traffic offering were together more than sufficient for the existing equipment. Negotiations were entered into with Union Airways during 1938, and the company was taken over on the 1st July, 1938.

In October, 1937, the service had been extended southwards to Palmerston North, where it linked up with the existing services operated by Union Airways of New Zealand, Ltd. During the period of its existence, East Coast Airways completed 4,194 hours flying on scheduled services and carried a total of 14,447 passengers.

3. *Cook Strait Airways.*

Cook Strait Airways commenced operations on the 30th December, 1935, on the Wellington-Nelson-Blenheim route with three D.H. Dragon Rapide aircraft. This service, by providing a speedy crossing of Cook Strait, has become very popular. In February, 1937, the service was extended to the West Coast of the South Island as far as Hokitika, with an intermediate call at Greymouth.

Early in 1938 the southern terminal (Hokitika) of this service was, through development work, rendered unsafe for use by the company's aircraft, and the service terminated at Greymouth. As from 15th March, 1939, Westport was included in the itinerary. The company has obtained a licence to operate a service between Nelson and Takaka, and this will be brought into operation immediately the Takaka aerodrome is opened.

4. *Union Airways of New Zealand, Ltd.*

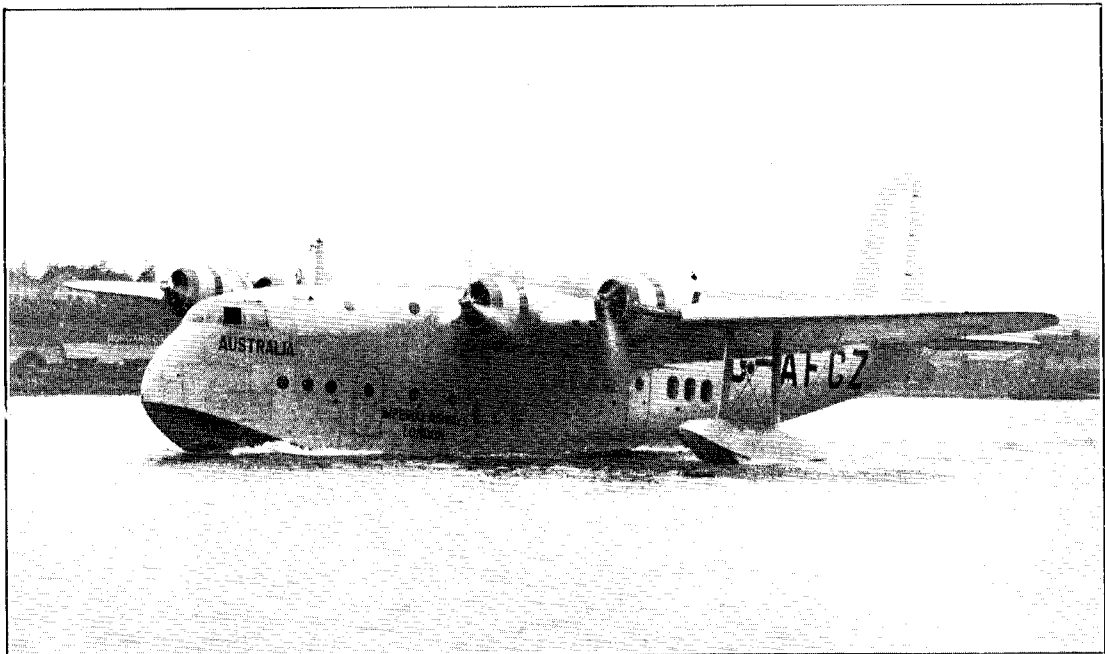
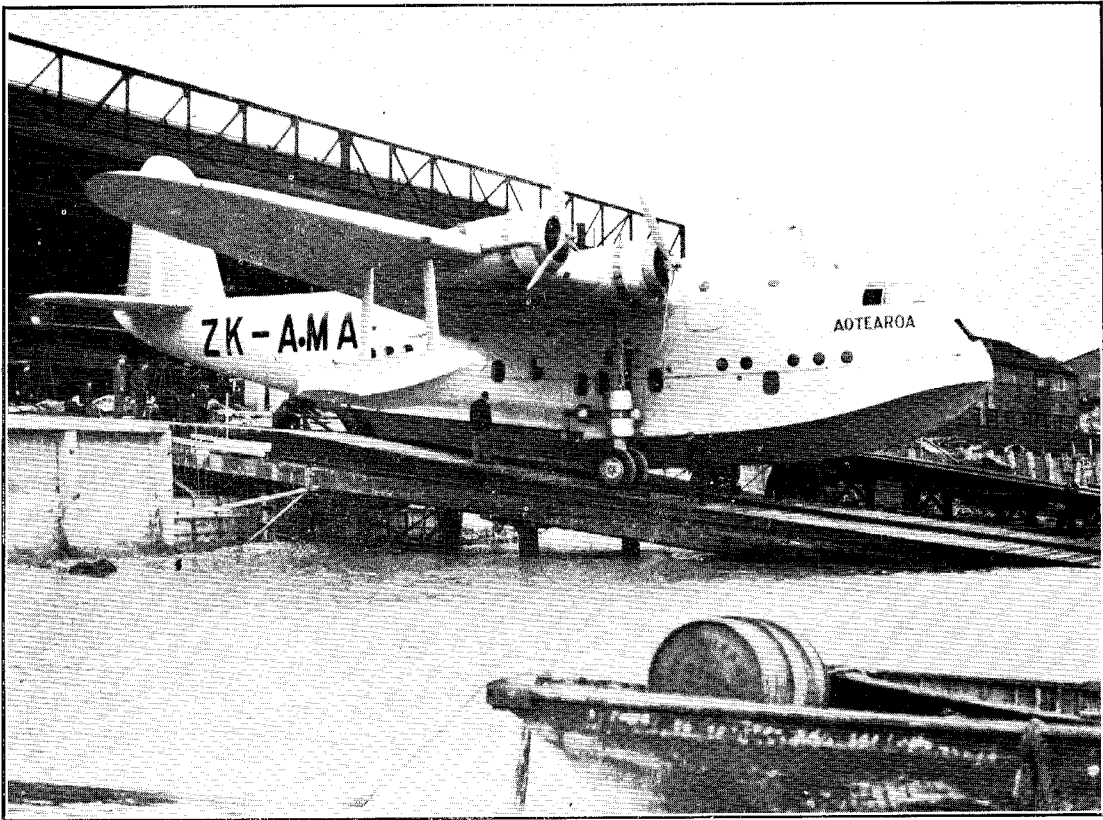
Union Airways of New Zealand, Ltd., commenced their first service between Palmerston North and Dunedin, with intermediate stops at Blenheim and Christchurch, on the 16th January, 1936, using three D.H. 86 aircraft. In June, 1937, the company extended its operations by the addition of a daily service between Auckland and Wellington, using three Lockheed Electra aircraft. This service was increased on 30th October, 1937, to twice daily in each direction.

The company absorbed East Coast Airways, Ltd., on 1st July, 1938, and took over the Palmerston North-Napier-Gisborne service.

A licence was also obtained to operate services over the Gisborne-Opotiki-Tauranga-Auckland, Auckland-Rotorua, and Dunedin-Invercargill routes. The first of these was commenced on the 20th March, 1939, and the others will be introduced immediately the aerodromes at Rotorua and Invercargill have been extended sufficiently to cope with the larger machines.

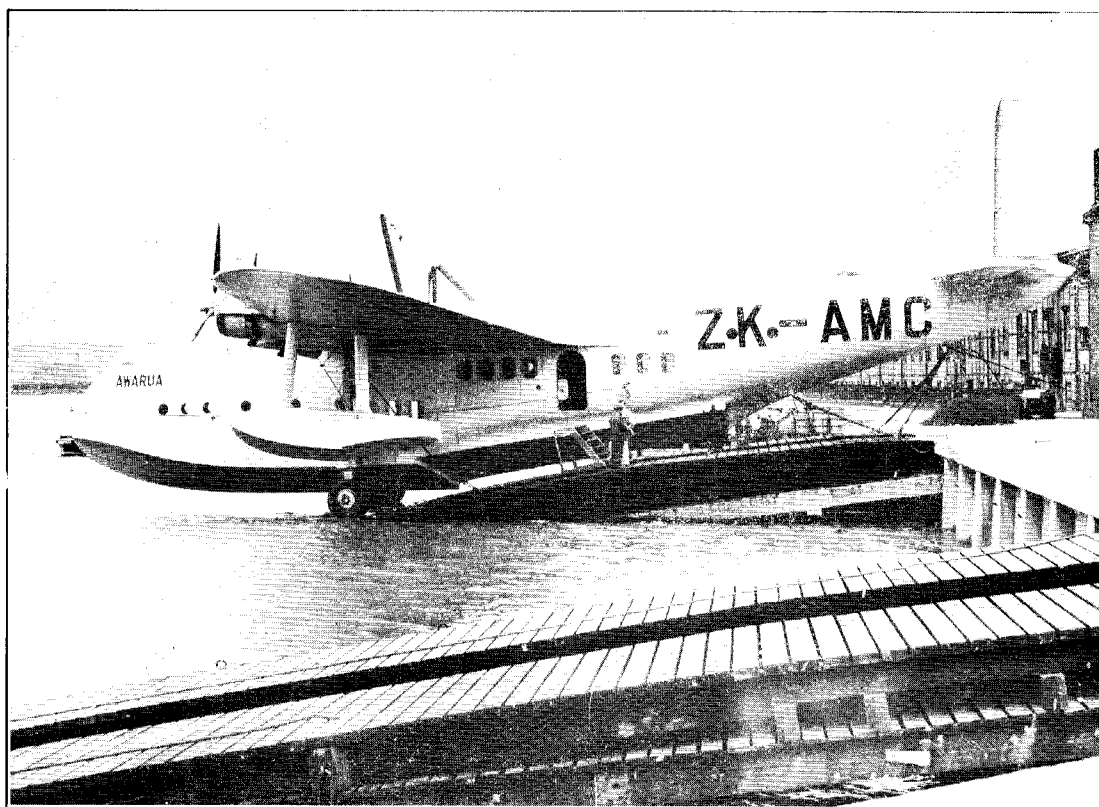
Reorganization of the services was effected on 22nd October, 1938, to provide for a service between Wellington and Dunedin, with one stop at Christchurch, and for the original Palmerston North-Dunedin service to terminate at Christchurch.

During the period under review this company was allotted a grant of £12,500 to assist in meeting losses sustained on the routes referred to.

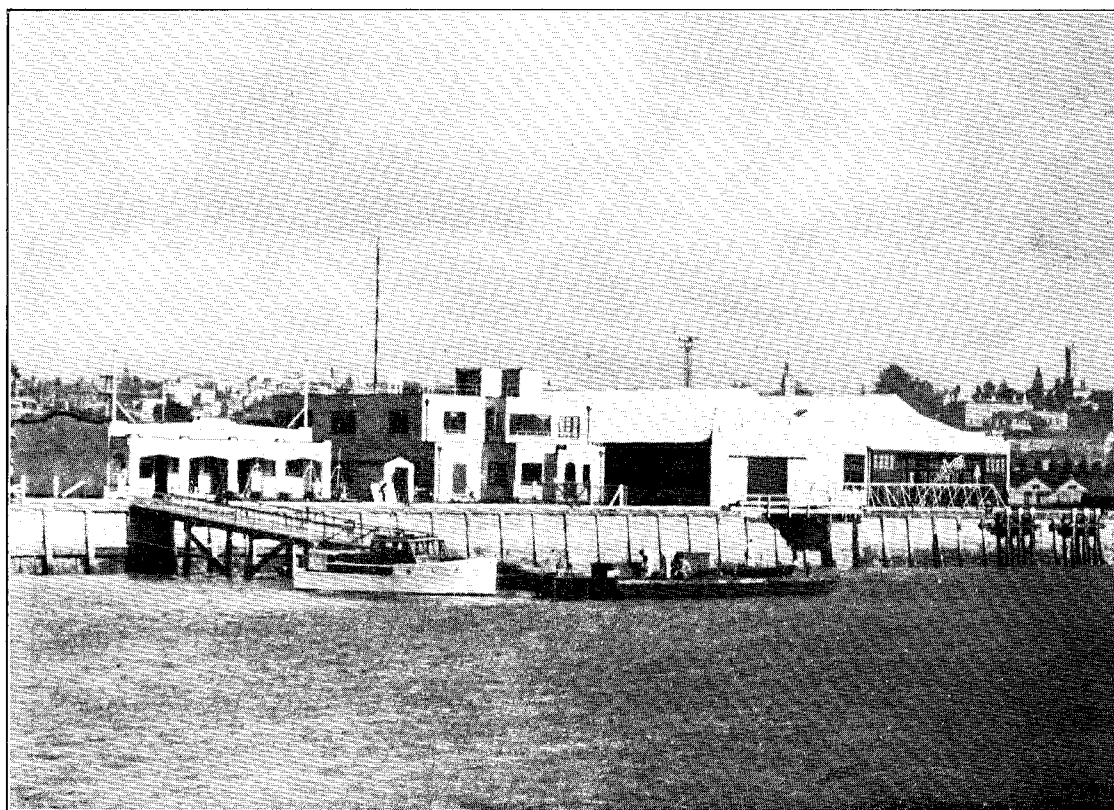


TWO OF THE THREE FLYING-BOATS BUILT AT SHORT BROS.' WORKS, ROCHESTER, FOR TASMAN EMPIRE AIRWAYS FOR SERVICE ON THE AUSTRALIA - NEW ZEALAND SECTION OF THE ENGLAND - NEW ZEALAND AIR ROUTE.

[To face page 10.



AWARUA ON SLIPWAY AT SHORT BROS.' WORKS, ROCHESTER.



VIEW OF WORKSHOP AND ADMINISTRATION BUILDINGS OF TASMAN EMPIRE AIRWAYS,
MECHANIC'S BAY, AUCKLAND.

Details of the operation of these services will be found in the tables of statistics in Section VII of this report.

NON-SCHEDULED COMMERCIAL FLYING.

During the year the following companies operated non-scheduled services :

Waikato Aviation Co.
New Zealand Aerial Mapping, Ltd.
Southland Airways, Ltd.
Queenstown - Mount Cook Airways, Ltd.

Similar facilities were offered by the companies operating the scheduled services mentioned in the earlier part of this section.

The total flying carried out on charter during the twelve months under review amounted to 2,546 hours, during which 10,342 passengers were carried, compared with 1,870 hours and 7,774 passengers for the previous year.

INTERNATIONAL SERVICES.

Pan-American Airways.

No further flights to New Zealand have been made by Pan-American Airways since the loss of the "Samoan Clipper" in 1937, but the company hopes to resume its service during 1939, when it is expected that the new equipment at present undergoing trials will be available.

Tasman Empire Airways.

Imperial Airways, Ltd., of London, undertook a survey flight from the United Kingdom to New Zealand during December, 1937, and negotiations between the United Kingdom, Australian, and New Zealand Governments were entered into with a view to providing an organization to control a proposed trans-Tasman air service.

A company, to be known as "Tasman Empire Airways," will be formed and will operate three aircraft of the Short Empire-class flying-boat on the Sydney-Auckland route. The cost of the initial ground equipment is to be borne by each of the Governments concerned, and the initial share capital of the company is to be taken up in the proportion United Kingdom 38 per cent., Australia 23 per cent., and New Zealand 39 per cent.

In December the contract was let for the provision of the necessary buildings at Mechanic's Bay. The work was pushed ahead, and construction is proceeding satisfactorily. These buildings include an administration building, a workshop, an engine-test house, and all subsidiary offices.

The administration building, of two stories will provide modern accommodation for the staffs of the operating company, the Meteorological Office, and the Customs and Health Departments. For the convenience of passengers, comfortable reception-rooms and a buffet will also be included.

The workshop at Mechanic's Bay, with a floor space of 15,000 square feet, will include all the necessary facilities to enable the servicing of aircraft using the base. Orders have also been placed in the United Kingdom for the equipment for berthing the aircraft.

It is anticipated that the buildings at Mechanic's Bay will be completed at the end of May and that the moorings and berthing-equipment will be installed early in June.

For a base of this nature it is essential that seaworthy and speedy launches should be provided, and a 37 ft. control launch and a 23 ft. auxiliary launch, capable of maximum speeds of 25 knots, have therefore been ordered from the United Kingdom, and delivery is expected early in June.

In addition to the above, a hangar of approximately 15,000 square feet floor space is to be erected at the R.N.Z.A.F. Depot, Hobsonville. This will enable the service to make use of the slipway at the depot for the beaching of aircraft when required.

It is expected that all the work will be completed by June, when complete terminal facilities for the service will be available. It is hoped to commence the service about September, 1939.

THE AIR PILOTS' GUILD OF NEW ZEALAND.

The Air Pilots' Guild of New Zealand was incorporated on 14th November, 1935, with the object of protecting the interests of the commercial pilots in the Dominion, providing an organization where technical and other matters could be discussed, and constituting a body of experienced airmen who would be available to assist the Government in any matters relating to aviation in which their services might be required.

The management of the guild is conducted by a committee of officers comprising a master, deputy master, and council, all of whom are licensed commercial pilots. The guild is affiliated with the Guild of Air Pilots and Navigators in the United Kingdom.

SECTION III.—AERO CLUBS AND FLYING TRAINING OPERATIONS.

AERO CLUBS.

Although an aero club was formed in New Zealand in 1909, club flying was not commenced until, with Government recognition and assistance, the movement proper got under way in 1928. For the purposes of subsidy, the Dominion was divided that year into ten districts, in each of which a federation of clubs was "approved" to receive subsidy from a vote placed on the annual civil aviation estimates. Between 1928 and 1930 the following approved clubs commenced operations: Auckland, Western Federated, Hawke's Bay and East Coast, Wairarapa and Ruahine, Wellington, Marlborough, Canterbury, Otago, and Southland, while the West Coast United and the Middle Districts Clubs came into being in 1933 and 1935 respectively. Later, the Auckland Aero Club formed an additional training centre at Hamilton, which ultimately took over some of the equipment of the parent club and functioned as a separate organization. In September, 1938, an organization known as the "South Auckland Aero Club" was approved for subsidy purposes.

Up to the 1st April, 1937, when the Air Department was formed, £21,178 10s. had been granted by way of subsidy, and in addition thirty aircraft had been issued on loan to the approved clubs. Details of the subsidy payments and aircraft loans during this period are as follows :—

Year.	Subsidy.						Aircraft loaned.
	Voted.			Expended.			
	£	s.	d.	£	s.	d.	
1928-29	6
1929-30	1,500	0	0	1,625 0 0	3
1930-31	2,500	0	0	2,175 0 0	8
1931-32	1,800	0	0	1,795 0 0	..
1932-33	2,250	0	0	2,070 0 0	3
1933-34	2,250	0	0	1,755 0 0	..
1934-35	4,500	0	0	2,282 0 0	6
1935-36	4,500	0	0	4,480 0 0	..
1936-37	5,000	0	0	4,996 10 0	4
Totals	24,300	0	0	21,178 10 0	30

On the formation of the Air Department, this method of subsidy was superseded by a scheme whereby certain elementary training for the Air Force was undertaken by approved clubs. Four further aircraft for which provision had already been made, however, were purchased and issued on loan to the Hawke's Bay and East Coast, Western Federated, Middle Districts, and West Coast United Aero Clubs. This brought the total number of aircraft loaned to thirty-four.

On the 31st March, 1939, the following clubs were offering training facilities :—

- Auckland Aero Club.
Waikato Aero Club
Rotorua Aero Club

South Auckland Aero Club.
- New Plymouth Aero Club
Wanganui Aero Club

Together forming the Western Federated Flying Club.
- Middle Districts Aero Club.
- Wellington Aero Club.
- Wairarapa and Ruahine Aero Club.
- Hawke's Bay and East Coast Aero Club.
- Marlborough Aero Club.
- Canterbury Aero Club.
- Otago Aero Club.
- Southland Aero Club.
- West Coast United Aero Club.

The total membership of the clubs at the 31st March, 1939, was 3,690, comprising 2,742 associate and 948 flying members, of whom 554 were in possession of valid " A " or " B " Pilots' Licences. The corresponding figures for the year ended the 31st March, 1938, were: Membership, 3,590 (2,675 associate and 915 flying), the number of qualified pilots being the same as in the current year. Although the number of licences has not altered, there has actually been an increase in the number of " A " licences held by club members, but a decrease in the number of " B " pilots, some of whom have entered flying professionally. In training and club flying, 19,656 hours were flown, of which 6,213 were dual instruction, as compared with 17,726 and 5,748 hours respectively for 1937-38. Commercial operations accounted for an additional 1,152 hours and the carriage of 7,263 passengers, as against 1,569 hours and 8,303 passengers for the preceding year.

Further comparative figures dealing with this aspect of the clubs' operations are given in Section VII.

AIR FORCE AND CIVIL RESERVE TRAINING.

In 1937 a Civil Reserve scheme was introduced, and agreements were entered into with the approved clubs for the training of a total of ninety-nine pilots. In addition, the Auckland, Wellington, Canterbury, and Otago Clubs were asked to provide initial training for twenty-four Air Force pilots. The agreements provided for payment to clubs for this flying at the rate of £3 10s. per flying-hour, with a further subsidy of £400 to those clubs which completed their contracts in respect of the Civil Reservists. In the present year a similar scheme operated which included the Waikato Aero Club, thus making a total of twelve clubs participating. Altogether, forty-four Air Force candidates were trained and one hundred Civil Reservists, thirteen of whom were transferred to short-service commissions before fully completing their courses.

The cost to the Department in the two years of operation of this scheme is shown in the following table :—

	1937-38.		1938-39.	
	Voted.	Expended.	Voted.	Expended.
	£	£	£	£
Civil Reserve training and subsidy ..	18,100	14,955	21,550	21,826
Air Force trainees	4,200	4,170	8,400	7,385

CASH ADVANCES TO AERO CLUBS FOR PURCHASE OF TRAINING AIRCRAFT.

In August, 1937, the Government agreed to make advances free of interest to the "approved" aero clubs for the purchase of new and up-to-date training machines, such advances to be repayable over a period of three years from earnings under the Civil Reserve training scheme.

The following table illustrates the assistance given in this respect over the two years of operation of this scheme :

Year.				Voted.	Expended.	Aircraft purchased.	Clubs participating.
				£	£		
1937-38	..	..	..	10,500	13,100	11	10
1938-39	..	..	..	15,000	15,985	12	9

TRAINING OF INSTRUCTORS.

Owing chiefly to the demand for flying training created by the Civil Reserve and Air Force training schemes and to the absorption of a number of instructors by commercial air services, a shortage of licenced instructors was experienced during the year. In these circumstances, it was decided to proceed with the training of twenty-five of the more advanced club pilots and to introduce an additional licence to be known as an "Assistant Instructor's Authority." Owing to pressure of Air Force training, the service stations were not able to undertake the necessary training, and an agreement was entered into with the Auckland Aero Club, which commenced the first course on the 10th January, 1939, with eight pupils, all of whom were successful in passing the required tests at the conclusion of their two months' period of training. Further courses will be held during 1939-40.

THE ROYAL NEW ZEALAND AERO CLUB.

As a result of a conference of active aero clubs held in Blenheim on the 21st February, 1930, it was decided that a controlling aeronautical body should be formed with the following suggested objects :—

- (a) Co-operation between aero clubs in all matters.
- (b) Control of air pageants, &c.
- (c) The advancement of civil aviation generally.

At this conference a committee was appointed to draw up a constitution of a proposed New Zealand Aero Club, and as a result of a further conference held during June, 1930, the club was officially incorporated under this title on the 30th July, 1930. With the consent of His Majesty the King, the title "Royal" was prefixed to the name of the club early in 1938.

Since its inception the Royal New Zealand Aero Club has been the official means of communication in matters of policy between the constituent clubs and the Government, and has also been responsible to a considerable degree for the co-operation which exists between the various clubs and for many of the benefits now enjoyed by them.

The Royal New Zealand Aero Club is the Dominion representative of the Federation Aeronautique Internationale, and during 1932 commenced the issue of International Certificates to pilots.

PRIVATE FLYING.

On the 31st March, 1939, there was a total of seventeen privately owned aircraft on the register, compared with twenty-five for the same date of the previous year. The amount of flying carried out by private owners in the current year was forty-nine hours. The private ownership of aircraft has steadily decreased in recent years, a fact which may be attributed to the better amenities and facilities offered by the clubs.

SECTION IV.—GROUND ORGANIZATION.

With the growth of interest in aviation, and to promote its development, the Government gave its approval to a scheme in September, 1930, for the establishment of a chain of landing-grounds throughout the Dominion. Previous to this, and for some ensuing years, the only aerodrome facilities available were relatively small privately owned fields operated by aero clubs.

In 1933 an Engineer of the Public Works Department was appointed to co-operate in the selection of suitable sites for flying-fields and to supervise their construction. Under this arrangement the Public Works Department undertook the investigation of selected sites, the preparation of engineering surveys, and the drawing-up of detailed proposals for development, which were submitted to the Civil Aviation Branch. Upon approval, the actual development work was also carried out by the Public Works Department.

A policy was adopted to encourage local bodies in aviation development, and the principle was established that, where practicable, the local bodies should own and control the particular aerodrome in their district, the Government materially assisting in its construction and development. Generally speaking, where the local body was prepared to provide a suitable site and a proportion of the development cost the Government found the remainder of the cost and undertook the construction of the field. Development work was concentrated, however, on a planned programme of providing aerodromes and emergency-landing fields to serve projected air routes.

Commercial air services were not permitted to commence operations until safe and suitable aerodromes and adequate facilities had been provided, and adherence to this principle has contributed largely to the efficiency of the services provided by operating companies.

During the year 1936 a change was effected in the methods of construction on aerodromes. Previously, the finance required was largely obtained from the Employment Promotion Fund, but from this date a special vote was provided for aerodrome development out of the Consolidated Fund. Plant operation was brought in wherever possible, and the principle introduced of carrying out major works by private competitive contract, and progress was considerably accelerated.

As at the 31st March, 1939, there were fifty-five licensed aerodromes in the Dominion, of which nine were usable in their original condition, while ten other fields were available as emergency landing grounds. On all but a few of the smallest of these licensed fields, on all emergency-landing grounds, and on many other fields not yet in use development work has been undertaken.

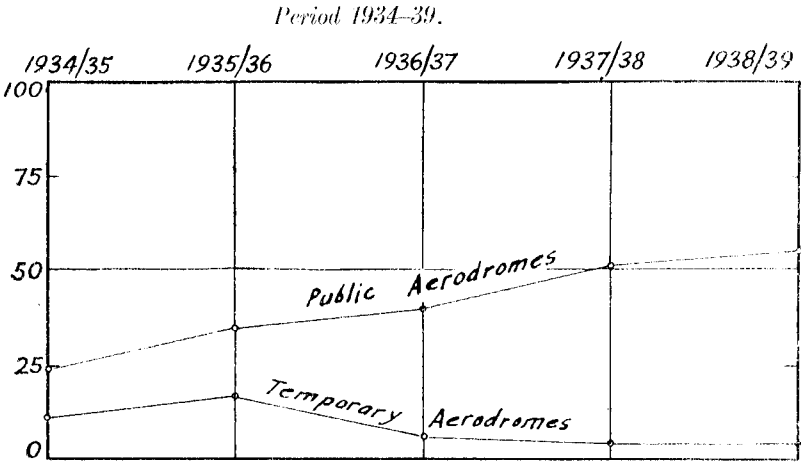
Investigation and construction work may be summarized as follows :—

Sites investigated	270
Sites surveyed and proposals prepared or in hand	92
Licensed fields for commercial and general use—	
(i) Constructed and licensed	43
(ii) Partly developed and licensed	3
(iii) Construction completed but not licensed	6
(iv) Construction in hand and not licensed	6
	58
Emergency-landing grounds—	
(i) Constructed and in use	10
(ii) Construction in hand	4
	14

Further extensions were undertaken on all fields after the initial development was completed.

All emergency-landing grounds and certain remote landing-fields are constructed and maintained at the expense of the Government.

The graph below indicates the increase in the number of public aerodrome licences, with the decrease in the number of temporary licences :—



RADIO SERVICES.

Prior to the inauguration of the Government aeradio service on a permanent basis, an initial scheme—utilizing the Post and Telegraph stations—was operated from January, 1936.

At the beginning of 1937 it became apparent that some properly co-ordinated control of the aeradio service was desirable, and a conference was convened of representatives of the Public Works, Post and Telegraph, and Air Departments.

This Committee presented a comprehensive report to the Government, recommending, *inter alia*—

- (1) That the medium-wave band, which had already been temporarily adopted for aeradio station operation, should be confirmed and adopted as the most suitable wave-band for New Zealand requirements.
- (2) That a complete network of aeradio stations be provided throughout the Dominion to cater for existing and proposed air services.
- (3) That at the principal aeradio stations direction-finding equipment should be provided and also, where considered desirable, approach beacons to facilitate landing in conditions of poor visibility.
- (4) That a suitable station be provided for overseas air services.
- (5) That the administration of the complete aeradio service, including the meteorological service for aircraft, be in the hands of a permanent committee of representatives of the various Departments concerned.

The report was adopted by the Government, and the members of that Committee, with the addition of a representative of the Meteorological Office, were constituted a permanent Aeradio Committee. Orders were immediately placed for the equipment required for the first section of the programme.

The extension of the Cook Strait Airways, Ltd., service to the West Coast of the South Island necessitated the provision of aeradio stations at Greymouth and Hokitika, and more recently at Westport. A station was also established at Jackson's Bay, the terminal of the service operated by Air Travel, Ltd.

The extension of the original service operated by Union Airways to include Auckland and New Plymouth, Napier and Gisborne, and later Auckland and Gisborne, has involved the provision of additional stations, with the result that aeradio stations are now in operation at the following places: Auckland (Mangere Aerodrome), Tauranga, Gisborne, Napier, New Plymouth (Bell Block Aerodrome), Palmerston North (Milson Aerodrome), Wellington (Wellington-Radio), Blenheim, Nelson, Christchurch (Harewood Aerodrome), Westport, Greymouth, Hokitika, Jackson's Bay, Dunedin (Taieri Aerodrome).

A commencement has recently been made in the installation of the direction-finding and approach-beacon equipment. At present an experimental direction-finding service is being operated at Wellington, and an approach beacon is in the process of being installed at Dunedin.

In order to provide the required radio communication facilities and navigational aids for the projected trans-Tasman air service, a new radio station is being provided at East Head, Tamaki, near Auckland, which is to be known as the "Musick Memorial Station," in memory of Captain Musick and the crew of the Pan-American flying boat "Samoa Clipper" who perished while pioneering the trans-Pacific air service between America and New Zealand. Temporary buildings are now in course of erection, and the station will be available for the inception of the air service to Australia.

In addition to the provision of the network of stations on the mainland, the Government approved of an expedition being sent to investigate and report on the establishment of an aeradio station on Raoul Island, in the Kermadec Group. The expedition left in June, 1937, and work is now in hand for the permanent settlement of the island for this and ancillary purposes.

In advising on the establishment of the above-mentioned stations, the Aeradio Committee—operating under the Air Department—has had available the full facilities of the Departments represented on the Committee, and this opportunity is taken of expressing appreciation of the whole-hearted co-operation of those Departments.

METEOROLOGICAL SERVICES.

The Meteorological Office in New Zealand is under the control of the Department of Scientific and Industrial Research, but works in very close co-operation with the Air Department.

Since the commencement of regular services at the beginning of 1936 by Cook Strait Airways and Union Airways there has been a very rapid expansion in the meteorological organization for aviation.

From the outset, special forecasts and route reports were supplied for all schedule flights, and this involved arranging for a wide network of reports at 6 a.m. and noon each day, in addition to the existing reports at 9 a.m. and 3 p.m.

During 1937, aviation meteorological stations were established at Hobsonville and Wigram Aerodromes. That at Auckland was concerned principally with preparations for trans-ocean services, while the function of the Christchurch station is chiefly the instruction in meteorology of Air Force trainees. A forecasting service for local flying activities is also provided by both stations. A scheme was also introduced during 1937 for the broadcast of regular meteorological reports for aviation through Station 2YA of the National Broadcasting Service. These latter issues are made from the Meteorological Office in Wellington at 6.50 a.m., 10 a.m., and 1 p.m. each day (10 a.m. and 1 p.m. only on Sundays). They include a general summary of the existing weather conditions throughout the country and detailed reports—including visibility, amount and height of low cloud, and wind—from some seventeen of the principal aerodromes along the main air routes. With the 10 a.m. report a forecast is given for the remainder of the day, and at 1 p.m. a forecast covering the succeeding twenty-four hours. Considerable use of these reports is made by the itinerant flyer and the club pilot.

Mention has already been made of the special reports supplied for regular commercial flights. These are telephoned to the aerodrome of departure, and at the present time twenty-two individual forecasts and reports are being issued regularly each day from Wellington. There is also an irregular demand for similar reports from private pilots and the R.N.Z.A.F. These reports, and the form on which they are taken down for the pilot's use, follow exactly the practice which has been laid down internationally.

During the year active preparations have been made for the impending trans-Tasman and trans-Pacific air services, for which reports from a network of stations will be required at 6 p.m. and midnight. When the trans-Tasman service commences, the Meteorological Offices at Wellington and Auckland will be staffed during twenty-four hours each day. The meteorological station at Hobsonville Aerodrome has been moved into Auckland and is now accommodated in the Trans-Tasman Terminal Building. Very close co-operation will be required between the meteorological stations at Auckland and Sydney, and detailed plans for this purpose, based on the scheme developed during the trans-Atlantic flights, were agreed upon at the Conference held in Melbourne in December last.

SECTION V.—AIR PHOTOGRAPHY.

During the year under review only one private concern, New Zealand Aerial Mapping, Ltd., was engaged in aerial survey and photographic work, most of which was performed for local bodies. The total area photographed amounted to 1,516 square miles, the flying-time involved being 188 hours.

The Royal New Zealand Air Force has also carried out some photographic work for Government Departments. Arrangements have now been made for specially qualified staff and suitable equipment to be available for this purpose.

SECTION VI. AIRCRAFT INSPECTION, GROUND PERSONNEL AND ACCIDENTS.

AERONAUTICAL INSPECTION.

In June, 1938, Mr. R. C. Kean, Chief Inspector of Aircraft, proceeded to England on exchange with Mr. E. P. Carpenter, of the Aeronautical Inspection Directorate of the British Air Ministry, for a period of one year. Following his attachment to the Air Ministry, Mr. Kean will visit Canada and the United States to investigate aeronautical engineering practice and development in those countries.

During the period 1st April, 1938, to 31st March, 1939, a total of 426 inspection tours covering aircraft, aero-engines, aircraft-welders, approved firms, and Ground Engineers was carried out by the inspection staff of the Department.

REGISTRATION OF AIRCRAFT.

The number of certificates of registration issued during the year was 38, a decrease of 6 on the figures for the previous year. Of the 38 aircraft registered during the year, 25 were registered for the first time and 13 changed ownership and were re-registered.

Changes of ownership, dismantling, crashes, &c., resulted in the cancellation of 24 certificates during the year, leaving a total of 107 aircraft registered on 31st March, 1939, as compared with 106 on 31st March, 1938.

The following is an analysis, according to types, of the aircraft entered in the Dominion register as at 31st March, 1939 :—

D.H. 60	..	..	..	25	Miles Hawk	..	..	..	4
D.H. 80A	..	..	..	4	Miles Magister	..	..	..	2
D.H. 82	..	..	..	18	Monospar S.T. 25	..	..	..	2
D.H. 83	..	..	..	3	* Porterfield	..	..	..	1
D.H. 84	..	..	..	2	* Rearwin	..	..	..	2
D.H. 86	..	..	..	3	Spartan	..	..	..	2
D.H. 89	..	..	..	5	Vega Gull	..	..	..	1
D.H. 90	..	..	..	2	Percival Gull	..	..	..	1
Avro Avian	..	..	..	2	* Waco	..	..	..	3
* Beechcraft C 17L	..	..	..	1	Whitney Straight	..	..	..	4
B.A. Swallow	..	..	..	2	Wicko	..	..	..	1
* Cub	..	..	..	3	Pou-de-ciel	..	..	..	3
Desoutter	..	..	..	1	Miscellaneous	..	..	..	5
Fleet	..	..	..	1					
* Lockheed Electra	..	..	..	4					107

* Aircraft of American manufacture, 14.

Of the above total of 107 aircraft, 89 are single-engined machines, 15 are twin-engined, and 3 are fitted with four engines.

The number of aircraft possessing current certificates of airworthiness advanced from 74 last year to 78 at the end of March this year. The remaining 29 aircraft included in the total of 107 aircraft recorded as registered but not certified as airworthy at the close of the period comprised aircraft undergoing overhaul prior to the renewal of their certificates of airworthiness and aircraft temporarily out of action for various reasons, in addition to three machines of the " Flying Flea " type, which are permitted to fly under certain conditions as experimental aircraft.

During the current year 17 United Kingdom certificates of airworthiness were validated for flying in New Zealand. Seven Dominion certificates were issued, 62 were renewed, and 9 were cancelled as a result of the aircraft being removed from the register.

GROUND ENGINEERS.

The number of new Ground Engineers' licences issued during the year was seventeen, and forty extensions to existing licences were granted. The total number of Ground Engineers' licences valid within the Dominion as at the 31st March, 1939, was seventy-six.

The following is a total analysis of the Ground Engineers' Examinations held during the year :—

Number of examinations held	..	..	..	..	..	..	20
Number of applicants examined	..	..	..	..	..	..	52
Successful applicants	..	..	..	..	..	..	41
Number of failures	..	..	..	..	..	..	8

APPROVED FIRMS.

The need for establishing additional local sources of supply of approved aircraft parts and materials led to the complete reorganization of the procedure covering approved firms. The total number of categories approved is thirty-nine, an increase of thirty over the previous year.

The following is an analysis of approved firms :—

Aircraft materials and/or parts (Category A (i) )	..	..	..	..	19 Firms.
Accredited agents (Category A (ii) )	..	..	..	..	5 Firms.
Repairs and overhauls (Category B)	..	..	..	..	6 Firms.

A.I.B. TEST-HOUSE.

Increasing demands for immediate and local sources of supply of aircraft material have resulted in a considerably greater volume of work being passed through the test-house. The testing and preparation of reports dealing with ferrous and non-ferrous metals, timbers, fabric, glues, &c., which were of a doubtful standard, as well as the investigation of faults and anomalies as reported by the Aircraft Inspectors, were dealt with.

Another important test-house work is the testing of welded specimens submitted by engineers who are desirous of being registered as approved aircraft-welders.

The summarized activities of the test-house for the year ending 31st March, 1939, are as follows :—

Aircraft instruments tested	..	..	..	..	..	208
Magnaflux examination of steel parts	..	..	..	..	..	496
Material tests	..	..	..	..	..	38
Welded specimens	..	..	..	..	..	40
New drawings prepared	..	..	..	..	..	25
Tracings prepared	..	..	..	..	..	40
Sets of drawings checked	..	..	..	..	..	14
Prints issued to operators	..	..	..	..	..	389

ACCIDENTS TO CIVIL AIRCRAFT.

During the period 1st April, 1938, to 31st March, 1939, five accidents occurred which caused fatal or serious injury to persons carried in civil aircraft. A further thirty-six accidents or forced landings occurred which also required notification under the Air Navigation Regulations 1933, making a total of forty-one for the period under review. Of this total, thirty-four were flying accidents.

The following is an analysis of the accidents under the various headings :—

	Fatal.	Serious but not Fatal.	Minor.
(1) Regular air services	1	..	4
(2) Other flying for hire	..	..	2
(3) Subsidized club flying	..	3	11
(4) Other club flying	2	4	4
(5) Private	..	..	2
(6) Exhibition flying	..	1	..

Causes of Accidents.

Errors of judgment or faulty airmanship on the part of the pilot caused fifteen accidents, two of which resulted in fatal consequences to the occupants.

Engine failure accounted for one accident in which the pilot and co-pilot lost their lives. Engine failure also accounted for thirteen accidents, three of which were directly attributed to insufficient fuel for the journey.

Bad visibility was the cause of four forced landings away from an aerodrome.

A further six aircraft were damaged while in the hangar, and two more were slightly damaged while on the ground.

The circumstances in which the major or more serious accidents occurred were as follows :—

Regular Air Services.—Failure of one engine of a twin-engined aircraft during take-off caused it to crash amongst trees beyond the airport boundary and catch fire. The pilot and co-pilot were killed. The aircraft was destroyed. No passengers were carried.

Subsidized Club Flying.—(1) A stall while practising landings caused a crash which resulted in injuries to the occupants and major damage to the aircraft.

(2) A pilot engaged in night-flying tests collided with two haystacks. No injuries were sustained by the occupant, but the aircraft was severely damaged.

(3) An aeroplane engaged on relief work in a flooded area crashed while dropping food-supplies. Both occupants were injured and the aircraft wrecked.

Other Flying.—(1) Faulty airmanship on the part of the pilot caused an aircraft to stall at low altitude and spin. The resulting crash caused the death of the passenger and severe injuries to the pilot. The aeroplane was completely wrecked.

(2) An inexperienced pilot entered a power dive whilst flying in cloud and caused structural failure of the main planes by endeavouring to effect recovery too abruptly. Both pilot and passenger were killed. The aircraft was completely wrecked.

(3) A pilot engaged in exhibition flying too close to the ground during gusty weather caused the undercarriage to strike the ground. The aircraft was severely damaged, but the sole occupant escaped unhurt.

(4) Fire destroyed three aircraft which were stored in a hangar.

Private.—Fire destroyed two aircraft which were stored in a warehouse.

SECTION VII.—OPERATIONAL STATISTICS.

The tables presented in the following pages have been set out in a form which will provide an easy means of comparison between the different years.

In the case of the scheduled services a general summary of operations has been given, together with similar tables for each of the companies concerned. For comparative purposes tables are also given illustrating the activities of scheduled services to the 31st March, 1939. Non-scheduled services and the aero clubs. are dealt with by means of annual summaries.

I have, &c.,
T. M. WILKES, Group Captain,
Controller of Civil Aviation.

APPENDIX A—*continued.*

	£	£
Brought forward .. .. .	..	529,905
<i>Subdivision IX (Civil Aviation) —</i>		
43. Salaries	3,509	
44. Aeradio services	4,470	
45. Aircraft-landing grounds	5,149	
46. Equipment and tools	807	
47. Expenses: International Commission for Air Navigation	170	
48. Expenses: Exchange of Chief Inspector of Aircraft with Air Ministry Officer	1,200	
49. Examinations, expenses in connection with	14	
50. Hawke's Bay flood relief	1,515	
51. Investigation of accidents	194	
52. Loans to aero clubs for purchase of aircraft	15,985	
53. Medical and other expenses and compensation to civil pilots injured during flood-relief operations in Hawke's Bay	223	
54. Meteorological services	9,908	
55. Office requisites, telephones, &c... .. .	832	
56. Purchase of aircraft for loan to aero clubs	1,261	
57. Safety precautions, cross-country flying	35	
58. Travelling allowances, expenses, &c.	785	
	<hr/>	46,057
		<hr/>
		575,962
Credits-in-aid .. .. .	..	18,676
		<hr/>
		£557,286
		<hr/>

APPENDIX B.

EXPENDITURE FROM "PUBLIC WORKS FUND": VOTE, "PUBLIC BUILDINGS" ON AIR DEFENCE BUILDINGS AND AERODROMES —

	£	£
<i>Hobsonville—</i>		
Aircraft-repair shop	2,187	
Bomb-stores	22,519	
Main store	21,046	
Steel	17,428	
Airmen's barracks and married quarters	20,771	
Renovation of cottages	2,477	
Public Works office and depot	2,992	
Water-supply, drainage, and sewerage	629	
Power-supply	1,066	
Land	145	
Fencing, removal of trees, and other ground improvements	1,032	
Siren	36	
Crane	1,379	
Sundries	55	
	<hr/>	93,762
<i>Whenuapai—</i>		
Land	31,991	
Power-supply	1,066	
Storage of materials	89	
Sundries	30	
	<hr/>	33,176
<i>Ohakea—</i>		
Administration building	6,408	
Airmen's barracks	18,724	
Officers' mess and quarters	11,069	
Bomb-store	79	
Hangars	63,217	
Public Works Department store, depot, and office,	1,548	
Land	13,583	
Railway siding	718	
Roading	2,404	
Drainage and sewerage	2,187	
Water-supply	1,150	
Power-supply	1,256	
Purchase and fabrication of steel	12,736	
Sundries	29	
	<hr/>	135,108

APPENDIX B—*continued.*

<i>Wigram—</i>						£	£
Administration building	..	..	..	..	..	3,303	
Airmen's barracks	..	..	..	..	..	15,100	
Sergeant's mess and ration-store	..	..	..	..	..	2,931	
Officers' mess and quarters	..	..	..	..	..	10,151	
Married quarters	..	..	..	..	..	29,503	
Sick-quarters	..	..	..	..	..	1,179	
Instructional building	..	..	..	..	..	4,384	
Guard-house	..	..	..	..	..	856	
Hangars	..	..	..	..	..	2,926	
Workshops and fitments	..	..	..	..	..	3,654	
Stores	..	..	..	..	..	6,987	
Office for Territorial Squadron	..	..	..	..	..	20	
Car-shelters	..	..	..	..	..	1,374	
Public Works office and store	..	..	..	..	..	1,318	
Fuelling-system	..	..	..	..	..	84	
Telephone installation	..	..	..	..	..	19	
Wireless masts	..	..	..	..	..	120	
Electrical installation	..	..	..	..	..	4,625	
Crane	..	..	..	..	..	1,379	
Land	..	..	..	..	..	603	
Water-supply	..	..	..	..	..	5,888	
Sewerage	..	..	..	..	..	797	
Roading, fencing, and other ground improvements	..	..	..	..	..	2,768	
Tree-planting	..	..	..	..	..	263	
Steel	..	..	..	..	..	310	
Air-firing and bombing range, Lake Ellesmere	..	..	..	..	..	3,542	
Standard 25 yards range	..	..	..	..	..	116	
							104,200
<i>General—</i>							
Public Works charge for administration and supervision	..	..	..	..	..	15,848	
Steel connecting-rings	..	..	..	..	..	663	
							16,511
							382,757
<i>Less—</i>							
Contribution from vote "Air" towards capital expenditure	..	..	..	..	..	50,000	
Recoveries	..	..	..	..	..	25	
							50,025
							<u>£332,732</u>

APPENDIX C.
FLYING OPERATIONS OF AERO CLUBS : COMMERCIAL FLYING.
(a) Year ended 31st March, 1939.

Club.	Aircraft.	Trips.	Passengers.	Hours flown.	Miles flown.
Auckland	6	1,416	2,708	422	39,881
Waikato	4	97	166	30	2,675
Rotorua	1	..	..	..	..
Te Kuiti	1	..	..	..	..
Western Federated	9	..	..	..	..
Middle Districts	3	5	4	12	960
Wellington	9	779	1,741	269	25,771
Wairarapa and Ruahine	3	53	53	13	1,015
Hawke's Bay and East Coast	3	69	62	33	2,648
Marlborough	4	248	492	67	8,157
Canterbury	8	537	1,155	156	17,624
Otago	6	666	775	91	7,251
Southland	4	88	103	58	4,875
West Coast United	1	4	4	1	60
Totals	62	3,962	7,263	1,152	110,917

(b) Years 1928-39.

Period.	Aircraft in Use.	Trips.	Passengers.	Hours flown.	Miles flown.
1928 to 31st March, 1933	17	8,090	10,127	2,246	164,458
Year ending—					
31st March, 1934	19	3,539	6,146	1,542	122,313
31st March, 1935	39	4,432	7,742	1,814	149,395
31st March, 1936	34	4,487	7,225	1,542	129,308
31st March, 1937	32	5,449	9,073	1,523	130,102
31st March, 1938	48	4,312	8,303	1,569	148,953
31st March, 1939	62	3,962	7,263	1,152	110,917
Totals .. .. .	..	34,271	55,879	11,388	955,446

APPENDIX C—continued.

FLYING OPERATIONS OF AERO CLUBS : TRAINING.
(a) Year ended 31st March, 1939.

Clubs.	Membership.		Aircraft in Use.	Under Instruction.		Hours flown.		Licences current, 31st March, 1939.	
	Associate.	Flying.		Dual.	Solo.	Dual.	Solo.	Private.	Com- mercial.
Auckland	396	118	6	35	4	902	2,080	74	5
Waikato	190	58	4	22	7	195	676	27	2
Rotorua .. ..	..	53	1	23	1	122	10	..	..
Te Kuiti	50	3	1	..	..	..	136	2	..
Western Federated ..	518	153	10	63	23	630	1,723	67	..
Middle Districts ..	185	83	3	23	8	457	1,201	50	2
Wellington	319	107	9	53	..	1,031	1,595	53	1
Wairarapa and Ruahine	277	47	3	2	7	298	699	37	1
Hawke's Bay and East Coast	183	41	4	7	2	319	809	32	..
Marlborough	141	44	4	8	9	216	537	25	2
Canterbury	94	110	8	19	10	782	1,684	78	3
Otago	94	50	6	5	5	619	999	39	1
Southland	112	54	4	9	7	374	750	37	1
West Coast United ..	183	27	2	6	6	268	544	14	1
Totals	2,742	948	65	275	89	6,213	13,443	535	19

(b) Years 1928-39.

Period.	Clubs operating.	Membership.		Aircraft in Use.	Under Instruction.		Hours flown.		Licences current.	
		Associate.	Flying.		Dual.	Solo.	Dual.	Solo.	Private.	Com- mercial.
1928 to 31st March, 1933	10	*	*	32	*	*	6,051	16,185	275	18
Year ending—										
31st March, 1934 ..	10	*	*	35	*	*	2,298	6,745	315	21
31st March, 1935 ..	11	1,869	483	39	123	43	2,660	7,823	315	22
31st March, 1936 ..	11	2,562	613	43	171	58	3,206	8,842	389	19
31st March, 1937 ..	11	2,457	840	39	251	76	3,952	9,330	483	30
31st March, 1938 ..	12	2,675	915	58	243	118	5,748	11,978	532	22
31st March, 1939 ..	13	2,742	948	65	275	89	6,213	13,443	535	19
Totals .. ..	..	..	..	..	..	..	30,128	74,346	..	..

* Figures not available.

APPENDIX C—continued.

BALANCE-SHEETS OF AERO CLUBS.

North Island Aero Clubs.

	Auckland.		Waikato.		Hawke's Bay and East Coast.		Middle Districts.		Wairarapa and Ruahine.		Wellington.		Western Federated.*	
	As at 31st March, 1938.	As at 31st March, 1939.	As at 30th September, 1938.	As at 31st March, 1938.	As at 31st March, 1939.	As at 31st March, 1938.	As at 31st March, 1938.	As at 31st March, 1939.	As at 31st March, 1938.	As at 31st March, 1939.	As at 31st March, 1938.	As at 31st March, 1939.	As at 31st March, 1938.	As at 31st March, 1939.
<i>Assets.</i>														
Cash in hand and in bank	£ 66	£ 6	£ 1,527	£ 1,408	£ 982	£ 1,324	£ 2,008	£ 1,080	£ 1,166	£ 3,565	£ 1,927	£ 1,459	£ 1,289	£ 1,289
Investments	..	..	..	100	..	..	..	500	500	1,204	1,250	4,256	3,430	3,430
Sundry debtors	..	1,074	..	539	363	755	474	418	362	638	422	774	851	851
Payment in advance	..	..	..	..	..	..	1,412	..	..	504	344	82	..	..
Machines and equipment	..	10,545	..	1,303	2,267	1,865	34	1,912	1,537	4,250	6,534	2,628	6,514	6,514
Land and buildings	..	17,998	..	3,070	2,968	..	..	4,836	4,786	..	..	6,513	6,423	6,423
Stock on hand	..	447	..	104	134	66	86	361	509	306	232	533	557	557
Income and expenditure account	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	30,130	28,865	2,918	6,524	6,814	4,010	4,014	9,107	8,860	10,467	10,709	16,247	19,064	19,064
<i>Liabilities.</i>														
Bank overdraft	£ 6,708	£ 5,362	£ ..	£ ..	£ ..	£ ..	£ ..	£ ..	£ ..	£ ..	£ 133	£ ..	£ ..	£ ..
Sundry creditors	..	1,166	..	383	220	262	304	158	169	545	1,015	757	788	788
Loans and mortgages	..	..	..	..	..	500	200	2,310	2,200	..	..	..	..	..
New Zealand Government loan	..	..	..	1,000	1,016	1,500	..	1,600	1,611	3,250	2,180	..	2,432	2,432
Reserves : Depreciation, repairs, funds, &c.	2,277	2,250	34	..	..	990	1,390	1,089	1,451	464	1,162	256	534	534
Miscellaneous	..	136	..	160	109	..	28	17	..	61	25	39	41	41
Accumulated funds	..	16,243	2,865	4,981	5,469	758	2,092	3,933	4,029	6,147	6,194	15,195	15,269	15,269
Totals	30,130	28,865	2,918	6,524	6,814	4,010	4,014	9,107	8,860	10,467	10,709	16,247†	19,064	19,064
<i>Flying-hours.</i>														
	3,586	3,404	901	1,561	1,161	1,282	1,670	1,219	910	2,520	2,895	1,589	2,353	2,353

* Combined Balance-sheet of Western Federated, New Plymouth, and Wanganui Aero Clubs.

† Liability to Government not shown in Balance-sheet (ZK-AGA).

APPENDIX C—continued.
BALANCE-SHEETS OF AERO CLUBS—continued.
South Island Aero Clubs.

	Canterbury.		Marlborough.		Otago.		Southland.		West Coast United.	
	As at 31st March, 1938.	As at 31st March, 1939.	As at 31st March, 1938.	As at 31st March, 1939.	As at 31st March, 1938.	As at 31st March, 1939.	As at 31st March, 1938.	As at 31st March, 1939.	As at 31st March, 1938.	As at 31st March, 1939.
<i>Assets.</i>										
Cash in hand and in bank	£ 754	£ 531	£ 24	£ 24	£ 900	£ 325	£ 54	£ 63	£ 394	£ 67
Investments	2,240	2,241	2,107	2,107	2,016	4,098	2,735	2,789	216	..
Sundry debtors	697	845	768	578	214	240	624	380	..	641
Payments in advance	..	..	17	..	..	..	..	..	53	..
Machines and equipment	3,771	3,958	5,224	4,741	2,323	3,775	712	1,994	1,570	1,312
Land and buildings	1,383	1,324	2,616	2,487	..	..	110	50	..	..
Stock on hand	532	614	235	161	108	46	85	110	99	117
Accumulated loss	..	..	..	..	..	..	..	..	237	138
Totals	9,377	9,513	10,991	10,098	5,561	8,484	4,320	5,386	2,569	2,275
<i>Liabilities.</i>										
Bank overdraft	£ ..	£ ..	£ 1,507	£ 436	£ ..	£ ..	£ ..	£ ..	£ ..	£ ..
Sundry creditors	1,124	1,268	39	62	242	302	63	1,128	291	391
Loans and mortgages	..	..	..	1,922	..	..	..	..	22	23
New Zealand Government loan	1,200	748	..	1,666	1,519	2,370	..	..	1,432	875
Reserves : Depreciation, repairs, funds, &c.	800	800	1,156	..	2,016	3,098	224	225	771	986
Miscellaneous	..	..	..	7	..	..	..	..	53	..
Accumulated funds	6,253	6,697	8,289	6,005	1,784	2,714	4,033	4,033	..	..
Totals	9,377	9,513*	10,991	10,098	5,561	8,484	4,320	5,386	2,569	2,275
<i>Flying-hours.</i>										
	2,892	2,622	958	820	1,670	1,709	1,004	1,182	697	813

* Contingent liability, £630, re purchase of Gipsy Moth aircraft.

APPENDIX C—continued.

INCOME AND EXPENDITURE ACCOUNTS OF AERO CLUBS FOR YEAR ENDED 31ST MARCH, 1939.

	Auckland.	Waikato.*	Hawke's Bay and East Coast.	Middle Districts.	Wairarapa and Ruahine.	Wellington.	Western Federated.†	Canterbury.	Marlborough.	Otago.	Southland.	West Coast United.
<i>Expenditure.</i>												
Wages and salaries..	£ 3,444	£ 454	£ 1,380	£ 1,259	£ 1,232	£ 2,670	£ 2,669	£ 2,448	£ 1,288	£ 1,593	£ 1,183	£ 953
Petrol and oil ..	1,360	369	593	634	593	1,155	1,124	903	506	593	570	431
Rent, rates, &c. ..	123	128	6	..	128	410	67	..	119	45	63	..
Maintenance and repairs	395	190	589	248	577	1,726	1,297	2,046	670	955	517	204
Hire of planes ..	..	..	..	64	..	595	..	174	..	..	..	14
Insurance ..	1,430	12	270	911	512	1,023	605	290	..	658	227	254
Interest ..	265	..	..	2	..	..	9	..	69	..	..	1
Depreciation—	..	..	..	..	..	..	..	..	..	..	..	..
Repairs and repairs reserve	3,924	344	488	1,203	764	1,428	839	1,970	3,114	1,819	673	295
Office expenses ..	430	102	56	239	96	644	325	308	197	333	319	47
Other ..	1,032	19	282	788	208	72	137	703	155	77	34	79
Total expenditure ..	12,403	1,618	3,664	5,348	3,825	9,723	6,982	8,842	6,118	6,073	3,586	2,278
Profit ..	..	..	..	..	..	46	472	..	..	230	..	314
	12,403	1,618	3,664	5,348	3,825	9,769	7,454	8,842	6,118	6,303	3,586	2,592
<i>Income.</i>												
Instructional and flying fees	£ 6,640	£ 1,309	£ 2,534	£ 4,117	£ 2,711	£ 7,432	£ 6,136	£ 4,897	£ 2,786	£ 4,730	£ 1,653	£ 2,242
Passenger flights and hire ..	3,193	..	394	27	37	1,166	..	2,638	..	290	1,043	..
Government subsidy ..	400	..	400	400	400	400	400	400	400	400	369	329
Subscriptions, entrance fees, and donations	672	99	256	233	544	666	424	460	295	512	162	19
Interest ..	..	..	22	31	31	91	143	68	90	75	79	..
Rent ..	348	..	1	..	..	..	140	6	106	296	..	..
Other ..	545	3	5	11	95	14	211	329	156	..	..	2
Total revenue ..	11,798	1,411	3,612	4,819	3,818	9,769	7,454	8,798	3,833	6,303	3,336	2,592
Loss ..	605	207	52	529	7	..	..	44	2,285	..	250	..
	12,403	1,618	3,664	5,348	3,825	9,769	7,454	8,842	6,118	6,303	3,586	2,592

* Year ended 30th September, 1938.

† Combined Income and Expenditure Accounts of Western Federated, New Plymouth, and Wanganui Aero Clubs.

APPENDIX D.

SCHEDULED AIRCRAFT SERVICES.

(a) Statistics for the Year ended 31st March, 1939.

Company.	Hours flown.	Miles flown.	Passengers.	Freight.	Mail.	Passenger-miles.	Freight-ton-miles.	Mail-ton-miles.	Trips scheduled.	Trips commenced.	Trips completed.	Regularity.
				lb.	lb.							Per Cent
Union Airways of New Zealand, Ltd.	7,364	922,475	25,119	40,366	190,397	4,907,471	4,505	23,316	3,167	3,162	3,154	99·5
Cook Strait Airways, Ltd.	4,191	520,326	24,318	85,633	43,562	1,495,206	2,539	1,278	6,492	6,252	6,224	95·8
East Coast Airways, Ltd.	594	60,428	2,940	11,933	7,407	317,265	534	453	642	622	611	95·1
Air Travel (N.Z.), Ltd.	672	71,166	662	28,346	75,014	67,084	1,476	4,201	1,436	1,436	1,428	99·4
Total	12,821	1,574,395	53,039	166,278	316,380	6,787,026	9,054	29,248	11,737	11,472	11,417	..

(b) Statistics of Operations, 1935-39.

Period.	Hours flown.	Miles flown.	Passengers.	Freight.	Mail.	Passenger-miles.	Freight-ton-miles.	Mail-ton-miles.
Year ending—				lb.	lb.			
31st March, 1935	315	31,500	595	2,637	1,841	10,000	120	75
31st March, 1936	3,220	346,171	9,106	26,123	19,431	860,295	1,758	957
31st March, 1937	6,588	776,938	24,251	44,074	111,377	2,673,860	2,047	9,288
31st March, 1938	11,327	1,331,100	43,782	81,853	216,238	5,518,363	4,301	18,205
31st March, 1939	12,821	1,574,395	53,039	166,278	316,380	6,787,026	9,054	29,248
Total	34,271	4,060,104	130,773	320,965	665,267	15,849,544	17,280	57,773

COMMERCIAL FLYING : NON-SCHEDULED (TAXI) SERVICES.

(a) Year ended 31st March, 1939.

Company.	Aircraft.		Number of Trips.	Passengers.	Hours flown.	Miles flown.	Freight.
	No.	Types.					
Union Airways of New Zealand, Ltd.	3	D.H. 86 ..	139	1,357	55	6,265	lb.
	4	Lockheed 10A ..					172
Cook Strait Airways, Ltd.	5	D.H. 89 ..	52	327	49	5,977	..
East Coast Airways, Ltd.	2*	D.H. 84 ..	9	57	2	144	..
Air Travel (N.Z.) Ltd.	3	D.H. 83 ..	2,736	3,580	1,263	130,666	..
	2	D.H. 90 ..					..
Waikato Aviation Co.	1	Desoutter ..	1,083	1,714	363	32,320	..
Southland Airways	2	D.H. 80A ..	1,507	2,530	649	73,072	29,774
New Zealand Aerial Mapping	1	Monospar S.T. 25 ..	28	58	25	2,480	..
Queenstown - Mount Cook Airways	1	Waco, Q.D.C. ..	291	719	140	1,263	..
Totals	24	..	5,845	10,342	2,546	252,187	29,946

* Replaced from 26th April, 1938, by D.H. 86 aircraft of Union Airways.

(b) Years 1928-39.

Period.	Aircraft in use.	Trips.	Passengers.	Hours flown.	Miles flown.	Freight.
1928 to 31st March, 1933	7	13,217	13,508	4,052	314,031	lb.
Year ending—						..
31st March, 1934	7	1,545	2,280	872	67,888	..
31st March, 1935	7	2,381	3,804	827	66,755	..
31st March, 1936	11	903	2,420	676	65,580	..
31st March, 1937	12	3,002	6,708	1,154	112,648	..
31st March, 1938	18	2,802	7,774	1,870	187,545	..
31st March, 1939	24	5,845	10,342	2,546	252,187	29,946
Totals	..	29,695	46,836	11,997	1,066,634	29,946

APPENDIX D- continued.

UNION AIRWAYS OF NEW ZEALAND, LTD.

(a) Operations for Year ended 31st March, 1939.

Quarter ending	Hours R.O.W.	Miles R.O.W.	Passengers	Freight, lb.	Mail, lb.	Passenger- miles.	Freight- ton-miles.	Mail- ton-miles.	Trips scheduled.	Trips completed.	Trips completed.	Regularity.
30th June, 1938	1,424	174,443	4,318	6,559	34,176	976,435	761	4,557	424	424	419	98·8
30th September, 1938	1,595	199,376	5,509	8,098	47,262	1,060,233	840	5,986	579	577	574	99·1
31st December, 1938	2,050	255,151	6,683	8,942	55,483	1,258,860	867	6,672	995	994	994	99·9
31st March, 1939	2,295	293,505	8,609	13,857	53,476	1,311,943	2,037	6,401	1,169	1,167	1,166	99·7
Total	7,364	922,475	25,119	40,366	190,397	4,907,471	4,505	23,316	3,167	3,162	3,153	..

(b) *Years 1936-39.*

Period.				Hours flown.	Miles flown.	Passengers.	Freight.	Mail.	Passenger- miles.	Freight- ton-miles.	Mail-ton- miles.
Year ending—							lb.	lb.			
31st March, 1936	..	..	..	562	71,575	1,212	861	1,055	278,970	119	108
31st March, 1937	..	..	..	3,900	360,146	7,192	7,160	44,184	1,623,545	772	6,394
31st March, 1938	..	..	..	5,219	648,628	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
Total	..	..	..	16,145	2,002,818	49,432	67,576	343,784	10,413,733	7,552	44,040

NOTES. (i) Operations commenced on 16th January, 1936; (ii) East Coast Airways absorbed on 1st July, 1938.

COOK STRAIT AIRWAYS, LTD.

(a) Operations for Year ended 31st March, 1939.

Quarter ending.	Hours flown.	Miles flown.	Passengers.	Freight.	Mail.	Passenger-miles.	Freight-ton-miles.	Mail-ton-miles.	Trips scheduled.	Trips commenced.	Trips completed.	Regularity.
				lb.	lb.							Per Cent.
30th June, 1938 ..	979	118,749	5,544	15,313	10,638	335,040	482	293	1,537	1,452	1,438	93·5
30th September, 1938 ..	980	122,550	5,957	17,994	12,036	362,515	539	332	1,527	1,469	1,462	95·7
31st December, 1938 ..	1,127	140,895	5,875	25,787	10,813	362,498	729	326	1,711	1,648	1,643	96·0
31st March, 1939 ..	1,105	138,132	6,942	26,539	10,075	435,153	789	327	1,717	1,683	1,681	97·9
Total ..	4,191	520,326	24,318	85,633	43,562	1,495,206	2,539	1,278	6,492	6,252	6,224	..

(b) *Years 1936-39.*

Period.				Hours flown.	Miles flown.	Passengers.	Freight.	Mail.	Passenger-miles.	Freight-ton-miles.	Mail-ton-miles.
							lb.	lb.			
Period ending 31st March, 1936	..	..	..	464	58,000	3,056	3,981	710	178,487	113	36
Year ending—											
31st March, 1937	..	..	..	2,120	271,726	14,353	22,706	20,355	831,377	613	488
31st March, 1938	..	..	..	3,270	409,000	20,954	40,603	38,245	1,251,379	1,238	1,043
31st March, 1939	..	..	..	4,191	520,326	24,318	85,633	43,562	1,495,206	2,539	1,278
Total	..	..	..	10,045	1,259,052	62,681	152,923	102,872	3,756,449	4,503	2,845

NOTE.—Operations commenced 30th December, 1935.

APPENDIX D—continued.

EAST COAST AIRWAYS, LTD.

(a) Operations for Year ended 30th June, 1938.

Period.	Hours flown.	Miles flown.	Passengers.	Freight.	Mail.	Passenger-miles.	Freight-ton-miles.	Mail-ton-miles.	Trips scheduled.	Trips commenced.	Trips completed.	Regularity.
Quarter ending 30th June, 1938	594	60,428	2,940	lb. 11,933	lb. 7,407	317,265	534	453	642	622	611	Per Cent. 95·1
Total ..	594	60,428	2,940	11,933	7,407	317,265	534	453	642	622	611	95·1

NOTE.—East Coast Airways was absorbed by Union Airways of New Zealand, Ltd., on 1st July, 1938.

(b) Years 1936–38.

Period.	Hours flown.	Miles flown.	Passengers.	Freight.	Mail.	Passenger-miles.	Freight-ton-miles.	Mail-ton-miles.
Year ending—				lb.	lb.			
31st March, 1936	1,322	129,363	3,808	10,507	98	365,568	888	4
31st March, 1937	450	43,272	1,758	587	1,421	164,928	24	58
31st March, 1938	1,828	171,210	5,941	1,730	9,321	610,182	107	525
Quarter ending 30th June, 1938	594	60,428	2,940	11,933	7,407	317,265	534	453
Total	4,194	404,273	14,447	24,757	18,247	1,457,943	1,553	1,040

NOTES.—(i) The freight-ton-miles for 1936 were estimated; (ii) The operations of the company were suspended between 17th March and 7th December, 1936; (iii) East Coast Airways commenced operations on 15th April, 1935, and was absorbed by Union Airways of New Zealand, Ltd., on 1st July, 1938.

AIR TRAVEL (N.Z.), LTD.

(a) Operations for Year ended 31st March, 1939.

Quarter ending	Hours flown.	Miles flown.	Passengers.	Freight.	Mail.	Passenger-miles.	Freight-ton-miles.	Mail-ton-miles.	Trips scheduled.	Trip commenced.	Trips completed.	Regularity.
30th June, 1938 ..	162	17,205	180	lb. 3,799	lb. 17,010	17,515	190	926	344	344	342	Per Cent. 99·4
30th September, 1938 ..	165	16,735	160	5,520	19,698	17,222	294	1,098	348	348	345	99·1
31st December, 1938 ..	156	16,320	134	12,525	22,207	13,120	575	1,249	329	329	328	99·7
31st March, 1939 ..	189	20,906	188	6,502	16,099	19,227	417	928	415	415	413	99·5
Total ..	672	71,166	662	28,346	75,014	67,084	1,476	4,201	1,436	1,436	1,428	..

(b) Years 1935–39.

Period.	Hours flown.	Miles flown.	Passengers.	Freight.	Mail.	Passenger-miles.	Freight-ton-miles.	Mail-ton-miles.
Period ending 31st March, 1935	315	31,500	595	lb. 2,637	lb. 1,841	10,000	120	75
Year ending—								
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	2,348
31st March, 1938	1,010	102,262	978	20,331	60,524	53,055	800	2,415
31st March, 1939	672	71,177	662	28,346	75,014	67,084	1,476	4,201
Total	3,887	393,961	4,213	75,709	200,364	221,419	3,672	9,848

* NOTE.—(i) Commenced operations on 18th December, 1934; (ii) Passenger and ton mileages for years ending 31st March, 1937 and 1938 are estimated.

APPENDIX E.
AERODROME TRAFFIC STATISTICS.

		1st July, 1937, to 31st March, 1938.						1st April, 1938, to 1st March, 1939.					
		Passengers.		Mail.		Freight.		Passengers.		Mail.		Freight.	
		Arriving. Departing.		Arriving. Departing.		Arriving. Departing.		Arriving. Departing.		Arriving. Departing.		Arriving. Departing.	
				lb.	lb.	lb.	lb.			lb.	lb.	lb.	lb.
Auckland ..	..	2,484	2,209	10,973	12,759	2,687	2,409	2,892	2,561	23,581	31,179	7,207	4,510
Tauranga* ..	..	..	..	..	..	..	..	20	24	22	23	16	20
Opoṫiki* ..	..	..	..	..	..	..	..	10	18	26	22	..	9
New Plymouth ..	..	1,091	1,198	1,983	1,970	1,321	704	1,216	1,401	4,477	4,403	1,096	1,432
Gisborne ..	..	1,566	1,751	2,621	2,264	542	388	4,067	4,349	8,905	8,850	12,892	2,705
Napier ..	..	1,692	1,506	2,841	1,806	423	118	4,005	3,707	6,167	6,191	2,607	11,013
Palmerston North ..	..	3,238	3,400	22,586	24,383	3,378	4,427	4,417	4,467	47,294	47,673	7,518	7,085
Wellington ..	..	10,150	9,495	16,023	14,807	10,409	21,299	15,015	14,501	56,459	56,537	28,003	63,525
Blenheim ..	..	7,702	7,998	14,885	14,424	15,481	8,473	9,994	10,572	23,802	22,878	36,453	23,738
Nelson ..	..	2,900	3,210	5,879	5,464	9,426	5,808	4,786	5,138	12,379	13,242	30,115	11,070
Christchurch ..	..	2,192	2,322	9,589	10,127	2,874	3,809	3,775	3,506	25,680	23,543	5,181	6,868
Dunedin ..	..	1,204	1,130	11,946	10,937	1,748	1,783	1,811	1,774	30,939	25,200	3,490	5,169
Westport ..	..	†	†	†	†	†	†	52	56	94	119	355	38
Greymouth ..	..	159	173	433	626	1,953	1,677	326	300	1,522	1,480	2,699	750
Inchbonnie ..	..	..	..	..	..	..	..	19	16	..	..	..	..
Franz Josef ..	..	..	..	..	..	..	..	99	101	..	..	..	..
Haast ..	..	†	†	†	†	†	†	34	29	5,144	1,623	2,302	496
Hokitika ..	..	†	†	†	†	†	†	247	306	13,172	61,887	13,744	16,095
Bruce Bay ..	..	†	†	†	†	†	†	88	77	30,075	5,422	3,432	9,798
Okuru ..	..	†	†	†	†	†	†	88	70	15,621	3,754	5,125	713
Jackson's Bay	†	†	†	†	†	†	70	56	11,021	3,354	4,043	1,244
Weheka	8	10

* Service commenced 1938. † Not available.

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