

SESSION II.
1918.
NEW ZEALAND.

DEPARTMENT OF INTERNAL AFFAIRS

(ANNUAL REPORT OF THE) FOR THE YEAR ENDED 31st MARCH, 1918.

Laid on the Table of the House of Representatives by Leave.

SIR,
Department of Internal Affairs, Wellington, 31st October, 1918.
I have the honour to submit herewith the annual report of the Department for the year ending 31st March, 1918.
I have, &c.,
J. HASTOP, Under-Secretary.
The Hon. G. W. Russell, Minister of Internal Affairs, Wellington.

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REPORT.

I. THE WORK OF THE YEAR.

I. WORK ARISING OUT OF THE WAR.

A HEAVY volume of correspondence with the Government Statistician and the Defence Department respecting persons drawn in ballots has been dealt with.

The Military Service Act, 1916.—The most important work under this Act during the year was the balloting of members of the Second Division. This matter is discussed in detail in the Government Statistician's Report.

A number of applications by Reservists under section 42 of the Act for permission to change their names were received and dealt with. A peculiar feature of this work was that many of the applications were for permission for the Reservists to use their real names, this arising from the fact that the Act makes it compulsory for every Reservist to use the name by which he was customarily known on the 1st November, 1915.

Permits and Passports. The number of applications from persons for permission to leave New Zealand for other countries is well maintained, a noticeable feature being the increased number of travellers to Canada, the United States of America, and Japan.

Reservists who are classed fit for service are not allowed to leave the Dominion except under a substantial bond to ensure their return within a specified period.

In order to conserve the man-power of the Dominion the departure of men over military age, and those of military age whose services are not required in a military capacity, but who are of value for civilian occupations, is restricted in a manner similar to that pertaining to fit Reservists, with the exception that when the reasons adduced are deemed to be of pressing necessity permission is granted such men to remain absent for an indefinite period.

Returned soldiers discharged after service abroad and exempted from further service are granted permission to leave the Dominion unconditionally.

The Imperial Government's restrictions against women and children joining a ship traversing the danger-zones, which came into operation during February, 1917, are still in force, but during the last few months the pressure of applicants has relaxed, owing to the shortage of accommodation on vessels sailing by direct routes and the substantial increase in fares.

The War Regulations of the 21st August, 1916, and the 26th February, 1917, governing the landing in the Dominion of persons arriving by oversea vessels, are proving to be of great value, for, in addition to the check kept on all such persons, it has been found possible effectively to prevent men of military age coming to the Dominion to accept lucrative employment whilst evading their responsibilities under the Military Service Act, 1916. This has been accomplished without harassing the *bona fide* visitor.

During the year the American Government has issued directions that no alien will be allowed to land in the United States of America unless in possession of a passport viséd in the country in which the passport was issued. Visé may be effected by the Consul-General at Auckland, or the Consular Officers at Wellington, Christchurch, and Dunedin.

The Japanese Government has made a similar provision, and all travellers to Japan must obtain visé of their passports by the Consul-General for Japan at either Sydney or Honolulu, according to the route taken.

Registration of Aliens Act, 1917. In the Government Statistician's report is given an interesting table showing birthplaces by ages and sexes of aliens registered under this Act as at 1st July, 1917. Despite the extremely short time available after the passing of the Act in which to make regulations and the necessary arrangements with the Police and Customs, the work has proceeded smoothly from the beginning. The Act not applying to aliens naturalized in New Zealand, the figures given are, of course, not a true indication of the total number of persons in the Dominion of foreign extraction; in particular they do not show anything like the number of so-called Austrians. Chinese head the list, the total number being 1,826. Austro-Hungarians (the great majority of whom are Dalmatians) come next, with 1,123; Germans, third, with 785; Danes fourth, with 595. In the whole of the Dominion there are but six Japanese. The numbers of French and Syrians, 103 and 153 respectively, are also surprisingly low.

Changes of Names of Persons other than Reservists.—The usual number of applications by alien enemies under the War Regulations for permission to change their names were received. In addition many British subjects with German names are seeking permission to adopt English names. Each application is treated on its merits, and where inquiries made on behalf of the Department disclose that the applicant is thoroughly loyal and beyond doubt of British nationality the desired permission is usually granted.

War Funds Act, 1915.—The legislation of last session which made it necessary for those promoting patriotic entertainments to obtain permits therefor has led to a great increase of work in the War Funds Office.

The system of monthly statements of transactions of Patriotic Societies has been discontinued, the societies now being required to furnish quarterly statements only.

Societies now generally recognize that the War Funds Office exists not to keep a check on their activities, but to help them, with the result that whatever little difficulties in the way of satisfactorily administering the Act existed in the first year or so have now been overcome. Returns are furnished promptly, and societies readily seek advice from the office on various matters.

The regulations under the Act were amended in view of the fresh legislation, and the Patriotic Societies' Handbook was rewritten, published, and distributed to all societies.

A very valuable statistical return showing the transactions of all societies for the past three years has been prepared by the officer in charge, and will be presented to Parliament as a separate paper.

Patriotic funds raised in the United Kingdom for relief or distress caused through the war are designated "war charities," and come under the control of the Charity Commissioners who deal with charities in general. In the last report of the Charity Commissioners dealing with patriotic funds or war charities the following remarks appear: "The experience of the working of this Act during the short period it has been in operation has convinced us of the great value of some such control as that afforded by the Act over the charities supported by voluntary contributions; and we hope that the success of this experiment in the case of a limited class of charity may lead eventually to further legislation on the subject, by means of which the administration of charities of every description may be strengthened and safeguarded in the public interest." This might also be written regarding the control over war funds exercised in the Dominion.

Revocation of Naturalization Act, 1911.—Letters of naturalization granted to five persons of enemy alien origin were revoked.

Sub-Departments.—The effect of the war on these branches of the Department is shown in the attached reports of the officers in charge.

New Zealand Gazette.—Seventy-seven *Gazettes Extraordinary*, containing exclusively matter dealing with the war, were published during the year.

National War Museum.—In June, 1917, notification of the establishment of a National War Museum was received from the Imperial Government. The purpose of the Museum is set out in the following statement by Sir Martin Conway, the Director-General:—

NATIONAL WAR MUSEUM.

The War Cabinet has accepted the proposal of Sir Alfred Mond (First Commissioner of Works), to establish a museum in London commemorative of the war. The needful preliminary steps having been taken and a nucleus organization set up, it is necessary to obtain the co-operation of every member of the fighting Forces of both services at the earliest possible moment. Only by such co-operation can the desired result be attained. His Majesty the King has been pleased to express his sympathy with the proposed War Museum, and he trusts that it may be made thoroughly representative of the achievements of all units engaged in the war, both in the combatant and non-combatant services.

The Museum, beside in the first instance illustrating as fully as possible the operations of the Navy all over the world and of the Army on all the fronts, will be so arranged as to set forth the activities and accomplishments of the several units, and special attention will be paid to the record of ships and regiments. There will be sections devoted to the forces of each of the Dominions. There will also be a section illustrative of women's work.

By private and public initiative similar enterprises have been set on foot in Allied and in enemy countries. It is not desirable that the historian of the future should have to go abroad to pursue his studies in German museums through lack of material provided at home. The length of time that has already passed since the beginning of the war, and the consequent transfer into private hands of countless memorials of priceless value for the future, render the generous co-operation of such owners essential. This is specially true in respect of documents of all kinds. Life on shipboard and in the trenches produces a transient literature and art of its own. The Museum should possess all the ship and trench magazines, journals, poems, popular songs, characteristic private letters, writings, sketches, caricatures, maps, and so forth. The Admiralty, the War Office, and the Ministry of Munitions will deposit in the museum the large mass of official exhibits, but such an assemblage will be a dead accumulation unless it is vitalized by contributions expressive of the action, the experiences, the valour, and the endurance of individuals. The brave men who have performed heroic deeds, and too often laid down their lives for their country in the performance, must be commemorated by their portraits. The photographic record of persons and places must be as complete as possible.

Much that would have been of great value to the national collection is already destroyed; more is in imminent peril of destruction. A general co-operation is needed to preserve everything that can be saved. Models of particular parts of the front are made to serve the needs of the day and cast aside when they have performed their purpose. Every one of them is wanted. Men employ their enforced leisure in making all kinds of memorials; gifts of such representative souvenirs will be valued. The light side of things should be illustrated as well as the frightful tragedy of war.

When peace returns and men are back at home the years will pass and memory of the great days and adventures through which they lived will grow dim. It is the purpose of the museum to be a place which they can visit with their comrades, their friends, or their children, and there revive the past and behold again the great guns and other weapons with which they fought, the uniforms they wore, pictures and models of the ships and trenches and dug-outs in which weary hours were spent, or of positions which they carried and ground every yard of it memorable to them. They will then be glad to recall also the occupations of their hours of leisure. They will be able to look up the likenesses of the men they knew, some of whom, it may be, fell fighting beside them. The best possible result will be desired by all. Let all co-operate heartily and it will be attained.

An India and Dominions Committee of the Museum, on which the New Zealand representative is the Hon. Sir Thomas Mackenzie, High Commissioner, has been set up for the purpose of making representative collections illustrating the war activities of India and the self-governing dominions.

The National War Museum will have first claim on all trophies captured by Imperial, Indian, and Dominion Forces, but in return the Imperial Government will probably supply trophies captured by the British Army and Navy. Material illustrating New Zealand's part in the war will be forwarded to England from time to time.

Exhibition of War Trophies at Burlington House.—At an exhibition of war trophies, photographs, &c., organized by the Joint War Committee of the British Red Cross Society and the Order of St. John, opened at Burlington House (Royal Academy of Arts) under the auspices of the Imperial War Museum on the 7th January, 1918, New Zealand was represented by a selection of the best photographs taken by our photographer at the front.

War Section, Dominion Museum.—This branch of the Dominion Museum is designed to illustrate the part taken by New Zealand as a whole in the war. The Director's report, printed in the appendix hereto, shows that excellent progress has been made during the past year. By the 31st March last the New Zealand official photographer at the front had forwarded over four hundred photographs of the Expeditionary Force taken at the front. Four copies of each photograph are furnished, and the principal New Zealand illustrated papers are allowed to reproduce such of the photographs as they deem of immediate interest to their readers, a charge of 5s. per photograph being made. A lantern-slide of each photograph is made by the Government Printer, and these slides will form not the least interesting and valuable records in the War Section of the Museum.

War Collections by Provincial Museums.—The claims of provincial museums are not being overlooked. The Defence Department advises that in the final allocation local museums, as far as possible, will be given trophies captured by the units raised locally.

2. THE ORDINARY WORK OF THE HEAD OFFICE.

The ordinary work of the Department has considerably increased during the past year in all directions.

(1.) *Local Government.*

The year was one of marked activity in several spheres of local government.

Boroughs and Town Districts.—The boundaries of the Cities of Auckland and Christchurch were altered during the year. The Christchurch municipal elections in April, 1917, were noteworthy as being the first in the Dominion to be held under a system of proportional representation. Mr. Hogben, late Director of Education, was specially engaged to supervise the elections, and at the request of this Department he furnished a report on the working of the Local Elections (Proportional Representation) Act, 1914. This was printed as a parliamentary paper (H.—42) and presented last session. Numerous requests for copies of it have been received from England and Australia. To meet further demands it was reprinted. Mr. Hogben made several valuable suggestions, which have been noted for consideration when the Act is being amended. The report of the Proportional Representation Society (London) for 1916–18 contains the following remarks on this election: "Sixteen Councillors were elected. This is the largest number of representatives ever elected at one time by a single constituency under the system of the single transferable vote."

The boundaries of the following boroughs were altered during the year: Ashburton, Marton, Ouelunga, Richmond, Gisborne, and Ohakune.

Three new boroughs—Featherston, Shannon, and Whakataua—were constituted.

Though the boundaries of Wellington City were not altered, the metropolitan spirit is not sleeping in the capital. The City Council is busy investigating the needs of the areas surrounding, and in at least two suburban boroughs movements in favour of amalgamation with the city are on foot.

One new town district—Ohura—was constituted, and petitions in respect of two others—Nightcaps and Henderson—were under consideration at the end of the year. Matamata Town District was declared not to form part of Matamata County.

Counties.—The boundaries of the following counties were altered: Eltham and Stratford; Horowhenua, Masterton, Mauriceville, and Eketahuna; Hawke's Bay, Wairoa, and Taupo East; Paparua and Malvern; Patangata and Waipukurau; Rangiora, Oxford, Kowai, and Ashley; Whakatane and Wairoa.

It was found that the alterations recommended by the Commissioners appointed to inquire into proposed alterations of the boundaries of the Counties of Hokianga and Hobson (petition of Hobson County Council), Hokianga, Hobson, Bay of Islands, and Whangarei Counties (petition of Whangarei County Council) could not be effected on account of the petitions not having been duly signed. To obviate the necessity for fresh petitions, legislation, section 110 of the Reserves and other Lands Disposal and Public Bodies Empowering Act, 1917, was passed, enabling the Governor-General to set up a Commission to inquire and report respecting necessary or desirable alterations of these counties and the Counties of Whangaroa and Mongonui. The Commission, consisting of a Stipendiary Magistrate (Mr. E. Page), Mr. W. C. Kensington (late Under-Secretary of Lands and Survey), and Mr. W. F. Thompson, District Valuer, Whangarei, accomplished its work most satisfactorily. The report, which, *inter alia*, recommended the inclusion within county boundaries of certain islands adjacent to the mainland, was given effect to shortly after the close of the year.

The wide field to be covered by this Commission attracted the attention of other County Councils, and strong representations were made for a similar commission to adjust the boundaries of counties adjoining West Taupo County. It was pointed out in reply, however, that there were special circumstances attending the case of the northern counties, and that any adjustment on a large scale of other county boundaries would have to wait for the present at any rate. When, however, the time is opportune for the consideration of this question, the positions of islands adjacent to counties should also be considered. Most of these are at present subject to no form of local government, though, as the report of the Northern Counties Commission shows, the inhabitants of them make considerable use of the county roads on the mainland.

An important feature of the law relating both to counties and to road districts is that contained in section 18 of the Statute Law Amendment Act, 1917, which provides that petitions under the Counties and Road Boards Acts must not be signed by persons who have made default in payment of rates.

The ratepayer who is but a rate-ower has been for years the greatest obstacle to progress in county districts. In every matter in which the first step is a petition of ratepayers he is invariably the one whose signature is wanting. The new legislation effectively disposes of him in this direction, but a further amendment (or, rather, a re-enactment of the law relating to defaulters voting at elections) is required. The defaulters list was abolished by the Counties Amendment Act, 1915. Nothing is clearer at the present moment than that this was a great mistake. The question is bound up with that of Native rates. The defaulters list certainly did not have a direct effect in making Natives pay their rates, but by preventing them from voting at county elections while their rates were unpaid it ensured that they would have but little voice in the direction of county affairs. Now, in certain counties in the North Island county elections are practically controlled by Natives, a very large number of whom may be called ratepayers by courtesy only. The devising of some satisfactory means of obtaining rates from them seems to be as far off as ever, though the need for it is vital. County securities for loans are prejudicially affected in that lenders take into consideration the amount of Native land in proposed special-rating areas, with the result that these areas, in order that sufficient really rateable lands to give reasonable security for loans may be included therein, are often of necessity so extended as to embrace properties which benefit but slightly from the works for which the loans are being raised. Pending the devising of the means referred to, I am strongly of opinion that the present intolerable condition of things should be ameliorated by reinstating the defaulters list. It is possible that a number of the Natives who have tasted the sweets of electioneering, and who take a great and by no means unintelligent interest in county elections, will pay their rates sooner than suffer disfranchisement.

I do not wish to infer that all Natives are defaulters. On the contrary, in some of the older-settled counties Natives are often the largest ratepayers and the most prompt in settling their liabilities.

Another question which has been the subject of discussion at every Counties Conference, but on which there is yet no sign of unanimity, is that of the date of elections in counties. The feeling that they should, as far as possible, be held at the same time as municipal elections seems to be growing steadily.

In concluding this phase of the subject, I would urge the necessity of a new Counties Act. The present one, which dates from 1886, is not only hopelessly out of date, but some sections are so conflicting one with another as to be altogether unintelligible.

Road Districts.—Thirteen road districts went out of existence during the year by merger in their respective counties. This gradual abolition of a form of local government that has been of incalculable value to New Zealand, in respect both of the lasting work accomplished under it and of the class of men whom it brought into public life, though a matter perhaps for sentimental regret, is after all an indication of the growth of the wider and more complete form of county government.

With the growth of the country population and improved means of communication from one part to another the number of counties will be reduced, and the County Council of the future, governing a largely increased area, will wield extensive powers, embracing matters at present the particular concern of special bodies.

Side by side with the decline of Road Board government in the settled counties is the phenomenon of a revival thereof in districts now feeling for the first time the need of local government.

The Counties Act is still not in force in Taupo West County, but full advantage has been taken of the provisions of section 27 of the Reserves and other Lands Disposal and Public Bodies Empowering Act, 1916, five road districts having been constituted thereunder in that county with excellent results.

Land-drainage and River Districts.—Three new drainage districts were constituted and the boundaries of seven existing districts were altered during the year. The activity in this particular sphere of local government is a very fair indication of the amount of development-work going on in connection with the settlement of swamp lands.

Though the only petitions under the River Boards Act, 1908, received were for the abolition of an existing district (Palmerston North - Kairanga) and an alteration of another (South Orari), the year was one of unparalleled departmental activity. The long-standing matter of a comprehensive scheme of protective works for the Wairau River was brought to a head by the appointment of a Commission, the report of which it is hoped to make the subject of special legislation during the coming session of Parliament.

The Waikato River is another of our important waterways that sooner or later will have to be dealt with specially.

A Commission to inquire into troubles arising out of the construction by the Akaaka Drainage Board of certain drains emptying into the Waikato River was appointed, and its report showed clearly the danger of piecemeal operations. The Waikato River has problems peculiarly its own. It is a navigable waterway, with many square miles of swamp country adjoining. It will be a difficult matter to devise a scheme of river-protection which will at once allow of the swamp lands being drained and safeguard the river for navigation purposes. A *sine qua non* for this is undivided control—one body equipped with all necessary powers, including those contained in both the River Boards and Land Drainage Acts—which shall have sole charge of the river from Lake Taupo to the sea.

A petition for alteration of boundaries of the South Orari River District reopened the question of the Orari and Waihi Rivers, upon which Mr. Furrkert, Inspecting Engineer of the Public Works Department, furnished a valuable report a few years ago. There again the obvious course to pursue is to constitute one district comprising the whole of the watersheds of these two rivers.

A considerable amount of the Department's time was taken up in a correspondence with the Hawke's Bay Rivers Board respecting the Hawke's Bay Rivers Amendment Bill, 1917, which was passed into law with a provision requiring the appointment of a Commission to inquire into certain matters connected with the district. This Act was rendered necessary by the impossibility of making any alteration of the boundaries of the district under the River Boards Act. The Commission, with the Chief Justice as Chairman, was duly constituted, and its decisions are now law.

The petition praying for abolition of the Palmerston North - Kairanga River District revived a long-standing contention between the River Board and the Borough Council. The matter was still under consideration at the end of the year.

The River Boards Amendment Act, 1917, which enables the Governor-General to set up a Commission to report as to the failure by a River Board to provide river-protection works, and empowers the Minister of Public Works to carry out any works recommended by the Commission, the cost of the same to be recovered from the River Board, is a valuable piece of legislation. Action is at present being taken under it in respect of the Otautau River District.

Lake Coleridge Water-power Act, 1915.—Powers of Borough Councils with respect to lighting and the supply of electricity were conferred on the Waimairi and Heathcote County Councils.

Cost of Living Act, 1915.—I have to report that no Borough Councils have applied for the issue of regulations under section 13 of this Act. The cost-of-living question seems to be regarded by local bodies as a subject for discussion rather than definite action.

Alien Electors of Local Bodies.—The existing law being anything but clear, legislation defining the rights and powers of aliens with respect to local elections and polls was enacted last year (sections 11 and 12 of the War Legislation Act, 1917). Alien enemies are disqualified either from voting at any local election or poll or from being elected or appointed as members of a local authority. Alien friends may not be elected as members, but are not disqualified from being enrolled as electors of local bodies or from exercising their votes as such.

Local Legislation.—Apart from harbour legislation, there were eight local Acts last session, most of them containing important powers. The most notable were—

The Christchurch Milk-supply and Markets Amendment Act, 1917, which may be regarded as a war measure in that it expires six months after the cessation of hostilities, is interesting as the first New Zealand attempt to avoid the economic waste caused, for example, by half a dozen different tradesmen delivering goods to as many houses in the one street.

The Wellington City Empowering Act, 1917, contains in section 3 perhaps the most important town-planning legislation yet enacted in New Zealand. It gives the City Council a power over subdivisions of land in the city that has long been necessary.

The Wellington City Trading Department's Reserve and Renewal Funds Act, 1917, gives the City Council power, in respect of its tramway, electric-light and power-supply undertakings, to make annual appropriations to provide renewal and reserve funds, after making provision for interest and sinking fund of loans and for maintenance and repairs. This Act is significant of the growing tendency of local authorities to make their trading undertakings self-contained and self-supporting businesses. With adequate safeguards such as are provided in this Act nothing but good can result from it. A further power contained in this Act is that enabling the City Council to establish accident funds in connection with the above-mentioned undertakings.

The Day's Bay Sanitation and Water-supply Act, 1917, is an interesting example of the manner in which the cities and larger boroughs are tending to give outside areas not yet ready for full municipal control the benefit of the primary municipal services. In this particular case, however, the provision of water and drainage at a cost of some £10,000 was considered by the Day's Bay ratepayers to be too heavy a liability for an area with a capital valuation of less than £80,000.

The Hawke's Bay Rivers Amendment Act, 1917, I have already referred to.

(2.) *Inland Fisheries.*

The best justification of the Department's work during the past five years is the fact that the improvement in the condition of the trout in Lake Rotorua was such that this year it was decided not to take fish from it for market purposes. Instead, Lakes Rotoiti and Tarawera were exploited for the first time, the former successfully, but very few fish were taken in Lake Tarawera. The total output for the period 1st November, 1917, to 31st March, 1918, from Lakes Rotoiti, Tarawera, and Taupo was 38,217 fish, weighing 46 tons, as against 42,995 fish, weighing 35 tons, from Rotorua and Taupo last year, a decrease of 4,778 in the number of fish caught, but an increase of 11 tons in weight, both the decrease and increase being due to the substitution of Lake Rotoiti for Lake Rotorua, where the fish are more numerous and smaller. At Lake Taupo the return for the period was 17,947 fish, weighing 24 tons, as against 8,743 fish, weighing 10 tons, last year. This substantial increase would have been even greater but for unprecedented gales on the lake during the season, which often prevented the fishing-launch going out, and at other times seriously interfered with the catches.

This year the transport of trout from Taupo to the Main Trunk Railway was much improved. Previously, the only means available was the coach from Tokaanui to Waiouru. The opening for traffic of the new road from Tokaanui to Waimarino made it possible to use a motor-lorry, purchased for the purpose. Despite one rather serious breakdown, the new departure was a great success. The cost to the Department of running the lorry was lessened by an arrangement with the Justice Department whereby it was utilized in connection with prisons work.

In order to ensure that the public should obtain the trout at a reasonable price it was supplied to Wellington dealers at 3½d. per pound fresh and 5d. smoked, on condition that the retail prices should not exceed 6d. and 8d. respectively. The arrangement proved satisfactory both to the Department and the dealers.

Shags.—606 shags (as against 1,432 last year) were accounted for, at a cost of £75 15s.

Trout-hatchery.—Despite the great difficulty experienced in obtaining suitable labour, the output from the hatchery was 780,000 ova and 350,000 fry, as against 435,000 ova and 217,000 fry last year.

(3.) *Animals Protection Act.*

The year 1917 being an open one, shooting seasons were declared in all districts but one. During the year representations for an open season for paradise ducks were made by the Southland Acclimatization Society. It being ascertained that these birds had increased in great numbers in that district it was decided to grant the request, and a warrant declaring a season from the 1st to the 31st May, 1918, in that district was gazetted on the 17th January, 1918. This is the first open season for paradise ducks for ten years. Requests for open seasons for native pigeon have been declined.

Sanctuaries.—Seventeen new sanctuaries were declared.

Opossums.—At present opossums are absolutely protected in some districts, while in others the protection has been removed altogether. This is an unsatisfactory position in that there is no power to declare a shooting season in any district. It is intended to amend the law when an opportunity offers. Various requests by acclimatization societies for permission to liberate opossums in their districts have been received and dealt with. No liberations in Crown forests are authorized without consulting the Lands and Survey Department, and it is a fixed rule to decline any application in respect of areas in orcharding districts. Fewer complaints than usual of damage caused by opossums were made during the year.

Importation of Birds and Animals.—An application for permission to import stubble-quail from Australia was granted, after consulting the Board of Agriculture.

The question of stocking the waste forest and scrub lands of the Southern Alps with fur-bearing animals was raised. One correspondent suggested the introduction of the vicuña, the alpaca, and the llama. The Board of Agriculture not seeing its way to recommend the liberation of these animals, no action was taken.

The Tuatara.—The report of the lightkeepers on various islands who are acting as special protectors show that the measures of protection already taken have had good results, the tuatara

lizards showing signs of an increase. By arrangement with the Marine Department steps are being taken to protect the remaining bush on Stephen Island, and to sow seeds of various native trees on certain selected areas from which the bush has disappeared.

Very few cats now remain, but it will be necessary to wage continuous war on the hawks which come to the island every summer. The keepers on Cuvier Island are killing off the goats, which are causing damage to the vegetation.

(4.) *Fire Brigades Act.*

Fire Districts.—Two new districts were constituted during the year.

Inspection of Fire Brigades.—The Inspector had a very busy time during the year. In addition to his usual brigade inspection he has had a great amount of work as Government Fire Inspector, and many calls have been made upon him by the Defence Department for expert advice. His report up to the end of the Fire Board's year, 30th June, is contained in a separate parliamentary paper.

(5.) *Motor Regulation Act.*

Ten local authorities adopted Part II of the Act during the year.

Letters and numerals as identification-marks were allotted to twenty-four registering authorities.

Some little confusion still exists respecting the function of the Minister under section 4 of the Act. Registering authorities frequently forward proposed motor by-laws for some indication as to what the Minister is likely to take exception. Others, again, forward by-laws when made asking that they may be approved. The Minister has no approving function, his power being one of disallowance at any time after the receipt of the by-laws in this office. A by-law may be reasonable enough when made, but in the course of time it may become unreasonable. Thus the Minister cannot be expected to signify to a registering authority whether a new motor by-law, in which there is nothing for the time being to which objection need be taken, will or will not be disallowed at some time in the future.

Two questions for which legislation is being urged are motor speed-limits and the licensing of drivers of motor-cars. Local bodies generally desire power to fix definite limits, but the experience of other countries is in favour of the existing law, whereby (section 9 (1) of the Motor Regulation Act, 1908) every person commits an offence who drives a motor on a public highway recklessly or negligently, or at a speed or in a manner which is dangerous to the public, having regard to all the circumstances of the case, including the nature, condition, and use of the highway, and the amount of traffic which actually is at the time, or which might reasonably be expected to be, on the highway. The true remedy for the furious and reckless driving so prevalent to-day is a stricter administration of the law as it stands.

The second question, however—the licensing of drivers and the issuing of proficiency certificates—is one that should be made the subject of legislation as soon as possible. This you have approved, but a suitable opportunity to bring down a new Motor Bill has not offered. The necessity for obtaining a certificate of competency will undoubtedly lead to a higher standard of driving, and the probability of their licenses being cancelled on conviction for an offence against the Act will restrain many reckless drivers.

The decision of the Court of Appeal in the case of *Geraghty v. Porter*, that clause 4 of the General Motor Regulations was *ultra vires*, made it necessary to issue a fresh regulation prescribing the manner in which the registered number shall be affixed to motors. The Department is indebted to the New Zealand Automobile Union for valuable suggestions regarding this and other matters.

(6.) *Inspection of Weights and Measures.*

In July of 1917 a conference of the four principal Inspectors—those stationed at Auckland, Wellington, Christchurch, and Dunedin—was held at Wellington. As a result of this the Dominion has been divided into four centre districts—Auckland, Wellington, Canterbury, and Otago—and the principal Inspectors have been charged with special duties—*e.g.*, the periodic inspection of local districts, instruction of new local Inspectors, &c. Already this has had a beneficial effect, particularly in standardizing the methods of inspection and ensuring that no new Inspector shall begin his work until thoroughly conversant with his duties and proficient in the testing of the great variety of weighing-machines now in use. For the first time, too, as a result of the centre Inspectors visiting outlying districts, the Department has become possessed of fairly accurate information respecting the number and capacity of weighbridges in use throughout the Dominion.

Another important step has been the standardization of Inspectors' equipment.

Many complaints were received during the year that dealers were in the habit of selling coal and coke by the bag instead of by weight. Section 24 of the Weights and Measures Act, 1908, provides, *inter alia*, that charcoal, coke, and coal of any description shall be sold by weight and not by measure, but that nothing shall prevent its sale in any vessel that is not represented as containing any amount of standard weight or measure. This, while authorizing the sale of a bucket, or basket, or truck of coal as such, but not as representing a certain weight, does not authorize the sale of coal by the bag, since a bag is not a "vessel" within the meaning of the Act. The attention of dealers in towns where sale by the bag has been the custom has been drawn to the requirements of the Act.

Complaints have also been made of short weight of coal and food commodities. This matter is not one that can be dealt with under the present Weights and Measures Act. The need for power to regulate the sale of coal is urgent.

Another peculiar and vital fault in our Act is that while the Governor-General in Council may make regulations prescribing the material of which weights and measures may be made, there is no power to prescribe the materials of which scales may be made. It is most essential that any new Weights and Measures Act should provide this power, and, in addition, power to reject any particular class of scale as being unsuitable for counter use.

(7.) *Board of Science and Art.*

The Board held its third annual meeting on the 30th January, 1918. In the report of the Director of the Dominion Museum a summary will be found of the Board's work during the year.

(8.) *Censorship of Films.*

During the year ending the 31st March, 1918, 2,825 separate films, of a total length of 5,761,570 ft., were examined under the Cinematograph Film Censorship Act, 1916. Approval was refused in forty-three cases, while 279 cases approval was granted only after excisions had been made to the satisfaction of the Censor. One appeal was made against the Censor's decision. The appeal was dismissed. Inspection and other fees amounted to £1,950 17s. 6d., which more than covered the expenditure during the period.

(9.) *Hector Observatory.*

Much useful work was done at the Observatory during the year. The Government Astronomer's report, printed in the appendix hereto, gives a detailed and interesting description of the means whereby the Observatory works the time service.

(10.) *Old Soldiers' and Historical Graves.*

During the year Miss Statham, Inspector of Soldiers' Graves, reported on some forty cemeteries in which soldiers killed in the Maori wars are buried. Though it is some five years since the Department undertook this work much remains to be done, and information respecting burial-grounds and isolated graves previously unknown is still being received. Even when the task of renovating the graves and erecting monuments is completed there will be the continuing work of maintaining graves and monuments in good condition.

Among the graves to which attention was given during the year may be mentioned those of French sailors in O'Neill's Point Cemetery (Auckland), and that of an American soldier in Symonds Street Cemetery (Auckland).

The attention of the Department was drawn to the neglected state of the graves on Great Barrier Island of passengers drowned in the wreck of the "Wairarapa." These are being tidied up, and an obelisk will be erected.

(11.) *Graves of Members of Expeditionary Force dying in New Zealand.*

As a result of the appeal made last year to cemetery trustees and local bodies having control of cemeteries, special plots for the burial of members of the Expeditionary Force dying in New Zealand have been set aside in a large number of cemeteries.

Miss Statham has been busily engaged for some months visiting and reporting on graves of soldiers. The Department will shortly be in possession of information as to the state of every grave.

When the standard type of grave has been finally decided by the Government the main work will be commenced. In the meantime steps are being taken to ensure that graves will not be left in a neglected condition.

(12.) *History of the New Zealand Wars.*

Mr. James Cowan has been engaged to write the history of the New Zealand wars from 1845 to 1871. Though many books on particular campaigns, notably Featon's "Waikato War," and narratives like those written by Sir George Whitmore, Colonel Gudgeon, and Colonel McDonell, all containing valuable information, have been published, there is no one work dealing with the wars as a whole—nor, indeed, any complete account of Heke's war or the Taranaki and East Coast wars. Again, little attempt has been made to show the inter-relation of the wars in the "sixties," and to trace the development of the anti-pakeha crusade on the various sectors, beginning with Taranaki in 1860. In the natural course of things such a history would not be written until sufficient time had elapsed to enable the troubled period to be viewed in a true perspective. It was felt, however, that any further delay would result in many sources of information being lost. In the official records of the Government, of course, there is information that will always be available for the use of historians, but it is a matter of only a few years now when the last survivors (both European and Maori) of the last of the Maori wars will have passed away. From them it is hoped that Mr. Cowan will be able to gather and place on record valuable information that otherwise would be lost for ever.

The history to be written by Mr. Cowan will appear in four volumes, as follows: Volume 1: Heke's war in the north, 1845-46—Ohaeawai, Ruapekapeka, &c.—the war in the Wellington District, 1846—the Hutt, and Porirua—capture of Te Rauparaha—the fighting at Wanganui. Volume 2: The Kingite movement—the first war in Taranaki, 1860—Waitara, Waireka, &c.—the Waikato campaign, 1863-64—Koheroa, Rangiriri, Paterangi, Orakau—fighting in Bay of Plenty District—the Gate Pa, and Te Ranga. Volume 3: The Hauhau wars—fighting in Taranaki—General Chute's campaign—use of the Colonial Forces under the self-reliant policy—East Coast wars—Titokowaru's war in Taranaki—engagements on the Waimate Plains—final defeat of Titokowaru. Volume 4: Hauhau campaigns on the East Coast—Te Kooti's rebellion—Chatham Islands to Poverty Bay—Ngatapa, Waikaremoana, &c.—Native Contingents' pursuit of Te Kooti, 1870-1—final engagements in Urewera Country.

Mr. Cowan is at present engaged in visiting the various districts involved in his work, and has already gathered much valuable material.

3. THE WORK OF THE SUB-DEPARTMENTS DURING THE YEAR.

As already pointed out, the war work of the sub-departments has shown a marked increase. In the performance of their ordinary peace-time functions they have been worked efficiently, with a special view to economy.

Census and Statistics Office.—Though still closely occupied with his duties under the Military Service Act and the new work of registration of aliens, the Government Statistician has found

time to extend the scope of what may be termed the ordinary work of the office. The vacant position of Compiler in Charge of Industrial and Economic Statistics being filled by the appointment of Mr. G. W. Clinkard, it was found possible to proceed with the collection and compilation of statistics of wholesale prices.

I desire to draw attention to the special article on "Cancer Mortality in New Zealand" by Mr. J. W. Butcher, Chief Compiler, published in the "New Zealand Official Year-book" for 1917. This article has roused considerable interest, and is a good example of scientific statistical research. When times are again normal the publication of similar articles on other subjects will, it is hoped, be a regular part of the activities of the office. Research work of this nature can only be undertaken by men with special knowledge and training. The office is fortunate in now having men of this stamp occupying all the principal positions.

Registrar-General's Office.—The revenue of this office is the lowest for five years, this being explained by the very marked decrease in marriages. The table given in the Registrar-General's report shows that the marriages in 1917 were fewer by 1,267 than in 1916, which itself was the lowest for some years.

Considerable time was taken up in searches for the Defence and Pensions Departments on matters arising out of the war.

Dominion Laboratory.—The importance of the Laboratory to the Public Service alone may be judged from the fact that during the year the Dominion Analyst was called upon to do a large amount of work for the following Departments: Defence, Customs, Justice, Mines, Post Office, Public Health, Railways, Public Works, Marine, Lands and Survey, and Government Printing Office. Without it many of these Departments would necessarily either have had to pay considerable sums to private expert analysts or themselves establish laboratories.

It is interesting to note that the number of milk-samples taken during the year under the Sale of Food and Drugs Act, 1908, was 2,222—almost exactly double that of the previous year. Of these, 1,771 were taken in Wellington City. The results of analysis show a considerable improvement in the city milk-supply, due undoubtedly to constant inspection, and fines more in keeping with the serious nature of the offences in respect of which proceedings were taken than those generally imposed in previous years. Of particular interest are two tables, one showing the average composition of unwatered milk from Wellington and surrounding districts during the year 1917, and the other showing the average composition of milk supplied to the Aylesbury Dairy Company, London. The Wellington table, while exhibiting greater fluctuations, shows a higher average of fat and non-fatty solids.

Dr. MacLaurin's investigations on the recovery of kauri-gum from swamp peat are being continued with highly satisfactory results.

The report of the Chief Inspector of Explosives shows that the quantities of explosives imported were considerably less than those for the previous year. This decline is more apparent than real, being due to shipments arriving just before the 1st April, 1917, and after the 31st March, 1918.

Dominion Museum.—Under very adverse conditions the Director and his staff continue to do excellent work, but before long the Museum will almost cease to be a living institution on account of shortage of fireproof storage and exhibition space. Already many valuable specimens have been lost that would otherwise have come to the Museum.

The appeal for material for the National Historical Collection resulted in the presentation, *inter alia*, of two valuable historical documents—the official letter-book of James Busby, British Resident from 1833 onwards, and a manuscript history of New Zealand by the same gentleman.

Among the general acquisitions during the year was a collection of Maori garments and weapons and an inlaid writing-table from the estate of the late Mrs. Hunter Blair, of Edinburgh, the last-mentioned being considered to be the finest sample of cabinet work ever produced with New Zealand woods.

I have referred above to the Imperial War Museum. In his report Dr. Thomson gives an account of what has been done during the past year towards the gathering of a representative collection of materials for the War Section of the Dominion Museum illustrating New Zealand's part in the war.

II. STAFF.

During the year the staffs of the Head Office and branches have again been further affected by reason of voluntary enlistments of officers and the operation of the ballot. The policy of the Department has been not to appeal against the calling-up of its officers, and it has so far been found necessary to make but one appeal, that being the case of an Analyst in the Dominion Laboratory. I gratefully acknowledge the true-hearted co-operation of my executive officers and heads of sub-departments and the valuable services rendered by all members of the staff during a very trying period.

III. ASSISTANCE RENDERED BY OTHER DEPARTMENTS.

The generous assistance rendered by other Departments demands special acknowledgment. Without the help of the Customs and Police Departments efficient administration of the various War Regulations dealing with passports and permits would be an impossibility. Both these Departments, too, render valuable service in connection with administration of the Registration of Aliens Act. Again, this Department has made increased demands on the time of police officers in connection with raffle licenses issued under the Gaming Amendment Act, 1915. The assistance rendered by the Post and Telegraph Department has been of the greatest help to the Government Statistician.

I cannot conclude without expressing the Department's indebtedness to the Public Works, Lands and Survey, Justice, and Valuation Departments for the manner in which they have always met our requests for the services of their expert officers for commissions dealing with local-government matters.

I have, &c.,

J. HISLOP,

Under-Secretary.

APPENDIX.

I. REPORT OF GOVERNMENT STATISTICIAN.

Census and Statistics Office, Wellington, 19th August 1918.

DURING the past twelve months the Office has continued to cope satisfactorily with the heavy work imposed upon it, notwithstanding the shortage of senior permanent officers. The employment of temporary female clerks for the great bulk of the military-service work and the compilation of the census and agricultural and pastoral statistics has continued to give very satisfactory results.

Last October the necessity for vacating the offices in the Public Trust Building to make room for the expansion of the Public Trust Office, combined with the lack of accommodation in the offices in Nathan's Building for the large and growing Military Service staff, compelled a double change of quarters. The Military Service Branch transferred to more commodious premises in the Wairarapa Farmers' Building, and their offices in Nathan's Building were taken over by the Statistical and Census staffs from the Public Trust Building. Reduction of staff later, on account of a falling-off in the volume of work consequent on the completion of certain non-recurrent steps, allowed of the staff engaged on agricultural and pastoral statistics in Routh's Building being also accommodated in Nathan's Building.

ADMINISTRATION OF THE MILITARY SERVICE ACT.

The principal work in this branch since the furnishing of my last report has been the classification of the Second Division of the Reserve. Forms for the purpose of giving particulars as to increase or decrease in the number of children stated on enrolment-cards were made available at every post-office in the Dominion, and every publicity was given to the requirements of the regulations governing the classification.

The first ballot of Class A—that is, married men without children—was gazetted on the 6th November, 1917, just five weeks after the calling-up of the whole of the Reservists then remaining in the First Division. Notwithstanding the efforts made by the Office to obtain full and complete particulars for the classification of every Reservist of the Second Division, a number of those called up in the first ballot appealed on the ground that they were not Reservists of Class A, thus showing that they failed to notify the birth of a child or children since the date of furnishing their enrolment-cards.

In order to make the classification of the Reserve as complete and correct as possible a post-card was sent to every Reservist in Class B advising him that he was enrolled in this class and would be subject to the operation of the ballot, and requesting him at the same time, if the classification was incorrect, to furnish complete particulars on the Office form forthwith. When Class B was exhausted a similar post-card was sent to Class C Reservists, and later to Class D Reservists. The classification of a Reservist is determined by the number of his children at the date he comes under the operation of the ballot. It is obvious, therefore, that a considerable number of cards are reclassified daily, and an average of seventy forms giving particulars for classification have been received per day for the past three months.

During the year provisions of the Military Service Act were extended to Maoris, and the Register of Maori Reservists was compiled from the best information available. So far only First Division Natives residing in the Waikato-Maniapoto District have been compulsorily called up for service.

I have again to record my grateful appreciation of the assistance rendered by the officers of the Police and Post and Telegraph Departments in connection with the administration of the Military Service Act, as well as in other branches of the Department's activities.

REGISTRATION OF ALIENS ACT.

The duty of compiling and keeping the Register of Aliens under the Registration of Aliens Act, 1917, was placed on the Government Statistician.

Provision is made under the Act for each Superintendent of Police to keep a duplicate of the register so far as it affects his police district; while all officers in charge of police-stations, and Customs officers at ports of arrival and departure, are appointed Registration Officers, the registration being effected through them. To facilitate the work of the Registration Officers a provisional register was prepared and issued from information in the possession of this Office. The number of aliens registered under the Act up to the 1st July, 1918, was 7,143. The Act does not apply to aliens naturalized in New Zealand, but all other aliens are required to register. The following table showing the nationalities and ages of those registered is given as being of general interest:—

Registration of Aliens Act, 1917.—Table showing Birthplaces by Ages and Sexes of Aliens registered under the Act as at the 1st July, 1918.

Country.	15 and under 20.		20 and under 25.		25 and under 30.		30 and under 35.		35 and under 40.		40 and under 45.		45 and under 50.		50 and under 55.		55 and under 60.		60 and over.		Totals.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Both Sexes.
Austria-Hungary	84	2	378	7	192	8	143	13	101	11	56	5	42	6	31	1	17	..	21	5	1,065	58	1,123
Belgium	..	..	12	3	8	2	9	1	11	2	7	7	6	2	4	1	..	2	6	2	63	22	85
Denmark	..	6	44	13	88	17	80	17	57	13	42	16	46	18	26	12	17	7	42	21	455	140	595
France	2	..	2	2	5	4	6	4	7	3	8	5	7	5	11	6	7	1	15	3	70	33	103
Germany	9	8	20	9	35	20	52	19	67	28	61	28	61	32	64	34	42	21	103	72	514	271	785
Greece	3	..	14	2	12	3	16	..	12	1	4	..	7	..	1	1	1	..	6	..	76	7	83
Italy	12	1	18	5	41	4	33	5	23	7	29	4	13	2	10	2	3	..	9	3	191	33	224
Netherlands	1	..	5	..	13	..	6	1	6	1	5	1	2	..	5	..	1	..	5	..	49	4	53
Norway	3	1	35	3	54	5	47	4	51	2	30	6	26	7	27	6	16	1	46	11	335	46	381
Portugal	..	..	..	..	..	..	..	..	1	1	..	2	1	1	1	..	1	..	..	..	4	4	8
Russia	6	5	45	12	81	16	67	11	57	11	42	13	47	3	23	3	23	8	25	6	416	88	504
Spain	1	1	2	2	4	..	3	..	1	..	2	..	..	2	3	..	..	..	2	1	18	6	24
Sweden	1	..	9	5	59	3	65	11	67	10	56	6	45	3	25	10	29	3	43	9	399	60	459
Switzerland	3	4	17	4	51	19	46	14	32	9	19	9	13	3	5	8	7	3	6	1	199	74	273
Other European countries	1	..	8	1	6	2	2	..	6	1	5	..	2	..	..	..	..	..	2	..	32	4	36
China	7	1	25	3	100	4	193	3	190	1	192	3	168	2	193	..	210	..	531	..	1,809	17	1,826
Japan	..	..	1	..	1	..	1	..	1	..	1	..	1	..	..	..	..	..	..	..	6	..	6
Syria	2	5	14	4	26	7	21	8	15	6	3	7	8	3	5	3	3	2	5	6	102	51	153
Egypt	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	3
Argentina	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	3
Brazil	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	3	..	3
Chile	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1
Mexico	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Peru	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
United States	15	..	66	16	36	10	39	10	40	11	35	11	40	5	21	3	18	2	25	6	335	74	409
Uruguay	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1
Totals	164	34	716	91	815	124	833	121	745	119	597	123	537	94	455	90	395	51	893	146	6,150	993	7,143

QUINQUENNIAL CENSUS.

The publication of the statistical tables compiled from the results of the census of October, 1916, has been delayed somewhat owing to the impossibility of setting aside permanent officers for this work and the consequent necessity for practically the whole of the writing, reading, classifying, sorting, and counting of the cards being entrusted to temporary female clerks, none of whom had had any previous experience of statistical work. However, the compilation of the tables is now well under way: four parts have already been published, two more are in the Printer's hands, and several others are in an advanced stage of preparation.

AGRICULTURAL AND PASTORAL STATISTICS.

This work was again carried out successfully for the 1916-17 season, and the compilation of the 1917-18 statistics is going ahead smoothly. It has, however, been found impossible to have the statistics ready for publication as early as was hoped when the new system was instituted, the delay being due to the enormous amount of additional war work thrown on the sub-enumerators in their capacity as police officers.

Along with this season's statistics information as to breeds of cattle, horses, and pigs has been collected for the first time, and the results when published should be of interest. It is proposed that similar information should be collected every third year.

INDUSTRIAL AND ECONOMIC INQUIRIES.

The appointment of Mr. G. W. Clinkard to the vacant position of Compiler in Charge of Industrial and Economic Statistics has enabled the branch, which had practically been marking time for over a year, to proceed with the collection and compilation of statistics of wholesale prices. Current wholesale prices are now published regularly in the Monthly Abstract of Statistics, along with the usual retail prices and index numbers. Much valuable information has also been obtained for back years, and is now being prepared for publication in the form of index numbers to supplement the index numbers of retail prices.

The Department's cost-of-living statistics are of considerable interest and are largely quoted. They are invaluable as giving official and reliable information as to the trend of prices, especially in view of the general rise in prices of commodities during the war period.

It is hoped soon to proceed with the regular collection and publication of information as to wages and unemployment, two branches of economic inquiry in which practically nothing has hitherto been attempted in the Dominion. As a beginning a series of tables in connection with unemployment will be compiled from the results of the census of 1916.

PUBLICATIONS.

The improvements effected in recent issues of the New Zealand Official Year-book have been maintained and extended in the 1917 number. An important innovation in this book is represented by the inclusion of a special article by Mr. J. W. Butcher, Chief Compiler of this Office, on cancer mortality in New Zealand, a subject of peculiar interest at the present time in view of the continued increase in the number and proportion of deaths attributable to this cause. It is hoped to continue the system of publishing, either in the Year-book or separately, short treatises on sociological and economic matters of general interest.

The results of the census of industrial manufacture taken in 1916 are also given in the Year-book in a handier form for general information and reference than that adopted for past censuses, this being in conformity with the general policy of the Office in regard to its publications.

A useful addition to the section of the book relating to agriculture and live-stock is a map prepared by Mr. J. P. Black, Compiler in Charge of Agriculture and Pastoral Statistics, showing at a glance the relative density of live-stock in the various counties of the Dominion.

The four volumes of Statistics of New Zealand, covering the statistics of the calendar year 1916 and the financial and agricultural year 1916-17, were on much the same lines as in previous years. They appeared somewhat later than usual, mainly on account of the enormous pressure of work of this Office and the Printing Office. Volumes I and II of 1917 are now well under way, but it is feared that Volume III will be considerably delayed on account of the late meeting of Parliament and the probable inability to obtain much of the necessary statistical matter from other Departments at the usual time.

The Monthly Abstract of Statistics, which presents the latest statistical information in a handy form for reference, continues to increase its circulation, and is largely referred to and quoted from, especially by those interested in statistics of prices, which are now published in the Abstract in lieu of the *Journal of the Department of Labour*, which ceased publication about twelve months ago. Unfortunately, another set of useful tables—those relating to monthly exports of principal commodities—has had to be omitted from the Abstract for the duration of the war at the request of the Imperial authorities.

Another issue of the Municipal Handbook, covering the financial year 1916-17, has been published.

GENERAL AND SPECIAL STATISTICAL WORK.

The general work of the Office has been kept up to the standard of previous years, with improvements where considered necessary or desirable, but without any permanent additions worthy of notice, with the exception of the collection and compilation of the financial statistics

of Hospital and Charitable Aid Boards and the institutions under their control, under a new and uniform system of commercial accounting inaugurated by the Public Health Department in 1916-17.

Quarterly censuses of stocks of coal are still taken regularly; and in addition special censuses of stocks of oil, stocks of turnip, swede, and rape seed, and stocks of tinplates, iron and steel bars, &c., have been collected during the past year.

MALCOLM FRASER,
Government Statistician.

The Under-Secretary, Department of Internal Affairs, Wellington.

II. REPORT OF THE REGISTRAR-GENERAL.

Registrar-General's Office, Wellington, 10th August, 1918.

I GIVE hereunder a statement of the business transacted by this Department during the last five years. This shows a marked falling-off in marriages during the last two years:—

Year.	Births.	Deaths.	Marriage Notices received and Certificates issued.	Marriages solemnized.	Marriages by Registrars (included in previous column).
1913	27,935	10,119	9,132	8,846	1,547
1914	28,338	10,148	9,589	9,326	1,765
1915	27,850	9,965	10,620	10,064	1,861
1916	28,509	10,596	8,450	8,231	1,729
1917	28,239	10,528	6,687	6,464	1,589

I also give a statement showing the number of marriages of Natives solemnized during the same period under the Native Land Act, and the number of Maori registrations effected under the regulations relating to the registration of births and deaths of Maoris:—

Year	Maori Births.	Maori Deaths.	Maori Marriages.
1913	586 (10 months)	412 (10 months)	241
1914	857	723	221
1915	968	786	178
1916	1,020	761	197
1917	1,235	729	205
			(approximate)

In addition to the business referred to above, the registration of medical practitioners, dentists, and officiating ministers is undertaken by the Department, and a considerable amount of searching is done free of charge for other Government Departments. The number of searches for the last twelve months made by the Head Office alone, under various headings, is as follows: Pensions Department—Old-age and widows', 3,070; war, 4,357; National Provident Fund, 5,336; Labour Department, 1,587; Education Department, 963; Defence Department, 5,714; other searches (for public, &c.), 2,019. Certificates issued—Ordinary, 6,630; soldiers', 12,000. Total searches, &c., 41,676.

The war has added a considerable amount of work to this office in the way of searches for births and marriages for war-pension purposes, and also for claiming separation and children's allowances from the Defence Department. The number of searches made for the last-named Department from April, 1916, to date amounts to close on thirteen thousand, and the number of searches for war-pension purposes is assuming very large proportions, comprising more than half of the searches now undertaken for the Pensions Department.

In addition to this work the Department has undertaken the compilation of a register of deaths of members of the New Zealand Expeditionary Forces and others which occurred while out of New Zealand on service in some capacity in connection with the present war. This register is now practically up to date.

The revenue of the Department, though steady for several years, shows a decided advance for 1915-16, a severe drop for 1916-17, and a further drop for 1917-18. This is due to the decrease in marriages, the Department's chief source of revenue.

The revenue for the last five financial years was as follows:—

1913-14.	1914-15.	1915-16.	1916-17.	1917-18.
£14,355	£14,163	£16,865	£13,684	£12,450

It was not until 1916 that the expenditure of the Registrar-General's Office was kept separately. The expenditure for the year 1916-17 was £9,175, and for the year 1917-18, £9,176.

W. W. COOK, Registrar-General.

The Under-Secretary, Department of Internal Affairs, Wellington.

III. REPORT OF DOMINION ANALYST AND CHIEF INSPECTOR OF EXPLOSIVES.

Dominion Laboratory, Wellington, August, 1918.

The character of the analytical work is very similar to that of the previous year, but the number of samples received increased by 680, and reached a total of 3,874.

The following table shows the principal Departments, in alphabetical order, for which work was undertaken, and the number of samples examined for each:—

Customs	...	...	...	...	...	...	165
Defence Forces	...	...	...	...	...	...	102
Explosives Branch	...	...	...	...	...	...	121
Munitions Supplies Department	...	...	...	...	...	...	92
Justice (Police)	...	...	...	...	...	...	50
Military camps and medical service supplies...	...	...	...	...	...	...	140
Mines—							
Geological Survey	...	...	...	...	...	...	93
Head Office	...	...	...	...	...	...	35
Inspectors	...	...	...	...	...	...	97
Prospectors	...	...	...	...	...	...	159
Post Office	...	...	...	...	...	...	25
Public Health—							
Auckland District	...	...	...	...	...	...	13
Christchurch District	...	...	...	...	...	...	24
Dunedin District	...	...	...	...	...	...	20
Wellington District	...	...	...	...	...	...	2,552
Public Works	...	...	...	...	...	...	13
Railways	...	...	...	...	...	...	27
Other Departments	...	...	...	...	...	...	28
							3,756
Total Government Departments	...	...	...	...	...	...	3,756
Public bodies and Crown Commissioners	...	...	...	...	...	...	47
Research (Dominion Laboratory)	...	...	...	...	...	...	21
Miscellaneous samples	...	...	...	...	...	...	50
							3,874
Total samples analysed	...	...	...	...	...	...	3,874

WAR.

It will be seen that the war has been directly responsible for a considerable amount of work. Foodstuffs from the military camps, and medical service supplies, have been periodically examined, and found on the whole satisfactory. Twenty-two winchesters of tincture of opium were prepared from opium seized by Comptroller of Customs and forwarded to the medical stores. Forty-eight samples of leather, and coals representing ten shipments, were analysed for the Military Supplies Purchase Board. Eighty-two consignments of scheelite were assayed for tungstic acid prior to shipment on behalf of the Imperial Government. An extended investigation of a confidential nature was carried out at the request of the Hon. Minister of Defence.

CUSTOMS.

The samples submitted by this Department were of the usual miscellaneous character, and call for no special comment.

JUSTICE.

The work for the Police Department has been almost entirely confined to liquors. Six whiskies were under the required strength, and three brandies were slightly deficient. Two samples of hop-beer contained more than the permitted amounts of proof spirit. Some Chinese liquors seized by the police were strongly alcoholic.

There were only three medico-legal cases, in two of which no evidence of poisoning was found, while in the third death was shown to be due to carbon monoxide, through inhalation of coal-gas.

MINES.

The Geological Survey forwarded twenty-three coals (including three from Fiji), fifty-three limestones, two rocks for complete analysis, two for phosphate, and a few for various metals.

At the request of the Director several clays were examined for clarifying-powder, in order to find a substitute for fullers' earth imported and used in the clarifying oils. The best of the clays were submitted to the New Zealand Glue Company, Woolston, who reported very favourably on some of them.

A series of samples collected by the Inspecting Engineer of Mines from the New Zealand Iron-ore Smelting and Manufacturing Company, New Plymouth, were interesting, though the iron produced was deficient in silicon and rather hard for good pig.

Numerous analyses of mine-airs were made for the Inspector of Mines.

The most promising of the prospectors' samples came from an antimony lode at Langdon's Creek, Reefton. In addition to sulphide of antimony it contained highly payable amounts of gold.

The occurrence of wolfram, though only in a small "pocket," is noted at Waipori.

POST OFFICE.

Samples analysed for the Post Office comprised beeswax, copper-clad steel, mercury, paraffin-wax, sulphuric acid, zinc.

PUBLIC HEALTH.

Two-thirds of the samples examined in the laboratory came through the Public Health Department. They consisted of bacon, beer, non-intoxicating beverages, brandy, butter, cider, coffee, coffee and chicory, cocoa, cordials, cream, cream of tartar, curry-powder, egg-preservers, fish, flour, food-preservatives, canned fruit, gelatine, honey, ice-cream, infant and invalid foods, jam, lysol, margarine, milk, olive-oil, patent medicine, pepper, pork and beans, sago, sausages, sugar of milk, water, whisky, wine tonics.

Three of the butters contained an excess of water. Several cordials were coloured contrary to regulations, and three samples of lime-juice were below the required strength. The examination of several parcels of smoked fish revealed that it is a common practice to smoke the fish in a very perfunctory way, and then wash with a solution of annatto to give the appearance of a thoroughly cured article. This constitutes a fraud on the public, and, in my opinion, should not be allowed.

A sample of flour sold for use by the troops was evidently bleached with nitrogen peroxide. Bleaching is contrary to regulations, being both unwholesome and unnecessary. An inspection of the mill disclosed the usual apparatus for the purpose, and confirmed the chemical evidence.

Very few infants' and invalids' foods were examined during the year. The labels on such foods are in many cases misleading, and a thorough investigation of all on the market would appear to be warranted.

MILK.

The number of milk-samples taken under the Sale of Food and Drugs Act, 1908, was 2,222—almost exactly double that of the previous year.

Wellington City.—The milk inspector appointed by the City Council has been active during the year, and 1,771 samples were taken during the period covered by this report. Of these, twenty were watered, twenty-seven seriously skimmed, three preservatized, thirty-three contained excessive amounts of dirt, seventy-four were decidedly stale, and thirty-nine slightly under the standard. Constant inspection, and the imposition of salutary fines for breaches of the regulations, have checked watering and skimming, as compared with former years. It would also appear that more care is exercised in handling milk, for although the present proportion of milks with excessive dirt—2 per cent.—is still high, last year over 7 per cent. of the samples submitted were unsatisfactory in this respect. Stale milks are in much the same proportion as in other years, indicating insufficient cooling directly after milking and during conveyance, and also undue delay in distribution. From a health standpoint staleness and dirt constitute the most serious defects in the city supply.

Other Districts.—There was a high percentage of watered samples in the milk received from Taranaki, Hawke's Bay, and the country towns of Wellington Province. The following table summarizes the results from these districts:—

	Samples received.	Seriously skimmed.	Watered.	Slightly below Standard.	Dirt.
Awapuni Camp	1	..	..	..	..
Blenheim	13	..	..	1	1
Carterton	11	..	..	..	..
Clive	1	..	..	..	..
Dannevirke	22	..	..	1	1
Eltham	2	..	..	..	..
Featherston	11	1	..	1	..
Featherston Camp	48	1	2	3	1
Feilding	4	..	1	..	..
Greytown	5	..	..	..	..
Gisborne	27	..	..	..	6
Hutt (Lower)	26	..	..	3	..
Hawera	11	..	..	3	..
Hastings	15	1	4	..	1
Masterton	9	..	..	..	..
Marton	3	..	..	..	..
Nelson District	35	1	1	2	..
Napier	37	2	5	..	4
Petone	41	2	4	3	1
Papakura, Hawke's Bay	2	1	..	..	..
Patea	2	..	..	..	..
Palmerston North	24	1	3	3	2
Stratford	8	..	3	..	..
Taihape	3	..	..	..	..
Trentham Camp	4	..	..	..	..
Taranaki Hospital District	50	1	1	..	3
Wairoa	3	..	..	1	..
Woodville	10	..	..	2	2
Waipukurau	5	..	..	..	2
Waipawa	3	..	..	..	..
Wanganui	16	1	2	..	..
	451	12	26	23	24

The receipt of samples regularly throughout the year has enabled the following table to be prepared showing the average composition of the milk each month. The fat-determinations were made by the Leflman-Beam method. The solids not fat were determined by subtracting the fat from the total solids obtained by direct weighing.

Monthly Average Composition of Unwatered Milk from Wellington and Surrounding Districts for Year 1917.

Month.	Number of Samples.	Fat.	Solids not Fat.
January	169	3.96	8.92
February	153	4.17	8.90
March	142	4.25	9.02
April	123	4.33	9.10
May	164	4.15	9.11
June	129	4.16	9.16
July	124	3.91	9.15
August	161	3.97	9.02
September	147	3.92	8.85
October	155	3.85	9.18
November	170	3.93	9.20
December.. .. .	91	4.05	9.09
Samples for year	1,728	4.05 (average)	9.06 (average)

The following table, which is inserted for comparison, gives the average composition of milk supplied to the Aylesbury Dairy Company, London, as published in *Dairy Chemistry*, by H. D. Richmond (2nd edition). The fat-determinations were made by the Gerber method, and the solids not fat derived by calculation from the percentage of fat and the specific gravity as determined by a lactometer. To allow for the difference in seasons in the Northern and Southern Hemispheres, July in England is taken as corresponding with January in New Zealand, August with February, and so on; and the year is assumed to commence with July.

Mean Monthly Averages of Milk, 1897-1913 (Aylesbury Dairy Company).

Month.	Fat.	Solids not Fat.	Month.	Fat.	Solids not Fat.
July	3.63	8.77	January	3.78	8.97
August	3.75	8.76	February	3.72	8.96
September	3.84	8.85	March	3.68	8.96
October	3.92	8.94	April	3.65	8.91
November	3.97	8.96	May	3.57	8.95
December	3.90	8.96	June	3.52	8.91
			Average	3.74	8.91

The Wellington table exhibits greater fluctuations than Richmond shows, and the drop in quality in the early spring is much more pronounced. The Wellington average, too, is higher. But before satisfactory comparisons can be made the local data would need to cover a period of several years to eliminate seasonal differences.

Plunket Nurse.—Analyses of human and humanized milk are made when required, and have proved of great assistance to Plunket Nurses in their work.

OTHER DEPARTMENTS.

Several lubricants and boiler-waters were examined for the Railway Department, and a few samples of miscellaneous character for the Public Works and Marine Departments, and for the Lands and Survey.

A supply of pure silver nitrate was prepared for the Government Printing Office.

RESEARCH.

The investigation on the recovery of kauri-gum from swamp peat is being continued. An experimental plant designed to treat 50 lb. lots has given satisfactory results, and justified the trial of the process on a commercial scale.

Some preliminary results of a research on the inflammability of New Zealand coaldusts were published in pamphlet form by the Mines Department, and are being widely circulated in the coal-mining districts.

Other research work has been discontinued until working-conditions become more normal.

REPORT ON THE ADMINISTRATION OF THE EXPLOSIVE AND DANGEROUS GOODS ACT, 1908, FROM 1ST JULY, 1917, TO 30TH JUNE, 1918.

Legislation.—During the period under review an amendment to the War Regulations was gazetted dealing with the safe custody of high explosives.

Authorization of New Explosives.—No new explosives were authorized for importation into, or for manufacture, storage, and sale in, New Zealand during the year.

Manufacture.—The number of factories licensed for the manufacture of explosives remains the same as last year, viz. :—

- (1.) Sabulite (N.Z.) Limited, at Waikumete, for the manufacture of sabulite.
- (2.) H. F. Bickerton, at Wainoni Park, Christchurch, for the manufacture of fireworks.
- (3.) Colonial Ammunition Company, at Mount Eden, Auckland, for the manufacture of small-arms ammunition.

Importation.—The condition of imported explosives was on the whole satisfactory, but a number of packages of blasting-powder which arrived early in the year had been broken in transit, and required to be repaired before being allowed to go into magazines. The quantities of explosives imported into New Zealand during the year were as follows :—

Gelignite	...	...	...	...	...	...	...	lb.
Gelatine dynamite	...	...	...	...	...	...	...	357,500
Quarry monobel	...	...	...	...	...	...	...	700
Quarry stomonal	...	...	...	...	...	...	...	18,000
Viking powder	...	...	...	...	...	...	...	2,500
Farm powder	...	...	...	...	...	...	...	145,000
Blasting-powder (grain)	...	...	...	...	...	...	...	25,000
„ (pellets)	...	...	...	...	...	...	...	116,250
„ (sporting)	...	...	...	...	...	...	...	211,600
	...	...	...	...	...	...	...	1,000
Total	...	...	...	...	...	...	...	877,550
Detonators	...	...	...	...	...	...	...	1,510,000
Fog-signals and fireworks (packages)	...	...	...	...	...	...	...	1,384

Storage.—The total number of magazine licenses issued for the year was 158. Of these, forty-two were for quantities up to 300 lb., fifty-four for quantities between 300 lb. and 2,000 lb., and sixty-two for quantities between 2,000 lb. and 20 tons.

Government magazines available for public use remain the same as last year—viz., three—at Wellington, Greymouth, and Dunedin.

In Dunedin the new magazines recently erected at Wingatui are now in use, and are proving much more satisfactory for the storage of explosives than the old magazines at Port Chalmers and Anderson's Bay.

Owing to shortage of material the new magazines being erected at Greymouth will not be ready for occupation for some considerable time.

Packing and Conveyance.—The number of licenses issued during the year to carry explosives was 322.

Condemned Explosives.—On the 27th August, at Wellington, ninety-nine cases of Globe gelatine were condemned on account of exudation of nitro-glycerine, and destroyed by taking out to sea and dumping. On the 8th September, at Greymouth, 470 cases of super-excellite, which had been under observation for some time, were finally condemned on account of containing an excessive percentage of moisture, and were destroyed by dumping at sea. On the 4th December, at Tauraroa (Whangarei), a quantity of explosives was examined, and 25 lb. of gelignite was condemned on account of exudation of nitro-glycerine, also 20 lb. carbonite on account of absorption of moisture. The gelignite was destroyed by burning, and the carbonite by spreading over swampy ground.

Licensed Premises.—During the year 613 licenses were issued in respect of premises licensed to sell explosives and to keep explosives for sale in quantities not exceeding 100 lb.

Accidents.—No accidents occurred during the year in the manufacture, storage, or transport of explosives, as defined under Part I of the Act.

Legal Proceedings.—I have to acknowledge the valuable assistance afforded by the Police Department in investigating a number of cases of persons selling and storing explosives without a license from this Department.

Inspection and Testing.—Inspections have been made during the year of public magazines, licensed factories, licensed magazines, licensed premises, and conveyances. Explosives that had deteriorated to such an extent as to become dangerous were destroyed by Inspectors. About 100 samples of commercial explosives, and 110 samples of cordite and exploders for the Defence authorities, have been tested for stability by the heat and other tests.

General.—It will be noted that the quantities of explosives imported into New Zealand during the period were considerably lower than those imported during the previous year. This is mainly due to shipments arriving just before and after the period under review.

J. S. MACLAURIN,

Dominion Analyst and Chief Inspector of Explosives.

The Under-Secretary, Department of Internal Affairs, Wellington.

IV. REPORT OF THE DIRECTOR, DOMINION MUSEUM.

Dominion Museum, Wellington, 19th August, 1918.

THE MUSEUM AND THE WAR.

THE war affects the Museum adversely in postponing the erection of a much-needed new building. Not only do the existing collections run the risk of fire in the present wooden building, but they are in large part inaccessible to the public owing to lack of space. It has become necessary during the year to place in store the large and attractive Maori canoes, in order to make room for war trophies coming to hand. By its failure to provide fire-proof storage and exhibition space the Museum loses many valuable specimens that would otherwise come to it. I feel it my duty to repeat the remarks I made on this subject in 1916: "The existing building is not only slowly decaying, but is unsuitable in design and lighting arrangements for the proper display of any collections, and is totally inadequate in floor-space for the existing material. So long as it is in use the Museum must not only come far short of its full usefulness to the present generation, but is losing many opportunities of becoming the storehouse of material which will be unobtainable in the future. As a national institution, visited by most of the travellers to these shores, it must surely undo much of the reputation for enlightenment and efficiency which the Government of the Dominion has so successfully created. It may therefore be questioned whether the postponement of a new building is a true economy."

BOARD OF SCIENCE AND ART.

The third annual meeting of the Board was held at the Dominion Museum on the 30th January, 1918, under the presidency of the Hon. G. W. Russell, Minister of Internal Affairs. The matters dealt with more particularly affecting the Museum were as follows:—

Collections Committee.—The report of the Collections Committee was adopted. The Hon. Mr. Russell stated that while it was undesirable to spend much money upon collection during the war, any important collections would receive special consideration.

Historical Committee.—The report on historical collections was adopted. In accordance with a suggestion made by Mr. S. Percy Smith, it was resolved that a register of early colonists be undertaken.

Scientific and Technological Library.—A resolution of the New Zealand Institute affirming that one of the most important steps in the direction of encouraging the application of science to industry is the foundation of a scientific and technological library in the Dominion, and urging the Government to take immediate steps to provide such a library, together with a proposal by Dr. Thomson for a multiple-card-index system, were approved and referred to the Publication Committee for action.

Staff.—The classification of the staff by the Public Service Commissioner was considered, and various alterations recommended.

Secretary: Dr. J. Allan Thomson was appointed Hon. Secretary to the Board.

PUBLICATIONS OF THE BOARD OF SCIENCE AND ART.

During the year two new serial publications were authorized and issued—viz., the *New Zealand Journal of Science and Technology*, issued six times per annum, commencing with the first number in January, 1918, and the "Bulletin of the Board of Science and Art," issued as occasion demands. Of the latter Bulletin No. 1 was issued in August, 1918, and is entitled "New Zealand Brown Coals, with Special Reference to their Use in Gas-producers and for Low-temperature Distillation," by H. Rands, M.A., B.Sc., and W. O. R. Gilling, M.A., B.Sc., National Research Scholars, Education Department.

STAFF.

No changes in the number or personnel of the staff were made during the year with the exception of the appointment of an additional typist in the person of Miss Thomson on the 6th June, 1918. As in previous years, Mr. Tomlinson was engaged during the parliamentary recess as general assistant. Miss Mestayer was engaged for part-time work during September, October, and November to work on the Mollusca collections.

As in previous years, Mr. E. Best has devoted his whole time to ethnological research on the Maori, and Miss Castle has been wholly occupied with the care of the insect collections. Reports by these officers appear below. Mrs. W. Turton has been engaged exclusively on the National Historical Collection, including the formation of a series of photographs of officers and men who have won distinction in the Great War. Mr. Phillippus has been occupied in library work and on zoological collections, especially fish and reptiles.

Owing to the increase of editorial and other work falling on the Director a larger share of curatorial and general museum work has fallen on Mr. McDonald, who has virtually acted as curator of exhibits. A report by this officer appears below.

During the autumn of 1917 I visited the majority of the aboriginal rock-shelters of Canterbury and Otago, and prepared a report on the ancient pictographs, and on historical monuments in general. As historical monuments come under the purview of the Scenery Preservation Board, the report was referred to the Department of Lands and Survey, who have undertaken to bring some desirable amendments in the Scenery Preservation Act after the war. During this visit opportunity was taken to make an extended series of observations on the geology of South Canterbury, and to collect a large series of specimens.

Pressure of work has prevented much progress being made with the classification of the Tertiary Brachiopoda for the Geological Survey Department. Since the last annual report the

following papers have been published in scientific journals: "Records of New or Rare Fish from New Zealand Waters"; "Is a Sardine Industry practicable in New Zealand?" "On the Age of the Waikouaiti Sandstone, Otago, New Zealand"; "The Genus *Boucharadia* (Brachiopoda) and the Age of the Younger Beds of Seymour Island, West Antarctic."

OFFICE.

Owing to the business arrangements as well as the editing of the *New Zealand Journal of Science and Technology* being carried out in the Museum there has been a large increase in office-work, which has been met by the appointment of an additional typist and the installation of a dictaphone. The latter has proved satisfactory under the conditions prevailing, for although more cumbersome in some respects than the employment of a stenographer and typist, it has the advantage of being available at all times and at the shortest notice. Owing to the increase of staff the office accommodation has become very congested.

NATIONAL HISTORICAL COLLECTION.

The appeal for material for a National Historical Collection has been issued to a further number of relatives of early settlers, but in the majority of cases without any tangible result. Nevertheless a considerable amount of historical material has been obtained in this manner, including early books, newspapers, maps, views, and portraits, autographs, letters, account books, and diaries. Since the first issue of the appeal the number of entries in the register, including the war section of the Museum referred to below, has risen from 344 to 858. The two most valuable historical documents comprise the official letter-book of James Busby, British Resident from 1833 onwards, and a manuscript history of New Zealand by the same, both presented by his son Mr. William Busby, of Tokomaru Bay. These documents throw new light on the events which led up to the Treaty of Waitangi, and are of the first importance. Another interesting manuscript is a history of the Pai Mariri or Hauhau religion, purchased from Mr. W. F. Gordon, of New Plymouth. A valuable donation to the historical library, made by the committee of the Dunedin Athenæum, consists of a large number of early reports of the Provincial Legislatures. Other rare New Zealand books have been donated by Mrs. D. Scott, Miss McGlashan, Messrs. W. D. Farquhar, L. Stowe (C.M.G.), J. A. Wilson, the Lower Hutt Borough Council, and the Defence Department.

Other accessions of interest include the plates used for printing the stamps of the Great Barrier Island pigeon service, donated by Mr. H. Bolitho, of Devonport; and a large number of early maps, presented by Mr. C. A. Ewen. An effort was made through the High Commissioner to trace and secure the manuscript of Thomas Brunner's journal, but it was discovered that the original was never sent to England, the copy printed in the *Journal of the Royal Geographical Society* being taken from a printed copy printed in Nelson in 1884 by Charles Elliott, printer, as recorded in Hocken's Bibliography. The original manuscript, if still extant, is probably still in New Zealand.

The decision of the Board of Science and Art to compile a register of early colonists will, it is hoped, keep the National Historical Collection before the public during the coming year.

WAR SECTION.

During the year considerable progress has been made in the collection of materials illustrating New Zealand's part in the Great War. By co-operation with the Defence Department there have been obtained sets of cap and collar badges of the Territorial units and of the 1st to the 34th Reinforcements of the New Zealand Expeditionary Force, copies of the magazines published on the transports by the Reinforcements, and a number of war trophies, comprising trench mortars, bomb-throwers, machine guns and parts, a field gun, and fragments of shells. Of special interest are a large pontoon by which the Turks crossed the Suez Canal, and a sextant used by the Germans who escaped from Motuihi Island, and made upon the island. Through the High Commissioner there have been obtained samples of the Military Cross, the Distinguished-conduct Medal, and the medals for Bravery in the Field and for Meritorious Service, a large number of official lantern-slides and photographs of the New Zealand Expeditionary Forces, and a set of propaganda literature issued by the British Government. In addition the High Commissioner is arranging for the collection in London of earlier transport magazines not represented in the collection, and for war trophies generally.

A collection is being made of the photographs of officers and men who have gained distinctions in the war, and already some 355 have been obtained. The exhibition of these has proved of great popular interest, and has given general satisfaction to the relatives of the soldiers in question. The portraits have come from all over New Zealand, and from Whangarei in the North to Invercargill in the South, showing that the collection entirely merits its designation of "National." Special thanks are due to Mr. F. P. Andrew, of Wellington, who has presented forty photographs, and has kindly offered to make any copies needed for the collection.

ETHNOLOGICAL COLLECTIONS.

Although the necessity for economy caused by the war has prevented extensive purchases, the Maori collections show under the circumstances a very satisfactory increase. Of special interest is a tree-stump felled by stone tools, dredged from the Ohinemuri River by the Pacroa Gold-extraction Company, and by them donated to the Museum. This stump has been described and figured by Mr. E. Best in the *New Zealand Journal of Science and Technology*, Vol. 1, No. 3, pp. 139-41. A large series of weapons, stone implements, and cloaks were bequeathed by Mrs. Elizabeth Hunter Blair, of St. Mary's, Birnau, who also bequeathed a very fine writing-table inlaid with New Zealand timbers and ornamented by Maori patterns. Models of a few

rare types of Maori artifacts not represented in the collections were specially made by the old Natives still retaining the ancient knowledge, and purchased. A small series of Maori skulls, of which a large collection for study purposes is urgently desirable, was presented by various Government officers. The exploration of some old Maori store-quarries in D'Urville Island by myself yielded a few interesting specimens of *toki* in process of manufacture. Maori history is represented by a flag used in the Maori wars, and presented by Mr. F. J. Hayman, of Tokaanu. Purchases were few, but include a very fine *heitiki* from Taranaki.

The most interesting foreign articles are fabrics from Polynesia presented by the trustees of the late Mr. A. H. Turnbull, including a Tongan sleeping-mat which was originally presented to Captain Cook.

NATURAL-HISTORY COLLECTIONS.

The chief departments in which most progress has been made are those on which Museum officers are working—viz., insects, fish, mollusca, and geology. The insect collections are noted below on Miss Castle's report.

During a trip to Stephen Island in June, 1918, I obtained several additional specimens of a frog, the first discovery of which was made by Mr. H. Hamilton in 1916. This frog has proved to be a new species of the endemic genus *Liopelma*, and is being described by Mr. R. MacCulloch, of the Australian Museum, Sydney. At the same time opportunity was taken to collect some lizards from Stephen Island and the Trio Islands. Those from the latter locality appear to represent a new species.

Mr. Phillipps has devoted considerable time to the fish collections, making a full index of the species known from New Zealand, and the synonymy and a departmental register of the fish collections. Opportunity has been taken to reject many old unlabelled and indifferent specimens of common species, and to fill the gaps in the spirit collections by fresh specimens. There are still many rare species waiting identification. New or rare fish are continually being found on the New Zealand coasts by fishermen, few of which ever find their way into museums, and an endeavour is being made to keep in touch with all the local fishermen.

Miss Mestayer has kindly devoted considerable time and care to the molluscan collections, in addition to the work for which she was engaged, and considerable progress has been made. All additions to the former departmental register have been made by cards, the number of entries now being 1,075. The type collections have all been separated, carefully marked, and placed apart. The exhibition collection, now confined to the larger species, such as can be seen in exhibition cases, have been relabelled in accordance with the most recent nomenclature. The reference collection available for students to handle now numbers some 540 species, including a few Tertiary fossils, and it is hoped to extend it greatly during the coming year. In the case of doubtful or variable species, a further number of specimens from other localities are being set aside permanently as a reserve collection. The additions to the various collections have been made possible by the donation of a large series collected at Kapiti Island by Mr. J. C. Andersen, and further collecting by myself from the same locality, and from Wellington, French Pass, Lyttelton, Oamaru, and Dunedin during visits to these localities. In addition Miss Mestayer has donated series to fill gaps in the reference collection.

Of geological specimens a large series of fossils was collected by myself during the autumn of 1917 from Tertiary beds in South Canterbury and North Otago. These were submitted to the late Mr. H. Suter for identification, and the lists will be published in a forthcoming palæontological bulletin of the Geological Survey Department. During Easter of 1918 I obtained, in company with Mr. G. Utley, a large series of Tertiary fossils from the South Wairarapa district, which have as yet been only partially determined.

OFFICERS' REPORTS.

Mr. McDonald reports as follows:—

Bulletin Illustrations and Photographic Section.—The preparation of illustrations for the bulletins in course of preparation by Mr. E. Best has suffered many interruptions through calls to more urgent work. It was anticipated that the illustrations for Bulletin No. 5, "Maori Pa and Fortifications," would have been completed, but the time available has permitted only of the preparation of thirty-five. Many of the blocks have been prepared by the process-engraving department at the Government Printing Office from the illustrations sent in during last year, and proofs of these have been received.

Illustrations and photographs have been collected for use in the bulletin on Maori canoes, and these will have to be dealt with as soon as the pa and fortification series is completed.

In the photographic section a considerable number of prints have been prepared from the negatives in hand. These have been mounted and placed in the classified series. As in previous years, opportunity has been taken to make negatives of drawings, prints, and photographs of historical interest. Many of the photographs of officers and men awarded distinctions while on active service have had to be returned to relatives, and negatives of these have been made and prints prepared for exhibition.

The daily seismograph records taken at the Hector Observatory have also been regularly developed for the Government Astronomer.

Library.—Fifteen cases of scientific books and sundry publications were received during the year from the Smithsonian International Exchange Service at Washington, U.S.A.—one exclusively for Victoria College and one for the New Zealand Institute. The contents of thirteen cases, numbering 1,550 packages, were distributed by post and parcel delivery to recipients throughout the Dominion. A number of historical works acquired by purchase in the auction-room have been added to the New Zealand section. Scientific works specially required for museum-work have been purchased in London through the High Commissioner's Office, and despite the danger of transit in the war zone have reached us in safety.

A few publications have been added to the art section. This portion of the library has been freely used by many artist members of the Academy of Fine Arts, as well as by art students. The opportunity to consult works, technical as well as historical, is greatly appreciated.

A number of volumes of scientific and historical interest have been contributed to the library by other Departments of the Public Service, and thanks are due to the Department of Internal Affairs, Geological Survey, Education, Defence, and Tourist and Health Resorts for their generous gifts.

Several works of interest to students of New Zealand history have been presented by Messrs. J. H. Farquhar and J. W. McDonald, and by Miss Christie, of Sydney. The Returned Soldiers' Association has donated from the estate of the late Colonel W. B. Rhodes six volumes of the "Encyclopædia Edinensis," published in 1872; "History of France" (three volumes); "History of England" (two volumes); and a rare volume of Australian views engraved on sheet copper by a convict named Preston, and published in 1820. The Rev. D. D. Westervelt, of Honolulu, has forwarded two of his recent works on the mythology of the Pacific—viz., "Hawaiian Legends of Ghosts and Ghost Gods," and "Legends of Volcanoes." The Ordinances and Acts of the Provincial Governments of 1840 to 1860, received from the Dunedin Athenæum Committee, have been placed with the National Historical Collection. Books and publications have been duly recorded and card-indexed as they came to hand.

Museum Galleries.—No changes of any moment have been made in the arrangement of exhibits. Acquisitions during the year have not been sufficiently large to necessitate alterations, and space for smaller specimens has been found in the existing cases. The Maori garments and weapons received from the estate of the late Mrs. Hunter Blair, of Edinburgh, have been temporarily stored in the Sydney Street building. The inlaid writing-table only has been placed on exhibition. This unique piece of craftsmanship may safely be said to be the finest example of cabinetwork ever produced with New Zealand woods. A few Maori skulls in an excellent state of preservation were received from the Geological Survey Department. A few small examples of Maori craftsmanship and about thirty artifacts of Melanesian origin were purchased in the auction-room, and help to fill out our collections. A collection of boomerangs, nullah-nullahs, spears, clubs, shields, and other examples of Australian aboriginal workmanship, numbering over eighty specimens, purchased from Mr. Clement Wragge, late Government Meteorologist in Queensland, have been placed on exhibition in the main gallery. Eleven pieces of tapa cloth, bequeathed to the Museum by the late Thomas Trood, Esq., Acting British Vice-Consul at Apia, Samoa, have been received and stored until such time as space is available for exhibition.

A number of paintings, drawings, and photographs hanging on the walls of the stairway leading to the library and upper galleries were removed to provide space for the frames containing the photographs of officers and men of the New Zealand Expeditionary Force who have gained distinctions while on active service. Frames containing the portraits of three or more sons enlisting from one family have been given a place on the walls, and, in addition, a large number of photographs taken by the official photographer with the New Zealand Expeditionary Force on the western front have been framed and placed on view. We shall very shortly be faced with the difficulty of finding space for the photographs coming to hand, but with the rearrangement of exhibits which must be made as soon as captured war material arrives it will probably be possible to find space for the entire collection on the ground floor. Lantern-slides of the official war photographs received from the Department of Internal Affairs are being stored for use as may be required.

In the Museum Report of 1915-16 it was recorded that a number of Maori carvings had been treated in solution as a preventive against the wood-boring beetle. It is satisfactory to note that, so far, no recurrence of this destructive agent has appeared in the pieces dealt with.

Mr. Elsdon Best reports as follows:—

On account of the war the printing of Museum Bulletins has been suspended, and advantage has been taken of this fact to turn to the translation of a large amount of Maori matter preserved in the original, and obtained from East Coast and Wanganui sources. Inasmuch as a considerable portion of this matter pertains to anthropogeny and the primal myths of the Maori race, with certain traditions of their sojourn in Polynesia, and is moreover couched in exceedingly archaic language, the task of rendering it into English has been tedious and difficult. It was felt, however, that it ought to be so translated while a few persons yet remain who might assist by the explanation of doubtful passages and the peculiar cryptic utterances that are so marked a feature in matter given by what we may call the educated Maori of past generations.

This matter, now all rendered into English, save certain ritual chants, it is proposed to utilize as a basis for a monograph on the religion, myths, and magic of the Maori folk. So inter-mixed are these three institutions among a people living in the culture stage of the Maori that it is practically impossible to separate them; to do so would entail much repetition. No attempt has been made so far to compile any of this matter. The subjects are far-reaching—indeed, their scope may be termed vast—for such a monograph, if but carried to its legitimate limits, must necessarily impinge upon every activity of Maori life. This work is now proceeding in the form of descriptions of customs, institutions, superstitions, ritual, myths, &c. When completed it will probably have to be resolved into three volumes.

A task that has been completed during the past year consists of a card index of Maori technological nomenclature, comprising the names of all implements, vessels, garments, ornaments, parts of houses and canoes, &c. When taking up this work in the first place it was noted that, though a considerable portion of the Museum exhibits pertain to Maori ethnography, yet little was known as to the names, modes of manufacture, and uses of such exhibits. The above index will render available all known names of such artifacts, and record them for future use, while the series of bulletins being compiled will explain the methods of manufacture and uses.

Albeit no field-work has been done during the past year, yet by means of correspondence a fair amount of interesting matter pertaining to Native customs, industries, &c., has been obtained, such matter usually filling the place of missing links in chains of evidence. In connection with these contributions we owe special thanks to Messrs. T. W. Downes, of Whangarei; H. Tikao, of Rapaki; the Rev. H. J. Fletcher, of Taupo; Karaka Tarawhiti, of Huntly; and Te Manihera Waititi, of Cape Runaway.

Apart from the above work the following papers have been prepared during the past year: "Social Usages of the Maori" (for Workers' Educational Association); "Some Place-names of Islands of the Society Group (*Journal of Polynesian Society*)"; "The Maori Genius for Personification"; "The Maori System of Measurement" and "On *Ngahuru* as a Term of 'Ten'" (for *New Zealand Journal of Science and Technology*); "The Discovery of Wellington Harbour" (Wellington Philosophical Society).

Miss A. Castle reports as follows on the entomological collection:—

Lepidoptera.—The collections made by the Director and Mr. H. Simmonds during the summer months added considerably to the New Zealand reference collection. Mounting these and identifying small collections sent in for general information occupied some months, and gave satisfactory results.

The exotic collection of *Lepidoptera*, though on view at stated hours, often absorbs much additional time, as visitors from other centres in New Zealand make special application, and a time is appointed to suit their convenience.

By request, a small class of boys has been formed, who show a keen desire to study the life-history of butterflies and moths. They attend regularly, once a week for half an hour, to record and arrange their captures. It is hoped that this effort to develop their boyish tastes may result in some future entomologists being drawn from their ranks.

Coleoptera.—A considerable number were collected by the Director in Wellington and its environs, and at Lake Coleridge, Canterbury. Mr. H. Simmonds sent collections from Auckland and other places *en route* to Wellington. These have not yet been incorporated with the classified collection of New Zealand *Coleoptera*.

Diptera.—Comparatively few specimens have been recorded during the past year. This and other poorly represented orders in the Museum collection of New Zealand entomology give scope for vigorous collecting in the near future.

Hymenoptera.—A number of specimens were sent by Mr. H. Simmonds, and some also have been acquired through exchanges.

The Department desires to cordially thank Messrs. G. V. Hudson, H. W. Simmonds, D. Miller, and C. O'Connor for their willing assistance, and Mr. Simmonds for his liberal contributions in many groups.

V. REPORT OF OFFICER IN CHARGE, WAR FUNDS OFFICE.

DURING the year the number of the patriotic societies throughout the Dominion coming under the supervision of the War Funds Office has steadily increased, and at the 31st March 568 societies were forwarding the returns and particulars required under the War Funds Acts and Regulations. These were classed as follows:—

Societies or centres incorporated under the War Funds Act	...	...	27
Unincorporated societies administering their own funds	...	...	63
Societies collecting and transmitting but not administering	...	...	478
Total	...	...	568

In addition to these there were 415 sub-centres acting as feeders for the Red Cross central bodies, the majority of whose collections are included in those of the main centres, thus giving 983 separate committees collecting and controlling war funds.

Quarterly statements of transactions are regularly furnished by 466 societies, whilst, by special arrangement, half-yearly or yearly returns are furnished by 219 smaller committees and sub-centres, whose funds, though individually small, amount to a fair sum in the aggregate. At the 31st March, 1917, there were 507 accounts being rendered, so that the present number represents an increase of 31 per cent. during the year.

In June, 1917, a change was made in the method and form of sending returns—monthly statements were discontinued, and all societies which up to that time had sent in monthly statements now furnish quarterly returns. As with all changes of system, some time elapses before those concerned therewith adapt themselves to the new conditions; and, although considerable correspondence was entailed in dealing with inquiries as to the filling-in of the necessary details, I am pleased to report that the system is now working smoothly. As pointed out in my previous reports, the work of furnishing these returns devolves in a large majority of cases upon voluntary officials, many of whom are of necessity not skilled in accounts; and I am glad of an opportunity of thanking these ladies and gentlemen for their earnest endeavours to meet the requirements of the office, and the care now generally shown in compiling the returns. In the comparatively few instances where treasurers have experienced difficulties they have at my request forwarded their books and papers to Wellington to enable their returns to be made up. In such cases duplicate copies of the necessary statements, and full instructions for future guidance, have been returned to them, thus enabling them to make out subsequent statements correctly.

The general correctness of the quarterly returns, and the promptitude with which they are rendered, is evident from the fact that within eight weeks of the close of the financial year I have been enabled to compile a summary of the voluntary patriotic efforts exercised through the societies throughout the Dominion, and details of the receipts and expenditure of the whole of the societies sending in returns. Only in six cases, involving less than £100 altogether, has it been necessary to use the December figures to complete the schedules.

Special efforts have been made during the year to ascertain full particulars of the work of those societies established before the Act came into force and which, having successfully raised large sums of money, ceased operations or eventually became merged in the existing central funds, with the result that collections amounting to £342,095, and particulars as to the disposal of this amount, which should have been included in my statistics for last year, will now be embodied in the summary of patriotic societies' efforts to March, 1918.

It also transpired that a number of societies established early in the war had been operating in unintentional disregard of their obligations under the Act. In thirty-six cases full particulars of transactions were obtained and the Minister's approval of their continuance granted. In other cases the committee agreed to merge into already approved societies in the same district, and in a few instances the committees were disbanded and their funds transferred to other organizations. It may, I think, be fairly assumed that only a few such societies are now operating illegally, and that the total funds would not exceed a few hundred pounds.

With a view to securing a more effective control over irregular collections of money and goods, the law governing the issue of permits was made more stringent, and the authority to issue permits was extended to Chairmen of Town Boards and Road Boards and to the presidents of societies incorporated under the Act. Full particulars regarding the issue of permits have been set out in the Patriotic Societies' Handbook recently issued, and the conditions now governing such issue have earned the approval of the executive committees, both of administering and collecting societies.

Every person authorized to issue permits has been requested to furnish a monthly return of all permits issued, and in the case of entertainments, &c., to forward a copy of each permit to this office. The inauguration of this branch of the work alone has necessitated the recording of 490 returns monthly and resultant additional correspondence. Every committee organizing an entertainment for raising patriotic funds is now required by the conditions of the permit to furnish a statement of receipts and expenditure within a given period. Upon receipt of such statement the net sum resulting and the fund into which it has been paid is recorded, and the amount traced into the debit of that particular fund's first subsequent quarterly statement.

Transfers of money from collecting to administering societies, and the proceeds of all art unions and raffles for which licenses are issued, are also similarly followed, and it is to facilitate this cross-checking that the treasurers of receiving societies have been requested to furnish details of all sums coming into their funds by other means than by personal contribution.

During the six weeks prior to close of the year during which the check on raffles and entertainments has been exercised amounts aggregating £50,000 have been traced to the various funds to be benefited.

These extended activities of the office, combined with the increased number of approved war funds, has necessarily made itself manifest in the greatly increased correspondence. At the end of last year this amounted to 240 letters per month, as against over 500 letters per month now sent out. This is exclusive of printed acknowledgment and reminder forms despatched. In addition to correspondence a considerable proportion of business is effected by personal interviews.

Full financial and statistical information is furnished in the appendix to this report, wherein, in addition to the summary of Dominion efforts given in the previous two years, details of the transactions of 634 societies dealt with during the year under review are given.

In conclusion, I wish to express my thanks to my assistant, Mr. Davies, without whose zealous and assiduous efforts I should have been unable to obtain such full and complete details of the patriotic work of the Dominion; and also to the members of my staff for their unflinching diligence and readiness to give extra help at all times.

NATIONAL WAR FUNDS COUNCIL.

The total income to 31st March, 1918, amounted to £34,763, and the expenditure to £3,512, including £2,339 contributed towards the cost of hospitals for returned soldiers. £898 was distributed for relief and assistance to soldiers and dependants, and temporary loans amounting to £456 were granted. Of the latter amount £204 has been repaid. The funds at the end of the year were £31,252, of which £30,000 is invested. The total charges for administration since the establishment of the fund in November, 1915, amount to £23.

In August, 1916, the Westland Patriotic Committee transferred their funds to the Council, and in March, 1917, the Buller Sick and Wounded Fund trustees passed over their funds to the control of the Council. The former has transferred £4,301 to date, and the latter £2,953. Local Advisory Committees, consisting of the original trustees of the funds, were appointed in accordance with the provisions of the War Funds Act, 1915, to administer relief on behalf of the Council. Each Advisory Committee is provided with funds for this purpose by means of imprest account, a balance of cash sufficient for all probable requirements being held available.

The work of the Advisory Committees is entirely voluntary, and the total cost of their administration to date has been under £12.

The system adopted has proved in every way satisfactory, whilst the correlation of the Council and the Advisory Committees has proved most satisfactory, and promises to continue so.

J. W. KINNIBURGH,
Officer in Charge.

VI. REPORT OF THE GOVERNMENT ASTRONOMER.

Hector Observatory, Wellington, N.Z., 2nd September, 1918.

This report covers the period from the 20th June, 1917, to the 31st August, 1918.

STAFF.

On the 29th September, 1917, Relieving Cadet John Wilbur Nissen resigned. On the 8th April, 1918, Relieving Cadet David Leslie Grant reported for duty at the Observatory.

Professional Cadet.—The sad news was received of the death in action in France on the 12th April, 1918, of Professional Cadet Norman Shrimpton. The vacancy in the professional staff has not yet been filled, but steps are being taken to do so.

TIME SERVICE.

Transit Instrument.—As in the past, transit observations of clock stars and of the sun have been taken for the determination of the clock-error. The transit instrument has an objective of 3 in. aperture and 36 in. focal length. It is fitted with a convenient reversing-gear, and has a hand-driven micrometer. Many observations for clock-error have been made on stars in daylight, and observations have only been made to the sun when owing to weather conditions it was not possible to observe stars. It has been found that stars as faint as the third magnitude can be easily observed at noon, provided they are south of the zenith. The usual practice in observing is to reverse the transit instrument on each star, as by doing so the collimation-error is eliminated.

Collimators.—Two collimating telescopes, of 3 in. aperture and 36 in. focal length, have been erected. Owing to the small size of the transit-room it was necessary to erect the collimators on piers outside the transit-room. Each pier was accordingly made double, the outer being hollow and acting as a cover to the inner solid pier. The piers are of brick, and the outer pier carries a ventilated double cover of iron. In this way it is hoped to keep the inner pier and telescope at a fairly uniform temperature. The piers are carried down to the solid. It is expected that many valuable results will be obtained from the collimators as soon as the necessary staff is available to make the observations and discuss the results.

Meridian Marks.—Temporary meridian marks are established both on the north and south horizons, and designs for permanent marks in concrete have been prepared. The south marks are nearly two miles distant, and for night use an electric light is provided. This shines through a hole $\frac{1}{2}$ in. in diameter, and makes a good reference mark.

It was found that one of the city street lights near the south marks was visible in the field of the transit instrument, and by permission of the City Engineer a screen has been erected on the lamp-post, with a small opening in it, to reduce the intensity of the light. This makes another useful reference mark, and is available when the other light fails.

When conditions return to normal again there will be excellent opportunities to study the relative motions of the collimators and meridian marks, and of a number of marks visible on the intervening ridges between the horizon marks and the Observatory.

Clocks and Chronometers.—The Observatory is dependent on three Dent astronomical clocks for the time service. The clocks have zinc and steel compensated pendulums, and are in ordinary cases open to the air. One is a sidereal clock, and is situated in the transit-room, so it is subject to considerable variations of temperature when the transit-room is opened for observing. The other two are mean-time clocks—one is in the adjoining room to the transit-room, and is also subject to variations in temperature; and the other is in the cellar, where the temperature is controlled by a thermostat. The clocks were fitted with seconds contacts on the escape-wheel, of the usual form supplied by Dent. But troubles developed if by any chance the contact-points became fused together—this converted the two light independent springs into a rigid structure which either stopped the clock or interfered with its rate; consequently it was decided to substitute on the sidereal clock a form of contact similar to that used at the National Observatory of Besançon. In this contact the teeth of the escape-wheel act on a lever, the other extremity of which carries one of the contact-points. This brings the contact-points away from the escape-wheel, and they can be placed clear of the clock, so that they can be readily cleaned and adjusted; and if by any chance the contact-points stick together there is no interference with the clock, for in this case the other end of the contact-lever is lifted clear away from the escape-wheel. The new contacts have performed satisfactorily.

As the mean-time clocks are required to synchronize the signal-clocks, a different form of contact is used to give a contact lasting approximately for one second. A very light horizontal rod about 9 in. long is attached at its middle point to the top of the pendulum, and the ends of the rod are turned downwards and dip into mercury-cups, so that at each oscillation of the pendulum contact is made through the mercury-cups, and by adjusting the height of the mercury in the cups the duration of the contact can be controlled. By having two cups, one on each side of the pendulum, the rod is balanced, and the contact from either side can be used as required.

The two signal-clocks are synchronized by the mean-time clocks. Each pendulum of the signal-clocks carries an armature at the bottom of the weight, and at the end of its swing the armature passes over an electro-magnet fitted to the clock-case towards the right-hand side of the case. The electro-magnet, of about 120 ohms resistance, is energized by a current from three Leclanche cells, through the mercury contacts of the standard clock, and experience has shown that this method of synchronizing the signal-clocks is reliable. The signal-clocks are kept

accurate to the nearest second, and when more accurate signals are required the error on mean time can usually be supplied, provided recent observations have been obtained. During intervals of bad weather the signals have to be suspended, as the standard clocks cannot be relied on for any length of time. The signal-clocks are fitted with a variety of contacts for sending out time-signals. The first contacts fitted were somewhat similar to the spring contacts of the Dent clocks, but as the new lever contact has been so satisfactory similar contacts have been applied to both the signal-clocks. Formerly it was necessary to stop the clock and remove the face before the contacts could be cleaned and adjusted; now it is only necessary to remove the clock-cover, when the contacts can be cleaned and adjusted without interfering with the clock.

In the past it was the custom to send only one time-signal at each hour from the signal-clock. When the time-signal was required at any port in the Dominion the Telegraph Department provided a direct connection from the Observatory clock to a galvanometer at the port, and the navigator compared his chronometer with the galvanometer signal. It was sometimes found, however, that owing to other impulses on the telegraph-line it was not possible to identify the time-signal with certainty, and the only way to test this was to wait for the time-signal at the next hour. This involved considerable inconvenience to all parties concerned; and, to avoid this, additional contacts have been put on the signal-clocks, so that a series of five signals is given during the first five minutes of each hour. The increased convenience has been much appreciated by navigators.

Daily Time-signal.—The daily time-signal is sent from the Observatory standard clock to some 2,400 telegraphic stations by the Telegraph Department every day (except Sundays) at 9 a.m. The operation is an interesting one. A clock in the telegraph operating-room at Wellington is kept to correct time by comparison with the time-signal from the Observatory standard clock. At a few minutes before 9 a.m. all the telegraph-offices are called to attention by the Morse signal "LS," which is repeated until the Supervisors call "Time," exactly at 9 a.m., when each operator telegraphs the word "Time." By this means all the railway and telegraph offices receive correct-time signals. The more accurate signals required for rating chronometers are sent entirely automatically from the Observatory clock over the telegraph-lines.

Rates of the Astronomical Clocks.—The astronomical clocks have developed certain irregularities in their rates, and they have been overhauled and adjusted, but without showing much improvement. Experience this year again confirms the previous conclusion that clocks of more modern type in airtight cases are required for standard clocks. Owing to the irregularity in the rates of the standard clocks it has been necessary to disconnect the galvanometer in the public telegraph-office, Wellington; and in a recent interval of bad weather it became necessary to suspend all time-signals until observations could be obtained to determine the clock-error. Proposals for the improvement of the time-service equipment are under consideration by the Government.

RADIO TIME-SIGNALS.

Reception of Radio Time-signals.—Nothing further has been done to complete the radio receiving outfit at the Observatory. With a view to checking the Observatory clocks arrangements were made with Dr. J. M. Baldwin, Government Astronomer, Melbourne, to send scientific time-signals by radio twice a week from the Melbourne Observatory. Unfortunately, the apparatus at our Observatory is not sufficiently sensitive to hear these signals with. Such signals are invaluable during intervals of bad weather, when observations cannot be obtained at our Observatory. Suggestions for suitable apparatus are now under consideration, and it is expected that the equipment will be put in working-order ere long.

Transmission of Radio Time-signals.—Further experiments have been made in sending out time-signals from the Observatory by radio-telegraphy. The same series of five signals (referred to above) during the first five minutes of the hour is sent from the Awanui Radio Station. The Telegraph Department have provided a direct connection between the Observatory signal-clock and a relay at Awanui over a land line about 600 miles long. The relay operates a sounder which serves as a key to work the high-power transmitting-apparatus. The receiving-apparatus at the Observatory is capable of receiving the radio time-signals sent out by Awanui, and they have been checked frequently. It is possible to hear the click of the Observatory signal-clock with one ear, and with the radio receiver on the other ear the radio signal from Awanui is clearly heard. It is not possible to detect any difference between the two sounds, so that for all practical purposes the signals may be considered to be simultaneous. No doubt there is some slight difference between the two sounds, and steps will be taken to measure the lag by means of the chronograph as soon as some reliable method of automatically recording the radio time-signals is devised.

The radio time-signals sent from the Observatory have been received at Tahiti, Rarotonga, and other Pacific islands, while captains of steamers report that the time-signals have been heard at Honolulu.

LONGITUDES OF ISLANDS.

As radio stations are now constructed at Chatham Islands, Rarotonga, Samoa, and other Pacific Islands, it will be possible to determine the differences of longitude between these places and the Observatory. In this way the charts can be corrected. Similarly, the differences of longitude between the Observatory and the other islands near New Zealand can be determined as soon as a vessel fitted with radio-telegraphic apparatus is available for this service.

GENERAL.

Nova Aquilæ.

The discovery of the new star in the constellation Aquila was reported to the Government Astronomer by (1) Mr. G. V. Hudson, Karori, Wellington; (2) Mr. Alex. G. Crust, of Dunedin:

(3) Sergeant-Major L. J. Comrie, on active service in Egypt. The times of discovery were: (1) Mr. Hudson—1918, June 8 d. 23 h. 15 m. G.M.T.; (2) Mr. Crust—1918, June 8 d. 21 h. 40 m. G.M.T.; (3) Mr. Comrie—1918, June 9 d. 8 h. G.M.T.

This is the brightest nova since Kepler's star in Ophiuchus, which appeared in 1604, and the discovery of so bright a new star is an event of great importance.

Owing to war conditions, proposals for the equipment of the Observatory have had to be held over, so that the Observatory has no spectroscopic apparatus. However, Mr. J. T. Ward, Director of the Wanganui Observatory, has a direct-vision spectroscope, while Dr. C. Monro Hector, Mr. A. C. Gifford, and Mr. E. L. Morley have also direct-vision spectroscopes in use, and from these gentlemen valuable reports of their observations of the spectrum have been received and forwarded to the Lick Observatory and the Harvard College Observatory. Professor Edward C. Pickering, Director of Harvard College University, in the Harvard College Observatory Bulletin No. 661, makes an appeal for observations of the brightness of Nova Aquilæ. His map and bulletin have been reprinted and distributed to observers in New Zealand. A number of reports of the magnitude of the nova have been received, and will be forwarded to Professor Pickering.

The position of the nova is R.A. 18 h. 43·8 m., dec. 0° 29' north (1900). From photographs taken in Wellington on the 9th June the nova appeared to be identical with a star of 8·8 magnitude shown on the astrographic chart of the Algiers Observatory.

Occultations.

Occultation of a Star by the Planet Venus.—Information was received from Private Arthur Burnet, of the British Expeditionary Forces, France, the honorary secretary of the Leeds Astronomical Society, that an occultation of the star 7 Aquarii, magnitude 5·7, by the planet Venus would take place on the 2nd March, 1918, G.M.T., and that the occultation would be visible in New Zealand. With the voluntary assistance of Sergeant-Major Comrie and Professor D. M. Y. Sommerville the exact circumstances of the occultation were investigated, when it was found that at Wellington a near approach would take place, but that farther south in New Zealand an occultation would be visible. Astronomers in New Zealand were advised and asked to observe the phenomenon. Reports from a number of observers were received, but no definite observations of the occultation were made. In Wellington it was raining at the time.

In the course of the investigation of the circumstances of the occultation it was found that at the Lick Observatory, Mount Hamilton, California, a nearly central occultation would occur. Accordingly a cable was sent to that Observatory, with very favourable results. The weather was good, and careful observations were made with the 36 in. and the 12 in. equatorial telescopes, and with the meridian circle when Venus was on the meridian. A full description of the observations appears in the *Publications of the Astronomical Society of the Pacific*, vol. 20, No. 174, for April, 1918, page 166.

Occultation of the Planet Jupiter by the Moon.—This occultation took place on the morning of the 4th August, 1918. Preparations were made to observe it at Wanganui, and arrangements were made with the Telegraph Department to have the Observatory signal-clock transmit the time-signals over the telegraph-line to Wanganui. The time-signals were heard clearly at Wanganui. The weather at Wanganui prevented any observations being made there. Dr. C. Monro Hector, at Lower Hutt, Mr. C. G. G. Berry, at Wellington, and Mr. E. L. Morley, at Nelson, observed the occultation.

Ephemeris for Eros.

With the voluntary assistance of Sergeant-major Comrie an ephemeris for Eros was calculated.

Foucault's Pendulum.

A successful demonstration of Foucault's pendulum experiment was given by Mr. A. W. Burrell, of Stratford, before the Astronomical Section, in the transit-room. The demonstration was remarkable in that the pendulum was a very short one, about 10 ft.; it consisted of a 35 lb. lead bob supported by a piano-wire. The support was a piece of file ground smooth and fixed level. The wire terminated in a loop attached to a holder, which had a hard steel ball to take the weight on the file: the pendulum was therefore free to swing in any vertical plane. Within about 40 seconds after the pendulum was started in any given plane the rotation of the earth was clearly demonstrated.

Milne Seismograph No. 20.

The Milne seismograph is installed in the cellar, with the boom in the meridian and the pointer to the north. The Government Seismologist, Mr. G. Hogben, C.M.G., M.A., F.G.S., is in charge of the seismograph. The daily care of the instrument falls to the Observatory, while the development of the photographic records is done at the Dominion Museum. As no provision is made for duty at the Observatory on Sundays, it has been necessary to make arrangements for attention to the seismograph then. Professor D. M. Y. Sommerville has kindly undertaken this duty, and for this voluntary service thanks are due to him.

New Zealand Journal of Science and Technology.

An important scientific event took place in the establishment of the *New Zealand Journal of Science and Technology*, of which four numbers have appeared. The journal offers a convenient medium for the publication of astronomical matter, and advantage has already been

taken of this. The library of the Observatory is receiving publications on astronomy in exchange for our publications.

Library and Publications.

It is a pleasure to acknowledge the receipt of many valuable donations for the library. The printing of the list of additions to the library is deferred.

The following bulletins have been published and distributed: No. 7, "Elements and Ephemeris of Eros," *N.Z. Gazette* No. 139, 6th September, 1917; No. 8, "Astronomical Tables of the Sun for the Year 1918," *N.Z. Gazette* No. 114, 13th September, 1917; "Seismological Records, January to June, 1917," *N.Z. Gazette* No. 180, 20th December, 1917; No. 9, "Occultation of a Star by the Planet Venus," *N.Z. Gazette* No. 26, 21st February, 1918; No. 10, "Astronomical Tables of the Moon for the Year 1918," *N.Z. Gazette* No. 48, 4th April, 1918; No. 11, "Time-service," *N.Z. Gazette* No. 55, 18th April, 1918; No. 12, "Astronomical Notes," *N.Z. Journal of Science and Technology*, March, 1918; No. 13, "Nova Aquilæ," *N.Z. Journal of Science and Technology*, July, 1918; No. 14, "Astronomical Notes," *N.Z. Journal of Science and Technology*, May, 1918; No. 15, "Nova Aquilæ," *N.Z. Journal of Science and Technology*, September, 1918; No. 16, "Astronomical Notes," *N.Z. Journal of Science and Technology*, July, 1918.

Office Accommodation.

Steps are being taken, by putting in movable book-cases, cupboards, and drawers in the clock-room, to arrange the astronomical publications and records in order as far as the limited space will permit.

Accommodation for Observers.—There is no accommodation for observers at the Observatory, consequently the loss of many suitable periods for observing at night is serious. As soon as conditions improve so that this urgent matter can be attended to a considerable increase in efficiency may be reasonably expected, owing to the longer period available for observations.

Cottage on Observatory Reserve.—This cottage is in the occupation of the Kelburn Boy Scouts.

Equatorial Telescopes.—The Astronomical Section of the Wellington Philosophical Society has had the Cooke 5 in. equatorial refracting telescope taken down and the King 5½ in. telescope by Grubb erected in its place. The King telescope has a very rigid mounting and a good driving-clock. The building is erected on the Observatory Reserve. The Observatory has no equatorial telescope available. The Section has kindly granted the Government Astronomer full use of its equatorial telescope, and for this courtesy thanks are due to the Section.

Historical Records.

The desirability of preserving the observing-stations used by astronomers was urged in my last report. It is pleasing to report that a beginning has been made in this valuable work by taking under the Public Works Act the Observatory-site at Doubtless Bay, used in the determination of the longitude of New Zealand by the Pacific Cable (see P.W.D. plan 43689, and *N.Z. Gazette* No. 22, 4th February, 1918). Suggestions for the preservation of other important astronomical sites are now under consideration.

Admiralty Chronometers.

Three box chronometers and a chronometer watch, belonging to the Admiralty, are deposited at the Observatory.

New Zealand Standard Time.

It is interesting to note that on the 2nd November, 1918, it will be fifty years since New Zealand standard time—exactly 11½ hours in advance of Greenwich time—was adopted as the mean time for the colony (see *N.Z. Gazette*, 31st October, 1868, p. 507). The report of the Wellington Philosophical Society on New Zealand standard time is published in the *N.Z. Journal of Science and Technology*, vol. 1, No. 4, July, 1918, p. 232. The report gives reasons for urging the adoption of a standard time exactly twelve hours in advance of Greenwich mean time. It may be mentioned that all the mean-time clocks at the Observatory are already kept exactly twelve hours in advance of the Greenwich mean time, and that time-signals are given in accordance therewith.

Mercury Arc Rectifier.

This apparatus, for obtaining direct current from the city mains of 100 volts 80 cycles single-phase alternating current, has been installed in an extension built on to the front of the cellar. The direct current is used for charging the storage batteries. Hitherto a small current for charging the batteries had been obtained from the Victoria University College, and for this assistance the thanks of the Observatory are due to the College.

Minor alterations and repairs have been carried out, and the equipment, buildings, and grounds have been kept in good order.

Leave of Absence.

During my absence on leave at New Year, Professor D. M. Y. Sommerville kindly took charge of the time service and kept the signal-clock correct. My thanks are tendered to Professor Sommerville for his kindness in giving this voluntary assistance.

C. E. ADAMS,
Government Astronomer.

VII. REPORT OF THE CONSERVATOR OF FISH AND GAME.

Rotorua, 17th June, 1918.

I HAVE the honour to submit my report of the work that has been carried out in connection with the fresh-water fisheries in the Rotorua and Taupo districts during the past season of November, 1917, to May, 1918.

On account of the marked improvement in the condition of the fish in Lake Rotorua it was decided not to take any fish from the lake during this season, but to start operations in Lake Rotoiti and Lake Tarawera. From Lake Rotoiti a fair supply was taken, these being sold for local and Auckland consumption; but for some unaccountable reason very few fish were taken from Lake Tarawera, and to save further expense it was decided to cease operations there.

For the purpose of making better arrangements for the conveyance of trout during the season two motor-lorries were purchased—one to run between Tokaanu and Waimarino, and the other to run between Rotoiti or Tarawera and Rotorua.

At Lake Taupo the total business done shows an increase on last year's efforts, but still better results would have been obtained had not an accident happened to the motor-lorry, causing it to be laid up for several weeks. In the meantime only small quantities could be sent to Wellington by means of the Waiouru coach.

At Lake Taupo considerable improvements have been made for the accommodation of the staff and material. Four huts, a cookhouse, and a garage have been erected, and will be ready for occupation next season. The paddock has been ploughed, and will be grassed to keep the horse in.

At Lake Tarawera two huts, a garage, and a cookhouse were erected, and perhaps better results will be obtained from the lake next season.

The following are the returns of the business of fresh and smoked trout sold during the period 1st November, 1917, to 31st March, 1918:—

—	Number.	Weight.			Value.		
		Tons.	cwt.	qr. lb.	£	s.	d.
Rotoiti and Tarawera	20,270	22	15	2 0 $\frac{3}{4}$	851	10	8 $\frac{1}{2}$
Taupo	17,947	24	2	0 2	876	6	2 $\frac{1}{2}$
Totals	38,217	46	17	2 2 $\frac{3}{4}$	1,727	16	11

Ill-conditioned fish rejected from total catches:—

—	Number.	Weight.			
		Tons.	cwt.	qr.	lb.
Rotoiti and Tarawera	2,622	2	6	3	18
Taupo	5,294	4	14	2	4
Totals	7,916	7	1	1	22

The above rejected are taken at an average of 2 lb. each.

During the trout-hatching season, from July to August, 1917, the usual work of collecting the ova and hatching the eggs was carried out; but great difficulty was experienced in obtaining suitable labour to help with the work. 780,000 ova and 350,000 fry were, however, dealt with. The policy of the Department was again carried out by supplying various districts with ova and fry at cost price.

During the past fishing season 606 shags have been accounted for, at a cost of £75 15s.

F. MOORHOUSE,
Conservator of Fish and Game.

The Under-Secretary, Department of Internal Affairs, Wellington.

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