

1915.
NEW ZEALAND.

DOMINION MUSEUM
(ANNUAL REPORT OF THE) FOR THE YEAR ENDED 31ST MARCH, 1915.

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

SIR,—
Dominion Museum, Wellington, New Zealand, 24th June, 1915.
I have the honour to forward herewith a report on the Dominion Museum for the year ended 31st March, 1915.
I have, &c.,
J. ALLAN THOMSON, Director.
The Hon. the Minister of Internal Affairs, Wellington.

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REPORT.

SCOPE OF REPORT.

OWING to the illness and death of the late Director, Mr. A. Hamilton, in October, 1913, the work of the Museum was much disorganized during that year. The directorship was not filled until the 12th January, 1914, Mr. J. McDonald serving as Acting-Director in the interim. In consequence of the broken year, no report was presented to Parliament for the year ended the 31st March, 1914.

The year ended the 31st March, 1915, has also seen a disturbance of the Museum routine owing to the economy called for by the war. In consequence there is less to chronicle than usual in the way of accessions, but an opportunity has been afforded to rearrange and overhaul the collections, a work that is still going on. By the Science and Art Act, 1913, the Dominion Museum was placed under the Board of Science and Art, but this Board has not yet met, owing to the war and other causes. In order that the position of the Museum may be clearly placed before the Board, I have made this report not so much a record of the work of the last year as a review of the present conditions of the Museum collections and activities.

STAFF.

Since March, 1913, the Museum has lost the services of Mr. A. Hamilton, Director, and Mr. H. Jones, attendant and printer, through death, and of Miss J. A. Wilson, typist, through resignation. These positions have been filled by the appointment of Dr. J. Allan Thomson, Director; Mr. G. Jackson, messenger and printer; and Miss R. Rees, shorthand-writer and typist. During part of the year 1914-15 Mr. H. Hamilton has been employed as a temporary assistant, and has now been placed on the permanent staff.

The staff at the 31st March, 1915, stands as follows: Director, J. Allan Thomson; art assistant, J. McDonald; Museum assistants, Miss A. Castle, H. Hamilton; shorthand-writer and typist, Miss R. Rees; temporary clerk, E. Best.

The custodian, night-watchman, messenger and printer, and charwoman are now classified directly under the Internal Affairs Department. Including them, the total number of employees at the Museum is eleven.

The classification of Mr. E. Best—who carries out the duties of ethnologist—as a temporary clerk illustrates a defect in the Public Service Act. Mr. Best cannot receive a permanent position and enjoy the privileges of the Public Service Act, because he is over age. It is admitted by all Maori scholars that there is no living man with a more profound knowledge of old Maori customs and modes of thought, and none more suitable to carry out the work in which he is engaged. A younger man, who might be appointed to a permanent position in the Professional Division of the Public Service, could not, because of his youth, have acquired the knowledge that Mr. Best obtained through personal contact with the old-time Maori. The matter can only be remedied by the Legislature.

BUILDING.

The working-rooms on the ground floor on one side of the Museum entrance had been abandoned during 1913 owing to a defect in drainage, which was not remedied until the autumn of 1914. These rooms were then repapered and again brought into use. In order to make room for Mr. Hamilton, the printer was transferred to a room at the back of the Museum. The available rooms of the Museum are now taxed to their utmost extent, and a new building is as much necessary for the efficiency of the Museum staff as for the housing of the collections. The Museum library has to be spread throughout all the working-rooms.

OFFICE.

The record system recommended by the Public Service Commissioner has been installed, and has proved a great improvement over the previous system, which was a nominal one. The current Museum files are now in such a condition that a change of officers would not greatly hamper the work of the Museum.

There is a great accumulation of unclassified files from the commencement of the Museum, which must some day be worked through and made accessible for those who are interested in the development of the Museum, the Geological Survey, Dominion Laboratory, and the New Zealand Institute.

The system of registration of the accessions is capable of improvement, and I have designed a new system, which will be more comprehensive, more flexible, and not more laborious. The system left by my predecessor consists of separate manuscript registers for various classes of specimens, but

all classes of specimens are not included. The registration number may cover a single specimen or a large number. Card indexes of the various kinds of specimens are made subsequently. The system I propose to substitute consists of a manuscript general accession register, in which one number may cover a large number of accessions obtained at the same time and in the same way. Later each specimen will be classified and distributed to its proper department, and will receive a departmental register number. By the use of typewriters, and carbon papers, and a printed form it will be possible to make one operation serve for the departmental register and the preparation of card indexes by name, locality, location in the Museum, or any other relationship which it is desired to index. For many reasons it is not desirable to introduce the new system until a new Museum building is available.

LIBRARY.

For reasons of economy during the year, few purchases of books have been made, and the binding of the exchanges has been postponed.

COLLECTIONS.

The most important addition to the collections has been the acquisition of the Hamilton Maori and fossil-bird collections by purchase. These collections were already deposited in the Museum, but the checking of the specimens by the register occupied a considerable amount of time. Other important purchases were a large collection of fossil bird-bones from a limestone cave at Coonoor, from Mr. M. Conway; a collection of ethnological specimens from British New Guinea; and two old smoked Maori heads. Many other desirable collections have been under offer, but have had to be declined owing to the economy necessitated by the war. Amongst deposits of interest should be mentioned a fine series of twelve adzes in various stages of manufacture, deposited by Captain Bollons. Other interesting accessions are recorded in the reports of the various departments and in the list of donations. Natural-history and ethnological collections have been made by the various officers when opportunity presented itself, and much quiet work has been done in this way.

The existing state of parts of the collections may be gathered from the appended reports by the assistants.

OVERHAULING OF THE MAORI COLLECTION.

The Hon. the Minister having decided to remove and store the more valuable specimens of Maori art in the Museum until the provision of a fireproof building, a preliminary overhaul of the collections is being made. All unsound or bored articles have been set aside for special treatment, while the sound specimens have been cleaned and oiled or painted, according to their previous treatment, and temporarily placed back again in the Museum. The improvement in their appearance has been marked. Some months must elapse before the overhauling is completed.

RESEARCH WORK ON THE COLLECTIONS.

At the time of my appointment as Director I was engaged in preparing a monograph on the Tertiary *Brachiopoda* of New Zealand for the Geological Survey. This work is still unfinished, but such time as could be spared from Museum duties has been devoted to it, and to a revision also of the Recent *Brachiopoda*. I have also been asked to describe the *Brachiopoda* collected by the Australian Antarctic Expedition, and have these collections on deposit; and in addition have examined a number of Tasmanian Tertiary *Brachiopoda* for Mr. Atkinson, of Penguin. Several preliminary papers have been written, of which only one is as yet published—viz., “Types of Folding in the *Terebratulacea*” (Geol. Mag. Dec. 6, vol. 2 (1915), pp. 71–76).

Mr. H. Hamilton has, at my request, studied two specimens of ribbon-fish (*Trachipterus*) acquired during the year, and is preparing a paper on the subject.

Mr. E. Best submits the following account of his ethnological work:—

Ethnological Work.

I was employed by the late Director towards the end of 1910 with a view to the compilation of ethnographical matter pertaining to the Maori race, and the publishing thereof in a series of bulletins to be issued by the Museum.

During 1910 and 1911 much of my time was taken up with other work, but since then it has been principally devoted to the collection and compilation of matter descriptive of Native industries. Bearing in mind the fact that the major part of published records connected with the Maori treat only of their tribal history, which data are of but slight interest locally, and absolutely useless to anthropologists, it was decided that a series of bulletins descriptive of the technology of the Natives of New Zealand should be compiled. This is a field of inquiry that has been much neglected, little matter having been published that shows systematic and careful work, outside the three fine monographs prepared by Mr. Justice Chapman, Dr. Buck, and the Rev. H. Williams. These three papers—illustrating Native methods of working greenstone, the manufacture of textile fabrics, and the whare Maori—are probably the best articles on Maori industries ever produced. We have been recently notified by officials of the Royal Anthropological Institute that such data are desired and welcomed by anthropologists in Great Britain and elsewhere.

It was also considered highly desirable to record all available information concerning the manufacture and uses of all Maori exhibits in the Dominion Museum. These objects are illustrative

of the arts and industries of an interesting race, the members of which are rapidly losing all knowledge of the customs and pursuits of their ancestors. Yet a little while and the traditionless Maori may quote one of our English poets,

And from their scholars let us learn
Our own forgotten lore.

The scheme of monographs on Maori technology has been outlined as follows :—

- A. Canoes; navigation.
- B. Houses.
- C. Implements.
- D. Clothing and ornaments.
- E. Amusements; exercises; games; music.
- F. Forest and sea craft; hunting; fishing.
- G. Fortifications.

In some cases subdivision is necessary, as in B, C, D, and F. Under this classification a monograph (Bulletin No. 4) on stone implements has been published, to be supplemented by another on other forms as yet undescribed. Under B a monograph (Bulletin No. 5) on Maori storehouses has been prepared, and is now passing through the press. Under G another (Bulletin No. 6) on Native forts has been completed, but is not yet printed. The printing of these bulletins occupies about two years, hence the work lags. Bulletin No. 7, a monograph on Maori canoes—their manufacture and management—is now in course of preparation; and a large amount of material has been collected for its successor (games, music, &c.).

When commencing work on these bulletins I found that no material was to hand. This meant that two sources of supply had to be relied upon. In order to make each monograph as complete as possible it was necessary to collate all information on the subject contained in a great number of works on New Zealand and the Maori race. As information on these subjects contained in those works is somewhat meagre, it became imperative that additional data should be obtained from the older generation of Natives still living. Both these sources of supply are being drawn upon.

While this work was proceeding, access was obtained to a mass of manuscript matter obtained by the Government from the late Mr. John White. Of this matter but a small portion is available for the purposes of the Museum bulletins, as the greater part of it consists of historical traditions, dealing principally with intertribal wars. It contains the manuscripts of three unpublished volumes of "The Ancient History of the Maori."

In addition to the above bulletins on technological subjects, a scheme has been outlined whereby a series of monographs may be compiled on other ethnographical subjects, such as Maori sociology, mythology, anthropogeny, and religion. Detailed information under these headings specially appeals to anthropologists. When Dr. W. H. Rivers, of St. John's College, Cambridge, visited Wellington some months ago he drew our attention to the great value of such studies in connection with all branches of the Polynesian race. He also remarked how welcome are the results to such institutions as the Royal Anthropological, of which he is one of the leading members.

Another subject discussed by Professor Rivers was that of collecting ethnographical data from the isles of Polynesia connected politically with New Zealand, which might be published here in some such form as that of the Museum bulletins.

So far as the collection and collation of matter pertaining to the ethnography of the Maori of New Zealand is concerned, it is clear that future students must depend largely on the work done by this Department within the next few years. The men of knowledge of the Native race are few, and these few of advanced age. We not only need new data from them, but also information to amplify and explain matter already collected.

As an illustration of how necessary is field-work in some cases, and of the advantage of having access to elderly Natives who have preserved knowledge of racial customs and industries, reference may be made to a two-months trip made by myself in 1914, when some four hundred pages of manuscript notes were collected. These comprised a considerable amount of hitherto unknown matter connected with Maori ritual and arts, all of which it is intended shall be prepared for publication. Also a large number of old Native hill forts were examined and described, with illustrations consisting of plans, sections, and photographs, the result of which it is hoped will be an interesting record of the great skill displayed by the Maori of former times in the art of fortification. Advantage was also taken of this opportunity to examine the Maori collections in the museums at Napier, Wanganui, New Plymouth, and Auckland, in order to obtain notes on all specimens of peculiar interest, to be utilized in our bulletin-work. A remarkably pleasant feature of this trip was the assistance and hospitality met with in all places visited.

Besides the work done for the Museum bulletin series, I have written the following papers during the year :—

- "Polynesian Voyagers" (ten articles). *Canterbury Times*.
- "Porirua and its Settlement." *Canterbury Times*.
- "Maori Beliefs concerning Human Organs of Generation": *Man*.
- "Ceremonial pertaining to Birth, as practised by the Maori." *Journ. Roy. Anthropol. Inst.*
- "Genealogical Records of the Maori." Sent to the Genealogical Society of California by request.
- "Maori System of Measurement." Unpublished.
- "Maori Myths and Folk-lore." Unpublished.

OFFICERS' REPORTS ON COLLECTIONS.

Report on the Rearrangement of Ethnographical Specimens and other Exhibits, by J. McDonald, Art Assistant.

During the past two years a series of alterations has been made in the arrangement of the Museum exhibits, which has permitted of the more complete grouping of the specimens representing the art, industry, and culture of various parts of Melanesia. Collections from the Fiji, Admiralty, and Solomon Islands, New Hebrides, and British New Guinea have been arranged and displayed at the north end of the Main Gallery, in the cabinets formerly devoted to the specimens of New Zealand and Canadian timbers and minor agricultural products.

Inadequate display-space and faulty lighting have not afforded the opportunity of displaying the specimens to the best advantage, but the rearrangement has enabled us to group them in more orderly sequence. In this section a collection of Native baskets and other articles from Ceylon have also been placed on exhibition. A large number of specimens representative of Polynesia and Melanesia are packed away in the Museum store in Sydney Street, and until such time as greater exhibition-space is available must remain hidden from public view.

The collections of Egyptian antiquities from the tombs of the Pharaohs at Abydos, consisting of pottery, alabaster vases, kohl pots, beads, bracelets, clay tablets, scarabs, lamps and tomb sets, of the pre-Dynastic and Ptolemaic periods, received from the Egypt Exploration Fund, have been brought together and placed on exhibition beside the mummy-case in the entrance hall. The specimens of the fictile art of pre-Dynastic time, and the votive pots of later periods, are relics of the devotion of old Egyptians to the *manes* of their most ancient kings in the holy land of Osiris. From these and the finely decorated mummy-case of Petisiris, a priest of the thirty-third dynasty of the Ptolemaic period, a picture may be formed of what the funerary art has been in Egypt from early times. To this collection there has recently been added an alabaster head found by a member of the Main Expeditionary Force, Private J. Watson, of the 6th Hauraki Regiment, while digging trenches near Heliopolis. This is a fine specimen of Egyptian craftsmanship, and probably represents one of the Egyptian kings.

The small collections representing the arts and crafts of India, China, and Japan have been rearranged and displayed in the entrance hall, to the greater convenience of visitors to the Museum.

The large model of H.M.S. "New Zealand," presented to the Dominion by the officers after the visit of the battleship to New Zealand waters, has been placed with the full-rigged model of a frigate in a well-lighted portion of the North Gallery. These models, representing the wooden walls of England of Lord Nelson's day and a grim defender of Britain's realms of our own day, are a constant source of interest to Museum visitors, particularly so to the juvenile portion at the present time.

The bronze busts of notable Maori chiefs and Native types modelled by the Australian sculptor, Mr. Nelson Illingworth, and the sketch-model of two figures in the General Post Office group, have been placed in positions facing the entrance to the Main Gallery, where they make an effective artistic contrast to the many fine examples of Maori arts and crafts around them.

The paintings, drawings, engravings, and photographs which were hanging in different parts of the Museum have been taken down, thoroughly cleaned, and rearranged in more suitable spaces on the walls of the stairways leading to the library and lecture-hall.

A number of pictures considered to be of little or no interest were withdrawn, and others substituted. The pictures, which may now be studied more closely and to better advantage, have recently been supplemented by the addition of forty sketches from the Chevalier collection, for which space could not be found in the Parliamentary Buildings.

These sketches of different parts of New Zealand visited by the artist while accompanying H.R.H. the Duke of Edinburgh on his memorable tour of the colony in 1866 are of considerable interest to Museum visitors. Artists and art-students also greatly appreciate the opportunity of seeing the work of so excellent a draughtsman. It is a matter for congratulation that so much of the work of this eminent artist has, through the generous action of Madame Chevalier, become the possession of the Dominion. It is to be hoped that at no very distant date the collection will be exhibited in its entirety, and under more favourable conditions.

During the winter months of last year an exhibition was held in the library and lecture-hall of over seventy water-colours and sketches by General Robley, author of "Moko," the most complete work on Maori tattooing that has yet been published. During the Maori War in 1865-66 General Robley, then a Lieutenant in the 68th Regiment, saw active service in the Bay of Plenty district; and the pictures acquired by the Museum represent the skilful work of his hands during the lulls of fort-building and fighting. The exhibition proved to be of much interest, and greatly increased the attendance at the Museum. To many veterans who had seen active service in the Bay of Plenty operations the scenes depicted by General Robley recalled interesting memories of stirring times in the early history of the Dominion, and gave the younger generation an idea of the difficulties and dangers that faced the settlers of half a century ago.

Large and properly lighted galleries are required for exhibiting the accumulated collections of oil-paintings, water-colours, drawings, etchings, engravings, and other objects of art which form the nucleus of a national collection, and are now contained in the Dominion Museum, Parliament Buildings, and the gallery of the New Zealand Academy of Fine Arts.

Further reference to these collections and matters relating thereto are contained in a special report.

Report on the Photographic Section, by J. McDonald, Art Assistant.

Since my reappointment to the Museum staff in 1913 the number of photographic negatives has advanced from three thousand five hundred to over five thousand, the increase being mainly due to the acquisition, by transfer from the Department of Tourist and Health Resorts, of nearly one thousand plates of Maori life, art, and industry made by myself during my term of office in that Department.

The plates include portraits of Maori chiefs, figure-studies in Native costume, village scenes, meeting-houses and storehouses, industries and implements, carved panels and posts, *tukutuku*, and other specimens of decorative art. A number of cinematograph films of Maori hakas, *poi* dances, and incidents of Native life which I had opportunities of taking have also been added to the photographic records. Special provision will have to be made for the storage and preservation of the films, but until such time as the methods adopted by Museum authorities abroad are more fully known no action can be taken. The historical moving-picture records in the possession of the Museum are: The visit of Their Royal Highnesses the Duke and Duchess of York; visit of the American Fleet; visit of Field-Marshal Lord Kitchener; visit of the battleship H.M.S. "New Zealand"; celebrations on the first anniversary of Dominion Day; several films of Mining Jubilee celebrations; and also the films of the funeral of His Majesty King Edward VII, presented to the Museum by Messrs. John Fuller and Sons. Additional accommodation space for negative storage cases is being arranged, and when completed will permit of the printing, numbering, and card indexing being kept up to date.

In addition to the photographs made for the reproduction in the Museum bulletins and other purposes, every opportunity is taken of copying photographs, pictures, and sketches of the early colonial days. By this means it is hoped to secure a pictorial record which should be of interest and value to coming generations and future historians. The negatives in what has come to be known as the "Pulman collection," also acquired by transfer from the Tourist Department, have not yet been dealt with, nor can they well be for some considerable time. The plates are mainly of large size, and include portraits of fully tattooed Maori chiefs of the war days; views of Maori life in the Auckland and Hot Lakes region; also many views of early Auckland and environs.

In photographic records of the varying types of ancient Maori forts which are so numerous in some parts of the North Island the Museum collection is singularly lacking. My travels while in the service of the Tourist Department were mainly in the region of the regular tourist routes, and it was only on rare occasions that time and opportunity permitted of a visit to the ancient strongholds. The few negatives then obtained are now in the collection.

To investigate these old-time earthworks thoroughly, and secure the necessary photographs and sketches, would require weeks of patient effort. Much field-work in this direction remains to be done. An outline of the ground to be covered is furnished by Mr. Best in the following note:—

"Interesting remains of Native forts are practically confined to the North Island. Here we find them in all districts, but they are not of equal interest, and are not equally distributed. The more interesting and numerous are found in Taranaki, the Bay of Plenty, the Auckland Isthmus, and the far North. In these four districts are found many hundreds of old forts of various types, illustrating the different methods adopted by the Maori of former times in fortifying his strongholds by means of ramparts, fosses, escarpments, and stockades. In many cases such earthworks are still in a good state of preservation, owing to the stiff nature of the soil or to a protecting growth of fern, scrub, or bush. They are, however, year by year being subjected to destructive agencies, as fire, trampling of stock, and erosion. It is therefore highly desirable that records of these works should be obtained and preserved by means of photographs, sketches, scale plans and sections. A few have been so delineated, but much more might be done. Of the great Bay of Plenty series, extending from Tauranga along the coast to a point near Te Kaha, on the eastern shores of the bay, none have been so treated. In the valley of the Whakatane alone, from the coast to the Ruatoki Gorge, some ninety-five old hill forts have been located. Similar remains are also said to be numerous in some parts of the Hauraki district."

Report on the Entomological Collections, by Amy Castle, Museum Assistant.

Since August, 1913, owing to the death of the late Director, Mr. A. Hamilton, whose understudy in the setting of entomological specimens it was my privilege to be, the collection of specimens has been under my care. To the late Director I owe a debt of gratitude for his untiring patience in imparting to me his knowledge and experience in this section of his work, and for his enthusiasm and encouragement, which stimulated my interest and efforts to understand something of this branch of natural history.

The entomological collection, which numbers approximately forty thousand mounted specimens, occupies fifteen cabinets and some eight to ten store-boxes, and now quite fills a fair-sized room set aside for its housing. It receives periodical overhauling and cleaning, as mould and mites work much harm, if unchecked, among dried specimens. The Museum collection is becoming widely known, both by students and the general public.

The New Zealand entomological collection numbers about ten thousand specimens, of which six thousand are *Lepidoptera*. Certain collections of *Lepidoptera* made by the late Director and by Mr. G. Howes, who was temporarily employed to collect specimens for a period of four months, had not been investigated, but have now been described and named by Mr. A. Philpott,* of Invercargill, and have proved to contain some new species. A collection of *Lepidoptera* from Otaki was recently made by the Director, Dr. Thomson. We have a nucleus of a collection of New Zealand *Micro-lepidoptera*, and a duplicate collection of *Macro-lepidoptera* for exchange, and can in this way make more complete our representative collection.

The work of cataloguing the New Zealand *Lepidoptera* since August, 1913, occupied some considerable time, the specimens having to be transferred to a larger cabinet, the collection at that time being somewhat scattered pending the arrival of the cabinets then under order.

From time to time, especially during the summer months, New Zealand specimens are sent in for identification and information. It was thought advisable to arouse interest amongst school-children in collecting and preserving insects, and to that end some fifty killing-bottles and capturing-nets, with an explanatory pamphlet, were issued, but, probably owing to the unprofitable season, nothing of any value has been forthcoming, though insects have frequently been forwarded to be named.

* Cf. Trans. N.Z. Inst., vol. 47 (1915), pp. 192-201.

The Lewis collection of New Zealand *Coleoptera*, augmented by some hundred set specimens presented by Mr. H. W. Simmonds, forms a fairly extensive collection, and has been much used by students for identification purposes. Any specimens not represented by species in the collection are sent to Major Broun, the authority on New Zealand *Coleoptera*, who kindly names them.

The collection of foreign entomological specimens numbers thirty thousand, and comprises principally *Heterocera* and *Rhopalocera* from Australia, New Guinea, Solomon Islands, Malay Archipelago, India, Ceylon, China, Japan, South Africa, Central America, and the Palearctic regions, and are at present being arranged under their respective countries. Within the last year the Director, Dr. Thomson, while on an official visit to Fiji, collected two hundred specimens, which have since been mounted.

Quite a large number of foreign *Lepidoptera*, especially the *Heterocera*, are unnamed, and so must remain isolated until steps are taken to identify them. The cabinet-drawers have recently been repapered and many specimens reset. The foreign *Coleoptera*, most of which are named, remain in boxes, owing to lack of cabinet accommodation.

Report on the Ornithological Collections, by H. Hamilton, Museum Assistant.

My first duty, on being temporarily appointed to the Museum staff, was the overhauling of the collection of New Zealand birds. Until further accommodation is provided and the services of a taxidermist are obtained, the collections had better remain where they are.

The Museum at one time contained a fairly complete collection of New Zealand birds, including type specimens of many of Buller's species. Through various causes the collection cannot be said to be comprehensive now. Specimens may have been destroyed by natural causes, but there was no method of ascertaining when and how.

My first care in overhauling the collection was to give each specimen, whether mounted or not, a registered number and an indexed card. All the bird-skins worth keeping were then freed from insect pests, and packed away in tin-lined cases for future reference. This was, I think, the best method of dealing with the situation, as there need be no doubt about the safety of the collection now. Of course, the mounted birds will continue to deteriorate, until the services of a qualified taxidermist are secured to attend to them and the exhibition cases are made on a better principle.

The collection of New Zealand birds cannot be said to be representative, as many of the commoner species are missing. Although a species may be common now, that is no reason why a good series should not be obtained for future reference. Seeing that our native birds are being rapidly exterminated by various agencies, it is imperative that the museums of the Dominion, and especially this national Museum, should obtain comprehensive collections. Even in the best-equipped museums a certain amount of deterioration takes place in the specimens, and fresh stocks are being accumulated. It is highly desirable, therefore, that this Museum should obtain a fresh lot of bird-skins.

Regarding the collection of foreign birds in the Museum, the previous remarks also apply. The collection is not sufficiently representative. It would be much better to confine our attentions to New Zealand natural history before attempting anything beyond a comparative collection of foreign fauna and flora. The problem of space and attention prohibits action on a larger scale.

LIST OF DONATIONS FOR 1913-14.

Amor, Commander E. R.	..	..	Balloon-fish, Tasmania.
Atkinson, E. D.	..	..	Tertiary <i>Brachiopoda</i> , Table Cape, Tasmania.
Bollons, Captain	..	..	<i>Brachiopod</i> from Cape Farewell Spit.
Brandon, Mrs. J. P.	..	..	Two busts.
Buller, W. L.	..	..	Maori obelisk from Papaitonga.
Campbell and Hunt	..	..	Ribbon-fish, Paraparaumu.
Egyptian Exploration Fund	..	..	Collection of Egyptian antiquities.
Geological Survey Department	..	..	Old Maori skull.
Gordon, Mrs. M. H.	..	..	Human remains from Pyramid of Unas, Egypt.
Hard, Sergt. G.	..	..	Shell used as a trumpet from midden, Somes Island.
Harrison, W.	..	..	Fossil bird-bones from Martinborough.
Hill, H.	..	..	Fossil (<i>Inoceramus</i>) from Poverty Bay.
Internal Affairs Department	..	..	Stuffed trout from Rotorua.
Milne, Rev. W. V.	..	..	Tree-drum from New Hebrides.
New Zealand Institute	..	..	Two scientific manuscripts.
O'Farrell, Miss E.	..	..	Moths from Otaki.
Officers of H.M.S. "New Zealand"	..	..	Model of H.M.S. "New Zealand."
Olliver, W. R.	..	..	Shells from Kermadec Islands.
Pike, E. R.	..	..	Inscribed board from Auckland Islands.
Powell, A.	..	..	American bank-notes.
Pringle, Mrs. T.	..	..	Japanese, Chinese, and New Hebrides articles; New Zealand tokens.
Radcliffe, H. E.	..	..	Shells (<i>Chione yatei</i>) from Rona Bay, Port Nicholson.
Richardson, J. M.	..	..	Two cases of New Zealand stuffed birds.
Skinner, H. D.	..	..	Four Maori stone implements.
Thomson, G. M.	..	..	<i>Brachiopoda</i> from Foveaux Strait and Cape Colville.
Waaka Hunia (per Rev. Fletcher)	..	..	Old Maori flag.
Watson Bros.	..	..	Fish and starfish from north end of Kapiti Island.
Wilson, R. A.	..	..	Three little grebe from Bulls.
Zohrab, E. G.	..	..	Ribbon-fish (<i>Trachipterus</i>) from Chatham Islands.

SPECIAL REPORTS.

1. SOME PRINCIPLES OF MUSEUM ADMINISTRATION AFFECTING THE FUTURE DEVELOPMENT OF THE DOMINION MUSEUM.

(By J. ALLAN THOMSON, Director.)

I. NEED OF A DEFINITE PLAN.

It is now an accepted principle in museum administration that if the best results are to be obtained each museum must outline for itself and steadily pursue a definite policy. "The general character of a museum should be clearly determined at its very inception. The specialities or departments of any museum may be few or many, but it is important that its plan should be positively defined and limited, since lack of purpose museum-work leads in a most conspicuous way to a waste of effort and to partial or complete failure." *

It is generally admitted in the community that the Dominion Museum does not occupy the position that it should as a national Museum. So far as natural history is concerned, its collections are surpassed in all but a few departments by one or more of the provincial museums, while in the important department of geology the Museum is at present without any collections of its own. The primary industries of agriculture, forestry, and mining are scarcely represented by exhibits or by material that could be made up into exhibits if space permitted. The reason for this state of affairs lies largely in the lack of a well-founded policy steadily pursued.

The Museum started with a miscellaneous collection gathered by the long-defunct New Zealand Society, and housed by the Wellington Provincial Government. In 1865 this collection was transferred to the General Government and incorporated in the Colonial Museum, which was founded about that date in association with the Geological Survey. Dr. (later Sir James) Hector had in 1866 a perfectly definite and limited plan for the Colonial Museum, which he thus stated in his first annual report: "One of the most important duties in connection with the geological survey of a new country is the formation of a scientific museum, the principal object of which is to facilitate the classification and comparison of the specimens collected in different localities during the progress of the survey." †

It was unfortunate that the national Museum was so strongly directed towards geology in its first twenty years; as rocks, minerals, and fossils can be collected at any time, while, on the other hand, the land fauna and flora of New Zealand and the primitive life and modes of thought of the Maori peoples were rapidly disappearing through contact with European settlement. In 1903 on the retirement of Sir James Hector the association of the Colonial Museum, the Geological Survey, and the New Zealand Institute came to an end, and it was decided to make a complete change in the policy of the Museum. The geological specimens were transferred to the custody of the Mines Department, and were in great part stored away in boxes; while the new Director, Mr. A. Hamilton, devoted his special attention, at the instance of the Government, to the collection of a representative series of specimens of Maori art and workmanship. This proved a difficult task, for most of the best specimens had either been exported from the country or were in the hands of the provincial museums or private collectors, who would not sell. It is safe to say that had the acquisition of such a collection been one of the original parts of the policy of the Museum, an infinitely better collection could have been obtained at about one-tenth of the cost. Nevertheless, thanks to the enthusiasm of Mr. Hamilton and the liberality of donors such as Mr. L. Buller and Mr. A. Turnbull, such a collection has been got together as must make Maori ethnography always one of the most prominent departments in the Museum.

Throughout both periods, that of geology and that of Maori ethnography, the biological sciences have not been altogether neglected by the Museum, but have always taken a subordinate position. Naturally, for a geologist, Sir James Hector's specialities in zoology lay in the direction of marine zoology, and the Museum collections of whales and fishes are by no means unrepresentative. But unfortunately, again, these are groups which are not in such danger of extinction as the land fauna—birds, lizards, land-shells, insects, &c.—and in none of the latter groups were the collections representative. Mr. Hamilton remedied these matters to the best of his ability with the means available, but it still remains true that the Museum collections are sadly deficient in land-animals of every kind, with the single exception of butterflies and moths.

The above summary of the history of the Museum will show not only that it is unfortunate that the policy of the Museum was not more broadly planned at the outset, but that, if the future is not to be as unfortunate as the past, a well-considered policy must be adopted and tenaciously adhered to. The object of this paper is to put forward certain considerations which may form a basis for discussion of the policy to be adopted.

II. FUNCTIONS OF A MUSEUM.

To the man in the street a museum is a building where collections are exhibited, and differs from an exhibition only in that it is always there and may be visited next year instead of this, but is probably too dull to be worth visiting at all. It is not at all the function of a museum to amuse, but it can and should be made to instruct and interest. That museums are thought uninteresting is the fault of the museums in the past, but modern methods of installation are rapidly changing this state of affairs.

There is a fundamental difference between the exhibition and the museum: the exhibition is primarily for the promotion of industry and commerce, the museum for the advancement and spread

* C. Brown-Goode: "The Principles of Museum Administration." Annual Report Museums Association, 1895.

† "Memorandum concerning the Colonial Museum." Parl. Paper D.-9, 1866.

of learning. This implies much more than the provision of a building and an exhibited collection. In the words of Brown-Goode,* "A museum, to be useful and reputable, must be constantly engaged in aggressive work, either in education or investigation, or in both. A museum which is not aggressive in policy and constantly improving cannot retain in its service a competent staff, and will surely fall into decay. *A finished museum is a dead museum, and a dead museum is a useless museum.* The museum should be held responsible for special services, chiefly as follows:—

- "(a.) For the advancement of learning: To aid learned men in the work of extending the boundaries of knowledge by affording them the use of materials for investigation, laboratories, and appliances; to stimulate original research in connection with its own collections, and to promote the publication of the results.
- "(b.) For record: To preserve for future comparative and critical study the material upon which studies have been made in the past, or which may confirm, correct, or modify the results of such studies.
- "(c.) As an adjunct to the class-room and the lecture-room.
- "(d.) To impart special information, serving as a 'bureau of information.'
- "(e.) For the culture of the public: To serve the needs of the general public through the display of attractive exhibition series, well planned, complete, and thoroughly labelled; and thus to stimulate and broaden the mind of those who are not engaged in scholarly research, and to draw them to the public library and lecture-room. In this respect the effect of the museum is somewhat analogous to that of travel in distant regions."

Another aspect under which museum functions may be viewed is that of various classes of the community which the museum should endeavour to serve.† These may be stated as follows for the Dominion Museum:—

- (1.) The casual visitor, of all ages, resident in Wellington;
- (2.) The casual visitor, of all ages, visitor to Wellington but resident in New Zealand;
- (3.) The casual visitor, of all ages, visitor to New Zealand;
- (4.) The local collector or observer;
- (5.) The student, elementary or advanced;
- (6.) The research worker;
- (7.) The Government officer, engaged in official scientific work;
- (8.) The Government.

The needs of each of the above classes must be carefully considered not only in the choice of a site and the arrangement of the collections, but also in formulating a definite plan or policy for the future conduct of the Museum. So far as the arrangement of the collections is concerned, these needs are best met by the adoption of the threefold plan described below.

Special Functions of the Dominion Museum.

Over and above those functions which the Dominion Museum has in common with other museums, there are special functions which it is required to fulfil in virtue of its relation to the State. These may be classed as follows:—

- (1.) To assist the Government in the administration of the Maori Antiquities Act by examining all Maori antiquities submitted for report;
- (2.) To assist the Government in the administration of the Animals Protection Act, and generally to assist in all matters relating to conservation of the native fauna and flora;
- (3.) To give expert advice to the Government on such matters of science, art, or early history as cannot be dealt with by other Departments of the Public Service.

The Dominion Museum also acts as receiving agent in New Zealand for the Smithsonian International Exchange. Probably much economy in distribution of the outgoing scientific publications would ensue if the Museum were made the sole distributing agent for all parcels addressed to America.

Responsibilities of the Dominion Museum for Research Work.

In a small and young community like New Zealand it is impossible that the necessary research work for developing fully the resources of the country and raising the standard of education can be entirely performed by private enterprise. Much has been done in this way, and much by the provincial museums and by the staffs of the University colleges, but there are many gaps waiting to be filled. While the Museum is rightly not made responsible for the development of the resources of the Dominion, there are many ways in which it may aid those Departments whose direct concern this is. Economic science can never advance until pure science—science for the sake of science—has prepared the way. The community may rightly look to the Dominion Museum, provided it is properly organized, to co-ordinate and fill the gaps in the pure science carried on by others. It may fulfil this responsibility in four ways:—

- (1.) By providing an adequate library for all scientific workers in New Zealand;
- (2.) By forming complete collections which will supply the material for specialists to work upon, and by encouraging scientific men both in New Zealand and abroad to ask for and use this material;
- (3.) By affording scientific men, whether on the staff of the Museum or not, an opportunity to publish the results of their researches, and by procuring the writing and publication of manuals which will collect and render more accessible the results already obtained;
- (4.) By undertaking, through its staff, research work in important directions not undertaken by other scientific men in the Dominion.

* C. Brown-Goode, *loc. cit.*

† Cf. C. Madeley: *Museum Journ.*, vol. 14 (1914), p. 47.

The following is a list of the more important departments of science in which there is room for renewed or increased research :—

Anthropometry of the Maori Race.—The need for an extensive series of physical measurements of the Maori has been recently urged upon the Government by the Royal Anthropological Institute.

Ethnography of the Maoris of the Cook Islands.—Comparatively little has been done in the matter of studying the language, traditions, and customs, and collecting the implements, of the inhabitants of this part of the Dominion of New Zealand.

Zoology.—Fossil birds : The whole subject is in need of revision, and there is much undescribed material awaiting examination, while much additional material may be obtained by exploration. Fishes : Since the departure of Mr. Edgar Waite from the Dominion there is need of a worker to take up this economically important branch of zoology. *Arthropoda* : There is room for much additional work on the spiders and lesser orders of insects. *Bryozoa and Cœlenterata* : A combined study of the recent and fossil Tertiary forms in these groups is desirable for a fuller knowledge both of the recent and fossil forms.

Botany.—Several branches of cryptogamic botany have not hitherto received much attention.

Geology.—The crystallography of New Zealand minerals has been almost totally neglected up to the present, while little work has been done on the petrology of the sedimentary rocks of the country.

Palæontology.—The field for the description of the fossils of New Zealand is large enough to employ a number of workers for many years. Fortunately much is being done by overseas specialists at present.

Cinematograph and Phonograph Records.—Much has been done in the way of preserving cinematograph records of the dances and customs of the Maoris. It is also desirable that phonograph records of Maori music and the rhythm of old Maori songs should be secured. Before the remaining native birds become more scarce it is also desirable to obtain cinematograph records of their natural attitudes and flight, and phonograph records of their song. This would require much patient effort, and might prove expensive, but a great part of the cost could be recovered by the sale of positive films and phonograph records.

Museum Extension Work.

Most museums which take their functions seriously are endeavouring to reach a wider section of the public by museum extension work of various kinds. These may be stated as follows :—

- (1.) Popular lectures on museum exhibits :
- (2.) Publication of popular museum journals :
- (3.) Provision of special rooms and collections for children :
- (4.) Provision of special rooms and collections for the blind :
- (5.) Travelling collections for schools and colleges.

Until the Dominion Museum is able to cope more efficiently with its primary functions it is not desirable to divert the energies of its staff into new channels, but the undertaking of museum extension work in the future should be kept in view.

There is one special branch of extension work that is worthy of present consideration, and that is the establishment of a marine biological laboratory and aquarium at Island Bay. Such an institution, besides doing important work in connection with the fisheries of the Dominion, could also be made of popular and educative value.

III. THE THREEFOLD DIVISION OF MUSEUM COLLECTIONS.*

Most museums are at present arranged upon a twofold plan—*i.e.*, part of the collections are exhibited to the public and part are stored out of sight. This is necessary because, in the first place, large numbers of specimens cannot be fully studied and correctly classified as soon as they are received, and, in the second place, because many specimens which are kept in a museum for purposes of record are not of interest to the general public. It is estimated by competent authorities that not more than half of the space in a museum building should be devoted to exhibition halls, the other half being necessary for offices, workrooms, and storerooms.

In most museums, however, there are included in the exhibited series large numbers of specimens which entirely fail to interest the general public, although they are of great interest to certain classes of visitors. This applies not only to natural-history specimens such as rocks, minerals, shells, insects, &c., but even to works of art when these are exhibited in great numbers in rows of cases. "The five Greek-vase rooms at the British Museum are a barbaric instance of how a superb collection of beautiful objects may, for the general public, defeat its own ends."† The suggested remedy for this state of affairs lies in a threefold division of museum collections, and has not been put into force only because museum curators are hampered by the arrangement of halls in existing buildings; but there is no reason why it should not be adopted for the new Dominion Museum building. The threefold plan is—

- (1.) People's museum, for the general public : "A relatively small synoptic collection of group-cases in specially built and lighted alcoves." In the case of the Dominion Museum this collection would be specially designed for the visitor to New Zealand and for the casual visitor resident in New Zealand, and it would be made clear that though the second part of the Museum was open to them they need not expect to find it of general interest.
- (2.) Specialists' museum : The more severely scientific exhibition series arranged rather for the specialists than for the general public. In the case of the Dominion Museum this

* Cf. H. S. H. : "A Candid Architect." *Museums Journal*, vol. 13 (1914), pp. 220-25.

† C. C. Brewer : "American Museum Buildings." *Journ. Roy. Inst. Brit. Architects*, 3rd ser., vol. 20, No. 10.

would interest chiefly the local collector or observer, the student, and all who for any reason wanted special information. Adjacent to this collection in each department should be a room for the students containing study series of specimens that might be handled, and a small library of works of reference.

(3.) The reserve collections, not on exhibition, for the research worker.

The manner in which such a system would work in detail may be made more clear by consideration of a few classes of specimens.

Rocks.—A complete collection of different kinds of rocks and another of New Zealand rocks would be aimed at in the specialists' museum. The reserve collection would contain rocks that had formed the material for special researches, a collection of rocks to illustrate the geology of different localities in New Zealand, duplicates for exchange, and all fresh acquisitions that had not been studied and classified. In the people's museum all that would be shown would be a small series (twenty or thirty specimens) of the rocks of most common occurrence in the country, another small series (five or six specimens) of the rocks which are peculiar to New Zealand, and a small collection of the rocks used for building-stones in the Dominion. The visitor to New Zealand would see at once the varieties of rocks he was likely to meet with in his travels, and the resident in New Zealand would be able to identify the common rocks in his district, without becoming bewildered by the hundreds of names that would be necessary in the collection for the specialists' collection.

New Zealand Shells.—The specialists' collection would contain as complete a collection as possible of the shells of the Dominion. The reserve collection would contain all type specimens, series of each species to illustrate stages of growth, extent of variation, abnormal developments, &c., duplicates available for exchange, and collections that had not been critically examined. In the people's collection small series would be shown of the commoner or more beautiful shells, those of types peculiar to New Zealand, edible molluscs, boring-molluscs, or similar series showing shells in other relationships than those of genus and species.

Maori Weapons.—The people's museum would contain one or two good examples of each class of Maori weapon, all arranged in one case, so that a complete view of the types of weapon used could be obtained at once. In the specialists' museum there would be a series of examples of each type of weapon, illustrating differences of form, ornament, and material. In the reserve collection there would be further series of each type, to be drawn on if it was desired at any time to exhibit more examples in different relationships.

If this threefold division is to be adopted in the Dominion Museum the new building must be specially designed to that end.

IV. THE ACQUISITION OF SPECIMENS.

Collections may be obtained through gift, by collecting and exploration, by exchange, by purchase, by construction, and temporarily through deposit or loan.

Acquisition through gift or deposit is largely influenced by the state of the museum administration. "To him that hath shall be given, and from him that hath not shall be taken away even that which he hath." It is a matter of common knowledge that many large and valuable collections are destined for the Dominion Museum as soon as it is housed in a fireproof building with sufficient space to display its collections.

"Collections which are encumbered by conditions as to manner of disposition and installation are usually sources of serious embarrassment. It is specially undesirable to accept, either as a gift or as a loan, any unimportant collection with the pledge that it shall be kept intact and installed as a unit. The acceptance of any collection, no matter how important, encumbered by conditions is a serious matter, since no one can foresee how much these conditions may interfere with the future development of the museum. Gifts, deposits, and co-operation of all kinds may be greatly encouraged by liberal acknowledgments upon labels and in public reports. This is but simple justice to the generosity of the benefactor." (*Brown-Goode.*)

Natural history and archaeological collections may most profitably be acquired by collecting and exploration, since not only are the requisite specimens thus obtained, and in such numbers as to furnish duplicate material for exchange, but the very exploration leads to the discovery of new facts. Moreover, it is a great advantage that those who are to arrange and study specimens should collect their own material, so that no details of locality or occurrence are lost. The enthusiasm and vitality essential to museum-work are more fully sustained if the exhaustive indoor work is varied by occasional periods of outdoor collecting.

The field for collecting and exploration before the Dominion Museum is very great, and should undoubtedly be availed of by a systematic plan of operations. The remaining areas of native bush and the mountain meadows will yield many desirable plants and land-animals; the lakes and streams contain many shells, insects, and crustaceans not represented in the Museum collections; the submarine shelf surrounding the Islands is only partially explored as yet; the Chatham Islands are virgin ground for many classes of specimens; extinct-bird bones are still to be found in caves in limestone districts; Maori pa, midden, and quarry sites may yield important results with careful excavation; while rocks, minerals, or fossils are to be obtained in all parts of the Dominion. Collecting and exploration can only profitably be carried out by trained men, and if the services of the Museum staff are to be relied on for this purpose the number of the staff must be largely increased, and the funds for travelling-expenses must be greatly expanded.

When the policy of the Museum is definitely settled, and it is known exactly what classes of specimens are desired, much may be done to augment the collections by a system of exchange. The necessary supply of duplicates can be obtained by collection, and exploration, and by the construction of replicas of the best examples of Maori art. The preparation of material for exchange occupies a

great deal of time, and necessitates ample space, which should therefore be provided in the proposed new buildings.

Acquisition of specimens by purchase should be used chiefly for filling gaps in series obtained in other ways. It is, of course, in many cases the only possible way of acquiring what is desired, particularly in the case of rare historical documents or works of art. Until the scope of the Museum is definitely decided it is impossible to give an estimate of what sum should be devoted annually to this purpose.

The improvement of the exhibition galleries by the construction of models and the making of drawings and maps is a growing feature of museum activity, and may be largely availed of in the Dominion Museum.

V. SCOPE OF THE DOMINION MUSEUM COLLECTIONS.

It is most particularly in the matter of the classes of specimens which the Museum should endeavour to obtain and exhibit that the need of a definite plan is most urgent. Until this is settled it is impossible to design a building satisfactorily, or to state the approximate number of staff required and the income that will be necessary.

All museums but those of the most wealthy nations find it necessary to specialize, either in the classes of specimens collected or in the locality from which they are drawn. It goes without saying that the Dominion Museum must specialize in collections relating to New Zealand, but its usefulness would be very greatly limited if foreign specimens were excluded. In order that the peculiarities of the Maori people and the fauna and flora of New Zealand may be understood it is necessary to exhibit collections from other countries by way of contrast. Further, it is desirable that a national museum should make up to the public as much as possible the lack of opportunity to travel in distant regions, by the exhibition of collections of all kinds from abroad. Again, in order to exhibit many relationships, such as geographical distribution, evolution, mimicry, adaptation to environment, &c., the use of foreign specimens may be necessary. But to prevent the acquisition of more material than the Museum can profitably deal with, some principles of limitation must be found. This will be discussed under the different departments of the Museum.

New Zealand History.

Any specimens, manuscripts, log-books, old newspapers, photographs, prints, or pictures which illustrate early New Zealand history are manifestly within the scope of the Museum collections. The only points to be decided are as to how far the Museum should endeavour to collect also material for the early history of Pacific and Antarctic exploration, and of the whaling industry in the Southern Hemisphere generally. So far at least as books are concerned, such a broader collection should unquestionably be made in New Zealand.

Ethnology and Ethnography.

The Museum possesses the nucleus of a collection of casts of Palæolithic skulls and a few skulls of Native races. These collections, which are easily displayed and are of general interest, may profitably be extended as opportunity offers. In particular it is desirable to obtain as many skulls as possible of the Maori and of the Melanesian and Polynesian peoples for purposes of future study, as the problem of the origin of the Maori may be thereby advanced. The ethnological section may also be improved by the exhibition of a series of pictures and models of the Maori and South Sea Island peoples. To prepare these models it may be necessary to send a Museum officer to the islands. Such models also serve a purpose in ethnography, as they may be made to hold implements or weapons, and may be draped with the national costumes.

Ethnographic collections may be exhibited in either of two ways or by a combination of both.* The objects relating to each race may be kept separate, or the objects of similar use in different races may be grouped together to show the evolution of civilization. Ethnographical collections require a large amount of space, and an attempt to acquire and exhibit collections illustrative of all the races of the earth is quite beyond the prospective means of the Museum. It is, however, practicable and desirable to illustrate the ethnography of the South Sea Island peoples in addition to that of the Maori, and the Museum already attempts to do this in a small way. The purchase of the additional specimens necessary to make the existing collections representative should be included in the policy of the Museum, and the matter should not be long delayed if economy is to be considered.

Besides these racial exhibits, comparative series of objects of similar use in different races may well be attempted, and in this section may be placed various small collections already possessed by the Museum, chiefly of Asiatic origin. While the number of such series that could be made up is very large, the Dominion Museum may well restrict itself at present largely to those classes of objects used by the Maoris, such as stone implements, weapons, fishing implements, ceremonial implements, clothing, ornaments, utensils for food, musical instruments, and toys. In these comparative series many of the classes of specimens already exhibited in the racial collections of the Maori and South Sea Island peoples would be shown over again, but in different relationships and conveying different ideas. The additional materials necessary for such comparative series could probably be obtained largely by exchange of the many duplicate Maori specimens which the Museum possesses. One advantage of such a comparative collection is that isolated specimens from any race find a logical place in the Museum, without the need to attempt a complete collection of the objects of that race.

* Cf. H. S. Harrison: "Ethnographical Collections and their Arrangement," *Museums Journal*, vol. 14 (1915), pp. 220-25.

Zoology.

The formation of as complete a collection as possible of the animals of New Zealand may be taken without comment as part of the province of the Dominion Museum. Opinions may differ as to how far the Museum should make collections of foreign animals, and it is here that the need of some definite limitation is felt. Foreign specimens are, I submit, necessary for three purposes: (1) To give a comprehensive view of the animal kingdom, requiring a representative systematic collection; (2) for the purposes of comparison in the study of New Zealand animals, in the form of a comparative research collection; (3) for illustrating zoological or biological relationships, in the form of special synoptic collections.

REPRESENTATIVE SYSTEMATIC COLLECTION.

The needs of the student and of the juvenile members of the community alike demand that a representative collection of the animals of the world should be possessed and, as far as possible, exhibited in the Museum, but, since anything like a complete collection is far beyond the probable means of the Museum, a principle of limitation such as is proposed below becomes necessary.

A genus in the Linnæan system is founded on a definite species, known as the type species or genotype. Thus there are about one hundred different kinds of oysters classed as species of the genus *Ostrea*, of which the type is the common European oyster, *Ostrea edulis* Linné. All these species are more closely related to *Ostrea edulis* than to the genotype of any other genus. Obviously, then, if a collection of molluscs is to be limited, but entirely representative, a collection of genotypes best meets the case.* Such a collection would be as interesting as any other to the general public, and would be of enormous value to the student and specialist. I am not aware that the formation of a collection of genotypes has been previously attempted in any other museum, but I strongly recommend that it should be adopted in the Dominion Museum as the principle of limitation for many groups of invertebrates.

A collection limited even to genotypes would, however, be beyond the probable means of the Museum, and for many groups a further limitation is necessary, and can be obtained by a similar idea. Genera are combined into families which take their name from a type genus. Thus the various genera of the family *Ostreidae* are more nearly related to the type genus *Ostrea* than to the type genus of any other family. A collection of the genera of *Mollusca* typical of the families would thus be still representative, although considerably limited. If still further limitation were desired recourse could be had to superfamilies, suborders, or orders. The amount of limitation I suggest as being within the future probable means of the Dominion Museum is shown, for the principal groups of animals, in the following table:—

<i>Mammalia</i> living.	Families.	<i>Mollusca</i> .	Genera.
„ fossil.	Suborders.	<i>Annelata</i> .	Genera.
<i>Aves</i> .	Families.	<i>Echinodermata</i> .	Genera.
<i>Reptilia</i> living.	Families.	<i>Brachiopoda</i> .	Genera.
„ fossil.	Orders.	<i>Bryozoa</i> .	Genera.
<i>Amphibia</i> .	Families.	<i>Cœlenterata</i> .	Genera.
<i>Pisces</i> .	Families.	<i>Porifera</i> .	Genera.
<i>Arthropoda</i> .	Families.		

If a scheme such as the above is adopted it will be possible in every case to know whether a given species offered as a donation, for exchange, or for sale is a desideratum, whereas, in the absence of any such test, museum officers have to exercise their private judgment in every case, and the growth of the collections is in danger of becoming haphazard and controlled by accident.

Strangely enough, there are few groups of animals in which lists of genotypes and type genera of families have been collected and published, so that before any progress could be made with the collections a large amount of preliminary work would be necessary in drawing up the lists. On the other hand, a published catalogue embodying this information would be of the utmost service to zoologists all over the world, and would materially enhance the reputation of the Museum. As for the collection itself, it would prove quite impossible ever to complete it, because some families and very many genera are founded on unique or very rare specimens; but the adoption of the scheme would ensure that, whether progress were fast or slow, the collections would be always progressing in a desired direction. Moreover, with the increase of knowledge and the discovery of new genera the scope of the collections would gradually extend, and thus there would always be room for “aggressive work.”

COMPARATIVE RESEARCH COLLECTIONS.

For the better knowledge of the animals of New Zealand the Museum needs a representative collection of similar types of animals from other parts of the world, particularly from Australia, the Pacific islands, and South America. The lack of such collections in New Zealand has always hampered research in the past, and will continue to do so in the future until this defect is remedied.† This does not involve complete collections from each of these countries in each major group represented in New Zealand, but only complete collections in certain families or genera. Thus, in the case of lizards, only the skinks and geckos would be required, and not the other families of lizards, while the other

* The reason for choosing the genotype in preference to any other species of the genus is that, if the advance of knowledge necessitates a further subdivision, a new genus may be founded on any of these species except the genotype of the original genus. A genotype collection would have to be continually augmented as new genera were proposed, but only in rare cases would it become necessary to remove a specimen owing to the discovery that the genus it represented was a synonym of some other.

† These remarks apply in a still greater degree to fossils.

reptilian orders containing snakes, crocodiles, and turtles would be unnecessary in this connection. For such a research collection it would not be necessary to obtain fresh examples of a species already represented in the other collections.

SPECIAL SYNOPTIC COLLECTIONS.

The two previously mentioned collections would be housed partly in the specialists' museum and partly in the storerooms, but in the people's museum there would be room for special synoptic collections of many kinds. For instance, the Museum already possesses a small exhibit of birds of paradise and other birds of brilliant plumage, and another of humming-birds. The other museums of the Dominion possess cases exhibiting skeletons or a restoration of the moa along with examples of the other ratite birds—viz., the kiwi, the emu, the ostrich, the rhea, and the cassowary. An exhibit of the tuatara lizard side by side with models or restorations of fossil reptiles belonging to the order of which it is the sole living representative would convey to the visitor in a vivid manner the archaic nature of part of the fauna of the Dominion. Many biological phenomena, such as variation, evolution, heredity, adaptation to environment, or mimicry could be usefully illustrated in small special collections. Provided that some room for expansion is allowed for in the new Museum building, there is no need here to discuss the limitations that must be put on these kinds of collections, each of which may be considered on its merits when the time for its formation arises.

Botany.

Botanical specimens are seldom well adapted for exhibition in museums, but so far as material for study and research is concerned the scope of the collections may be limited by the principles laid down for zoological specimens.

Geology.

The geological collections made by the Colonial Museum were handed over to the Mines Department in 1904 for the use of the reconstituted Geological Survey, but have not been removed from the Museum buildings, where they remain partly on exhibition and partly in store. The Museum is thus officially without geological specimens, but there is every probability that these specimens, or at least a part of them, will be handed back to the Museum. Failing the establishment of a separate Geological Survey museum, the Dominion Museum should attempt to obtain complete collections of the fossils, minerals, and rocks of New Zealand. Foreign specimens are also necessary in the following cases:—

- (1.) A representative stratigraphical collection of fossils;
- (2.) A reference collection of minerals;
- (3.) Special exhibits of minerals;
- (4.) A reference collection of rocks.

REPRESENTATIVE STRATIGRAPHICAL COLLECTION OF FOSSILS.

Fossils may be considered either as zoological or botanical specimens on the one hand, or as geological specimens on the other. For purposes of exhibition in museums many fossils should be exhibited side by side with recent animals or plants, in order to convey the idea that the present *faunæ* and *floræ* of the earth are but a continuation and a modification of those of the past, and that the relationship of existing animals and plants cannot be properly understood without a knowledge of the pre-existing forms. Viewed in this light, the principles of limitation to be applied to foreign fossils are those laid down above for zoological specimens.

In the geological section of the Museum, however, exhibits of fossils are also necessary to show their use in geology as aids in determining the age of rock-formations. Such a stratigraphical collection of fossils also serves a purpose in zoology and botany by helping to give a comprehensive view of the *faunæ* and *floræ* of the earth at the different periods.* To some extent the New Zealand fossils can be made to serve this purpose; but owing to the absence of many fossiliferous horizons in New Zealand, and to the early differentiation in geological time of geographical provinces, foreign fossils must also be extensively used. The collection of fossils formerly made by the Colonial Museum, and now in the possession of the Mines Department, would form a good basis for this collection; and the number of additional specimens necessary for an effective exhibit would not be large, and could be mostly obtained by exchange, provided a vigorous policy of collecting New Zealand fossils is maintained.

REFERENCE COLLECTION OF MINERALS.

It is desirable that the Museum should possess a good collection of species of minerals for purpose of comparison and reference not only for the use of students and research workers, but for the members of the public who are specially interested. Such a collection, however, is not well suited for complete exhibition, as many minerals occur in crystals too small to be seen without handling the specimens and using a magnifying-glass, and these are best placed in an accessible position in a storeroom. The collection in the hands of the Mines Department would furnish a very good nucleus for such a collection, but needs supplementing by exchange or purchase.

* Since the majority of fossil animals are marine, and fossil land-animals are exceedingly rare and difficult to obtain, most stratigraphical collections only show the succession of marine *faunæ*. The extinct land-animals can in most cases be shown only by casts, restorations, or pictures.

SPECIAL EXHIBITS OF MINERALS.

Minerals for exhibition purposes should consist of large crystals, small crystals occurring in great numbers, or of large specimens of massive minerals. A relatively small number of minerals thus treated both make an effective display, and interest without wearying the casual visitor. These specimens may be acquired in various ways, but probably purchase would prove necessary in most cases. Unfortunately, New Zealand has not yet proved a good collecting-ground for such minerals.

REFERENCE COLLECTION OF ROCKS.

As in the case of minerals, it is desirable that the Museum should possess a good collection of rocks for the purposes of comparison and reference. Rocks differ from minerals in that there are few or no fixed species, the assemblages of minerals which constitute most rocks never being in exactly the same proportion or of exactly the same nature in two different specimens. Rock-species, therefore, are best illustrated by specimens from the same rockmass to which a given name was first applied. Thus rocks in various parts of the world have been termed "dunite," but as the name is derived from the intrusion of the Dun Mountain, near Nelson, a specimen from this locality is obviously the most desirable. To build up such a reference collection from type localities would require the predominance of foreign rocks. Such a collection, though difficult to obtain, would not be much more costly than any other, and would be easy to house; it would be as useful as any other to the general public, and would be of the greatest advantage to officers of the Geological Survey and to other specialists, particularly if microscopic sections of each rock were made.

Technology.

Exhibits illustrating at least the primary industries of New Zealand, such as agriculture, forestry, and the timber industry, the flax industry, mining, and fishing, would be much appreciated by many sections of the community, and would serve a useful educational purpose. I am of opinion that these should be included in the policy of the Museum. No foreign specimens are necessary in this connection.

Fine Art.

As it has been decided by Act of Parliament that a Dominion Art Gallery shall be established in association with the Dominion Museum and under the same Board of direction, all specimens of fine art in the Museum collections, except such as are of greater value as historical or ethnographical specimens, will naturally be exhibited in this department. The Museum already contains the nucleus of a collection, described in a special report appended hereto, and there is also a collection of pictures acquired for this purpose through public subscription by the New Zealand Academy of Fine Arts. The growth of this collection cannot be left entirely to voluntary effort if it is to become worthy of the Dominion, and a liberal income is necessary. Since the money that can be spent on fine art is limitless, it is also necessary, in order to preserve a due balance between the Art Gallery and the historical and scientific departments of the Museum, that the proportion of income to be devoted to each should be clearly defined.

Dominion Scientific, Art, and Historical Library.

The Science and Art Act of 1913 states that "there shall be a Dominion Scientific, Art, and Historical Library (hereinafter referred to as the Dominion Library) in the City of Wellington, within or adjacent to the Dominion Museum." This library, equally with the Dominion Art Gallery and the Dominion Museum, is to be under the management and direction of the Board of Science and Art.

The library question in Wellington is rather complex. There was a public scientific library in the old Colonial Museum, acquired jointly by the Colonial Museum, the Geological Survey, and the New Zealand Institute, including also books belonging to the defunct New Zealand Society and a few belonging to the Wellington Provincial Council. Very few of the books were acquired by purchase, and the majority were obtained in exchange for the publications of the New Zealand Institute, the Geological Survey, and the Colonial Museum and Laboratory. These books obtained in exchange for the publications of the New Zealand Institute, or donated to it, were marked with the name of the Institute.

By an Order in Council of the 29th April, 1904, in terms of the New Zealand Institute Act, 1903, there was vested in the Board of Governors of the Institute, "The books bequeathed to the New Zealand Institute by the late Charles Rooking Carter, of Carterton, as shown in the catalogue deposited in the Colonial Secretary's Office, at Wellington, and also the two book-cases containing the said books. . . . The books marked as belonging to the New Zealand Institute at present deposited in the library of the Colonial Museum, Wellington, numbering three thousand volumes or thereabouts."

No attempt has since been made to definitely determine the ownership of the individual books of the old Colonial Museum Library, and the books of the New Zealand Institute still remain in the old library-room of the Museum. The publications since received by the New Zealand Institute through donations or in exchange have been marked with the name of the Institute and added to the old library, but without being bound. In the same library are also housed the books belonging to the Wellington Philosophical Society, obtained mainly by purchase, and regularly bound.

Since 1904 the Dominion Museum has acquired a separate library by purchase and by exchange. These books are stored in the various working-rooms of the Museum.

Since 1904, also, the Geological Survey has commenced the formation of a library by exchange and purchase, and these books are housed in the temporary offices of the Survey. Many of the sets of journals in the latter library are continuations of those housed in the old Colonial Museum Library. There are also considerable numbers of scientific books in the Parliament Library and in the library of the Victoria College.

The majority of books in the above libraries, with the exception of that of the Wellington Philosophical Society, have been acquired by the expenditure of public funds, supplemented in the case of the New Zealand Institute by the voluntary research work of its members, which has made its publications valuable for purposes of exchange.

It is obvious that if all these various libraries were brought together as far as possible not only would a vastly more efficient scientific library be available, but considerable economy in administration would result. The New Zealand Institute has taken steps towards this end by offering to deposit its library in that of the Dominion Library under certain conditions, and the Wellington Philosophical Society is taking steps in the same direction. A similar association of museums and learned societies is found effective in many parts of the world.

But even if all the scientific books of all the above-mentioned libraries were gathered together into the Dominion Library, large sums of money would be necessary to make it adequate to the scientific needs of the Dominion. This is owing to the fact that so great a part of the above libraries was built up by exchange, whereas very large numbers of scientific books and magazines cannot be obtained by exchange, but must be purchased. Many such books and magazines have increased greatly in price since the date of their publication, very largely owing to the demand created by the growth of scientific libraries in America.

For the formation of an art library there is little material in any of the above collections, except in the Dominion Museum and the Parliament libraries. It is for Parliament to decide whether there are to be one or two libraries in Wellington devoted to this purpose. The same applies also to the formation of an historical library; but in this case the Carter collection of the New Zealand Institute also enters into the problem.

If the provisions of the Science and Art Act, 1913, are given effect to by the establishment, within or adjoining the Dominion Museum, of a Scientific, Art, and Historical Library it is manifestly desirable that a due balance shall be preserved between the different sections of the library by the provision of a definite income for each section.

VI. MUSEUM STAFF.

General Considerations.

"A museum without intelligent, progressive, and well-trained curators is as effective as a school without teachers, a library without librarians, or a learned society without a working membership of learned men."

"No investment is more profitable to a museum than its salary fund, for only when this is liberal may the services of a permanent staff of men of established reputation be secured. Around the nucleus of such a staff will naturally grow up a corps of volunteer assistants, whose work, properly assisted and directed, will be of infinite value."

"The museum which carries on explorations in the field as a part of its regular work has great advantages over other institutions in holding men of ability upon its staff, and in securing the most satisfactory results from their activities."

"Each member of a museum staff should become an authority in some special field of research, and should have time for investigation and opportunity to publish its results."

"A museum officer or employee should, for obvious reasons, never be the possessor of a private collection."*

Honorary Curators.

Many museums, both large and small, are fortunate enough to benefit by the services of honorary curators, who are frequently university professors. Such men have an official status in the museum, and have their own rooms in the museum buildings. While the number of resident scientists who might be induced to act in such a capacity is small, the Dominion Museum would benefit greatly by associating with itself specialists from various parts of New Zealand as honorary curators, in return paying their travelling-expenses for such times as they visited Wellington on Museum business. When the Dominion Library is established it will act as a magnet attracting the scientific specialist to Wellington, and the position of honorary curator would then be valued.

Museum Guides.

While a museum must rely principally on its printed labels for explaining its collections to the general public, it is a matter of experience that few visitors take the trouble to read many of these labels, and do not carry away with them a very accurate idea of what they have seen. To remedy this defect many museums have now adopted the policy of employing official guides, men of good education who have been specially supplied by the curators of departments with accurate information concerning the exhibits. These guides personally conduct small parties around the museum during given hours, and the results have in most cases proved very satisfactory.

Without undertaking too ambitious a programme, the Dominion Museum might well experiment in this direction by the use of university students as guides. For their services for a limited number

* C. Brown-Goodie, *loc. cit.*

of hours per week a sum equivalent to a scholarship or bursary might be acceptable to many students, and the occupation itself would be of educative value, particularly to students intending to take up teaching as a profession.

Proportions of Staff and Expenditure.

The staff of a large museum may be divided into administrative, scientific or professional, and technical divisions. The administrative division includes the director, accountant, clerical assistants, custodians of the buildings and stores, messengers and night-watchmen, and also a librarian and a registrar of collections who must possess some scientific training. The scientific staff consists of the curators and assistant curators of the various departments, and may include voluntary assistants. The technical staff consists of taxidermists, articulators, moulders, museum assistants who have special skill in various directions without necessarily any sound scientific training, printers, carpenters, and other mechanics. The size of a museum staff is regulated by the activities of the various departments, and the number of the scientific or professional division may therefore serve as an index of the total staff required. It is difficult to obtain statistics for a large number of museums, but the average for the cases available is three other employees for each scientist on the staff. In small museums the director or curator and scientific assistants, if any, have to carry out many of the duties which in larger museums can be spread advantageously over other members of the staff.

The expenditure of museums varies very greatly according to their sources of income, some museums having funds especially devoted to purchase of specimens or to exploration. Excluding such cases as these as far as possible, the average expenditure per member of the scientific staff, in all but very small museums, is approximately £1,100 per annum, and this may be taken as a guide in estimating the cost of any given policy to the Dominion Museum.

VII. MUSEUM CONTROL.

The governing bodies of museums are extremely varied in their methods of constitution, but the majority of museums which are not the property of learned societies or of universities are controlled by boards of trustees. This is the case not only with independent museums, but also with most municipal and State museums. The advantage of having a board of trustees in the case of the last two kinds is that people wishing to donate or bequeath money to the museum may do so in the knowledge that their donation or bequest will not be used in diminution of the municipal or State subsidy. One of the most successful American museums receives a grant from the City Corporation for maintenance purposes, and relies entirely on public support for the enlargement of its collections, but as the museum grows the city increases its vote for maintenance. The British Museum is under a board of trustees, while the United States National Museum is administered through the Smithsonian Institution, which acts as a board of trustees.

It is probable that if the Dominion Museum were placed under such a board much greater public support would be forthcoming. An arrangement by which the Government undertook the expense of maintenance, leaving the enlargement of the collections mainly to public support, while it would place much greater responsibilities on the trustees and Museum officials, would ensure the efficiency of the Museum from the popular point of view. A museum cannot be too much in touch with the people.

VIII. CONCLUSION.

The adoption by the Board of Science and Art of part or all of the proposals here made as a policy for the Museum, or of some other policy, must depend ultimately on the estimated cost of carrying the adopted policy into effect. This cost, in turn, may be resolved into the capital sum needed for providing and furnishing a new Museum building and the annual vote that must be asked from Parliament for current expenses. The policy here proposed is an end towards which the Museum should work, and it is reasonable to hope that the activities of the Museum will gradually expand, and with them also the annual expenditure.

The annual expenditure may be approximately estimated, as has been shown above, by the number of the scientific staff required. Leaving out of account the Dominion Library and the Dominion Art Gallery, I consider that the minimum or commencing scientific staff necessary for the proper development of the Museum is as follows :—

- (1.) Director, to act temporarily as Curator of Geology and Mining.
- (2.) Ethnologist, Curator of Ethnology and Ethnography.
- (3.) Land Zoologist, Curator of Land Zoology (lizards, birds, insects, &c.).
- (4.) Marine Zoologist, Curator of Marine Zoology (whales, fishes, marine invertebrates) and of Fisheries.
- (5.) Botanist, Curator of Botany, Forestry, and Agriculture.

The estimated cost on this scale, at the rate of £1,100 per member of the scientific staff, will be £5,500 per annum.

Temporarily, at least, the department of early New Zealand History might be placed in charge of the Librarian of the Dominion Library. As the library will need a large sum for the first few years in purchase of books if it is to be made even moderately efficient, and also as early historical documents should be acquired at the earliest possible date, these two departments will need a liberal vote, not less and probably more than £1,100 per annum.

The Dominion Art Gallery is capable of absorbing unlimited sums of money for the purchase of pictures and works of fine art, and the money that should be devoted to this purpose is a matter more for public opinion expressed through Parliament than for the personal views of its officials. It will not be overstating the case to write down £1,100 as the commencing annual expenditure.

The above considerations give £7,700 as the total annual expenditure of the Dominion Museum, Dominion Library, and the Dominion Art Gallery for the first few years after their establishment in a new building or buildings. That this is not a large amount for a national museum may be seen from the case of the Australian Museum, Sydney. This museum contains scientific and historical collections and a library, but not an art gallery. The expenditure for the year 1913-14 was £10,754, concerning which the Curator states, "The small amount for the support of this museum compares very unfavourably with the amounts allowed for similar institutions in America and Europe, where some museums receive from £40,000 to £50,000 a year."

The expenditure of the Dominion Museum for 1912-13, the last year of normal activities, was £3,050

2. COLLECTIONS AVAILABLE FOR THE DOMINION ART GALLERY.

(By J. McDONALD, Art Assistant.)

The collections which form the nucleus of the Dominion Art Gallery are at present contained in the Dominion Museum, the Parliament Buildings, and the New Zealand Academy of Fine Arts, and consist of—

- The Monrad collection of etchings and engravings;
- The Chevalier collection of sketches and water-colours;
- The Dominion Museum collection of sculpture, oil-paintings, water-colours, etchings and engravings, and other objects of art;
- The New Zealand Academy of Fine Arts collection of oil-paintings, water-colours, drawings, and etchings;
- The National collection of sculpture, oil-paintings, water-colours, and etchings now held in trust by the New Zealand Academy of Fine Arts; and also
- The collection of marble statuary purchased by the Government after the close of the International Exhibition at Christchurch in 1906-7, and
- Works of art in private hands which will be forthcoming as soon as provision is made for their safety.

THE MONRAD COLLECTION.

This collection, consisting of 596 etchings and engravings, represents the work of over 120 masters of the Dutch, Flemish, Italian, French, and German schools. No less than forty-three of the prints are by Rembrandt, the great master whose influence spread over the whole field of Dutch art during his own life and after it, and passed far beyond the borders of his own land and his own period. The technical ability and the imaginative power of the Dutch school, so perfectly expressed in the prints in this collection, were widened and deepened by him to limits which only a few masters had reached before his day. Amongst the prints by Rembrandt is the wonderful self-portrait of 1639, which in technical execution is probably the finest etched portrait ever produced.

The etchings and engravings by the Dutch artists are especially interesting to us, inasmuch as they reflect the social condition of the land whose fleet then held supremacy on the high seas, and whose exploring-ships, the "Heemskirk" and the "Zeehan," had pushed their way to the land which still proudly bears the name—New Zealand—given to it by the old Dutch cartographers who mapped Abel Janz Tasman's discoveries in the great South Seas in the year 1642. In this collection there are also nineteen examples of the works of Albrecht Durer, the great Nuremberg engraver, who is regarded as having reached the highest perfection in the art. To Durer also is accredited the discovery of the art of etching.

Altogether the 596 prints generously presented to the Colonial Museum by the late Bishop Monrad, at one time Prime Minister of Denmark, offer an abundance of material for the study of seventeenth-century art in Holland, Flanders, Italy, France, and Germany.

In his letter of the 8th January, 1869,* acknowledging this generous gift, the then Colonial Secretary, Mr. E. W. Stafford, after expressing on behalf of the New Zealand Government the high sense which it entertains of the value of this handsome donation and of his lordship's desire to promote the interests of art and science in this young colony, states that "Directions will be given to exhibit and take every care of this valuable collection, which will ever form a lasting memorial of his lordship's visit," &c.

After nearly half a century's repose in the portfolios in which it was presented the existence of this magnificent collection is known to but a few Government officers, and probably to the few artists and collectors, who, like myself, are interested in this mode of artistic expression.

* *New Zealand Gazette*, 16th January, 1869.

THE CHEVALIER COLLECTION.

This consists of 250 sketches and water-colour paintings made by the late Mr. Nicholas Chevalier, who visited New Zealand in 1866, and to whose work reference has already been made. (See report on the rearrangement of Museum exhibits.)

THE DOMINION MUSEUM COLLECTION.

The Museum collection contains twelve oil-paintings; sixteen pieces of sculpture (originals and copies); seventy-three water-colours, sixty-eight of which are by General Robley, and are previously referred to (see report on rearrangement of Museum exhibits); fifty black-and-white drawings and pencil sketches, four of which are by the eminent artist the late J. F. Lewis, R.A.; 250 casts of medals, engraved gems, and coins of all periods; a large collection of ancient Greek and Roman coins; twenty-four original drawings in various media by masters of the early Italian schools; eighty etchings and engravings formerly in the possession of King George III; and numerous objects of art now contained in the Egyptian, Indian, and other collections in the Museum.

Among the oil-paintings is one which is undoubtedly the genuine work of an early master. The fine preservation of this canvas, with its cool silvery tones in the underpainting, and the rich glazes which have withstood the ravages of time, is evidence of the careful preparation of the grounds and the thorough drying and bleaching which are so characteristic of the early Flemish and Italian schools. Another canvas in the collection is a copy of the painting by Raffaele in the Museo Nazionale at Naples.

The large collection of Greek and Roman coins offers a rare field of study to artists and students of ancient history. Few cabinet treasures can trace so long and unbroken a pedigree, and fewer still can show a line of ancestors so little touched by time. The study of these ancient symbols of civilizations swept away in the wreckage of the past recalls the words of the French poet, Theophile Gautier:—

All passes. Art alone
Enduring stays to us;
The bust outlasts the throne,
The coin, Tiberius.

In the collection of etchings and engravings made by King George III there are twelve of Rembrandt's most famous works, including the well-known "Windmill" and the "Amsterdam," which for atmosphere and for delicacy of treatment are probably the finest of the master's works. There are also the works of many of the masters of the sixteenth, seventeenth, and eighteenth centuries. Albrecht Durer, whose works are referred to in the Monrad collection, is represented here by an exceedingly rare print, "The Martyrdom of St. Catherine." This fine engraving is on the very thick coarse paper which was then manufactured, and is printed in the usual pale bistre ink of Durer's day.

THE NEW ZEALAND ACADEMY OF FINE ARTS COLLECTION.

There are seventy works of art in the Academy's gallery in Whitmore Street. The estimated value of this collection is between £3,500 and £4,000.

THE NATIONAL COLLECTION.

Eighty works of art were acquired as the result of the movement in 1911 which followed the announcement by the Government of its intention to establish a Dominion Art Gallery. The details of the successful campaign that provided £6,000 for the purchase of pictures are worthy of record here.

"The Council of the New Zealand Academy of Fine Arts, having in hand a grant from the Government of £500, arranged with Mr. John Baillie, a former member of the Academy, and the owner of a well-known art gallery in London, to bring out a collection of works by British artists. With this representative collection on view it was felt that an appeal might be made to the public for funds for the purchase of pictures for the proposed national gallery. The council therefore waited upon the City Council and asked whether that body, in the event of £5,000 being raised, would subsidize it to the extent of £1,000. This the Council agreed to do, with the result that after an energetic canvass the amount was raised, either in cash or in value of pictures purchased at the exhibition and presented to the gallery. These are held in trust by the New Zealand Academy of Fine Arts until such time as the national Art Gallery is built, when they will be handed over together with the Academy's original collection."*

SCULPTURE.

This collection of thirteen works in the purest Carrara marble by Mr. C. S. Summers was produced by him in Rome, and on them, as he once remarked to me, he has spent the best years of his life. The finest probably is "Eve," a beautiful figure slightly larger than life-size, standing on a revolving grey marble pedestal, bearing four carved bas-reliefs. Another, and in some respects more exquisitely delicate piece of work, is "Modesty," a veiled bust, in which the lace veil that drapes the features is so skilfully treated as to seem half-transparent. Two other particularly fine pieces are "Deborah, the Prophetess," and "Susanna surprised by the Elders." The "Bacchante and the Infant Bacchus" is a replica of the richly beautiful classical work which stands on the grand staircase of the Royal Palace in Rome; and the "St. Cecilia" is a replica of the famous work in the Church of St. Cecilia. Busts of Socrates and Demosthenes are also in the collection. These pieces of statuary were purchased by the Government for £2,200, and are temporarily housed in the bath buildings at Rotorua.

* Ann. Rep. N.Z. Acad. Fine Arts, 1911-12.

SOME CONSIDERATIONS FOR FUTURE GUIDANCE.

The Dominion Art Gallery, so far as present purposes are concerned, can be viewed and dealt with conveniently from two standpoints—the ancient and the modern.

As regards the ancient, it would take an enormous amount of money to get together a representative collection of the works of different schools, and the funds available in a young country like this could be better employed. Moreover, the prices asked and obtained for old masters are oftentimes far in excess of their artistic value. There should be no attempt, therefore, to secure the purchase of old masters, unless the prices at which they are offered justify their purchase and the works possess true artistic value, and not merely an antiquarian one. Money, however, would be well spent in obtaining casts and replicas of sculptures, coins, and ancient craftwork, and copies of the many excellent prints in colour and otherwise which can now be obtained of paintings by such old masters as have influenced modern art or are landmarks in the history of art. Money can also be well expended in obtaining copies of a few paintings by such men as Titian, Leonardo da Vinci, Rembrandt, Holbein, Franz Hals, and Velasquez, who have specially influenced art, provided such copies are executed by reliable artists who have followed faithfully the technique of the master, otherwise the fac-simile reproductions in colour published by the Arundel Society would be more desirable.

Should the Government at any time decide to offer to rising New Zealand artists a travelling scholarship, as is done by the trustees of the National Gallery in Melbourne, a condition might similarly be made that the winner should within the term of his scholarship paint for the Dominion Art Gallery one original picture and two copies of works by old masters. All honour lies in store for some person or persons of wealth who will do here as others have done elsewhere. The sum of £5,000 or £6,000 would provide an annual income which would permit of a scholarship being awarded, and would be a lasting monument of philanthropy and good citizenship.

While copies only of the great masterpieces which have commanded the reverence and admiration of mankind, and satisfied the yearnings of the human mind for perfection in form and colour, are within our reach, yet in the progress of time it will be possible to gather a collection of works of great merit which should carry their message to a people who have already, in a humble way, made some advance in the fine arts.

We have but one genuine canvas by an unknown old master, probably of the Venetian school; a few copies of the early works; and nearly seven hundred undoubtedly genuine drawings, etchings, and engravings by sixteenth-, seventeenth-, and eighteenth-century masters.

The art of ancient Greece is represented in the collection of coins, the artistic value of which is that they reflect the incessant activity of the Greek imagination. Civic pride induced great rivalry, and in the abundance of coins which poured from the mints artistic effort was stimulated to the highest limits. No objects of Greek art better illustrate the diffusion of ancient Greek genius than their coins. The efforts of the artists and potters of Egypt and Greece are represented in the Museum collections by the objects from the royal tombs at Abydos, and in the *lekkythoi* from the Temple of Minerva in the Island of Naxia; also in the fac-simile by Wedgwood of the famous Barberini vase, or, as Erasmus Darwin has termed it, "Portland's mystic urn," the original of which is supposed to have been manufactured in the glassworks of Alexandria at their best period, and is now in the British Museum.

With regard to modern art the world is becoming sufficiently cosmopolitan to obviate the necessity of dividing works into different national schools. British and American artists exhibit on the Continent, and Continental artists in Britain and America; it is often difficult to tell the nationality of the artist by the work of the present day. The object to be borne in view, therefore, should be—

- (1.) To acquire works of real artistic merit, apart from any question as to the renown of the artist who executed them, a question which too often enters into the selection of works of art;
- (2.) To obtain a good example of every school and phase of modern art;
- (3.) To obtain, if possible, an early and a mature example of the work of every modern artist whose influence has been or is being felt in the artistic world; and
- (4.) To acquire a representative example of the work of every New Zealand artist who has painted consistently up to a certain standard, and whose work has therefore had an influence upon the rising New Zealand artist.

As regards the last section, in the above collections there are examples of some of the New Zealand painters of note, but there are still many whose works have not yet been acquired. The Dominion Art Gallery, with its assured permanency of establishment, should endeavour to secure the best of the early as well as the mature work of the artists of each generation. In course of time it would be found by the generations to come that a valuable collection had been formed with comparative ease and at moderate cost as compared with the difficulties and expenditure which have to be faced by many institutions of the present time. For instance, let us consider the enormous sums paid for etchings by Rembrandt, whose work is to be seen in the fifty-four examples in our collections. Willshire, in his work "The Collection of Early Prints," states, "In the early part of last century £30 was paid for a good impression of the 'Hundred Guilder' print. At Verstak's sale in Holland in 1847 this price was quadrupled, and shortly afterwards rose to £200. In 1867 the print was sold for £1,180." At the Holford sale in 1893 a 'first state' of this same 'Hundred Guilder' print realized £1,750, while another 'first state' print by the great master was sold for £2,000.

We must not, however, be led into the error of thinking that a museum or art gallery is to be organized and stocked by outlay of money for works of art, and thrown open to the public as a finished and furnished establishment. Art is long; and its history, which the Dominion Art Gallery is intended to teach, is as long. It begins and ends with the history of the race.

3. THE EXISTING STATE OF THE TUATARA (*SPHENODON PUNCTATUS* GRAY), WITH SOME NOTES ON ITS HABITS.

(Compiled from reports of Special Protectors and other sources by J. ALLAN THOMSON, Director of the Dominion Museum, Wellington.)

INTRODUCTION.

In 1913, at the instance of the Minister of Internal Affairs, Mr. A. Hamilton, late Director of the Dominion Museum, made a number of inquiries by letter from persons specially qualified to give information about the tuatara and its present distribution. Later in the same year the light-keepers on Stephen Island, The Brothers, and Cuvier Island, and the caretaker of Little Barrier bird sanctuary, were appointed special protectors of the tuatara for those islands, and have in this capacity submitted reports from time to time to the Under-Secretary of Internal Affairs, some of which contain information of general interest. The opinions expressed are somewhat variable on the matter of whether the animals are increasing or decreasing, as may be seen from the remarks tabulated below. Owing to the nocturnal habits of the reptile, the light-keepers are not in all cases in a position to judge of its abundance, as their duties keep them near the lighthouses at night. The special protectors have been instructed to destroy wild cats, hawks, and other enemies of the tuatara, and there is therefore reason to hope that more definite evidence of an increase in numbers may be recorded in a few years.

Writer and Date.	Remarks.
NUMBERS, INCREASE OR DECREASE, AND ENEMIES.	
<i>Stephen Island.</i>	
P. W. Grenfell; 7th April, 1913	Not plentiful between March, 1909, and May, 1911. "The whole number would not exceed 150. During my time they appeared to be holding their own. Prior to then, from information received, I believe they had decreased considerably. The decrease may be taken from the time the island became a light-station (1894), and was owing to the following causes: (1) Keepers in the early days selling the eggs; (2) cats, domestic or wild; (3) kingfishers, who prey upon the young ones. (I believe the last cat was killed a year before I left the island.)"
T. H. Turner; 31st March, 1913	"The lizards were plentiful two years and a half ago, and were then increasing in numbers. The wild cats used to destroy a few, but we shot or trapped most of the cats."
W. A. Dabinett; 23rd April, 1913	"They were very plentiful on Stephen Island the eighteen months I was stationed there, and I do not think they are decreasing in numbers, as I saw no skeletons about."
R. S. Wilson, 5th April, 1913	"I have seen several young lizards lately, but whether they are increasing in their numbers or not I cannot say. But there is one thing I wish to draw your special attention to, and that is their enemies. As far as I can see, the hawk is the most dangerous. Just recently I disturbed a hawk in the act of devouring a half-grown lizard."
D. McNeil; 5th April, 1913	"There are a large number all over the island . . . and this last summer they appear to be on the increase. What lizards we see about are all large ones; we do not see any little ones at all."
R. S. Wilson; 4th June, 1913	"During the month I have disposed of four hawks and two cats. The former are not numerous on the island at present, nor are the cats."
R. S. Wilson; 30th September, 1913	"The tuatara lizard is now over its winter sleep, and can be seen basking in the sun on various parts of the island, but not in any great numbers."
E. W. Tutt; 23rd October, 1913	"After very careful looking about this island, and comparing the number of tuatara lizards with what I saw five years ago, I am quite sure that there are 50 per cent. less than formerly. I cannot make out why I see no young ones, quarter or half grown up. Up to this time I have seen only a few old females with eggs. I find that there are a few cats here yet, but not many."
R. S. Wilson; 3rd January, 1914	"I am firmly of opinion that year by year the tuatara lizards are decreasing in numbers. Up to the present I have seen no young . . . The only reasons I can give are as follows: their natural enemies, hawks, cats, and kingfishers. . . . Cats are increasing, and only recently one of the keepers came across a body of a lizard almost devoured by them. They have a good deal of cover here."
R. S. Wilson; 1st June, 1914	"I firmly believe that their numbers will be on the increase next summer. I am basing my views on the numbers of hawks that have been destroyed; roughly speaking, Mr. Willers and I have altogether destroyed about two hundred, and now one is rarely to be seen."

Writer and Date.	Remarks.
NUMBERS, INCREASE OR DECREASE, AND ENEMIES—continued.	
<i>Stephen Island—continued.</i>	
P. R. W. Willers; 12th October, 1914	"I have noticed the kingfisher devouring the very small tuatara lizards, and have therefore destroyed several kingfishers and also their eggs. . . . I have also trapped a number of hawks and a few cats, there being but few on the island now. The very large seagulls which frequent the summit of the island at certain times of the year also devour the tuatara."
R. S. Wilson; 31st October, 1914	"By the destruction of the hawk and other natural enemies the tuatara are on the increase, but they are not plentiful."
T. B. Smith; 25th May, 1915	"During the six months I have been here I have been frequently over the whole of the island, and the tuataras are to be seen more or less in every locality, but more especially in the bush and in the vicinity of the dwellings. Since being on the island I have trapped only five cats, and three of these were kittens, so although there must be a few left, I do not think there are many. On two occasions I have seen hawks flying with a lizard hanging from their claws. In March and April, when the hawks were here by the hundreds, I managed to trap a large number, and by secreting myself in the bush at dusk I have shot as many as sixteen in a short time. When all the bush has disappeared off the island, as it is doing, the tuataras will have no bush security."
E. R. Wilson; 20th May, 1915	"During the past summer the hawks have been very numerous; there have been 355 destroyed with guns and traps. Also there were five cats destroyed. I do not think there are any more on the island, as I have not seen any lately. There are a great many tuataras in the bush, but not out in the open. They seem to have deserted the open places in the island and taken to the bush."
<i>The Brothers.</i>	
L. Thomson; 22nd April, 1913	"There are very few tuataras on The Brothers, and they are no doubt decreasing. When I was first stationed there sixteen or eighteen years ago there were a fair number, but when I returned five or six years ago the numbers had decreased considerably."
E. H. Tutt; 12th March, 1913	"There are only a few on The Brothers, the food being scarce. I fear the hawks get a few, as there are quite a number about sometimes."
J. McGarvie; 19th March, 1913	"I fancy their number is much about the same as when I came (two years ago), but as this island is very rough and steep I expect there are a large number that I never see at all."
W. W. McLeish; 29th October, 1913	"I have seen a few about the lighthouse and dwelling, and indications of them on other parts of the island, but cannot say if they are on the increase or not."
C. Davis; 13th January, 1915	"I have seen a few young tuataras lately. These have been hatched this season, by their size, and they are lively and keep close to the mouths of their holes. As flies and beetles and other insects flourish on the island there is always abundance of feed to be had, so that with protection from cats and other enemies I think the tuatara should thrive and increase in numbers here."
<i>Cuvier Island.</i>	
R. Leighton; 24th March, 1913	"I do not think the lizards are very plentiful on Cuvier Island, and should say they have decreased in numbers. The principal reason for this is, in my opinion, the advent of the men employed during the building of the stations, the workmen usually taking cats and dogs with them. I know from experience that both will destroy lizards."
A. Duncan; 30th April, 1913	"As I have seen them at different parts of the island, it would seem as if they were fairly plentiful. Cuvier Island must be most suitable for them, as the whole island is covered with dense bush and large boulders, so that in the bush they find plenty of food, and under the boulders they make their nests. I have really no means of knowing whether they have decreased in numbers of late years. I have formed the opinion that a fire must have swept the island in years gone by and must have caused the tuatara to decrease, but I see no reason why they should not now increase. There are a few owls on the island, and they may eat the young ones at times, but with the cover they have, probably the owls cannot get many. On one occasion I have seen an owl carrying a lizard. During my two years on the island I shot seven wild cats, and all were in very good condition. Cats, as a rule, that eat lizards are very thin."

Writer and Date.	Remarks.
NUMBERS, INCREASE OR DECREASE, AND ENEMIES—continued.	
<i>Cuvier Island—continued.</i>	
F. J. Berry; 1st April, 1913	"At present I am unable to state whether the lizards are increasing or decreasing. By the remains of mutton-birds I have seen at different parts of the island there is an indication that cats are numerous, and since I have been appointed a protector I have hunted and killed several."
H. Harvey; 4th April, 1913	"The keepers are now doing their best to kill off the cats, and already a number have been destroyed."
H. Harvey; 24th May, 1913	"There are a number of wild goats on the island, which have been here for many years. They live mostly about the cliffs, and do no damage to the native bush except eating the leaves of some of the undergrowth, which soon grows again. The only rats on the island are the small native rats which, in my opinion, are not, like the larger European rat, destructive to small indigenous birds."
G. McPherson; 8th December, 1913	"I have now resided here twelve months and never yet had the pleasure of seeing a tuatara, and can only add that if they are to be found on the island their numbers are few. I have destroyed a good many rats, a number of goats, and a few cats also."
P. W. Grenfell; 5th April, 1914	"During the time I have been on the island close on fifty goats have been shot, also three cats. Since Mr. McPherson recorded his opinion that there were no tuatara lizards on the island I have seen no less than four, although on account of the large number of wild cats there is a possibility that they will disappear altogether."
P. W. Grenfell; 1st November, 1914	"From personal observations I can only state that on the appearance of warmer weather the lizards which I have seen previously appear to be doing all right. I have not seen any young ones. Rats and wild cats appear to be very numerous, and during the winter a large number of rats have been caught in traps set in the boat-shed and dwellinghouses."
H. J. Disting; 16th November, 1914	"Since I have been here I have seen several tuatara, also signs of them all over the island; but I think the rats and cats destroy a good many, as there seems to be plenty of both on the island."
W. J. Barr; 16th October, 1914	"During the fourteen months that I was stationed at Cuvier Island I trapped and destroyed a large number of rats, and two cats and one hawk. I also travelled over the island many times, and I consider the number of tuataras to be small, as I only saw as many as three on one day."
F. W. Grenfell; 1st June, 1915	"Since writing my last report the tuatara appear to be in much the same quantity. Four black cats have been shot since January."
<i>Little Barrier Island.</i>	
R. Nelson, caretaker; 1st April, 1913	"I believe that the tuatara is very rare, as I have only seen one during the two years that I have been here. There are still evidences of wild cats being on the island, although I have destroyed a good many of them."
R. Nelson, caretaker; 24th November, 1913	"I have not been able to locate any of the species, although I have given a very careful search both in the low-lying districts and on the high lands as well. Once I heard a peculiar sound coming from one of the holes where the petrels build their nests. I could account for it only as being the sound of the tuatara. I have killed one cat since my last report. I have never seen traces of others. I am hoping that they are now all exterminated."
R. Nelson, caretaker; 1st January, 1915	"Since submitting my last report I have not been fortunate in locating any of the tuatara lizards. - I have searched in some likely haunts, both during the daytime and after dark with a lantern, hoping that the light would attract them to it. I have noticed peculiar marks of feet on the sand near the mutton-birds' nests, and believe they are their marks. I have destroyed another two wild cats, but lately I have come across fresh evidences that they are not all exterminated."

Writer and Date.	Remarks.
COLOUR AND MARKINGS.	
Professor W. B. Benham, Otago University; 21st May, 1912	"It would be extremely important and interesting to have a careful study made of the various forms previously regarded as distinct species, and especially to have some really good coloured drawings made of them, together with a careful account and pictures of the surroundings upon which each variety lives; with notes on the vegetation, the colour of the rocks, the climatic and physical conditions. It would perhaps throw some light on the conditions existing in the early days when the tuataras were the only reptiles on the face of the world. It would enable us, too, to find out what is the significance of the colour. I do not think it is 'protective,' for the animal has no natural enemies, but it is likely to be due merely to isolation in the different islands."
T. F. Cheeseman, curator, Auckland Museum; 22nd March, 1913	"I think far too much importance has been assigned to the so-called differences in colouration. Much depends upon age, the change of skin, and possibly upon the breeding season."
A. Duncan; 30th April, 1913	"When on the ground they resemble the colour of dead wood and leaves, and, until they move, are hard to see. I had a dog that would hunt them out without touching them. By that means I came across many I would have passed unnoticed."
SIZE.	
R. Leighton; 24th March, 1913	"The largest tuatara I have seen was about 17 in. long." (Cuvier Island.)
T. H. Turner; 31st March, 1913	"I have seen lizards from 4 in. to 30 in. long." (Stephen Island.)
A. Duncan; 30th April, 1913	"The smallest tuatara I have seen was between 6 in. and 8 in., and the largest 21½ in. (carefully measured)." (Cuvier Island.)
H. Kent; 12th April, 1913	"I only saw two young ones, but they would be over 6 in. long, and I never saw any under that size." (East Cape.)
LAIRS.	
T. H. Turner; 3rd March, 1913	"During part of the year (breeding-time) thousands of dove-petrels visit the island, and these birds lay their eggs and hatch their eggs in the same holes as the lizards live in. While digging out these birds for their eggs I have come across dozens of lizards in the same holes as the birds, and they seem to be very friendly with each other." (Stephen Island.)
P. W. Grenfell; 7th April, 1913	"They prefer to shelter in holes scooped out by the mutton-birds or dove-petrels, although some excavate a place for themselves. The locality chosen must have the appearance of safety, whether under a rock, or open faces, or under the roots of trees; always the light peaty soil must be underneath them, and the surroundings give promise of beetles or insects." (Stephen Island.)
H. Kent; 12th April, 1913	"I have seen them on a moonlight night scraping holes on the track leading to the lighthouse." (The Brothers.)
S. Hart; 24th April, 1913	"On The Brothers they are always found in petrel-burrows; on East Cape they burrow sometimes for themselves, as petrels are comparatively scarce on the latter island. A burrow about 18 in. long was made in my garden on East Cape in one night."
R. S. Wilson; 3rd January, 1914	"The dove-petrels every year visit the island in their thousands to lay and hatch their young. They burrow into the earth for yards at a stretch and there make their nests, and very little ground on this place has escaped them. The whole island is simply honeycombed more or less by them, and the chances are that they very often strike on a nest of eggs already made by the lizard. In this way a great many of the eggs are destroyed, causing a big loss every year."
EGGS AND DEVELOPMENT.	
R. Leighton; 24th March, 1913	"The nest was in a dry mutton-bird burrow containing seventeen eggs. This was on East Cape Island."
T. H. Turner; 3rd March, 1913	"I was fortunate enough to find ten eggs of the lizard, and on watching them develop I think when hatched the young ones would be about 4 in. long. It takes, I believe, about twelve months for the eggs to hatch." (Stephen Island.)
A. Duncan; 30th April, 1913	"On one occasion I found a nest of tuatara-eggs; they were simply lying on a bare spot of earth on the rocky face of the cliff facing the sun. When I returned to the spot some time afterwards there were only parts of the skin of the eggs left. I did not count the eggs, but they looked to me something like a good handful of peas, from the size of a pea to the size of a nutmeg, and a dirty-grey colour." (Cuvier Island.)

Writer and Date.	Remarks.
EGGS AND DEVELOPMENT—<i>continued</i>.	
S. Hart; 24th April, 1914	“A burrow about 18 in. long was made in my garden on East Cape in one night. After ascertaining that there was not a bird in it I filled it up; it was reopened the next night, and blocked again the day after. Seeing it opened for the third time, I dug into it with a spade and found a dozen tuatara-eggs. The lizard was not in the burrow with the eggs, but made it for them.”
E. H. Tutt; 12th March, 1913	“I caught one or two young ones, and on examination I found that their mouths were closed; therefore I knew that it was only a short time since they got hatched, as it takes from ten to twelve months to hatch, and the mouths are closed quite a little time after they leave the egg. . . . The young can take care of themselves, as the female when laying the eggs only puts them in a hole, packs dirt between and around them, blocks up the hole, and never goes near them again.”
W. Tutt; 2nd June, 1913	“The lizard lays her eggs on the same date year after year. Each lizard has her own date; some start in September, others do not lay their eggs until January.”
NOCTURNAL HABITS.	
A. Duncan; 30th April, 1913	“They seldom come out in the daytime, but on Cuvier Island I have seen them feeding in the daytime in the dense bush stony gullies.”
P. W. Grenfell; 7th April, 1913	“In summer he roams at sweet will during fine clear nights, not necessarily confining himself to any one place, but having an eye to a nice sunny aspect during the day, with the possibility of a bath.” (Stephen Island.)
G. McPherson; 24th May, 1913	“I desire to point out here the very great difficulty met with in locating them, on account of their hiding in the daytime, no doubt in mutton-bird burrows and thick undergrowth, and travelling principally at night.” (Cuvier Island.)
P. R. W. Willers; 12th October, 1914	“The tuataras are to be seen more on foggy and muggy nights.” (Stephen Island.)
PARTIAL HIBERNATION.	
T. H. Turner; 31st March, 1913	“For four months of the year the lizards keep to their burrows in a comatose condition.” (Stephen Island.)
L. Thomson; 22nd April, 1913	“It is seldom we see them during the winter months; only on fine calm sunny days they lie with their heads out in the holes, and only for an hour or two in the middle of the day. As soon as it gets a little cold they crawl back again.” (The Brothers.)
P. W. Grenfell; 7th April, 1913	“Like the toad, the tuatara becomes torpid in winter from four to six months. His colour is then a dark-brown, but with the advent of spring he commences to shed his coat, until near the end of December he is tawny in colour.” (Stephen Island.)
R. S. Wilson; 30th September, 1913	“The tuatara is now over its winter sleep, and can be seen basking in the sun on various parts of the island.”
P. W. Grenfell; 1st November, 1914	“There is very little to be said about the tuatara during the winter months, for the simple reason that it disappears from view during that period.” (Cuvier Island.)
IMMOBILITY IN CAPTIVITY.	
A. Duncan; 30th April, 1913	“I drew a pencil-mark around him on the floor, and never in six weeks did he shift his position or eat even a fly.” (Cuvier Island.)
R. S. Wilson; 5th April, 1913	“They seem to enjoy a sun bath, and will stay for hours in one position taking the full benefit of the heat.” (Stephen Island.)
GENERAL.	
T. H. Turner, 3rd March, 1913	“The lizards are very fond of wallowing in the pools of water after rain, and one that used to frequent a hole alongside my house would have his bath daily by means of a pan of water put there for him.” (Stephen Island.)
A. Duncan; 30th April, 1913	“They can swim, as this one crossed over a creek when I came on him.” (Cuvier Island.)
S. Hart; 24th April, 1913	“When very much frightened, the tuatara squeak rather loudly.”
A. Duncan; 30th April, 1913	“There is a small black beetle they seem to be very fond of.” (Cuvier Island.)

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