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MEMORANDUM

CONCERNING

THE COLONIAL MUSEUM.

PRESENTED TO BOTH HOUSES OF THE GENERAL ASSEMBLY, BY COMMAND OF HIS EXCELLENCY.

WELLINGTON.

1866.

MEMORANDUM CONCERNING THE COLONIAL MUSEUM.

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.

By this means only is a reliable basis obtained for a general system of geological nomenclature, the value, proof, and application of which to the development of the country depends mainly upon the preservation of minutely recorded information respecting the history of individual specimens.

In this respect a scientific Museum differs from one intended only for the popular diffusion of natural science—the former being a record office from which typical or popular Museums can be supplied with accurate information instructively arranged—a method which would prevent their lapsing, as is too frequently the case, into unmeaning collections of curiosities.

This division of museums into two classes is now clearly recognized in England, and its adoption has been strongly recommended in the re-arrangement of the Natural History collections in the British Museum.

It appears to me that an arrangement of this kind with regard to Museums is particularly applicable to New Zealand, as the most favourable for the rapid development of its resources; and it is with this view that the Colonial Museum should be formed—not as a rival, but to assist the local typical Museums, the establishment of which should be encouraged in all the principal centres of population, for the purpose of giving instruction respecting the resources and natural history of the country, as well as acting as a stimulus and guide to local research in those branches of knowledge.

The chief expense of the scientific Museum arises from the nature of the staff required for the comparison, analysis and discrimination of specimens, and for publication; but as the labours of this staff will be available for the different local Museums, these latter will be spared all further superintendence beyond that of a Curator and a Committee of Management, and be maintained at a very small annual expense.

In this way each Province might have a popular Museum on any scale of expense that suited the requirements and taste of the inhabitants, and for such, the nucleus already exists in all the principal towns of the Colony; but unless the arrangements of the Colonial Museum are such as enable the scientific work of examination and comparison to be performed with facility and accuracy, the progress that will be made in acquiring knowledge of the resources of the Colony will be slow and unsatisfactory, and in the long run effected only at a great and unnecessary expense.

The Museum in its present state does not afford the required facilities, and the provision of additional accommodation is very desirable and could be effected at a small expense. A great part of the space that should be devoted to the arrangement and display of specimens is now used as a temporary office, for which it is not suited, and I need hardly point out that in order to avoid confusion and loss of time, proper office accommodation is absolutely necessary for the performance of clerical and draughtsman's work, and for the systematic preservation of records and observations.

The museum building as designed originally, consists of the present central hall, with the addition of a wing of equal extent to the hall at each end, and a two storied front that will afford all the required office accommodation.

For the present I believe it would be the most economical course for the Government, considering the real purpose of the Museum, to proceed with the erection of the offices. This would add a very considerable area to the Museum proper; and, with a few slight changes in the manner of lighting and in the interior fittings, the present hall would be sufficient for the purpose of the scientific Museum for some time to come. It would undoubtedly be more convenient if the wings were also erected, and the collections permanently arranged therein, especially as the hall would then be available as a lecture room, in connection with the survey; but this for the present is not so pressing a want.

If, however, the additional office accommodation were provided, the present staff of the Geological Survey is quite sufficient to carry on the work efficiently, and to assimilate and render available the work done in the field, at least for some time, until the collections of fossils are sufficiently copious to form a correct basis for the classification and correlation of the geology of New Zealand with that of other countries, when it will be necessary to add a Palæontologist to the present staff, in order that this most important branch of the work of the survey may receive proper attention.

In addition to the office accommodation, a most necessary and important adjunct to the Museum is a conveniently constructed and well-finished Laboratory; and I would strongly urge a small expenditure for this purpose, as the present temporary accommodation is extremely imperfect, and not at all in keeping with the importance of the questions that have frequently to be decided by the experimental operations there carried on.

The present portion of the Museum building was completed in September last, and by December the collections which had been accumulating since the month of April previous, were sufficiently arranged to admit of the Museum being opened to the public.

Since that time the collections have received large additions; and if there was sufficient accommodation, and funds for the construction of proper show cases, there is no doubt that a large and valuable collection of objects worthy of preservation would soon be formed from gifts to the Colony by private individuals.

Referring more particularly to the main object of the Museum, I have to report that it already contains a very fair series of specimens illustrative of the geology of New Zealand, which, in addition to the collections made in the course of the survey during the past year, comprise those made during the Geological reconnaisance of the Province of Wellington, by the Hon. Mr. J. C. Crawford; duplicates from the Otago collections; minerals and ores from the Nelson Province, principally presented by Mr. Wells, of the Dun Mountain Company; Canterbury building stones, and a suite of the igneous rocks passed through in the Lyttelton tunnel, from Dr. Haast, and many other miscellaneous collections contributed by private individuals, all of which will be fully detailed and acknowledged in a descriptive catalogue which will be prepared as soon as the collections can be satisfactorily arranged.

For the present the following Abstract is sufficient to show the important extent to which collections have accumulated during the first year of the establishment of the Museum:—

Abstract of Contents of the Colonial Museum.

	No. of Specimens.
Rocks, minerals, and fossils,—	
New Zealand	5,972
Foreign	3,325
Recent Shells—	
Including New Zealand, Australian, and general type collections	2,846
Specimens of Natural History—	
Miscellaneous collections of woods, fibres, wools, Native implements, weapons, dresses, &c.	1,811
Total number of specimens	13,954
	Square Feet.
Area of building at present occupied by temporary offices ...	564
Area at present occupied by specimens and passage space ...	1,384
Total area of present building	1,948
Space required for the proper display of specimens not at present accessible, about	1,200

In addition to the collections made in connection with the Geological Survey, those transferred to the Department by the New Zealand Society, and the large collection deposited by the Honorable Mr. Mantell, the Museum contains contributions from 44 private individuals.

Total number of visitors up to the end of August, 1866,—1,600.

The first arrangement of the collections in the Museum was principally effected by the Honorable Mr. Mantell, to whom I am under great obligations for having undertaken the superintendence of the Museum during my absence for six months in the northern part of the Colony, and it is mainly to his zealous exertions and cordial co-operation that the rapid formation of the Museum is to be attributed.

Feeling the great inconvenience which must have arisen if I had not been able to rely on the valuable assistance and experience of Mr. Mantell, I am led to suggest the advisability of providing for the control of the Museum by the appointment of trustees in place of the present arrangement, by which the responsibility for the care of so large an accumulation of valuable property devolves on the Government Geologist, who, from the nature of his duties must necessarily be absent for long periods of time from Wellington.

LABORATORY.

The following statement gives the principal results of the analytical operations that have been conducted in the chemical laboratory by Mr. Skey.

The great importance of having the nature of the mineral and other substances which are constantly being discovered in all parts of the country, carefully determined, is obvious, and it has previously been pointed out that the accommodation and appliances afforded for this purpose by the present Laboratory are so insufficient as to endanger the accuracy of the results obtained, and cause great loss of time and waste of material.

COALS.

The chemical investigation of the properties and relative value of the coals of New Zealand has been carried on in continuation of the results already published in the Supplement to the Jurors' Report on the New Zealand Exhibition of 1865, pages 373 to 387 and 439 to 443, and most of the details of the following analyses have been embodied in a special report on that subject.

No.	Book.	Page.	Nature of Sample.	Locality.	By whom Sent.
2	1	35	Bituminous Coal	Pakewau, Golden Bay, Nelson ...	Dr. Irvine.
3	„	33	Bituminous Shale	New South Wales, Heartly	Superintendent of Auckland.
5	„	31	Ditto	Mongonui, Auckland...	Rev. R. Taylor.
19	„	57	Semi-Bituminous Coal ...	Walton's Seam, Wangarei, Auckland	Geological Survey.
19a	„	„	Ditto—sample of band	Ditto ditto ...	Ditto.
...	„	32	Torbane Mineral	Torbane	Dr. Hector.
45	2	1	Bituminous Coal	Kawa Kawa, Moodie's outcrop, Auckland	Geological Survey.
45a	„	4	Second sample of ditto ...	Ditto ditto	Ditto.
46	„	1	Bituminous Coal	Ditto ditto, main seam ...	Ditto.
47	„	„	Brown Hydrous Coal ...	Lower Waikato	Ditto.
47a	„	5	Ditto	Middle Waikato	Ditto.
48	„	2	Ditto	Kaiou River, Whangaroa Harbour	Ditto.
49	„	„	Ditto	Mokau River, Taranaki	Rev. R. Taylor.
50	„	3	Bituminous Coal (pyritous)	Wangarei, Auckland...	Geological Survey.
51	„	„	Ditto (jet) ...	Ditto	Ditto.
62	„	49	Bituminous Coal	Aorere River, Nelson	Mr. Wells.
63	„	„	Ditto	Ditto	Ditto.
70	„	„	Ditto	West Wanganui, Nelson	Ditto.
71	„	„	Hydrous Brown Coal ...	Taketemo Mountains, Southland ...	Mr. Eccles.

BUILDING MATERIALS.

No.	Book.	Page.	Nature of Specimen.	Locality.	By whom Sent.
6	1	37	Calcareous Grit	Kawau Island	H. E. Sir George Grey.
18	„	53	Freestone	Onemama Port, Wangarei, Auckland	Geological Survey.
20	„	38	Trachyte	Wangarei, Auckland	Ditto.
21	„	60	Limestone	Limestone Island, Wangarei, Auckland	Ditto.
23	„	62	Ditto	Near the Springs, ditto ...	Ditto.
24	„	63	Ditto	Abbey, ditto ...	Ditto.
25	„	„	Ditto	Otaika, ditto ...	Ditto.
26	„	„	Ditto	Coal Mine Creek, ditto ...	Ditto.
29	„	72	Siliceous Freestone ...	Auckland	Superintendent of Auckland.
32	„	85	Limestone	Oruru, Mongonui	Geological Survey.

Some of the Northern building stones are very promising, especially those occurring in the vicinity of Wangarei Harbour.

The limestones from that district are available either for the purpose of building or for the manufacture of quick lime of excellent quality.

METALLIC ORES.

No.	Book.	Page.	Nature of Specimen.	Locality.	By whom Sent.
1	1	...	Plumbago	Pakawau, Nelson	Mr. Eccles.
4	„	35	Sulphide of Copper	Waipori, Otago	Mr. Vogel.
...	„	„	Second specimen ditto ...	Ditto	Ditto.
8	„	36	Vivianite—Phosphate of Iron	Canterbury	Mr. Acland.
10	„	29	Iron Pyrites	Nelson	Mr. Travers.
13	„	43	Dioptase—Silicate of Copper	Wakamarina, Marlborough ...	Mr. Crawford.
14	„	„	Iron Pyrites	Ditto ditto ...	Ditto.
15	„	„	Silicate of Magnesia, with oxide	Kawarau, Otago	Superintendent of Otago.
17	„	„	Sulphide of Antimony ...	Barrier Island, Auckland	Geological Survey.
22	„	61	Bog Iron Ore	Spring Swamps, Auckland ...	Ditto.
28	„	70	Auriferous Pyrites—estimation of Gold	Kapanga Mine, Auckland ...	Ditto.
28a	„	71	Ditto ditto ...	Ditto ditto	Ditto.
30	„	4	Meteorite	Wairarapa, Wellington	Mr. Collins.
31	„	...	Quartz—for Gold	Wellington...	Mr. Crawford.
36, 37, 38	„	...	Iron Platinum	Southland	Captain Inverarity.
52	„	35	Iron Pyrites	Otago	Mr. McGlashan.
53	„	„	Chrome Ore	Ditto	Ditto.
54	„	„	Gypsum	Ditto	Ditto.
55	„	„	Chrome Ore	Ditto	Ditto.
56	„	„	Black Iron Sand	Ditto	Ditto.
...	2	13	Sulphide of Antimony ...	Ditto	Ditto.
72	3	13	Sulphide of Iron and Copper, with traces of Nickel and Cobalt	Moke Creek, Otago	Mr. Bradshaw.

The most interesting feature in the above list is the occurrence of platinum in the Province of Southland, where it is found along with the gold in considerable quantities. It is principally in the form of iron platinum, containing 12 to 14 per cent. of iron, which is sufficient to render it magnetic.

This metal may be recognized among gold dust by its bright steel-grey lustre. Its specific gravity is considerably less than that of gold; and, owing to this, and the fact of its being attracted by the magnet used in freeing the gold from the iron sand, it may frequently escape observation.

Pure platina is worth about 34s. per oz., and this ore contains 27s. 2d. worth of the metal; but the cost of manufacturing it into compact form must be considerable, so that the sample may be valued at about 21s. per oz. As it has now been found at both extremities of the South Island (see Exhibition Jurors' Report Supplement, page 403), where the gold diggings are contiguous to the crystalline rocks, it may be expected to occur also on the sea coast of Westland.

MINERALS AND ROCKS.

No.	Book.	Page.	Nature of Specimen.	Locality.	By whom Sent.
7	1	39	Lime Garnet, with Calc Spar	Kakanui River, Otago ...	Mr. Mantell.
...	„	1	Radiating Crystals of Carbonate of Lime ...	White Island	Mr. Vogel.
...	„	29	Heavy Spar Sulphate of Baryta	Poverty Bay	Rev. R. Taylor.
...	„	44	Scheelite—Tungstate of Lime	Dunstan, Otago	Mr. Hackett.
...	...	...	Gypsum	White Island	Colonel Haultain.
39	2	8	Diorite, from Dyke Rock	Kawa Kawa	Geological Survey.
40	„	9	Siliceous Rock (over the coal)	Ditto	Ditto.
...	„	18	A new Sulphate of Iron	White Island	Mr. Vogel.
			Miscellaneous.		
...	1	55	Water—(qualitative)	White Island	Mr. Vogel.
27	1	66	Soil of the Gum Land	Auckland	Geological Survey.
12	1	77	Tobacco (six samples)	Canterbury	Mr. Hall.
...	...	...	Ditto (one sample, Native manufacture)	Auckland	Dr. Hector.
52a	„	81	Bitter Substance of the Kohe Kohe ...	New Zealand	Mr. Mantell.
33	...	...	Petroleum Oil	Taranaki	Colonial Secretary.
34	...	...	Experiments on Flax	Testing McMillan's process	
66	2	50	Petroleum	Poverty Bay	Colonial Secretary.

The detailed results of the above analyses have either been reported at once to the persons requiring the information, or will be embodied in their proper place in the general reports on the geology of the country.

A large number of qualitative analyses have also been effected upon various Museum specimens which are not referred to in the above list. Mr. Skey has, moreover, used the Laboratory in the evenings in making original researches on subjects that are suggested in the course of his ordinary duties, and the results of several of these have already been transmitted to England for publication.

James Hector, F.R.S.

Geological Survey Office,
11th September, 1866.