

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.