With the exception of these supposed Carboniferous rocks, Hector and McKay referred all the other fossiliferous beds in question to horizons between the Permian and Upper Jurassic. Their classification (of 1878) was as follows:—

Mataura Series (Plant Beds)	Upper Oolite.
Putataka Series	Middle Oolite.
Flag Hill Series	Lower Oolite.
Bastion Series	Lias.
Otapiri Series	Rhætic.
Wairoa Series	Middle Trias.
Oreti Series	Lower Trias.
Kaihiku Series	Permian.

In this classification the Richmond sandstone of Hochstetter is placed in the Wairoa Series, and the Ammonite beds of Kawhia in the Putataka Series, the age ascribed to each by Zittel being practically accepted, although in each case they are made a little older. The superposition of the series was worked out by Cox and McKay in the Hokanui Hills; and by a comparison of the fossils with those of other localities in New Zealand Hector was able to assign the beds at Nugget Point, the Kaihiku Ranges, Mount Potts, and the Wairoa Gorge to their various horizons in his classification. Subsequently McKay showed that the lower members of the sequence were present at Kawhia also. The ages ascribed to the different series were arrived at by Hector after a comparison with European forms. In this connection it is of interest to note that although Hector satisfied himself with bald statements as to the presence of European fossils, and gave no descriptive remarks and only a few unsatisfactory figures, Bœhm and Diener have lately shown that he was correct in his identifications so far as they have been tested—*e.g.*, *Lima* (*Plagiostoma*) *gigantea* Sow. and *Grypoceras mesodiscum* (Hauer).

Hector's classification was not adopted in its entirety by his contemporaries. Haast always contended for a Carboniferous or Upper Devonian age for the Mount Potts "Spirifer" beds (Permian of Hector). Hutton, while admitting the Carboniferous age of the Maitai Series, doubted the Permian age of the Kaihiku Series, and placed it with all the succeeding beds in one Trias-Jura system, the Hokanui System. Park also recognizes certain separate Maitai and Hokanui Systems, but considers the base of the latter Permian, and, while adopting and amplifying Hector's classification for the lower beds, has introduced some simplification in the upper members. Still more recently Marshall has stated, regarding more than one locality, that he is unable to make any subdivisions in the Trias-Jura rocks.

Recent palæontological work by Bœhm and Diener, although of great value in increasing our knowledge of the fossils, has not had much effect in clearing up the question of classification or in defining the limits of age of the bottom and top fossiliferous horizons. Bœhm's detailed work on Kawhia refers only to the Ammonite beds of Kawhia, already treated by Zittel, and his conclusions are substantially the same—viz., that the beds in question are about the junction of Jurassic and Cretaceous. The Upper Triassic *Cephalopoda* from the Hokanui Hills, originally named by Marshall and subsequently noticed by Bœhm and Diener, do not appear to have been collected with sufficient details as to locality or horizon to show whether any other of the series than the Wairoa Series belongs to the Upper Trias.

Our exact knowledge, therefore, is confined to the certainty of Upper Trias in the Wairoa Series of Nelson, and in beds of unknown position in the Hokanui Hills, and of passage beds between Jurassic and Cretaceous in the Ammonite beds (Lower Putataka) of Kawhia. Probably the beds with *Belemnites canaliculatus aucklandicus* (Blainville) Hauer, which lie above the Ammonite beds at Kawhia, and were placed by McKay in the Mataura Series, are Lower Cretaceous. If McKay's description of the fossils may be followed, other probable Lower Cretaceous beds are to be found in the Catlin's River district opposite Bloody Jack Island. That Middle and Lower Triassic beds are present in the Hokanui Hills and elsewhere is also more than probable.

A very large number of fossils from this Trias-Jura or Permo-Mesozoic sequence is contained in the Survey collections, and in each case the locality-label gives the position of the beds in Hector's classification. Before any part of these collections from the lower beds is sent away to specialists for description it is desirable first of all to have a representative series of *Brachiopoda* described. The reasons for this course are twofold: In the first place, the persistence of *Brachiopoda* in the Lower Mesozoic of New Zealand is its most striking feature, and the collections consist predominatingly of this group: in the second place, Hector proposed three new genera or subgenera, and it has yet to be seen whether these are necessary. He failed to establish these genera, by neglecting to describe species that might serve as genotypes, but he has left behind chirotypes of several species; and it is obvious that his proposals should be tested by his chirotypes, and not by other examples of the same species in the main part of the collection or by fresh collections. Further details of these chirotypes, with figures of some of them which were printed by Hector for a paper that was never published, will appear in my forthcoming bulletin.

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