

ABSTRACT.

The author described the occurrence of a deposit of auriferous gravel, under limestone, at an altitude of 4,000 feet above the sea, and stated that it had great extent, and could be worked with facility. It contained gold at the rate of over 1oz. to the ton. Fissures and caves occur in the limestone, from which fine specimens of moa bones were obtained.

4. "On the Distribution of the Auriferous Cements in New Zealand," by Dr. Hector.

ABSTRACT.

The author gave an account of the distribution of the older auriferous gravels, a subject which should excite attention at the present time, and which he thought was very imperfectly understood by the diggers, his remarks being illustrated by maps, diagrams, and specimens. Comparatively little of the alluvial gold obtained was washed directly by the streams from the rock matrix, the greater part of it being derived by the re-washing of old gravels of great antiquity. These gravels were deposited in former drainage channels, which have no relation to the existing river systems of the country and are now represented by isolated patches, generally at a considerable elevation, but in some instances below the sea-level. The earliest of these appears to have radiated from the high lands of Otago as a centre during the cretaceous period. In the eocene period the denudation of the auriferous rocks took place in the North-west District of Nelson, giving rise to the gravels now at great altitude, such as those described in the previous paper. During the miocene period was a third great distribution of auriferous gravel, in a line parallel with the West Coast, from the source of the Buller river (at 2,000 feet altitude) to Ross, where they are several hundred feet below the sea-level, so that the gold has to be obtained by deep sinking. After describing the features of several of the most important alluvial diggings that have been discovered and worked, the author concluded by stating that the original auriferous deposits have a wide-spread distribution and are of the nature of regular geological formations, and not to be confounded with the local alluvia of the existing rivers and streams, and that the bulk of them still remain for the practical prospector to discover. That the gold being less concentrated in these earlier gravels than in the modern re-washes formed from them they will no doubt be more expensive to work; but he was of opinion that there was still a great future for the alluvial miner in New Zealand, and to suppose that the diggings were in any sense worked out was quite opposed to experience in other countries. He was glad to find therefore that there had been lately a revival of enterprise on the part of prospectors, and he was inclined to attach considerable importance to reported discoveries that had recently been made, especially as they were in districts where auriferous deposits might reasonably be expected.

THIRD MEETING. 24th July, 1880.

Mr. Martin Chapman, President, in the chair.

PAPERS.

1. "On the Fossil Foraminifera of Petane," by Mr. A. Hamilton.

This paper gave the results of an examination of certain fossils, by Mr. G. R. Vine, jun., of Sheffield, which had been collected by the author. (*Transactions*, p. 393.)

2. "On the Tertiary Corals and Bryozoa of New Zealand," by the Rev. E. Tennison-Woods, Pres. L.S., N.S.W.

This paper, which has been published in full by the Geological Department, ("Palæontology of New Zealand," Part IV., 1880.) gives the results of an examination of a large series of fossils belonging to this class, exhibited in the New Zealand court at Sydney Exhibition by the Geological Department, and was illustrated by a beautiful series of drawings made by the author. Three genera and thirty species were described as new to science.

Dr. Hector pointed out this investigation confirmed the view that during tertiary times the climate of New Zealand had not been much different from that at present prevailing, if anything it was a little warmer, and was quite opposed to the idea of a glacial period having affected these latitudes. It also confirmed the classification he had adopted in placing the Oamaru beds as upper eocene, and equivalent to the Mount Gambier beds in Australia, and Table Cape beds of Tasmania.

3. "On certain Minerals collected during the past Year by the Geological Survey Staff," by S. H. Cox, F.G.S.

ABSTRACT.

Specimens were exhibited and described, some of which were of considerable value and interest. Among them the following were announced as having been found in New Zealand for the first time:—Crome mica, and *hauerite*, or sulphide of manganese. Both these minerals were collected by Mr. McKay in the highly mineralized district lying to the N.W. of Otago, where he also found lodes containing specular iron, *pyrrhotine* or magnetic pyrites containing nickel, *mispickel* or arsenical pyrites containing gold, and *scheelite* or tungstate of lime, the latter having only been found as rolled fragments hitherto. Several new discoveries of copper ore were also announced, among which was occurrence of metallic copper in the basaltic rocks at the Manukau Heads, Auckland. Also the occurrence in the trachytic dyke rocks at Tokatoka, Kaipara, of the zeolites, natrolite, and stilbite.

MR. Dr. Hector exhibited and explained a copy of the geological map of New Zealand, which he had prepared for the Melbourne Exhibition, giving a particular account of the country geologically examined during the past year, and said that few were aware of the amount of labour and great hardships that had to be undergone in carrying on the survey in the more remote parts of the country. He gave a brief account of the progress of the geological survey from its commencement, and showed that by degrees we have attained a tolerably correct idea of the general structure of the whole country. There is still, however, a great deal to be done towards the accurate mapping of the formations, and particularly tracing those strata which indicate the presence of deep-seated coal seams, and the high level auriferous cements to which he had referred at the last meeting.

FOURTH MEETING. 14th August, 1880.

Mr. CHAPMAN, President, in the Chair.

New Member.—Mr. John Ralph Rees, M.I.C.E.

On the "Colour-Sense," by Dr. G. Gillon.

This was a lecture on the gradual development of the Colour-Sense in the Animal Kingdom, and the corresponding evolution of the chromatic characters characteristic of species of animals and plants.
