

gum round a projecting point of polished enamel, and that the teeth were probably enclosed in the retractile sheath of the gum. Dr. Hector stated that, in a recent description by Dr. Haast of a whale of the same species, it was stated to have shown its teeth when infuriated, which supported the view that the teeth were not completely undeveloped externally.—The next communication by Dr. Hector, on the interior of the North Island, gave the leading features of the geology of the Kaimanawa and Ruahine ranges, which had been recently examined by him. The modern tertiary rocks that form the eastern portion of the Hawke's Bay province, were described as rising in the interior to an altitude of 2,700 feet, but that it was probable that the Kaimanawa range and certain parts of the Ruahine mountains had always remained as islands above the tertiary sea. The tertiary rocks comprise three groups—1. Limestone containing a large percentage of existing shells; 2. Clay marls, containing few shells; and 3. Sandstones and conglomerates with irregular seams of coal, some of which might yet prove valuable as fuel. The upper group is of much later date than the others, but all are distinctly tertiary. The axis of slate rocks, which divided the tertiary series at the time of the development of the conglomerates, is within twenty miles of the present East Coast line, but is broken through by several modern rivers which rise in the Taupo plains; so that easy passes exist from Napier to the interior, a circumstance which has an important bearing on the opening up of the country. The Kaimanawa range is formed of the same slate and sandstone rocks as the Ruahine, but it lies at a considerable distance to the west of the proper axis of the island. The space left between them is occupied by the same tertiary rocks as on the east side, and which slope gradually to the sea-coast at Wanganui. As the tertiary rocks are quite free from any trace of volcanic matter, the eruption of the central volcanoes must have commenced after their deposit was completed. In referring to the auriferous specimens which had been found on Mr. Lyon's run at Kereru, Dr. Hector stated that chemical analysis had proved that, notwithstanding its granitic appearance, the rock to which the gold quartz was attached was only an altered form of the sandstone, as it contained traces of graphite, and 91 per cent. of silica. This is strongly in favour of the view that it is derived from the Ruahine range, as the sandstones in them have been previously mistaken for granite. After alluding to the recent increase in the activity of the volcanic forces in the Tongariro district, Dr. Hector described the route to the West Coast from the interior, and drew attention to maps and reports by Mr. Geo. Swainson and Mr. Field. He also exhibited a new geological map of the central district. The Hon. Mr. Fox considered that there was no doubt of the practicability of a route to Taupo district from the Wanganui coast. He believed that the track through the bush country was almost completed, and he was glad to find that no insurmountable obstruction would be encountered beyond that point. In reply to Mr. Mantell, Dr. Hector stated that he did not think that any rich auriferous quartz had been obtained in the Kaimanawa, but that his opinion remained unchanged as to the probability that gold would yet be met with in the district he had described.

PHILADELPHIA

American Philosophical Society, March 4.—A paper was read entitled "On the Periods of certain Meteoric Rings," by Prof. Daniel Kirkwood. Mr. P. E. Chase discussed the subject of the tides, referring to the recently-published theory of Prof. Challis, and contrasting his views with those of Airy and others. Prof. Cope read a paper "On *Adocus*, a genus of Cretaceous Emydidae." Dr. Brinton read a paper entitled "Contributions to a grammar of the Muskokec language."

March 18.—Prof. Cope described the disinterment of a number of human remains from a pit in New Jersey, which probably belonged to some of the first European emigrants, whose history has not been preserved. He also exhibited photographs of human foot-tracks, sculptured in Cretaceous rocks of Kansas, and made observations on vertebrae of a large gaviol from New Jersey. Dr. Brinton made some observations on a dictionary of the Maya language.

April 1.—Dr. F. V. Hayden described the position and appearance of the Tertiary strata on Green River, Wyoming Territory, mentioning the highly bituminous character of the shales. Prof. Cope exhibited two species of fishes from them, which he regarded as new, and named *Cyprinodon levatus*, and *Chupea*

pusilla, and stated that their presence indicated connection with tide-water. Dr. Hayden mentioned the occurrence of insects and Myriopoda in the same shales.

DIARY

THURSDAY, MAY 19.

ROYAL SOCIETY, at 8.30.—Experiments on the Use of Alcohol (ethyl alcohol) in the Human Body: Dr. Parkes and Count C. Wollowicz.—On the Cause and Theoretic Value of the Resistance of Flexure in Beams subjected to Transverse Stress: Mr. W. H. Barlow.—On Deep-sea Thermometers: Commander J. E. Davis, R.N.—On the Difference between a Hand and a Foot, as shown by their Flexor Tendons: Rev. Dr. Haughton, and other papers.

SOCIETY OF ANTIQUARIES, at 8.30.—On recent discoveries in the Roman Wall, comprising Eighteen inscribed Altars: Rev. C. J. Bruce.

CHEMICAL SOCIETY, at 8.—On some Bromine Derivatives of Coumarine: W. H. Perkin, F.R.S.

ANTHROPOLOGICAL SOCIETY, at 8 (at St. James's Hall).—Race in Music: Henry F. Chorley.

ROYAL INSTITUTION, at 3.—Electricity: Prof. Tyndall.

FRIDAY, MAY 20.

ROYAL INSTITUTION, at 8.—Atoms: Prof. Williamson.

SATURDAY, MAY 21.

ROYAL INSTITUTION, at 3.—Comets: Prof. Grant.

MONDAY, MAY 23.

ROYAL GEOGRAPHICAL SOCIETY, at 1.—(Anniversary Meeting.)

VICTORIA INSTITUTE, at 4.—(Anniversary Meeting.)

LONDON INSTITUTION, at 4.—Botany: Prof. Balfour.

TUESDAY, MAY 24.

LINNEAN, at 3.—(Anniversary Meeting.)

ETHNOLOGICAL SOCIETY, at 4.—(Anniversary Meeting.)

INSTITUTION OF CIVIL ENGINEERS, at 8.—Discussion on Hot Blast Stoves.—On the Relative Safety of different Methods of Working Coal: George Fowler.—On Coal Mining in Deep Workings: Mr. Emerson Bainbridge, Stud. Inst. C.E.

WEDNESDAY, MAY 25.

GEOLOGICAL SOCIETY, at 8.

THURSDAY, MAY 26.

SOCIETY OF ANTIQUARIES, at 8.30.

ZOOLOGICAL SOCIETY, at 8.30.—On *Dinornis* (Part XVI.), containing Notices of Internal Organs of some Species, with a Description of the Brain and some Nerves and Muscles of the Head of the *Apteryx australis*: Professor Owen, F.R.S.—Notes on the Anatomy of the Prongbuck (*Antilocapra americana*): Dr. J. Murie.—Some Remarks on the Poison Glands of the Genus *Calophis*: Dr. A. B. Meyer.—Notes on some Fishes from the Western Coast of India: Surgeon Francis Day.

ROYAL INSTITUTION, at 3.—Electricity: Prof. Tyndall.

BOOKS RECEIVED

ENGLISH.—Balfour's Class Book of Botany, 3rd Edition (A. and C. Black).—Meteorology: Sir J. F. W. Herschel (A. and C. Black).—How Crops feed: S. W. Johnson (Trübner and Co.).—Lecture Notes for Chemical Students, Vol. 1.: Inorganic Chemistry, by E. Frankland (Van Nostrand).—Trowbridge's Annual of Scientific Discovery for 1870 (Trübner and Co.).—Stanford's Family Atlas; Stanford's Complete Atlas; Stanford's Cyclopaedia Atlas (E. Stanford).—Mammalia: their various Orders and Habits, by L. Figuier (Chapman and Hall).—Researches into the Early History of Mankind, new edition, by E. B. Tylor (Murray).
FOREIGN (through Williams and Norgate).—Malacologia del Mar Rosso: A. Issel.—Leçons sur la Physiologie et l'Anatomie comparée de l'Homme et des Animaux, Tome ix, pt. 2: M. Edwards.—Troschli's Archiv für Naturgeschichte, 1870, pt. 1.—Publicato per cura dei Professori S. Richiardi e G. Canestrini, Vol. II, Sect. 2.—Lehrbuch der chemischen Technologie zum Unterrichts- und Selbststudium: D. F. Knapp.—XV. Tafeln zu H. Engelhardt's Flora der Braunkohlen-formation im Königreich Sachsen.

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