was indeed part of the skeleton of a large extinct flightless bird. This pronouncement was read before the Zoological Society of London on Nov. 12, 1839, and was published in the Society's *Transactions*. This bone became the type of the genus *Dinornis* which Owen introduced on Nov. 28, 1843, in the same publication, vol. 3, p. 235.

Soon afterwards the scientific world hungered for more examples and so New Zealand was exploited and thousands upon thousands of bones were brought to light, so that to-day no museum of any size is without some part of a skeleton of one of the many species of moa. From maps on pp. 163–164 of Mr. Lindsay's book showing the places where finds are recorded we gather how plentiful these birds were.

Mr. Lindsay gives the history of the Moa from the fossils of the Pliocene or post-Pliocene times when they were plentiful, up to their extinction in the seventeenth or even as some think into the eighteenth century. Many different lots of feathers are extant showing their formation and colour.

The author accepts the theory of Mr. Percy R. Lowe that these birds are descended from birds which never flew. They varied in size from fourteen feet or more in height to little fellows of about four feet, and appear to have been more common in the South than in the North Island.

It is surprising how much we are told of the life history of these birds; we know what colour they were; that in June and July they were fattest; the nest of one species is described as are the eggs of several forms; they lived on a vegetarian diet and thousands of their 'crop stones' have been found. Some skeletons were found in caves and numbers were found together in swamps, as many as eight hundred skeletons in one place. Many theories as to how these large heaps of bones were amassed are put forward, only to be rejected. Why did this bird become extinct? Was it change of climate? Was it due to man? Or had they served their turn and passed on?

Many different classifications have been advanced but the author accepts that of Oliver in "New Zealand Birds"; that is two families, five genera and twenty-two species. A bibliography and index complete the work.

This book will appeal not only to ornithologists, but also to a much wider circle of readers; in fact to all who are interested in the story of past ages, and whom it may amuse to speculate on the mystery of vanished races.

Short Reviews

The Quantity and Sources of our Petroleum Supplies: a Review and a Criticism. By Prof. J. M. Macfarlane. Pp. xiv + 250. (Philadelphia: Noel Printing Co., Inc., 1931.) n.p.

READERS versed in the literature of petroleum will recognise in this book the author of "Fishes the Source of Petroleum", published some nine years ago, who now reappears with an extensive thesis of oil origin in which metanemerteans, invertebrate fresh-water animals of widely dispersed occurrence, and apparently related conodonts, are invoked as fundamentally contributive mother substance. The argument is that life originated and thrived in fresh-water areas, spreading both landward and seaward; of this life, the most abundant group was the metanemerteans, the representatives of which are now found in fresh and salt water and moist land-surfaces. Certain strata yield conodont teeth, closely resembling pharyngeal teeth of the metanemerteans, in association with prolific oil pools. By focusing attention on environments, as illustrated by three oil-bearing formations chosen in North America, it is shown that seismic and volcanic phenomena intervened in the evolution thereof.

Great stress is laid on the consequential dust product and on its chemical and petrological composition. Such dust, falling into fresh or salt water, changed into a soft colloidal condition or hydrogel, upset the balance of quiescent aquatic life and resulted in wholesale instantaneous destruction of the most sensitive (sic) of all animals, fish. Thus their bodies were enveloped along with diatoms, algæ, etc., in a shroud of rock-dust; pressure promoted chemical reactions between the alumino-silicic substances and hydrocarbons giving rise to "an alumino-silicate of oil and protein", or definite mineral compound, the "kerogen" of Crum Brown and Scottish oil shale fame. Regard this kerogen as a complex semi-colloid or colloid subject only to change with rise of temperature; divert such changes into separate channels according to the geochemical conditions obtaining at particular epochs, and thus are oil shales on one hand, petroleum on the other, given existence. This is an ingenious philosophy, combining all the weaknesses of the organic and inorganic theories of oil origin, with few of the merits of either, and, moreover, an excellent example of the danger of generalising on two or three particular occurrences. This is a book to look into, but difficult to take seriously.

The Journal of the Institute of Metals. Vol. 48. Edited by G. Shaw Scott. Pp. xi + 350 + 33 plates. (London: Institute of Metals, 1932.) 31*s.* 6*d.* net.

IN the May lecture to the Institute of Metals, Dr. Körber, of Düsseldorf, describes his investigations into the plastic deformation of metals. These are