

founded on his survey of this region, already published as a bulletin of the Geological Survey.

The address was illustrated by many photo-slides, showing the action of ice in its various aspects. The President deduced from the numerous facts observed that at one time, probably in the Pleistocene period, the southern portion of the South Island had been covered with an ice-sheet, some 7,500 ft. thick—in other words, that there had been an Ice Age in New Zealand similar to that in the Northern Hemisphere.

(A full account of the address was published in the *Otago Daily Times* of the 12th May; and a rejoinder, by Professor Marshall, in the same paper on the 13th May.)

#### SECOND MEETING, 8th June, 1909.

The President, Professor Park, in the chair.

*New Members.*—Miss A. D. Hancock, Mr. G. W. Gibson.

The financial result of the lecture delivered by Lieutenant Shackleton was announced, the proceeds being donated to the Karitane Home and to the fund for erecting a Students' Hall at the University.

Attention was directed to a book, "A New Zealand Naturalist's Calendar," recently published by Mr. G. M. Thomson, F.L.S., containing observations of local nature throughout the months.

Reference was made to the efforts now being made to found a memorial to the late Sir James Hector, F.R.S., and it was announced that this Institute will contribute a sum of £10 10s. towards this object.

*Exhibits.*—1. Professor Benham explained the curious history of some recently acquired ethnological articles from the South Sea islands (paddles, clubs, &c.) which had formed part of a collection made during the voyages of Captain Cook.

2. A glass model of the Cullinan diamond was shown, and remarks thereon made by Dr. Benham and Dr. Marshall.

3. Professor Park exhibited specimens of *Actinocamax* from Brighton, which has also been found recently at Shag Point in association with Mesozoic fossils: whence it is concluded that the Saddle Hill coal, hitherto regarded as of Miocene age, must be Mesozoic. Specimens have been sent to Dr. Bather, F.R.S., of the British Museum, for generic identification.

*Papers.*—1. "Notes on the Ground-temperature at Owaka," by J. T. Bryant; communicated by G. M. Thomson.

#### ABSTRACT.

The observations recorded in the paper were commenced in connection with an experiment to test the germinating-power of grass-seeds at midwinter. It was found (at Owaka) that rye-grass seed sown in a shallow pan, placed outside in a frame sheltered with calico, grew quite freely. This led to a series of observations on (a) the temperatures of the outside air, and that shown by a thermometer suspended in a 6-in.-deep hole (b) in loose soil, and (c) in hard grass-covered ground. The records were made twice a day, and each time a new hole was pierced. The observations were continued for twelve months.

The methods and apparatus employed were too imperfect to allow of much scientific value being attached to the results, but a consideration of the records seems to show

that the temperature of the soil follows the temperature of the atmosphere, and that this result follows much more quickly in the case of pulverised soil than for hard ground. The following are the average results of these observations:—

	Pulverised Soil				Hard Ground
	Deg Fahr				Deg Fahr
1908.					
April	..	..	..	..	50·50
May	..	..	..	..	48·75
June	..	..	..	..	44·29
July	..	..	..	..	43·18
August	..	..	..	..	42·87
September	..	..	..	..	49·48
October	..	..	..	..	52·46
November	..	..	..	..	55·69
December	..	..	..	..	58·68
1909.					
January	..	..	..	..	63·65
February	..	..	..	..	62·63
March	..	..	..	..	62·34

2. "Bionomic Observations on certain New Zealand *Diptera*," by David Miller.

This consists of an account of the conditions—climatic, biological, and otherwise—under which a number of already described flies were found by the author in and around Dunedin; with notes on the habits of several common examples. Enlarged drawings, coloured to life, of many of the species were exhibited.

Commendatory remarks on Mr. Miller's work were made by Drs. Hocken, and Benham.

3. "The Habits of the Bronze Cuckoo (*Chalcococcyx lucidus*)," by Dr. Robert Fulton, M.D.

A full account of the distribution, migration, call-notes, and general habits of the bird is given. Lantern-slides were exhibited showing, amongst other interesting points, the ejection by a young European cuckoo of its foster-brother.