

6. PALÆONTOLOGICAL WORK, 1926–27.

(By J. MARWICK.)

During the past year work has been continued chiefly on the Mollusca of the Middle Tertiary of the Gisborne and North Taranaki districts. The collections of the Geological Survey have been greatly augmented by co-operation with the geologists of Taranaki Oil Fields, Ltd. The material is being studied as opportunities offer, and much useful palæontological and stratigraphical knowledge is being gained.

An attempt has been made to correlate the formations of the east coast of the North Island with those of the west coast, but, as yet, we are far from reaching finality. The chief obstacle is the lack of specific agreement between the faunas of different localities, and to surmount this exhaustive collecting is needed. The preliminary examination of the Taranaki and Gisborne fossils suggests the following correlation:—

	Taranaki Area.			Gisborne Area.	
Lower Pliocene	..	Waitotaran	..	..	Ormond limestone.
		{ Taranakian	..	..	Tokomaru Series.
		{ Mohakatino Series	..	..	Tutamoe Series.
Miocene	..	{ Mokau Series	..	..	Ihungia Series.
		{ Mahoenui Series	..	..	

In February last, a visit was made to the Mokau and Patea districts in order to supplement the collections already gathered by officers of the Geological Survey. The Mokau beds are but poorly fossiliferous, so that only a small number of mollusca were obtained. An afternoon was spent examining the Public Works quarry on the south bank of the Mokau River, three miles above the bridge. The quarry is in a foraminiferal limestone, which is at the top of the Mokau beds, and is underlain, apparently conformably, by a thin layer of carbonaceous clay with occasional shelly lenses. The limestone has a weathered and irregularly eroded upper surface, and is unconformably overlain by the highly tuffaceous Mohakatino beds. At the quarry the limestone is 36 ft. thick, but westward it thins to 12 ft. in a distance of about 10 chains. Three chains east of the quarry the limestone has thinned to nothing, and the Mohakatino tuffs rest directly on the Mokau clays.

Collections from many parts of New Zealand have been examined and classified. Among these were the following: Burnt Hill, Oxford; Chatton Creek, Southland; north end, Mahia Peninsula; Pongaroa, east of Dannevirke; and many localities in the Tutamoe, Uawa, Waikohu, and Waingaromia survey districts.

The palæontological parts of Geological Survey Bulletins Nos. 29, 30, and 31 were revised and corrected, and some time was spent in the proof-reading and indexing of Palæontological Bulletins Nos. 11 and 12. Palæontological Bulletin No. 11, by Frederick Chapman, of Melbourne, deals with the Cretaceous and Tertiary Foraminifera of New Zealand, and supplies a much-needed contribution to our knowledge of New Zealand fossils. Should the present search for oil in this country be successful, a great demand for foraminiferal work will arise. In Palæontological Bulletin No. 12 Dr. Otto Wilckens, of Bonn, Germany, describes Triassic Mollusca from Nelson, Canterbury, and Otago. The bulletin contains excellent figures, and will greatly facilitate the recognition and subdivision of our older Mesozoic rocks.

During the year the following papers were completed:—

- (1) The Veneridæ of New Zealand. ("Transactions of the New Zealand Institute," vol. 57.)
- (2) Some Cretaceous Fossils from Waiapu Subdivision. (*N.Z. Journal of Science and Technology*, vol. 8, No. 6.)
- (3) The Pliocene-Pleistocene Boundary in New Zealand (for the Pan-Pacific Science Congress—in the press).
- (4) The Tertiary Mollusca of the Chatham Islands (for "Transactions of the New Zealand Institute"—in the press.)

The foreign and recent molluscan collections so necessary for comparative purposes have been increased by exchanges during the year, and negotiations for further exchanges are being made.

7. SUPPOSED PHOSPHATIC LIMESTONE WEST OF PIOPIO, WAITOMO COUNTY.

(By P. G. MORGAN.)

Between 8th and 12th November last I made a visit to some reported occurrences of phosphatic limestone eight to ten miles west of Piopio, on properties belonging to Messrs. J. Wall and Newton King.

The chief locality examined on Mr. Wall's land was about the centre of the section marked on the map as Puketiti No. 3, Maungamangero S.D. Here is a basin-like area surrounded by walls of limestone (of the same age as the Te Kuiti limestone), and drained by a small stream escaping underground on the south-west side near some sheepyards. A somewhat soft, light-coloured band of the limestone, 12 ft. or more thick, overlain and underlain by hard limestone, had been prospected by means of a small cut on the north-east side of the basin. Several pieces of the stone, tested in the field by the ammonium-molybdate spotting test, showed no more than the usual small amount of phosphoric anhydride. A general sample on analysis was found to contain only 0.03 per cent. of P_2O_5 . A small piece broken off the limestone at a point several chains to the west seemed to be a little more phosphatic, but analysis showed less than 0.1 per cent. of P_2O_5 .

The limestone prospected for phosphate on Mr. Newton King's property ("Puketiti") is about three miles to the north-north-west on the east side of the upper part of Mangaorongo Stream, a tributary of the Awakino. Here, on or near a basin-like area similar to that on Mr.