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streams ascend into the heart of Asia to the very homes and centres of the Mongolian population, while the lands along much of their course is known to be richly fertile. If we conceive, what was probably the case, a series of waves of emigration, at considerable intervals of time and by different rivers, there is no difficulty in supposing that, when the different groups of emigrants met again a long period afterwards, after having traversed thousands of miles of ocean from their original homes, they would not recognise one another as families who had been once akin. Unlettered populations would not draw the inferences as to origins and ancestries, which are easily discerned by the comparative philologists of Europe.

I believe, therefore, that some such theory as this is sufficient to account for the substantial unity of all the Polynesian dialects, and to account also for the proportion of Malay words and forms detected in some of them. I cannot admit that these languages are *derived* from the Malay, but it is, on the other hand, not improbable that the tribes we now call Malays, descending, originally, also, from Central Asia, did follow the S.E. line of the Brahmaputra, Irrawaddy, &c., while the larger bodies of the Polynesians followed the course of Chinese rivers, at a period long anterior to the Malay descent, gradually crossing the Pacific by the stepping-stones of the innumerable islands to be found between the 20th and 25th parallels of N. latitude. Nearer than this I fear we have little chance of getting.

On CERTAIN EARLY FORMS of STONE IMPLEMENTS in use among the INHABITANTS of NEW ZEALAND. By JAMES HECTOR, M.D., C.M.G., F.R.S.

DR. HECTOR, before describing the collection of New Zealand and Chatham Island Stone Implements, which he exhibited, referred to some points in the ethnography of the Maori race not mentioned in the foregoing paper. He dismissed as untenable the theory that some persons advanced, of the Maoris being autochthones, or a remnant of a former race now represented by isolated groups, through the submergence of a great continental area, and expressed his acquiescence with Mr. Vaux respecting the origin of the Maoris as migrants in common with other Polynesians, but thought that this general way of dealing with the subject rather avoided than settled the issue of greatest interest to the New Zealand student, which is the period of the first settlement of the islands by Maoris, and whether the whole Maori population had a common origin from one migration.

According to the census of 1874, the number of Maoris in New Zealand was 45,470, of whom 43,538 dwell in the North Island, and only 1,932 in the South Island and other adjacent islands.*

This disproportion in the numerical distribution of the Maoris is no doubt due to the more favourable conditions in the north for their open-air mode of life, and for the cultivation of the few simple vegetables which, with fish, form their staple food, the difference of climate between the extremes of New Zealand being nearly equal to that experienced in passing from the South of Italy to the North of Scotland. This disproportion must always have existed, and the little known of the history of the occupation of the South Island shows that it was colonised from the North Island by numerous warlike migrations, and that the Maoris settling in the south soon degenerated both in habits and in physical appearance, so that they might be taken for members of a distinct race. In the North Island, on the other hand, the population has increased until the country was fully occupied; but during this increase certain original divisions of the people have been preserved, so that there are now eighteen distinct tribes, each with subordinate "hapus," which maintain their individuality of interest to a marked degree. For instance, each "hapu" has its own traditional titles to land so well defined that special Native Land Courts have been constituted in the colony for their investigation and conversion into documentary titles.

The testimony given by old Maoris during these trials about events of generations past is stated to be perfectly harmonious, and there is no reason to doubt the truth of their traditional history, and to refer the whole of it to the class of poetical myths, as maintained by Schirren and others.†

The same language is spoken by all the Maoris, though with

* General census, including estimates of certain tribes.

	Males.		Females.	Sex not stated.	Total.
N. I.	23,308	.....	19,458	772	43,538
S. I.	1,055	.....	877	—	1,932
Total	24,363	.....	20,335	772	45,470

Selected census from accurate returns respecting thirteen friendly tribes in the North Island.

	Males.		Females.	
Under 15.		Above 15.		
6,079	.....	11,209	.....	5,225
				9,132
		Total Males		17,288
		„ Females		14,357
		Total		31,645

—*Parliamentary Papers for New Zealand, 1875.*

† "Die Wandersagen der New Seelander, 1856." Quoted by Hochstetter.

local dialects, of which the Moriori, or Chatham Island dialect, is the most distinct. The chief mental peculiarity of the Maoris is their acute power of comparison, which is more highly developed than is usual in uncivilised races. From this circumstance their vocabularies are extensive, and even trivial objects, such as useless plants, receive the same names throughout the islands. This was considered to indicate that the language of the earliest observers in the country was still in use, and that there must have been free communication, probably round the coast, ever since the first occupation of the islands.

It was pointed out, that though the traditional stories of the Maoris may be in the main accepted as true, yet it is not likely that we have a complete history. Our recorded knowledge of the language and traditions is chiefly derived from missionaries and other experts in a few localities, and relates chiefly to such matters as the inquirers were themselves most interested in. This is an important consideration when it is sought to use the early collected traditions as negative evidence, while it is obvious that no traditions collected during the last thirty years, since the diffusion of European ideas and education, should be accepted as proving an absence of knowledge of events or objects on the part of the natives.

Apart from traditions, however, much can be inferred concerning the past history of the Maoris from observation. When the country was first settled by Europeans, some thirty-five or forty years ago, there were still evidences that in their primitive state the islands of New Zealand were covered with forest or dense scrubby vegetation, but that from large areas, where a dry climate prevailed, the original vegetation had been removed by numerous burnings. This process has been carried on by the Europeans, so that except where excessive moisture stays the destruction—as, for instance, on the west coast—the country is converted into open pasture land. On the charred surface of the country the first Europeans found everywhere bones of the moa birds plentifully strewn. The Maori term “moa” includes 18 or 20 different species of birds of stuthious habit, some of massive proportions, and having a stature of 10 feet. As first clearly proved by Mantell, the destruction of these gigantic birds was effected by the Maoris, and the remains of their feasts on these birds are to be found in all favourable places round the coasts and up in the interior. When Mr. Mantell was commissioner for the purchase of the south-east district of the colony, where these moa birds formerly abounded and were last exterminated, certain natives claimed title to the land, on the ground that it was their ancestor that first set fire to the country when engaged in hunting moas. There can be no doubt that the chase of the moas

must have attracted a large number of Maoris from the North Island after it was fully settled and food had become scarce; and the extent of their hunting encampments only prove that the work of extermination was effected with great rapidity, and that the natives at that time had more the habits of Nomads than now, when they are tied down to their cultivations.

The same kind of change of custom took place a second time when certain tribes in the north were supplied by the Europeans with firearms, but the game was then their fellow-men.* The date of the final extinction of the moa, the speaker thought, must be very recent, from the frequent discovery of remains, with skin and flesh attached, almost exposed on the surface. These, no doubt, were straggling survivors, but it is clear that the moas must have been coeval with the forests still existing on the western slope of the mountains, and that their destruction must have followed as an immediate consequence of the arrival of Maoris in any district.

He expressed his dissent from Dr. Haast's theory, that the *moa hunters* were an anterior and different race of people from the Maoris, or that the moas were destroyed by a race of *autochthones* that inhabited a post-pliocene continent that has since been reduced to islands.† This theory has been much canvassed in the colony, and it is only supported by the alleged absence of any traditional knowledge of the moa among the Maoris, and on the ground that the stone implements of the Maoris evinced a higher state of development towards civilisation than those of the moa-hunting natives. The first supposition is negatived by the testimony of the best Maori scholars, such as Judge Manning, who has been admitted to all the knowledge of the *Tohungas*. Also by Sir George Grey, Mantell, and by the circumstance that the moa is described from native report in Polack's work on New Zealand, written before the existence of the large bones was discovered by the European settlers.

With respect to the stone implements, the collection on the table shows that the rudest forms found with the moa bones in New Zealand occur also in the Chatham Islands, where no moa bones have been found. There they are used by the Morioris, a tribe now almost extinct, that lived until late years in caves and rude huts, exposed to most inclement weather, with only a scanty supply of fuel, there being no

* "Life in Ranparah;" by W. T. L. Travers, F.L.S. Trans. N. Z. Inst., vol. v.

† Tr. N. Z. I., iv. 84, et seq. That author has considerably modified his theory in subsequent publications, but in his latest he states that "he has no doubt but that his views expressed some years ago will gain general acceptance." Id. vii. 81.

large trees on the islands. They subsisted chiefly on fish, and the flesh of seals and cetaceans, and clothed themselves in skins. Their canoes were made of the flowering stalks of the *Phormium tenax*, or New Zealand flax. They had all the appearance of a race that had suffered physical degradation, the marks of which are to be seen even now in their crania, but it is generally conceded that they are in language and every other respect a branch of the Maoris. They use the flakes now exhibited for cutting flesh, but at the same time used heavy polished adzes for cultivating their potatoes; and this is the only difference between the common stone implements found in the old moa-hunter encampments and the gardens round the *pahs* of the modern Maoris, where they even yet use agricultural implements of stone.

Referring to a communication to the Society by Dr. Haast (J. E. S. ii. 10), in which certain stone implements were described as of high antiquity, owing to the position in which they were found imbedded in gravels on the west coast of New Zealand, Dr. Hector stated that if the description was correct these would certainly far exceed in antiquity any other human works that had been found in New Zealand, but he had exactly the same form of implements on the table which were found, also on the west coast, by his friend Mr. Harvey, the District Judge, at the root of a tree. Now, trees are in that district frequently burrowed under by kiwis (*Apteryx*) and kakapos (*Strigops*), large nocturnal ground birds, and the holes which they make are just such places where valuables like stone implements would be laid and lost by travelling parties of natives. As the gold-diggers (one of whom found the implements referred to by Dr. Haast), in excavating their trenches and "paddocks," as they term the large open pits, undermine the loose shingle from beneath the tough surface of matted roots, a mistake could easily occur through the dropping down of the stone implements from the surface into the workings. But even if found in the gravels in the position described, it might still be more a modern deposit than has been inferred, as changes in the alluvial deposits on that coast take place with great rapidity owing to sudden alterations in the courses of the rivers. The position in the same locality of a large portion of the wreck of a vessel, with metal sheathing and felt between the planks, was described as 300 yards back and three-quarters of a mile up a small creek, proving the rapidity with which coast drifts accumulate.* The successive belts of vegetation, also described in the paper quoted as proving the antiquity of the deposits on which they grow, did not, in the speaker's opinion, represent successive periods of time; the in-

* Hector, Tr. N. Z. I., iv. 373.

nermost *tutu* scrub, for instance, being indicative of a filled up watercourse which probably ran parallel with the much older beach deposit with its scanty scrub.

The implements and other evidences of human design found in New Zealand were therefore, according to the speaker, to be referred to a time equivalent to the most recent period in the history of other countries. They also show signs of relationship to similar articles in the South Sea Islands, and yet can generally be distinguished at a glance. The chief novelties exhibited were the flakes and wedges, many of the former being of obsidian, which is only found on a small island in the Bay of Plenty, but is still carried about by the natives in blocks for the manufacture of cutting-flakes. In the earliest hunting encampments and on the Chatham Islands these same flakes are found. The other flakes are made of flint, chert, and a quartzite from a tertiary formation that is found in the interior. Also some flakes made by a single blow from a rounded boulder, which are identical with those found in the brocks of Shetland. Among the large adzes or grubbers was the cast of an enormous specimen, found by Captain Fraser in Otago, measuring eighteen inches, and weighing $11\frac{1}{2}$ lbs. The stone of which this and most of the common tools are made is a fine-grained metamorphic sandstone of green colour. Among the implements exhibited was a fine weapon made from the jawbone of a sperm whale, and identical in form with the *rapa* or double-headed paddle of the natives of Easter Island; also a very ancient wooden *mere* or war-club, known as *rangitiki*, which was given to Dr. Featherston, N. Z. C., as a token of the cession of the large block of land where the Fielding settlement has now been established. The chief interest of this *mere* is that the figure carved on it has five fingers instead of the ordinary three fingers and reflexed thumb of usual Maori carvings.*

DISCUSSION.

Mr. E. B. TYLOR mentioned, in confirmation of Dr. Hector's view, that the Maoris were contemporary with the moa, a native story describing gigantic birds in terms evidently drawn from recollection of the living moa. He proceeded to ask whether the tradition of the first arrival of the Maoris in the canoes Arawa and Tainui seemed to be consistently related and true, and whether the natives thought the island to have been previously uninhabited. With reference to the theory of Mr. Thomson, that the connection of language between Madagascar and Polynesia was to be accounted for by these regions having been

* A series of the stones, worn by the wind so as to resemble human workmanship, were also exhibited from Lyall Bay, near Wellington. (Trans. N. Z. I., ii. 247.)

once joined by a continent now mostly submerged, Mr. Tylor remarked that his idea was that of the submerged continent of Lemuria, the existence of which Professor Sclater had suggested on other grounds. But so far as the connection of race and language between Madagascar and New Zealand, &c., was concerned, it appeared to the speaker that this could be quite sufficiently explained on the ordinary view of an immigration of Malayo-Polynesians in canoes to Madagascar, and that to demand a submerged continent for the purpose of accounting for it, was to bring in a vast and venturesome theory to explain a small and ordinary fact.

Dr. SPRATT was led to suppose that the peculiar aptitude of the Maoris in defining substances, character, and objects, and readily distinguishing them by giving characteristic names, was not only a law of nature peculiar to New Zealand, but to all human beings where education did not exist. Thus the same power of discrimination might be traced to animals and human beings when they were void of sight, deaf, or dumb, that the nerves peculiarly suitable for given purposes became more active; thus blind people, by the sense of touch, have been known to show signs of remarkable *instinct*, which, in fact, as the *mind*, is simply the action of one, or the combination of several nerves, which again constitute the power of *thought*. Domesticated animals and human beings, through education and new channels being opened to them for occupation, by natural affinity dispense with that portion of the faculty that constitutes "the natural power of definition," and by books, paper, and pens they are able to note a larger amount of knowledge than may be accumulated and retained in memory by mere observation of some striking and attractive points, from every individual change, and appearances of living animals, human beings, plants, atmospheric changes, &c. Some interesting facts appertaining to this subject he is collecting, and will shortly submit them to the Chairman.

Dr. HECTOR and Captain FRASER answered that the Maori tradition of the arrival of the canoes at the island had the appearance of truth, but that the natives seemed to think that there were already people on the islands.

Captain FRASER and the CHAIRMAN also joined in the discussion.

Dr. HECTOR exhibited a large series of stone, wooden, and bone implements, which he had recently brought from New Zealand, in illustration of his paper.

The Director announced the appointment of Auditors of the accounts to be, on behalf of the Council, Mr. CHARLES HARRISON; on behalf of the members, Mr. JEREMIAH; and the meeting separated.