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DAVID NUTT, LONG ACRE.

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1901.

The following elections were announced :—

LIFE ASSOCIATES :—The Rev. C. E. Sherard and Captain E. G. Farquharson, R.E.

ASSOCIATE :—Louis J. Rosenberg, Esq., LL.B.

HON. CORRESPONDING MEMBER :—Mrs. Tyndall.

The following paper by Joshua Rutland, Esq., on "The Maori's place in History," was then read by the Secretary in the absence of the Author :—

THE MAORI'S PLACE IN HISTORY. By JOSHUA RUTLAND, Esq.

AS far back as we are able to retrace the history of mankind by means of written documents or inscriptions, we constantly discover certain peoples or nations actively engaged in diffusing their particular arts, customs, and institutions, often violently imposing them on their less powerful, or as they are wont to style them, less civilized contemporaries. At this work of civilization the peoples of Northern Europe and their descendants in other parts of the world now occupy the place which was formerly held by Arabs, Turks, Romans, Greeks, Phœnicians, and a host of others who have either entirely passed away or fallen so far behind the mark as to be numbered by their more progressive neighbours amongst those who require civilizing. Even in places of which no written history has come down to us, or where the art of writing has never been known, we discover evidences of this same law of progress, or facts which it alone can explain. Thus the peopling of Eastern Polynesia, the presence there of foreign cultivated plants and the domestic animals when Europeans first entered the region, as well as the monuments scattered throughout the numerous groups, especially those of Easter Island, can only be accounted for by the existence of a prehistoric people, or peoples, imbued with the same spirit of adventure that

made the Phœnicians leave the land-locked waters of the Mediterranean to go forth upon the wild waves of the Atlantic, and centuries later led Columbus across the same ocean to the discovery of the New World.

To the ancient civilizations of Egypt and Chaldea we can readily trace back our modern European civilization, but the origin of some of our most important arts must be looked for elsewhere, recent investigation having proved that the Nile Valley, long considered *the birthplace of civilization*, must have been colonized by a people well advanced in those arts.

Though certain Chaldean remains, when compared with the rudest Egyptian monuments, seem to indicate a more primitive state of society, the physical conditions of Mesopotamia preclude the possibility of its being the birthplace of agriculture or metallurgy, arts without which the country could not have supported its ancient population, nor the vast works now amongst the wonders of the world have been executed.

As far as we are able to discover the civilization of China is purely indigenous; for thousands of years the inhabitants of the Celestial Empire have been agriculturists, potters, weavers, and workers in metal, besides having a written language in which their history has been recorded. Though aware that these arts must have had their rude beginnings and must have appeared in order, not simultaneously, in vain we look for their commencements. Nor is it possible amongst the surrounding peoples to point to any from whom they may have been derived.

Though the Chinese have long pursued a policy of isolation, at some former period they must have headed the march of civilization. In Central Asia as far west as the Caspian and throughout Southern Asia to the western boundary of Hindustan we find traces of their discoveries and inventions, but evidently their influence did not extend to the Egypto-Chaldean peoples; for rice was unknown to the agriculturists of Asia Minor until after Alexander's conquests, though it had been cultivated in China for more than twenty-five centuries previously, and the raising and manufacture of silk, though important industries amongst the Chinese since 2600 B.C., were not introduced into Europe until the twelfth century of our era.

From a very remote period an intermingling of eastern and western civilizations, the result of conquest and

commerce, had been taking place ; still it can be readily perceived they are specifically distinct.

Throughout the scattered islands of Eastern Polynesia the inhabitants, when Europeans came in contact with them, though a mixed race, were so uniform in their arts, their customs, their institutions, and their language that Captain Cook after discovering the Hawaiian Archipelago styled them a *nation*.

Excepting such sparsely populated regions as the Australian continent, Greenland, etc., there is none approaching in area the space of ocean occupied by the island groups from Samoa to Hawaii in the north and Easter Island in the south, wherein the people varied so little in their social conditions.

Throughout these widely scattered islands the natives were invariably agriculturists cultivating the same assemblage of plants. Though unacquainted with pottery, with the art of weaving, and with the use of metal, as mariners they surpassed all other peoples of whom we have any knowledge, excepting perhaps the Arabs and maritime nations of Europe as far back as the thirteenth century.

The cultivated plants on which the inhabitants of Eastern Polynesia chiefly depended for food and clothing, being foreign to the region, furnished the best possible means of determining from whence agriculture was introduced. An analysis shows that excepting the Kumara (*Convolvulus batatas*) a New World plant, all belonged to the flora of the Asiatic islands or mainland, where they have been in cultivation from the earliest historic period.

Through long cultivation several of these plants had become seedless and could therefore only be increased by offsets or cuttings. Hence they not only prove from whence the numerous islands were populated, they clearly disprove the long accepted theory of accidental peopling ; for it is impossible that plants of that description could have been transported to places like Easter Island and the New Zealand archipelago without preparation and care.

Although the inhabitants of Eastern Polynesia were unacquainted with the loom and spindle, even in their rudest forms, they were habitually clothed, using for the purpose felted cloth made from the barks of the paper mulberry (*Brussonitia papyrifera*) and *Hibiscus*, besides hand-plaited fabrics of *Dracena* fibre and prepared dogskins. The skill and taste displayed in the preparation of the bark cloth and

the care bestowed on the paper mulberry tree—which was only grown from cuttings—together with their having in use textile materials, discountenances the supposition that the art of weaving might have been lost.

Regarding the absence of pottery the information we possess is very unsatisfactory. If the people of Easter Island had earthenware vessels when Europeans discovered the place, we are almost forced to conclude that the art was elsewhere lost, but how such a simple and useful art fell into disuse, while other arts far more complex were preserved, and how the numerous scattered communities all alike fell back on the rude laborious method of boiling water with heated stones, it is impossible to conceive. It could not have been the lack of a material Easter Island was capable of supplying, as every group throughout the region contains similar volcanic rocks. Should future research prove that at some period previous to the advent of Europeans pottery was in use throughout the whole of Polynesia, we may rest assured that, like the article manufactured in Fiji and New Guinea, it was of the very rudest description. Instead of the homogeneous society that called forth Cook's remark, we find in Melanesia and New Guinea a population divided into innumerable small communities, differing not only in their arts, customs, and institutions, but speaking such a babel of tongues that the residents at one end of a small island were frequently unable to understand the occupants of the opposite end.* On analysing this heterogeneous society, we immediately discover that the use of metal was everywhere unknown. Though the weapons and implements differed considerably, when the various groups were compared,

* After the late Bishop Patterson had mastered several Melanesian languages sufficiently for conversation, he told me he was only beginning to perceive they had something in common. Wishing to ascertain whether any of my Maori neighbours could comprehend the language of Eastern Polynesia, I recently showed four of them a tradition told in the dialect of the Cook Islands. One of the party, who had been educated in a small country school, after looking over the story for a few minutes read it to his companions. Occasionally the reading was interrupted to discuss a word or make remarks. When finished, all assured me they had the same tradition amongst themselves. These facts and Ellis's remarks on the language of Madagascar quoted at pages 7 and 8 illustrate an important difference between the Papuan and Maori-speaking peoples of Oceania.—J. R.

stone, wood, bone, and shell were invariably the materials out of which they were fashioned. In Melanesia and the portions of New Guinea with which we are acquainted agriculture of the Eastern Polynesian type was general, the same foreign plants being everywhere in cultivation, with the same absence of cereals; roots and fruits being the only esculents.

Like the natives of Australia and Tasmania many of the Papuans and Melanesians went naked, but wherever clothing was used bark cloth was the principal material. In the Santa Cruz archipelago a rude loom is said to have been in use when Europeans discovered the islands. As mariners the inhabitants of Eastern Polynesia were far beyond the natives of Melanesia and New Guinea; the latter had, however, a greater variety of vessels. The unwieldy raft-like *lanata* employed in trading along the northern coast of Torres Straits resembled the balsa of Peru.

In some of the groups the natives constructed large highly ornamented canoes, in others they were contented with a small miserable "dug-out"* incapable of accommodating more than one or two persons. In Fiji the canoes were of the Eastern Polynesian type, the best being constructed by artisans who resorted there from Samoa.

In most of the primitive arts common to this region the Fijians surpassed their eastern neighbours; their inferiority as boat-builders is therefore the more remarkable.

The rude loom found in the Santa Cruz group has already been mentioned. Besides this, in parts both of New Guinea and Melanesia the natives possessed certain arts and institutions that must have been survivals from some former period, or recent introductions from the more civilized Malay region. Thus in certain islands the men were armed with the bow and poisoned arrow, while in other islands within the same group the weapon was unknown, or had been discarded. In New Britain and the adjacent islands cowrie shells were used as a medium of exchange. On the south-east coast of New Guinea betel-chewing was in vogue, and the houses were built on tall piles after the Malay and Burmese fashion.

Considering the geographical position of Madagascar, and

* A canoe made out of the hollowed trunk of a tree.

the capabilities of the island for supporting a large population, the inhabitants have remained singularly low in the social scale. At the commencement of the present century their language had not been reduced to writing. Though they possessed the arts indispensable to civilized communities, such as agriculture, pottery, weaving, and the working of metals, all were of the rudest or most primitive fashion. The population of Madagascar, as far back as our information extends, has been divided into tribes constantly at war with each other. Amongst these tribes no one was conspicuously superior until the recent rise of the Hovas, which was probably due to the highlands they occupy being better adapted for European residents who influenced them than the malarious districts of the coast.

Throughout the great island only one language was spoken. Though the tribes had different customs, their arts were everywhere similar, merely varying according to the physical conditions of the districts they occupied. As in the population of Eastern Polynesia, amongst the Malagasy two distinct types, one negroid, the other Asiatic, were perceptible. The Rev. William Ellis, whose long residence in the Society Islands and the Hawaiian archipelago and careful observation of the inhabitants enabled him to compare them with the Malagasy, shortly after his arrival at Tamatave in 1856 remarked:—"I was much struck with the perfect identity of the Malagasy and the Eastern Polynesians, in the names of many of the things most common to both. One of these was a cocoa-nut tree, and to my surprise they pronounced the name precisely as a South Sea Islander would have done. The same was the case with the *Pandanus* or *Vacoua*, one of the most common trees on the coast both of Madagascar and Tahiti; also the word for flower, and the names of several parts of the human body. The numerals were also, with but slight variation, identically the same. The discovery of this resemblance between the languages spoken by two communities so widely separated from each other, besides seeming to point out the source whence Madagascar had derived at least part of its present population, promised me great facility in acquiring their language." Though the effects of Arab intercourse are plainly discernible in the arts and customs of the Malagasy, when the Europeans discovered the island the sumpitan or blowing pipe was one of their weapons, and bark cloth was not entirely superseded by the coarse woven fabric made

from the untwisted strips of the *Rofia* leaf which is now the national costume.

When Europeans commenced trading directly with the East the population of the Malay Archipelago included peoples who must be classed amongst the most civilized oriental nations of the period, as well as savages who habitually went naked, and subsisted on the wild productions of the forest within which they led a wandering existence.

In the first century of the Christian era Java was colonized from Hindustan, and became one of the great centres of the Buddhist faith. The vast ruins of ecclesiastical and other buildings referable to this period found in various parts of the island show that the Javanese must have then ranked amongst the most civilized nations of the world.

In Java as in Hindustan the Buddhist religion was displaced by Brahminism, which in its turn was partially swept away by the great Mahomedan inundation. Throughout Malaya as far east as the Philippines, Mahomedanism was the prevailing religion in the sixteenth century, but it was far from universal. In Lombok Brahminism still held its place, while into parts of Borneo, Celebes, and other islands evidently none of the great Asiatic creeds or their accompanying civilizations had penetrated, the inhabitants even to the present day adhering to their cruder beliefs, their more primitive arts, and their ruder institutions.

Neither in Polynesia nor Madagascar can any traces of the Hindoo invasion or the results that followed be discovered. To the rude tribes of the Asiatic islands the Malagasy and Polynesian people were plainly allied. In these tribes we find the same light-complexioned and negroid individuals, following the same simple arts, and having the same barbarous customs that prevailed throughout the Pacific and in the great African island when Europeans first entered those regions. Thus bark cloth similar to the Polynesian *tapa* was their principal clothing material; calabashes, bamboos and cocoa-nut shells furnished their household utensils. Tattooing was their most characteristic personal decoration. Many were head hunters and cannibals, the sumpitan or blowing pipe being their national weapon.

Of the modern Malay language Ritter gives the following analysis:—"The Malay language comprises in every one hundred words: fifty Polynesian words, all answering to a very inferior social condition, only designating arts and

objects for which all languages have names (heaven, earth, moon, mountain, land, eye, etc.), twenty-seven Malayan words, giving evidence of a more advanced civilization, and of the existence of arts already in a state of perfection ('*Kriss*'), sixteen Sanscrit words expressing religious ideas and abstract terms (time, cause, wisdom, etc.), five Arabian words relating to mythology, poetry, etc., two Javanese, Dravidian, Persian, Portuguese, Dutch, or English words, all relating to commerce. We see therefore that the language of the Malays explains, so to speak, under another form, the same facts as their physical characters."

In one respect the inhabitants of the Malay Archipelago, however rude, were in advance of the Polynesian natives. All have been acquainted with the use of metals as far back as we have any information. To discover whether this was amongst the arts introduced from Hindustan we must return to the Pacific. Scattered over the great ocean from the Carolines to Easter Island are the remains of stone edifices and other monuments, which could not have been constructed without metal implements. Though these ancient structures differ considerably, all clearly belong to the same epoch in the history of architecture. On comparing them with the Javanese ruins already mentioned, we are forced to conclude that they are the relics of a people much lower in the scale of civilization than the builders of the Buddhist and Brahminical temples.

When Magellan crossed the Pacific the inhabitants of the Carolines were unacquainted with the use of metal. From subsequent voyagers we learn that all the Polynesian and Australasian people were in the same condition; hence it has been inferred that they could not have been the architects of the monuments found in their midst. Assuming that these monuments are the remains of a people who occupied the islands previous to the present Polynesian race, we have to account for their being supplanted by a ruder population. If, on the other hand, we supposed the monuments were constructed by people who entered the islands since the present inhabitants took possession, we must ask why have they left no other trace of their existence. As none of the groups wherein the ancient monuments are found contained the necessary metals, the builders, whoever they were, must have been supplied from without with implements or with the material for their fabrication. In various parts of the world, places once the homes of civilization are now unin-

habited, or only tenanted by people little better than savages owing to the failure of external aid.

Near Mizdah, in Northern Africa, a few wandering Bedouins now eke out a miserable existence, though costly tombs and other remains prove that the country had a wealthy and luxurious population during the period of Roman supremacy. What the land lacked the great civilizing nation supplied. A similar fate is in store for Northern Chili when the nitre deposits are exhausted.

Cut off from the rest of the world, it was impossible for the inhabitants of Eastern Polynesia to maintain a civilization much higher than Europeans found amongst them. Taking everything into consideration, it seems by far more probable that the modern Polynesians are the direct descendants of the people by whom the mysterious monuments were constructed than that another people once occupied the widely scattered islands of the great sea.

Borneo, Madagascar, and South Africa furnish examples of people capable of extracting iron from the ore and working it into well finished weapons and implements, but who otherwise were no higher in the scale of civilization than the natives of Eastern Polynesia in the sixteenth century. We can thus perceive that in many parts of the world a knowledge of metal-working preceded much simpler arts.

In seeking the birth-place of metallurgy, we may at once discard Central and Northern Asia, Europe, and Africa, for even if we had not the evidence of the early Egyptian monuments, we can at once see that the lower Nile valley was not a place wherein metals might have been first discovered and brought into use.

As the swamps of Mesopotamia, where Chaldean civilization commenced its existence, contained no metals, there remains only South-Eastern Asia and the adjacent archipelago, wherein the "Age of Metals" may have commenced. Here were all the conditions favourable to a discovery—an abundance of the metals that came first into use, and a large population since a very remote period.

Tin and copper ornaments being still worn by the Dyaks of Borneo, it is at least probable that the ingredients employed in the manufacture of bronze were made use of in the region prior to the discovery of the compound. The invention of bronze, and its application in the manufacture of weapons and mechanical implements, must have given an impetus to civilization analogous to the impetus given by the

perfecting of the steam engine during the present century. Besides this it would give to the people by whom the art was first understood, and who had the necessary materials at their command, an advantage over the rest of mankind. This may account for the extraordinary precocity of the yellow race, so frequently commented on, and for the south-eastern extremity of the Asiatic mainland being such an ancient centre of an indigenous civilization.

Returning again to Polynesia, it is generally agreed that the ancient monuments in their style of architecture correspond with monuments of the bronze period in both the Old and New World. Many of these structures so closely resemble ancient Peruvian temples, some writers have concluded from them that the islands were first peopled from the American continent, while others, recognizing in them a likeness to early Japanese and other South Asiatic monuments, attribute them to an Old World people. Though all the Polynesian monuments are of the same rude cyclopean order, they differ much in design. The tomb of Toobatoii, in Tonga-tapu, is merely a cromlech, the large stones being jointed or dove-tailed together. The colossal statues of Buddha, common throughout the regions wherein the religion prevails. The Pyramid of Morai or Oberai, in Tahiti, regarding which Captain Cook wrote in his journal, "The outside was faced partly with hewn stones and partly with others, and these were placed in such a manner as to look very agreeable to the eye," transports us to Mexico on the one side and to Chaldea and Egypt on the other. In the great Morais found throughout all the groups we have in a rude form the open temples of antiquity, amongst which the temple of Solomon must be classed.

The most important feature in the religion of Eastern Polynesia was human sacrifice, frequently accompanied by cannibalism. Excepting Mexico at the period of the Spanish conquest, we have no direct knowledge of any place where these rites were practised on such an extensive scale. Though human sacrifice was at some period practised in every quarter of the globe, it has long been discarded in the Old World, excepting amongst rude tribes like the Khands of Orissa.

None of the four great religions, Brahminism, Buddhism, Christianity, or Mahomedanism, that have dominated civilized nations during the last two thousand years, countenance it,

but in all there are certain observances and ceremonies that plainly point to the cruel rite.

The licentious Aroei societies that existed in many of the Polynesian groups when the missionaries commenced their labours remind us of the religious processions on the Nile described by Herodotus. Of the Hawaiian "Pahu tabu" Ellis has left the following particulars:—"Hither the man-slayer, the man who had broken a tabu or failed in the observance of its rigid requirements, the thief, and even the murderer fled from his incensed pursuers, and was secure. To whomsoever he belonged and from what part he came he was equally certain of admittance, though liable to be pursued even to the gates of the enclosure. Happily for him those gates were perpetually open, and as soon as the fugitive had entered he repaired to the presence of the idol and made a short ejaculatory address expressive of his obligations to him in reaching the place with security. Whenever war was proclaimed and during the period of actual hostilities a white flag was unfurled on the top of a tall spear at each end of the enclosure, and until the conclusion of peace, the symbol of hope waved to those who, vanquished in fight, might flee thither for protection. It was fixed a short distance from the walls on the outside, and to the spot on which this banner was unfurled the victorious warrior might chase his routed foes, but here he must himself fall back—beyond it he must not advance one step on pain of forfeiting his life. The priests and their adherents would immediately put to death any one who should have the temerity to follow or molest those who were once within the pale of the 'Pahu tabu.' In this institution we have plainly represented the Israelites' cities of refuge, from which the Christian sanctuaries of the middle ages emanated."

The right of tapuing, or declaring sacred, possessed by the priests of Polynesia and New Zealand, with the terrible punishment the breach of tapu drew down upon delinquents, gave the order immense power both in temporal and spiritual matters; for much that is done by civil authorities in more civilized communities was, amongst the Polynesian peoples, done by the priests exercising their right to tapu. Thus, a close season for game, a prohibition to fish in certain places, or the observance of a fast were alike insured by merely declaring the animals, localities, or days tapu. Our own history is marked by a gradual separation of Church and State with the excluding of Churchmen from civil offices.

In some countries (the United States for example) this separation is more complete than in England, while in others it has not advanced so far; thus society is evidently progressing on the same lines. Amongst the Polynesian nations the civil and religious rulers were one, priests directing, and laymen executing. Besides discharging their civil and religious functions, the Polynesian priests had to preserve the histories of their tribe, and were the astronomers, geographers, and navigators, without whom the widely scattered people could not have reached the islands they occupied or kept up the intercourse to which their language testified. We learn from tradition that when the Arawa canoe was prepared to leave Hawiki for New Zealand she could not put to sea owing to the want of a skilful pilot, and that Tama-te-kapua, the owner of the canoe, having inveigled the priest Ngatoro and his wife on board, immediately weighed anchor, and set sail. How these ancient mariners found their way across the ocean and how they determined the position of places discovered are lost arts; only a few disconnected fragments of the knowledge they possessed have been collected and recorded. We are aware that they knew the position of the equator, which they called Piko-o-wukea, and that after crossing it southward the North Star disappeared, southern constellations, for all of which they had names, coming in sight. By means of the stars and dead reckoning, based on the distance traversed by a canoe in twenty-four hours, these old navigators went from island to island and from group to group. Throughout Eastern Polynesia various divisions of time were in vogue, all being natural, or the result of observations. Thus the year was divided into two portions, one commencing when the Pleiades rose immediately before sunset and called *Matarii i nia*, the other when the group rose just before sunrise and called *Matarii i raro*. The year consisted of thirteen lunar months, a distinct name being given to each day of the month. Before the introduction of Christianity the division of time into weeks was unknown. Recognizing that the solar year, which was divided into seasons corresponding with the ripening of the bread-fruit, differed from the lunar year, means were adopted to rectify the discrepancy. In addition to their astronomical knowledge the Polynesian priests had a system of enumeration so perfect that Ellis thus commented on it:—"The precision, regularity, and extent of their numbers has often astonished

me; and how a people, having comparatively speaking but little necessity to use calculation and being destitute of knowledge of figures, should have originated and matured such a system is still wonderful, and appears, more than any other fact, to favour the opinion that these islands were peopled from a country whose inhabitants were highly civilized."

We are wont to regard the old Chaldean and Egyptian priests as the "Fathers of Astronomy," but judging by the Phoenicians, and Greeks, who inherited their knowledge, it was of little use to the navigator or geographer. The Phoenicians, who were the great mariners of our classical times, in their voyages dared not lose sight of land, and years after they had circumnavigated the African continent by creeping round the coast, their statement that during a part of the voyage, while steering west, they had the sun on their right hand, was considered an impossibility by learned Athenians. With all their philosophy the Greeks had only a very vague idea regarding the portion of the world known to them. According to Herodotus the Danube rose in the Pyrenees, and even Strabo was unable to determine the direction of the Alps. If the Polynesian navigators had not some means of arriving at a more intelligent knowledge of the region they inhabited, the great ocean on which they ventured forth must have been their grave. It is not to shepherds guarding their flocks by night we must turn for the origin of astronomy, but to fishermen labouring for their subsistence on the perilous deep. Again and again, when overtaken by darkness, the stars would be beacons guiding them to their homes. Long before the spangled vault awakened their curiosity or imagination the instinct of self-preservation would have stamped on their memory the relative positions of certain stars and the land they inhabited. Thus the association in various religions of the priest, the fisherman, and the astronomer may be accounted for. The Malay Archipelago, with the countless islands spread out within the tropics, was above all other portions of the globe calculated to call into existence a seafaring people and the twin sciences astronomy and navigation, the islands sometimes close, sometimes far apart, the regular periodical trade-winds, the zone of equal days and nights, the sun vertical twice annually to every place within the archipelago, the Pole Star on the one side and the Southern Cross on the other, with the rising

and setting of the sun, indicating the cardinal points. In a region thus favoured we can readily understand how maritime enterprise would gradually expand, and that discoveries would be made which to the rude inhabitant of higher latitudes were impossible. In this we have probably an explanation of why until the close of the fifteenth century the Atlantic remained a gulf across which man never found his way, if we except the unproductive voyages of the old Norsemen, though the far broader expanse of the Pacific had been traversed in all directions by peoples whose histories were even then lost in the mists of time.

The preponderance of Asiatic species amongst the foreign cultivated plants of Polynesia and the names by which many of these species were known in the Eastern Pacific being common to the Malay Islands and Madagascar proves that agriculture must have entered Polynesia from the west. Between Polynesian agriculture of the sixteenth century and Malayan agriculture of the same period there was such a marked difference that it is impossible the former could have been derived from the latter. The Polynesian peoples, being unacquainted with the cereals, and having merely roots and fruit-bearing trees in cultivation, can only be assigned a place in the history of agriculture analogous to the place they hold in the history of mechanical art owing to their ignorance of metals. Though the system of cultivation practised in Polynesia was common to all semi-nomad agricultural races, we are not aware of any people limited to a similar assortment of plants. In the forest region of Africa, where new clearings are constantly made, various kinds of corn are grown, and in the New World, wherever the inhabitants cultivated the soil before the European discovery, maize and beans were amongst the crops. In North America the cultivation of these grains appears to have preceded the growing of roots. Although there is not sufficient evidence to justify any broad conclusion, there are reasons for believing that the exclusive cultivation of roots was not always confined to Polynesia. Dampier remarked the preponderance of roots and fruits grown by the natives of the Bashee and other islands of the Eastern Malay Archipelago.

In parts of Brazil where manioc starch is produced very little corn is used, and the Irish furnish an example of how largely an agricultural people can subsist on a root crop

even in high latitudes. The entire absence of domestic ruminants in Polynesia before the advent of Europeans cannot be attributed to the region being unfitted for them or the difficulty of transport. The goat, one of the first animals subjugated by man, could have been conveyed from place to place more easily than the widely distributed pig, as it requires little water and there is scarcely an islet or rock within the tropics that would not furnish it something to eat, while the way in which this and our other domestic animals have multiplied since their introduction proves that the islands are well adapted for them. Sir Joseph Hooker in his *Himalayan Journals*, referring to the inhabitants of the Khasia Hills, remarked:—"The Khasias eat fowls and all meat, especially pork, potatoes and vegetables, dried and half putrid fish in abundance, but they have an aversion to milk, which is very remarkable, as a great proportion of their country is admirably adapted for pasturage. In this respect, however, they assimilate to the Chinese and many Indo-Chinese nations who are indifferent to milk, as are the Kummi people. The Bengalese, Hindus, and Tibetans, on the other hand, consume immense quantities of milk. They have no sheep, and few goats and cattle, the latter of which are kept for slaughter; they have, however, plenty of pigs and fowls." Before the first incursion of the pastoral peoples from the grassy plains of Central Asia there can be little doubt that the south-eastern portion of the continent and the adjacent islands were occupied by exclusively agricultural nations, one of which, Japan, remains almost unaltered. Dogs, pigs, and fowls, being the only foreign domestic animals Europeans found in Polynesia, naturally suggest a connection with these ancient agricultural people.

In the art of tattooing, and the scale on which they practised it, the inhabitants of Eastern Polynesia and New Zealand surpassed all the modern people. Yet both in the tropical and temperate islands clothing was general, reminding us of the Japanese, who also adorn their skins and clothes. In common with the less civilized inhabitants of the Pacific, the Japs before coming in contact with Europeans did not consider going naked even in public places an impropriety. Throughout Polynesia the principal article of clothing was the *tapa* or felted bark cloth, manufactured from the bark of the paper mulberry (*Brussonetia papyrifera*), a native of Japan, which was extensively cultivated for the purpose. In Japan the bark is still used for making paper and a woven

fabric called grass cloth. Besides the better description of tapa the Polynesians made coarser cloth from *Hibiscus* and other barks. Amongst their arts, felting and hand-plaiting occupied the places of spinning and weaving, with which they were unacquainted. In the Malay Archipelago, in Madagascar, and throughout Africa as far north as the Soudan, felted cloth made from the bark of various trees, hand-plaited garments, and the prepared untanned skins of animals were formerly the principal articles of clothing. The grooved mallets used in the manufacture of the African bark cloth might be mistaken for the mallets used in the preparation of the Polynesian tapa. Wherever weaving, even in its rudest form, has been introduced, or woven fabrics have been procurable, bark cloth has been speedily discarded, showing that, like the stone implements, it is a survival from an older and ruder time.

In the Middle Island of the New Zealand archipelago and in New Caledonia, *jade* or greenstone is found *in situ*, but at the time of Cook's discovery the natives of both countries made of it weapons, implements, and ornaments, which were regarded with superstitious veneration, used as insignia of rank, and frequently buried with the dead. In various parts of Europe jade articles have been recovered from burial places of the "stone age," though the rock has not been discovered in any part of the continent.

Amongst the Chinese, jade, which is obtained in Central Asia, commands a price which cannot be explained by its intrinsic value, its scarcity, or its appearance.* Sceptres of polished wood inlaid with jade are presented to Chinese matrons, and are carried by them when receiving visitors of distinction. One of these sceptres or *Hui*, made of jade, was amongst the articles sent to Queen Victoria on the occasion of her Jubilee by the Emperor of China. As a particular mark of friendship, four pieces of jade were presented by Montezuma through Cortez to the King of Spain. In Mexico at that time ornaments of jade were restricted to princes and nobles of the highest rank.

For people unacquainted with the use of metals, jade, being one of the best substitutes, would have an intrinsic value. This and the comparative scarcity of the rock sufficiently account for its being so highly prized during the stone age,

* The extreme hardness, beauty of colour (leek green) and scarcity in a few countries, sufficiently account for the high value set on jade.—Ed.

the importance attached to it by the ancient Mexicans and modern Chinese being merely a survival of the ideas and customs of the same rude time.

From the jade implements discovered in European tombs, some archæologists have concluded that the material was an article of commerce during the stone age. Against this it has been urged that a trade necessitating long sea voyages could not have been carried on by people in such a rude condition, but we know that trade on an extensive scale involving long voyages was carried on round the coast of New Guinea and between the Polynesian islands by people unacquainted with the use of metal. Early European voyagers found a few articles of greenstone or jade amongst the natives of Eastern Polynesia, though New Zealand and New Caledonia are the only places in the Pacific where the rock occurs. There is no difficulty in accounting for this.

The extraordinary development of navigation and the backward state or entire absence of many simpler arts amongst the natives of Polynesia enable us to comprehend how the discoveries and inventions of ruder times were diffused. When the Hindoos invaded Java the inhabitants of the Eastern Archipelago had not discarded stone implements; thus, notwithstanding their proximity to the continent, they must be classed with the natives of Polynesia rather than with the civilized nations of Asia. Without going back to a very remote antiquity, throughout the great region extending from Madagascar to the eastern limits of Polynesia, a language akin to Maori must have been spoken and a uniform civilization must have prevailed. To find a parallel for this widely spread society in continental Asia we must go back to pre-Aryan times, when the inhabitants of Southern India were agriculturists and mariners—callings which the conquering herdsmen regarded with contempt or aversion. The intermingling of the inland pastoral people with the agriculturists of the coast could not fail to stimulate discovery and invention, but wherever the former became dominant maritime enterprise was discouraged, and the stream of civilization was directed overland, beasts of burden facilitating its expansion. The breaking up of the old agricultural nations explains the backward condition of the insular Asiatic peoples at the commencement of our era, when even the Japanese were unacquainted with the art of writing. Since their written history commenced the Japs

have not been subjugated by foreigners; they may therefore be regarded as a people who have evolved their own civilization. Without the stubborn conservatism of the Chinese, they still display many of their ancient characteristics. In a report furnished by Dr. H. Maron to the Prussian Minister of Agriculture the following highly descriptive passage occurs:—"Among the great questions which still remain in dispute with us, whilst in Japan they have long since been settled in the laboratory of an experience extending over thousands of years, I must mention, as the most important of all, that of manuring. The educated sensible farmer of the Old World, who has insensibly come to look upon England, with its meadows, its enormous fodder production, and immense herds of cattle (and in spite of these with the great consumption of guano, ground bones, and rape cake), as the beau ideal and the only possible type of a truly rational system of husbandry, would certainly think it a most surprising circumstance to see a country even much better cultivated, without meadows, without fodder production, and even without a single head of cattle, either for draught or for fattening, and without the least supply of guano, ground bones, saltpetre, or rape-cake. This is Japan."

In its general features the history of Oceania during the same epoch is the reverse of Japanese history. In the Malay Archipelago, the most important portion of the region, Hindoos, Arabs and Europeans, Buddhists, Brahmins, Mahomedans, and Christians have alternately forced their arts and institutions upon the inhabitants. Though these compulsory changes did not extend beyond the western boundary of Polynesia, the destruction of the old society explains how that portion of Oceania became isolated. From the uniform social conditions of the Eastern Polynesian peoples it is evident that, like the Japanese, they had not been disturbed by foreigners during a long period previous to the advent of Europeans. Instead of steady progress, the isolation of the Polynesians owing to their surroundings was a cause of decay. We can therefore only obtain from them an imperfect knowledge of the ancient Oceanian civilization. Previous to these disturbances, while the continental civilization was developing and spreading inland, the insular civilization, of which the extraordinary development of navigation was the most important feature, was also progressing. Its diffusion through Oceania has already been noticed.

The extremely barbarous condition of the Australian and Tasmanian aborigines and the heterogeneous societies of New Guinea and Melanesia show that in parts of the region it has been imposed on peoples very much lower in the social scale.

On the African continent, though the natives have long understood how to obtain and manufacture iron, a few primitive Oceanian arts are still in vogue, and traces of the ancient Oceanian or Maori language have been detected by philologists amongst certain negro tribes. In his well-known work *The Races of Man* Dr. Pickering thus closes a chapter on "Migrations by Sea":—"Arabia being situated entirely within a desert region, the timber used by the inhabitants is all imported from abroad, either from the Malabar Coast or from Zanzibar. And leaving the absence of natural inclination for maritime pursuits, it would seem a fair inference that navigation did not take its rise in a country devoid of the materials of construction.

"South of the Arab colonies of East Africa, we have Malay influence of unknown antiquity at the Comoro Islands and Madagascar. Here too the outrigger makes its appearance, an article not used by the Arabs, but which is general in the Pacific and occurs at Sooloo, and, if I am rightly informed, at Ceylon. The Maldiver Islanders make regular voyages only to the eastward; but the fact of a Maldiver canoe with several persons on board having recently drifted to the vicinity of the African coast shows at least the practicability of intercommunication. We have thus designated, between Eastern Africa and the coast of America, no less than five separate theatres of maritime intercourse. Each of these has different attendant circumstances, is navigated by a different people and in vessels of a different construction; each if thoroughly examined would furnish ample materials for a separate volume; and this state of things has existed for ages notwithstanding the silence of history."

The distribution of the cultivated kumara (*Convolvulus batatas*) and the curious *sumpitan* or *gravitana* being found amongst the natives of the Malay Archipelago, Madagascar, and the Amazon valley are positive evidences of the ancient Oceanic navigators having extended their voyages to the eastern shores of the Pacific, as well as to the western limits of the Indian Ocean.

The civilization of Central America has been a fruitful source of speculation ever since Europeans discovered the

continent. From the institutions and customs of the Mexicans and Peruvians many have argued that they must have been offshoots from some Asiatic people, but it is quite evident that there was no direct intercourse within historic times between the New World and any of the ancient centres of Asiatic civilization. Had Peru or Mexico been colonized from any of these centres, the pastoral industry, the cultivated Old World esculents, the art of manufacturing iron, the potter's wheel, writing, etc., could not have been wholly unknown on the American continent. The Mexicans and Peruvians, having bronze implements and ornaments of gold and silver when conquered by the Spaniards, were higher in the scale of civilization than the natives of Polynesia, who were dependent on stone, shell, and wood, but probably they had not been very long superior, as the ruined structures found in many of the islands could not have been erected without metal tools.

The human figures on the colossal statues of Easter Island, though well featured, have enormous pendent ears. According to native tradition the monuments found in this small isolated island were erected by a people called "The Big Ears."

The small stone images recently discovered on Necker Island, over 3,000 miles distant, having also disproportionately large ears, an artificial enlargement of this organ must have been a mark of distinction amongst the inhabitants of Oceania in remote times. The following passage from Robert Drury's Journal describing some persons he met in Madagascar shows that the custom was preserved there at the commencement of the last century:—"I asked them where their country lay. They said it was a mountainous inland place divided into two kingdoms, called Amboerlambo, and governed by two brothers—they had vast large ears with bright silver plates in them glittering like comets. I was very curious to know how they became so, and they told me. When they are young a small hole is made and a piece of lead put in it at first. After the wound is healed they have a small spring-ring put in which dilates it by degrees, and after this another till the hole is large enough; then they place in it these silver plates, which are neatly made and exactly adjusted to the hole with great care for fear of breaking it. Some of these holes in their ears are large enough for a woman's hand to go through. They have artificers among themselves who make these ornaments.

The poorer sort, they said, who could not afford silver, had them of tutaneg, which they call ferotchfuty."

The natives of Easter Island, when discovered by Europeans, enlarged their ears by means of an elastic ring, and the Dyaks of Central Borneo still drag their ears down to their shoulders with heavy ornaments of tin and other materials. Amongst the rude tribes of the Amazon valley Mr. A. R. Wallace noticed enormous ears artificially produced, and we learn from Prescott that the Peruvian Inca and his nobles were styled Orejones by the Spanish conquerors on account of their great pendent ears weighted with gold ornaments. Referring to this curious badge of chivalry, a contemporary writer remarks, "The larger the hole the greater the gentleman." This curious custom links together the builders of the mysterious monuments, the modern inhabitants of Oceania, the natives of the Amazon valley, and the highly civilized Peruvians.

No systematic exploration of the ancient Polynesian structures has yet been undertaken. We are therefore much in the position of a jury allowed to see, but unable to question, the most important witness in the case before them, but from the resemblance to Asiatic monuments of the bronze age and to ancient Peruvian remains we seem justified in concluding that they mark how a knowledge of metallurgy found its way from the Old World to the New. It is extremely improbable, or we might say impossible, that the art of compounding bronze was independently discovered on both sides of the Pacific. A comparison of the cultivated plants and domestic animals of Peru and Mexico with those of Polynesia shows clearly that between the great island region and the continent there was no intercourse for a long period previous to the sixteenth century. This was the period of isolation and decay, into which alone traditions and genealogies can give us obscure glimpses. If we have correctly attributed the decay of Polynesian civilization to the invasion of the Eastern Archipelago, it must have commenced since the first century A.D.; but probably the period of decay did not extend back nearly so far. Though Mahomedanism had reached the Philippines at the commencement of the sixteenth century, Brahminism and Buddhism did not extend so far eastward. Until a proper archæological survey of the region has been effected, it is impossible even to place in chronological order many of the most important events in the history of Oceania, such as the

establishment of the Maori-speaking people in Madagascar, their appearance in the Pacific, and the erecting of the Polynesian monuments; but to a people who have left such traces behind them a place amongst the leading nations of antiquity must assuredly be accorded.

DISCUSSION.

The CHAIRMAN.—We shall be glad to hear remarks on this interesting paper, which is certainly of great importance.

The SECRETARY.—I would just like to say a word in reference to one particular part of this paper, which the Chairman has justly entitled one of great importance.

It shows a large amount of research in the country with which I think Mr. Rutland is, to a certain extent, personally acquainted. But it refers to the evidence adduced from the distribution of certain plants over a large portion of those islands, and it seems to me that he has not taken into consideration (perhaps the idea has never presented itself to him), that plant and animal distribution is not, necessarily, to be accounted for by the agency of man, or the inhabitants of certain portions of the world; but that it is the result of physical conditions—in the distribution of land and ocean, which were in force at a period not so very far back, in the history of the world—possibly within the human period; but in any case not very much before the human period. Now observations that have been carried on by geographers, and I might say geologists, and also by such eminent naturalists as Dr. Wallace, whose name has been referred to in the paper, have shown that plants and animals have had a wide distribution for which it is impossible to account on the hypothesis that the relative positions of land and sea are now exactly what they were at a period preceding that of the human population. Very great changes in this distribution have taken place unquestionably within the late Tertiary and even the Post-Tertiary Period; and therefore plants and even animals, such as the pig (which is evidently an animal which has had wide distribution) may be the survivors of those which were extensively distributed throughout the Pacific Ocean and the Southern Ocean at a period just

preceding that of the human race; and that the present inhabitants, who by various ways, and by navigation, peopled those islands, made use of those animals and plants ready to their hand, and turned them to use for sustenance and clothing and the various arts they followed. Therefore, I think a great deal of the information that Mr. Rutland gives us in this paper as regards the distribution of animals and plants, may be probably attributed to the different positions of land and sea, and connections of various parts of the continent with the islands which have since been submerged.

The Rev. F. A. WALKER, D.D.—The paper we have just listened to with great interest is entitled "The Maori's place in History"; but I think you will agree with me that its scope extends over a great many nations and peoples distinct from the Maoris, and over different periods of time and different customs, prejudices, and ideas of many parts of the globe. We have heard a great deal about Madagascar and about the Malay Archipelago and other places. There are so many points of interest here that I have written a few notes on them. There are one or two that I would draw your attention to. The author refers to the *gravitana*, or blow-pipe, in use for hunting amongst the eastern and western nations, the use of which is widely spread. Any who are interested in the mention of the *sumpitan*, or *gravitana*, can find a detailed account of its construction as well as of the accompanying quiver and arrow, on page 236 of Vol. 22 of Bates's *Naturalist on the Amazon*, and the method of its use, and an account of the famous Urari poison on page 238 of the same book.

[Dr. Walker here read some lengthy notes on the history of the *sumpitan*.]

Then there is a question from the Rev. William Ellis's work on Madagascar, taken from page 32 of the same work, which contains the record of three visits to that island made respectively in the years 1853-1854-1856. The date given in the quotation of his arrival at Tamatave, 1856, is erroneous, for though he visited that place in 1854 and again in 1856, the date when being at Tamatave he remarked on the resemblance between the Malagasy and the Polynesian languages was, as given in the book itself, 1853, on his first visit.

Again, the author says: "The invention of bronze and its application in the manufacture of weapons and mechanical implements, must have given an impetus to civilization analogous

to the impetus given by the perfecting of the steam engine during the present century." How greatly bronze entered into every relation of life—sacred, warlike, domestic—in the days of old, the records of the Jewish tabernacle and temple, the poems of Homer, the history of Herodotus, and its introduction into myths and folklore of the ancients sufficiently bear witness.*

The Rev. G. A. SHAW, F.Z.S.—I quite agree with the Secretary that the distribution of plants and vegetables that have been cultivated by various peoples in the different islands of Oceania, ought not to be taken as an ethnological test as used in the paper, or that the presence of the same kind of vegetation observed on the peopling of Eastern Polynesia indicated the existence of a prehistoric people. It is, as the Secretary remarks, far more worthy of acceptance that the islands being at one time united, may have caused this by a survival of both the flora and fauna rather than that they are of recent introduction.

I also take exception to another matter mentioned in the paper, having reference to the arts. The arts in Madagascar are not similar throughout the country. In some parts of the country the people work in iron. In other parts of the country they never work in iron, and they do not understand the working of it. In some parts sculpture, or rude carving, has been practised from time immemorial. In other parts of the country it is altogether unknown, and no kind of art in those parts exists. So I think it is not quite correct to take this as one of the points of evidence regarding the unity of people living widely apart.

I agree with the last speaker that the paper is of great interest.

It is not unlikely that the art of working in iron has been introduced into Madagascar by the Arabs.

Iron is dug from the hills in much the same way as we dig gravel here in England. And this applies to the remark made in the paper with regard to pottery in Polynesia. It is true there is no pottery, at any rate so far as I have seen, in any of the islands to the east of and including Samoa. That is to be accounted for in exactly the same way as I am accounting for the absence of iron working amongst some of the inhabitants of Madagascar, viz., the non-existence of the material necessary, and

* Also bronze (translated "brass" in our English version of the Bible) was, probably, the metal in the composite image of the Book of Daniel.

from that cause the gradual cessation of the art has come about until it has died out from national use altogether.

Then as to navigation. Something is said with respect to this in the paper, and it has been hinted, though not expressly stated, I think, in so many words, that the islands of Polynesia have been populated by navigators who have been of such an order that they, like the Phœnicians, could launch their vessels and sail right away into the trackless ocean in search of other lands. The traditions amongst the Samoans go to show that these islands have been populated by chance, *i.e.*, the canoes, some of them of immense size and capable of taking 200 or 300, have started out from their own homes with the intention of, perhaps, making for an island, which, after they had sailed a few miles, became visible. Storms came on and the canoe drifted along, carried by the trade winds until it grounded on some new island. As a matter of fact some of those near the equator, in the South Pacific have, within historic times, been populated in that very way; and I think it is begging the question to suppose that the Polynesians were, in the olden times, such splendid navigators, that they could launch forth from the Eastern Islands to make for new islands, as is implied in the paper. And again, from my knowledge of the Eastern Polynesians, I think that their "system," as it is called in the paper, of astronomy will not account for their cleverness in navigation. At any rate, if it ever existed, it has died out. The natives do not now sail or paddle by either sun or star, but, practically, their one compass is the trade wind.

Then, with regard to the weapons indicated as uniting the people under one class, it is quite true that the blow-pipe or blow-tube, has been used as stated, and it is used still by one or two of the tribes living in the forests of Madagascar. It is used not as a weapon, in the ordinary sense of the term, which seems to imply a warlike weapon, but simply as a means for the chase.

One other point. The author refers to the *topa*, or felted bark cloth, which I think is somewhat misleading. Cloth in the South Pacific is not felted, according to my idea of the term. It is really welded. The bark is taken from the paper mulberry and soaked in water, then beaten into flat strips on pieces of wood. Two strips are laid overlapping at the edges, and they are then welded together: but it is not done in Madagascar. It is used in the paper to indicate a connection between Madagascar and the

Pacific: but in Madagascar bark cloth was used simply soaked until it was comparatively soft, but it was not welded. I have brought two pieces with me, if you would like to see the difference.

Here is a piece of Samoan *topa* cloth made of the paper mulberry; and attached to this piece of matting is a piece of Malagasy cloth made from the bark.

[*Exhibiting the specimens.*]

But while dissenting from some of the propositions used in the paper, I entirely agree with the general conclusion, namely—the ethnological affinities of the Maories, Polynesians, and Malagasy.

Professor ORCHARD.—I think we are indebted to the author for his interesting paper. Whether or not we agree with him in all his conclusions we shall probably do so on the final one—“to a people who have left such traces behind them a place amongst the leading nations of antiquity must assuredly be assigned.”

I could have wished that some explanation had been given with regard to the curious custom of enlarging the ears. It appears to have been a custom followed by the predecessors of the present inhabitants of Easter Island—the predecessors who erected the wonderful monuments found there. The author says, “This curious custom links together the builders of the mysterious monuments, the modern inhabitants of Oceania, the natives of the Amazon valley, and the highly civilized Peruvians.” Whether or not the evidence would be considered decisive on this point, I think we at all events apprehend that the paper shows the extreme antiquity of human civilization, and it gives another blow to the theory once held, but now, I suppose, pretty well exploded, of the primeval savage, and confirms the doctrine of Heber that the savage could not have been the primitive state of man. The savage was never known to civilize himself, but in every instance is the descendant of a more civilized set of people.

Mr. MARTIN ROUSE.—I would only say that despite the criticisms which have, in some cases, been justly spoken against the paper, it is one of the most fascinating and well-considered papers that I have had the pleasure of listening to or have taken part in reading at the Victoria Institute. It may be that some of the arguments are not so complete as to justify the conclusions, but certainly the argument of language is exceedingly strong. What could be stronger than the fact that the same word, pronounced in the same way, denotes the cocoa-nut tree in Madagascar and Eastern

Polynesia, and that the numerals are the same in the languages of both countries ?

One remark more I would add. The writer alludes to the vast buildings in Egypt in ancient times, and intimates that when they were built the Egyptians had no knowledge of iron. Now it is true that Prof. Flinders Petrie holds that view: but M. Maspero holds the contrary. He says that in the masonry of the Pyramids a few remnants of iron tools have been found and none of bronze; and if more have not been found elsewhere it is highly probable that it is because iron rusts away more readily than any other metal; and he holds it as inconceivable that those vast structures could have been built without iron tools and especially that the statues could be so finished. He also denies that the Egyptians had the power to make their copper "as hard as iron," or to give it an iron-like temper. On the other hand he says the Egyptians had no knowledge of *steel*, but that in all likelihood they work, as he has known skilled forgers of antiquities to do. "These men," says he, "work with some twenty common iron chisels at hand, which after a very few turns are good for nothing. When one is blunted, they take up another, and so on till the stock is exhausted. Then they go to the forge, and put their tools into working order again. The process is neither so long nor so difficult as might be supposed. In the Boulak Museum there may be seen a life-sized head which was produced from a block of black and red granite in less than a fortnight by one of the best forgers in Luxor."

Mr. THEO. PINCHES, LL.D.—There is one question as to metals which is a very interesting one. My speciality, the study of Assyrian and Babylonian inscriptions, shows, it seems to me, that the use of iron was known at a very remote period—how far back I cannot say; but the Babylonians and Assyrians used it largely, and also copper and bronze.

It is a remarkable thing that jade is so very scarce in that part of the world, and that there have been so few examples of it found. If I remember rightly there is only one object of jade from Babylon and that is a cylinder seal, now in the British Museum. Others may have been found of late years; but, if so, no knowledge of it has come to me.

The question of the colour of jasper, referred to in the paper, is somewhat new, and, as the Secretary remarked, in the course of reading it, it is generally of a red colour; but green jasper does occur.

There are some green salt-cellars in the British Museum that are described as jasper.

The Babylonians studied astronomy for the purpose of foretelling events, and not for the purpose of navigating the ocean; and their knowledge of it is shown by the fact that they had named most of the stars, probably all the stars they could see, and it is to them that we owe the present names of the signs of the zodiac, and probably of most of the constellations.

The CHAIRMAN.—I think I shall be entirely in accord with the feeling of the meeting in asking our Secretary to communicate to the author our thanks for his very interesting paper.

The SECRETARY.—I should like to ask Dr. Walker what authority he has for making brass synonymous with bronze? Certainly they are not anything of the kind.

Rev. F. A. WALKER, D.D.—All I meant to indicate was that the word translated “brass,” in the Holy Scriptures, is really bronze. It is not the same amalgam as brass.

[The meeting then terminated.]