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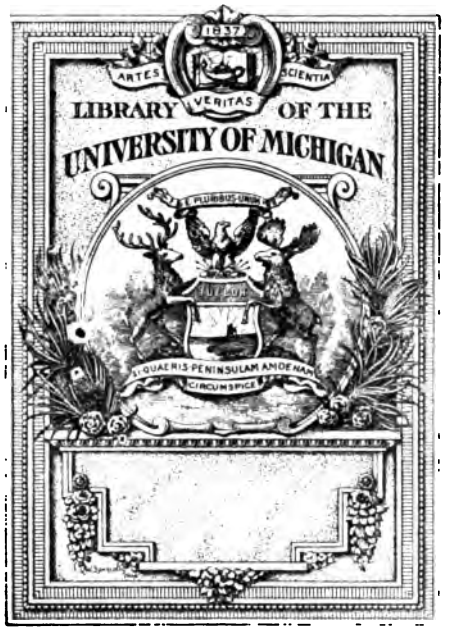
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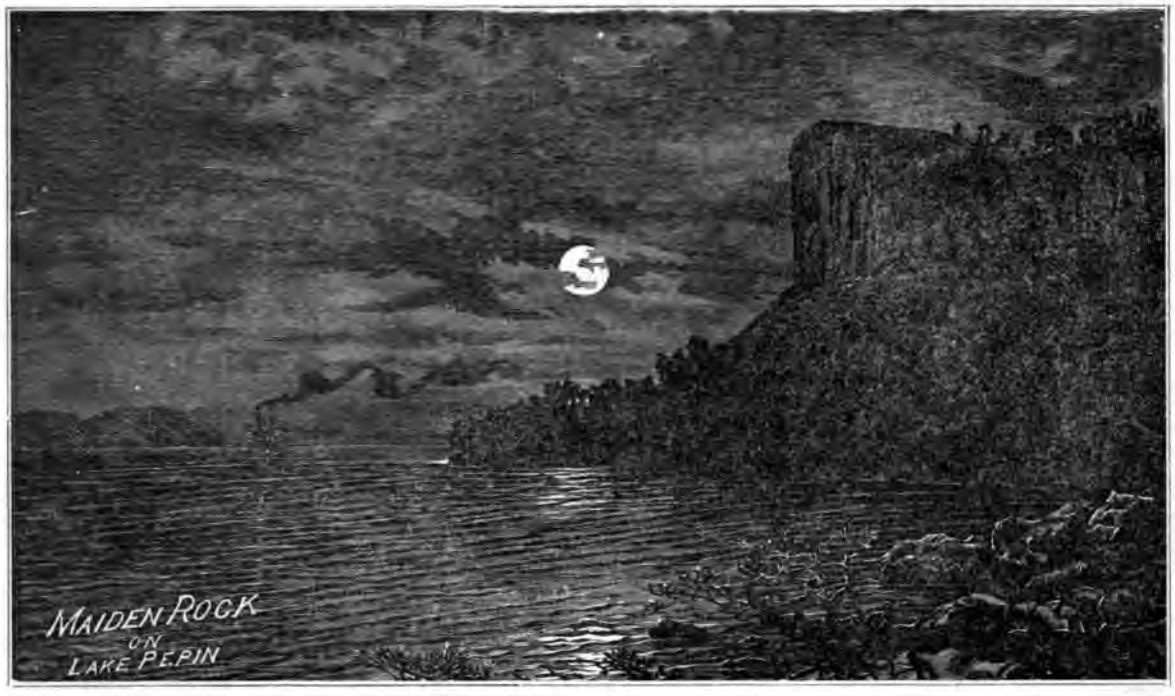
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THE AMERICAN ANTIQUARIAN

VOL. IV. OCTOBER, 1881. No. 1.

PREHISTORIC MAN IN EUROPE.

BY L. P. GRATACAP.

(Continued from Vol. III, No. 4.)

The age we have been considering is called the Palaeolithic, the age of unpolished stone implements and its natural subdivisions are the two Epochs of the Mammoth and Reindeer connected by a transitional interval, during which we may suppose these two mammals held an equal and divided sway. While no boundaries can be safely drawn marking its close and the commencement of the succeeding period yet between the distinctively predominating character of its works and that of those belonging to a more advanced age we can confidently draw a very well defined line. This next age is the Neolithic, the age of domesticated animals, of polished stone implements, marked by improvement or indeed the invention of the ceramic art, the rise of mortuary mounds, Tumuli, Dolmens, Cromlechs, &c., by greater diversity of implements, extension of ornament, more aesthetic decorations and variety of material as greenstone, diorite, serpentine, jade, flint, diabase, amber, jet, gneiss, &c.

The polished implements are found in burial mounds in Denmark, the British Islands, Scandinavia, Central Europe, France, Brittany, in peat lands along the Somme, and throughout the submerged ruins of Swiss Lakes. Barrows or mounds with Menhirs, Cromlechs, Dolmen, Dykes, Cramps are loosely designated under the name of Druidical Monuments, and their somewhat incoherent association with one another in common parlance is a popular indication of the marvellous uniformity of their occurrence in the world. In Siberia, the South Sea Islands, India, Prussia, all over Europe, in Africa symbolized by the Pyramids, and in America by the western mounds, these singular heaps and cairns signalize some common instinct in human burials as clearly as their perpetual mention in Sagas,

Traditions, and classic legends suggest it. With the assignment of these structures to their appropriate periods of Stone, Bronze and Iron we have nothing to do, and only can afford to call attention to those indubitably of the Neolithic age which industrially and chronologically succeeded those reviewed. The objects are manufactured from flint in the Denmark Tombs, and comprise a series of implements of quite characteristic appearance and embrace axes, hammers, sledges, chisels, gouges, harpoons, spear heads, knives, daggers, enigmatical objects regarded by some as spindle weights, by others as shuttles, by others as tools for chipping new implements from the chance pebbles by which the hunter would seek to replenish his lost and wasted arms, also scrapers, arrow heads and sinkers. Although the axes, chisels, &c., are polished especially toward the edge, many of the most beautiful productions of this age are chipped throughout, but with an exquisite regularity, and an elegance of minute detail so as to lend a really costly appearance, and to suggest their probable pre-eminence amongst the stock of the pre-historic warrior. The implements found elsewhere than in Denmark, are made from various stones, as greenstone, jade, porphyry, &c., &c., and some miniature axes found in the peat of the Somme are from aragonite, lapis lazuli, and amber.

These implements are discovered around and amongst the remains of bodies in the mortuary mounds known as "gallery-graves." These heaps enclose a round or square chamber six feet high and from 2 to 2½ feet wide from which a low adit or gallery—3 feet high and 2 feet wide leads to the outside and always opening on the sunny side, south or east. The central compartment is built of slabs of stone which in some instances are also used to separate the room into sections where repose in separated heaps the aggregated remains of different families. Sometimes the confused debris of older burials are succeeded by a thin spread of sand which covers the floor and late interments take place on this. Prof. Wilson has pointed out the identity of these rude mausolea, in form and construction, with the dwellings of Esquimaux, and very probably concludes that they represent the houses of the ancient people who buried their dead here. Their use as graves only indicates the instinctive belief amongst primitive or barbaric peoples that the usages and possessions of this life will serve the same purposes hereafter. Prof. Wilson, perhaps less reasonably, suggests that these cavernous abodes are vestiges of a previous habitation in cave dwellings, and that this early race in Sweden thus preserved the traditionary remembrance of the times when in other latitudes their fathers sought refuge in the holes

and recesses of high cliffs. But as Prof. Wilson remarks, the Esquimaux have never lived in Sweden and then through a series of proofs drawn from popular legends and superstitions, sagas and songs he endeavors to establish the identity of these early tribes with the present Lapps. He traces references to them as *gnomes*, *cave men*, &c., by the gothic race that superseded them, with significant notices of their using fairy bolts (stone arrow heads) and *douner keile* (axes) while a reciprocal characterization of the invaders, as giants, occur by their diminutive and inferior opponents.

In Denmark through the labors of Scandinavian Archæologists three ages are given in the order of their succession, as Stone, Bronze and Iron. Implements of rude stone, of polished stone, of bronze and iron were found with an almost exclusive occurrence of each sort by itself. The very different nature of the materials employed in each instance, the difference of manufacture, the contrast of forms, and the multiplication of objects, implied very distinct periods of civilization. But a curious natural association separated them in a more marked and substantially intelligible degree. In the peat bogs of Denmark at their lowest reaches, stone implements are found buried with trunks of pine, (Pinus sylvestris) a tree now extinct there, and, when cultivated, only growing feebly; above these, more layers of peat with included remains of sessile and pedunculated varieties of common oak (Quercus Rolin) now extinct, and accompanied by bronze implements; on top again the pertinacious peat renews its growth bearing the remains of new forests, those of the luxuriant beech which covered Denmark in the days of the Romans and which grows abundantly there now, in turn with their associated relics of iron. We will hastily review this trilogy of ages as displayed in the Swiss Lake Dwellings.

In 1859 the attention of Prof. Keller, Prest. of the Switzerland Archæological Society, was called to the remains of pile structures in the Lakes of Switzerland. Piles under water, with sharpened points sometimes made from split logs, more generally of entire trunks were found in scattered groups surrounded by stones apparently heaped about them to strengthen them, implements, ornaments, fragments of pottery, bits of grain and cereals, textile fragments, burnt fruits, etc., were collected together in spots as though their owners gathered in colonies at some time had left here the residuary evidences of the civilization, habits, food and manufactures. These ancient sites of human residence were removed from the shore and, as attention was aroused, they were revealed in great numbers throughout

the lakes, and Prof. Keller reconstructed the picture of an ancient prehistoric race occupying the shores of these inland seas in distinct colonies, in villages of pile dwellings—*palafittes*, *pfahlbauten*, resorting to the land for their support in hunting and agriculture, and retiring to these natural retreats at evening or in the presence of threatening enemies. The wonderful wealth of objects discovered in these lake dwellings, illustrate a development from the conditions of society prevalent in the neolithic age to the more artificial status of the ages of bronze and iron, and prove for how long a time this peculiar domestic economy existed, and how numerous must have been the people subject to its traditions. We have noticed the succession of these ages in Denmark, we find them repeated in the mud and silt of Swiss lakes. Their occurrence is not confined to Switzerland. In Austria, Germany, France, in Italy and in England, Ireland, and Scotland—the *Crannoges* of Ireland being similar erections—they are found though less notable, and in these, stone remains prevail as though the final stages of manufacture were reached in the more restricted areas of Switzerland through a more energetic competition and more frequent interchange of commodities. Pile dwellings are mentioned by Herodotus, Pliny and Hippocrates, in Thrace, Pharos, and Scythia, while at present the natives on the Orinoca, to escape the pest of the flies, resort to such abodes, and Commander Cameron found them in Lake Mohyra, in Central Africa. Whether from inherited habit or driven to such isolation by necessity, at any rate the shores of the Swiss lakes were studded by villages built on piles, composing a peculiar indigenous civilization passing through legitimate stages of development, until we have represented in various and separate localities the ages of Stone, Bronze and Iron, and inhabited by people of whom we have no historic record unless remains in the iron age of coins of the Emperors Tiberius and Claudius, and of the *terra sigillata* of the Romans, is proof of the contemporaneity of these latter with the Roman Era.

The implements from the stone age dwellings, which, by the by, were less distant from the shore than those later, include knives, scrapers, spear heads, arrow points, hammers, mill stones for grinding grain, awls, spoons and needles from the long bones of the cow and hog, spindle weights and fragments of pottery. Two varieties of cows, the hog, wild boar, *sus palustris*, now extinct, were amongst the animals. Their skulls indicate a medial conformation neither brachy nor dolichocephalic. Material like jade not found in the vicinity of their habitations, possibly not in Europe, shows an extended commerce and such

local rarities,—in the East colonies—as asphaltum, marble, micaceous schist an inter-communal traffic, while pottery, textile fabrics and cultivated grains serve as important witnesses to their general progress. The Bronze Age succeeded the Age of Stone and significantly marks an advance. It implied a knowledge of copper as a useful metal and the knowledge of its extraction from its ores, a similar knowledge about tin, and then the additional experience of their heightened values when combined, and a discovery of the proportions best calculated to subserve practical purposes. The proportions of tin vary from four per cent. to twenty per cent. Tin was obtained by barter, copper exists in quantity on the southern slopes of the Piedmontese Alps, and the whole art entered from Italy, whence their teachers, examples and artists probably came. Accidental associations of lead, silver, iron, nickel and cobalt in the bronze age are known, but the presence of lead and zinc is referred to subsequent periods as lead was a constant ingredient in Grecian and Roman Bronzes. Pottery improved and expert archæologists will unhesitatingly recognize that of this age by its expanded ornamentation. Curious religious emblems, the earthen *lacarstrian crescents* and an anomalous stone resembling the stone hammers of Indian manufacture, are characteristic of this period. Bracelets, hairpins, armlets, buttons, knives, spear heads, sickles, daggers, etc., of ingenious and elegant shapes occur oftentimes in such abundance as to suggest the idea of arsenals and storehouses being used for their preservation. They seem to have been a diminutive race. The age of Iron then followed, and here we encounter the records of history, finding wide-spread evidence of relationship between the iron age folk and the Helvetians and Gauls. They—the iron age people—were intruders, a different race from that of the bronze age, tribes larger and more powerful, probably Helvetians, who afterwards entered Gaul and left in their camps the story of their arts. The Bronze people are not probably the Bronze people of Scandinavia as Prof. Nilson thinks, but an earlier and distinct race identical with those who built the stone palafittes and who had acquired a knowledge of bronze from a maritime people, reaching them over the Alps. This Italian stock is supposed to be neither of Etruscan nor Phoenician (Desor, Smith, N. Report 1868) origin, as in the latter case iron implements would doubtless have been introduced along with those of bronze, the Phoenicians understanding that manufacture, and in the former case traces of lead, a current constituent or alloy in Etruscan work, would have occurred to an unmistakable extent.

We cannot conclude this slight sketch of the present position

of knowledge on this subject in Europe, without reference to the Mounds or Barrows of Great Britain and Ireland. The world-wide prevalence of these structures has been alluded to, their varions modifications in Cromlechs, Menhirs, Dolmens, etc., and the surprising frequency of their mention in ancient tales, history, and poems. In Great Britain and Ireland these *lows*, *hones*, *ratth* or *tumps*, as they are popularly called, prevail over great areas varying in size from a diminutive mountain covering five acres (Silbury Hill, in Wiltshire, *Greenwall*, *British Barrows*) and over 130 feet high to heaps a few feet in diameter. They represent the cemeteries—more particularly reserved for chiefs, rulers, etc.— of an early race, which was passing from the stone age into that of bronze. The dead were deposited in the centre of these mounds, sometimes protected by a cist or coffin of flags, surrounded by the implements and ornaments which in future hunting grounds, or at heavenly wassails should serve purposes similar to their terrestrial ones. These bodies are most frequently inhumed crouched together in the natural attitude of death, and apparently with the head turned toward the sun, again, a large number have been cremated, their ashes or bones collected together, (notice in Homer the burning of Patroclus) in the midst of the mound, in or alongside urns, and where this ceremony has not been performed, it is vicariously discharged by charcoal thrown about the body. Holes filled with potsherds, flints, animal bones, human bones, charcoal, stones, etc., are met through these mounds, serving some recondite purpose, possibly connected with some religious superstition not now readily divined, but plausibly referred to burial and commemorative feasts. In the mounds, some few of which absolutely contain nothing —the so-called Cenotaphs— the following objects have been exhumed, adzes, axes, hammers, chisels, scrapers, grain pounders, whetstones, knives, daggers, saws, drills, arrow points, leaf-shaped and triangular implements of bone and horn and bronze, the latter infrequent, and ornaments of jet with vases and dishes of pottery. The pottery is considered under the heads of cinerary urns, incense cups, food vessels, and drinking cups. The mounds are surrounded by a ditch, in some cases by a low ridge and in others by a hedge of stones, which circumvallation in each instance never closes its circuit, a certain space being always left unclosed between the two ends of the girdle. This figure, an incomplete circle, is repeated in hieroglyphics and in ornaments and has some occult significance as yet undetermined. The mounds are in general, of two kinds, long and round. The long mounds contain the remains of a dolicho cephalic

race, who were invaded, conquered, and in part assimilated by a brachy-cephalic people, who were the authors of the round mounds, and built the long lines of fortifications, which are occasionally seen, against the Anglican race who overran and in turn dominated them.

The discussion of all these archæological remains is a much less simple task than their enumeration and in the subordinate interest such a subject has in a work on American antiquities it is impossible to follow the various confused and contradictory interpretations which they have provoked. Man is first distinctly shown, in the implements of the Somme Valley, as living in the Post Pleiocene, and as the Glacial Period was passing through its final stages. Doubtless he might have been found upon the earth a long time previous to this, but we have no indisputable proofs and doubtless if he had been found it would be in more southern and warmer continents. The shell heaps of Povancí referred to the Niocene and those of point Levay, the flints at Thenay, the incised bones of St. Prest found in the Upper Pleiocene, are vague hints of man's existence in that dim antiquity, but it would be premature and unfair to quote them in evidence with any confidence. He was the hunter of the mammoth, he was dolichocephalic, with platycephalic tendencies or in other words he was long headed, the vault of his skull was sunk, his jaws protruded, he had large supercilliary processes with recession of the frontal bone, his remains are found in the Belgian Caves and in Kents Hole, his works along the Somme and Oise and Thames. He is called the Constadt Man, but whether such a type had universal sway is doubtful, the Engis skull contradicts it. The reindeer Epoch followed; the mammoth was slowly obliterated as the fauna became more and more like the present. Man is here termed the Cro-Magnon Man. He was still dolicho cephalic, but with a high forehead, a well shaped and capacious skull, face broad and short with deep orbits, only slightly prognathic. They were denizens of the Dordogne Valley, they were tall, energetic, far advanced in the manual arts over their predecessors to whom their relation is unknown. The people with brachy cephalic skulls next in time appeared amongst the long heads of Western Europe. They were intrusive. They seem at first to have entered the scattered colonies of the long heads in small bands, or in tribal communities, stationed themselves at separate centres. Their skulls found at Grenelle have been designated as the Furfooz Race. An invasion from the north in greater numbers of these immigrants then followed, bringing the neolithic arts and the customs of burial in Tumuli and

Dolmens. Continuous currents of brachy cephalic people now penetrated Europe over several channels, who, merging with the Aborigines formed the Celtic Group. The dolicho cephalic people were absorbed, or remnants fled to inaccessible retreats where their types remained persistent as with the Basques and Finns. Diffusion, specialization, intermixture and modification by culture then rapidly took place, new immigrants mingled with the moving and unstable populations of Europe, and the knowledge of the arts of metallurgy, communicated in the first instances by brachy cephalic people, was enlarged and extended, as commerce and warfare brought the diversified ethnic areas in contact with one another.

We have purposely avoided in these brief memoranda any suggestions as to the time involved in this growth of man on the continent where he typifies the mental and moral supremacy of the human race, because the question must provoke a fruitless and an irritating discussion. In the present state of the science no very satisfactory answer can be given, and a conservative reaction against the possibly extravagant conclusions of extremists has opened the problem anew. Until Science shall have definitely accounted for the Glacial Epoch, and suggested some means for measuring the interval of time between it and our own, we shall scarcely be able to speak clearly on this matter. But that man's life on the globe must be measured by a much longer span of years than the arbitrary determination of Petravius and Usher, is unquestioned. Far, far back amid the last phases of the forming world we detect traces of man, his own origin shrouded to us in a mystery as dark and profound, as to him was that which hid his transcendent and amazing future.

THE PROBABLE NATIONALITY OF THE "MOUND BUILDERS."

BY DANIEL G. BRINTON, M. D.

The question, Who were the Mound Builders? Is one that still remains open in American archæology Among the most recent expressions of opinion I may quote Prof. John T. Short, who thinks that one or two thousand years may have elapsed since they deserted the Ohio valley, and probably eight hundred since they finally retired from the Gulf coast.* Mr. J. P. MacLean continues to believe them to have been somehow related to the "Toltecs."† Dr. J. W. Foster, making a tremendous leap, connects them with a tribe "who, in times far remote, flourished in Brazil," and adds: "a broad chasm is to be spanned before we can link the Mound Builders to the North American Indians. They were essentially different in their form of government, their habits and their daily pursuits. The latter were never known to erect structures which should survive the lapse of a generation."‡

On the other hand, we have the recent utterance of so able an ethnologist as Major J. W. Powell to the effect that, "With regard to the mounds so widely scattered between the "two oceans, it may be said that mound building tribes were "known in the early history of discovery of this continent and "that the vestiges of art discoverd do not excel in any respect "the arts of the Indian tribes known to history. There is, "therefore, no reason for us to search for an extra limital "origin through lost tribes for the arts discovered in the "mounds of North America."‖

Between opinions so discrepant the student in archæology may well be at a loss, and it will therefore be worth while to inquire just how far the tribes who inhabited the Mississippi valley and the Atlantic slope at the time of the discovery were accustomed to heap up mounds, excavate trenches, or in other ways leave upon the soil permanent marks of their occupancy.

Beginning with the warlike northern invaders, the Iroquois, it clearly appears that they were accustomed to construct burial mounds. Colden states that the corpse is placed in a

*The North Americans of Antiquity, p. 106, (1880.)
†The Mound Builders, chap. xii, (Cinn. 1879.)
‡Pre-Historic Races of the United States of America, pp. 388, 347, (Chicago, 1873.)
‖Transactions of the Anthropological Society of Washington, D. C., p. 116, (1881.)

large round hole and that "they then raise the Earth in a round Hill over it."* Further particulars are given by Lafitau: the grave was lined with bark, and the body roofed in with bark and branches in the shape of an arch, which was then covered with earth and stones so as to form an *agger* or *tumulus*.† In these instances the mound was erected over a single corpse; but it was also the custom among the Hurons and Iroquois, as we are informed by Charlevoix, to collect the bones of their dead every ten years, and inter them in one mass together.‡ The slain in a battle were also collected into one place and a large mound heaped over them, as is stated by Mr. Paul Kane,¶ and that such was an ancient custom of the Iroquois tribes is further shown by a tradition handed down from the last century, according to which the Iroquois believed that the Ohio mounds were the memorials of a war which in ancient times they waged with the Cherokees.‖ Mr E. G. Squier, who carefully examined many of the earthworks in the country of the ancient Iroquois, was inclined at first to suppose the remains he found there to be parts of "a system of defence extending from the source of the Alleghany and Susquehanna in New York, diagonally across the country through central and northern Ohio to the Wabash," and hence drew the inference that "the pressure of hostilities [upon the mound builders] was from the north-east."† This opinion has been repeated by some recent writers; but Mr. Squier himself substantially retracted it in a later work, and reached the conviction that whatever ancient remains there are in Western New York and Pennsylvania are to be attributed to the later Indian tribes and not to the mound builders.‡

The neighbors of the Iroquois, the various Algonkin tribes, were occasionally constructors of mounds. In comparatively recent times we have a description of a "victory mound" raised by the Chippeways after a successful encounter with the Sioux. The women and children threw up the adjacent surface soil into a heap about five feet high and eight or ten feet in diameter, upon which a pole was erected, and to it tufts of grass were hung, one for each scalp taken.§

Robert Beverly in his *History of Virginia*, first published in 1705, describes some curious constructions by the tribes there located. He tells us that they erected "pyramids and

*History of the Five Nations, Introduction, p. 16, (London, 1750.)
†Meurs des Sauvages Americains compares aux Meurs du Premiers Temps, chap. xiii.
‡Journal Historique, p. 377.
¶Wanderings of an Artist among the Indians of North America, p. 3, (London, 1859.)
‖H. R. Schoolcraft, Notes on the Iroquois, p. 162, 163, compare pp. 66, 67.
†Squier and Davis, Ancient Monuments of the Mississippi Valley, p. 44.
‡Aboriginal Monuments of the State of New York, p. 11.
§Mr. S. Taylor, American Journal of Science, vol. xliv, p. 22.

columns" of stone, which they painted and decorated with wampum, and paid them a sort of worship. They also constructed stone altars on which to offer sacrifices.* This adoration of stones and masses of rocks—or rather of the genius which was supposed to reside in them—prevailed also in Massachusetts and other Algonkin localities, and easily led to erecting such piles.†

Another occasion for mound building among the Virginian Indians was to celebrate or make a memorial of a solemn treaty. On such an occasion they performed the time honored ceremony of "burying the hatchet", a tomahawk being literally put in the ground, "and they raise a pile of stones over " it, as the Jews did over the body of Absalom."‡

I am not aware of any evidence that the Cherokees were mound builders : but they appreciated the conveniences of such structures, and in one of their villages William Bartram found their council house situated on a large mound. He adds : "But it may be proper to observe that this mount on " which the rotunda stands is of a much ancienter date than " the building, and perhaps was raised for another purpose." ‖ Lieutenant Timberlake is about our best early authority on the Cherokees, and I believe he nowhere mentions that they built upon mounds of artificial construction. Adair, however, states that they were accustomed to heap up and add to piles of loose stones in memory of a departed chief, or as monuments of an important event.§

The tribes who inhabited what we now call the Gulf States, embracing the region between the eastern border of Texas and the Atlantic Ocean south of the Savannah River, belonged with few and small exceptions, to the great Chahta-Muskokee family, embracing the tribes known as the Choctaws, Chikasaws, Muskokees or Creeks, Seminoles, Allibamons, Natchez and others. The languages of all these have numerous and unmistakeable affinities, the Choctaw or Chahta presenting probably the most archaic form. It is among them, if anywhere within our limits, that we must look for the descendants of the mysterious "mound builders." No other tribes can approach them in claims for this distinction. Their own traditions, it is true, do not point to a migration from the north, but from the west ; nor do they contain any reference to the construction of the great works in question ; but these people do seem to have

*History of Virginia, book ii, chap. iii. ch. viii.
†See a well prepared article on this subject by Prof. Finch in the American Journal of Science, vol. vii, p. 153.
‡History of Virginia, bk. iii, chap, vii.
‖Travels, p. 367, (Dublin, 1793.)
§History of the North American Indians, p. 184.

been a building race, and to have reared tumuli not contemptible in comparison even with the mightiest of the Ohio valley.

The first explorer who has left us an account of his journey in this region was Cabeza de Vaca who accompanied the expedition of Pamfilo de Narvaez in 1527. He, however, kept close to the coast for fear of losing his way and saw for the most part only the inferior fishing tribes. These he describes as in generally a miserable condition. Their huts were of mats erected on piles of oyster shells (the shell heaps now so frequent along the southern coast.) Yet he mentions that in one part, which I judge to be somewhere in Louisiana, the natives were accustomed to erect their dwellings on a steep hill and around its base *to dig a ditch*, as a means of defence.*

Our next authorities are very important. They are the narrators of Captain Hernando de Soto's famous and ill starred expedition. Of this we have the brief account of Biedmas, the longer story of "the gentleman of Elvas," a Portuguese soldier of fortune, intelligent and clear headed, and the poetical and brilliant composition of Garcilasso de la Vega. In all of these we find the southern tribes described as constructing artificial mounds, using earthworks for defence, excavating ditches and canals, etc. I quote the following passage in illustration:

"The town and the house of the Cacique Ossachile are like " those of the other Caciques in Florida. * * * The " Indians try to place their villages on elevated sites; but inas- " much as in Florida there are not many sites of this kind where " they can conveniently build, they erect elevations themselves " in the following manner: They select the spot and carry " there a quantity of earth which they form into a kind of plat- " form two or three pikes in height the summit of which is large " enough to give room for twelve, fifteen or twenty houses, to " lodge the cacique and his attendants. At the foot of this ele- " vation they mark out a square place according to the size of " the village, around which the leading men have their houses. " * * * To ascend the elevation they have a straight " passage way from bottom to top, fifteen or twenty feet wide. " Here steps are made by massive beams, and others are plant- " ed firmly in the ground to serve as walls. On all other sides " of the platform, the sides are cut steep."†

Later on La Vega describes the village of Capaha:

"This village is situated on a small hill, and it has about five " hundred good houses, surrounded with a ditch ten or twelve " cubits (brazas) deep, and a width of fifty paces in most places,

*Relatione que fece Alvaro Nurez, detto Capo di Vacca, Ramusio, Viaggi, Tom. iii, fol. 317, 323, (Venice, 1556.)

†La Vega, Historia de la Florida, Lib. ii, cap. xxii.

" in others forty. The ditch is filled with water from a canal " which has been cut from the town to Chicagua. The canal " is three leagues in length, at least a pike in depth, and so wide " that two large boats could easily ascend or descend it, side by " side. The ditch which is filled with water from this canal " surrounds the town except in one spot which is closed by " heavy beams planted in the earth."*

Biedma remarks in one passage speaking of the provinces of Ycasqui and Pacaha: "The caciques of this region were " accustomed to erect near the house where they lived very " high mounds (*tertrés tres-elevèes*) and there were some who " placed their houses on the top of these mounds."†

I cannot state precisely where these provinces and towns were situated; the successful tracing of De Soto's journey has never yet been accomplished, but remains as an interesting problem for future antiquaries to solve. One thing I think is certain; that until he crossed the Mississippi he at no time was outside the limits of the wide spread Chahta-Muskokee tribes. The proper names preserved, and the courses and distance given, both confirm this opinion. We find them therefore in his time accustomed to erect lofty mounds, terraces and platforms, and to protect their villages by extensive circumvallations. I shall proceed to inquire whether such statements are supported by later writers.

Our next authorities in point of time are the French Huguenots, who undertook to make a settlement on the St. John River near where Saint Augustine now stands in Florida. The short and sad history of this colony is familiar to all. The colonists have, however, left us some interesting descriptions of the aborigines. In the neighborhood of St. Augustine these belonged to the Timuquana tribe, specimens of whose language have been preserved to us, but which, according to the careful analysis recently published by Mr. A. S. Gatschet,‡ has no relationship with the Chahta-Muskokee, nor, for that matter, with any other known tongue. Throughout the rest of the peninsula a Muskokee dialect probably prevailed.

The " Portuguese gentleman " tells us that at the very spot where De Soto landed, generally supposed to be somewhere about Tampa Bay, at a town called Ucita, the house of the chief " stood near the shore upon a very high mound made by hand for strength." Such mounds are also spoken of by the Huguenot explorers. They served as the site of the chief-

*Ibid, Lib. vi. cap. vi, See for other examples from this work: Lib. ii, cap. xxx, Lib. iv, cap. xi, Lib. v. cap. iii, etc.

†Relation de ce qui arriva pendant le Voyage du Capitaine Soto, p 88 (Ed. Ternaux Compans)

‡Proceedings of the American Philosophical Society, 1879-1880.

tain's house in the villages, and from them led a broad, smooth road through the village to the water.* These descriptions correspond closely to those of the remains which the botanists, John and William Bartram, discovered and reported about a century ago.

It would also appear that the natives of the peninsula erected mounds over their dead, as memorials. Thus the artist Le Moyne de Morgues, writes: "Defuncto aliquo rege "ejus provinciæ, magna solennitate sepelitur, et ejus tumulo "crater, e quo bibere solebat, imponitur, defixis circum ipsum "tumulum multis sagittis."† The picture he gives of the "tumulus" does not represent it as more than three or four feet in height, so that if this was intended as an accurate representation, the structure scarcely rises to the dignity of a mound.

After the destruction of the Huguenot colony in 1565, the Spanish priests at once went to work to plant their missions. The Jesuit fathers established themselves at various points south of the Savannah River, but their narratives, which have been preserved in full in a historic work of great rarity, describe the natives as broken up into small clans, waging constant wars, leading vagrant lives, and without fixed habitations.‡ Of these same tribes, however, Richard Blomes, an English traveler, who visited them about a century later, says that they erected piles or pyramids of stones, on the occasion of a successful conflict, or when they founded a new village, for the purpose of keeping the fact in long remembrance.§ About the same time another English traveler, by name Bristock, claimed to have visited the interior of the country and to have found in "Apalacha" a half-civilized nation, who constructed stone walls and had a developed sun worship; but in a discussion of the authenticity of his alleged narrative I have elsewhere shown that it cannot be relied upon, and is largely a fabrication.* A correct estimate of the constructive powers of the Creeks is given by the botanist, William Bartram, who visited them twice in the latter half of the last century. He found they had "chunk yards" surrounded by low walls of earth, at one end of which, sometimes on a moderate artificial elevation, was the chief's dwelling and at the other end the public council house.† His descriptions resemble so

*Histoire Notable de la Floride, pp. 138, 164, etc.
†Brevis Narratio, in DeBry, *Peregrinationes in Americam*, Pars. ii, Tab. xl, (1591.)
‡Alcazar, Chrono-Historia de la Compania de Jesus en la Provincia de Toledo, Tom. ii, Dec. iii, cap. vi, (Madrid, 1710.)
§The Present State of His Majestie's Isles and Territories in America, p 156, (London, 1667.)
*The Floridian Peninsula, p. 95, sqq, (Phila. 1859)
†Bartram MSS., in the Library of the Pennsylvania Historical Society,

closely those in La Vega that evidently the latter was describing the same objects on a larger scale—or from magnified reports.

Within the present century the Seminoles of Florida are said to have retained the custom of collecting the slain after a battle and interring them in one large mound. The writer on whose authority I state this, adds that he "observed on the "road from St. Augustine to Tomaka, one mound which must "have covered two acres of ground,"* but this must surely have been a communal burial mound.

Passing to the tribes nearer the Mississippi, most of them of Choctaw affiliation, we find considerable testimony in the French writers to their use of mounds. Thus M. de la Harpe says: "The cabins of the Yasous, Courois, Offogoula and "Ouspie are dispersed over the country on mounds of earth "made with their own hands."† The Natchez were mostly of Choctaw lineage. In one of their villages Dumont notes that the cabin of the chief was elevated on a mound.‡ Father Le Petit, a missionary who labored among them, gives the particulars that the residence of the great chief or "brother of the Sun," as he was called, was erected on a mound (*butte*) of earth carried for that purpose. When the chief died, the house was destroyed, and the same mound was not used as the site of the mansion of his successor, but was left vacant and a new one was constructed.§ This interesting fact goes to explain the great number of mounds in some localities; and it also teaches us the important truth that we cannot form any correct estimate of the date when a mound-building tribe left a locality by counting the rings in trees, etc., because long before they departed, certain tumuli or earthworks may have been deserted and tabooed from superstitious notions, just as many were among the Natchez.

We have the size of the Natchez mounds given approximately by M. Le Page du Pratz. He observes that the one on which was the house of the Great Sun was "about eight feet high and twenty feet over on the surface."* He adds that their temple, in which the perpetual fire was kept burning, was on a mound about the same height.

The custom of communal burial has already been adverted to. At the time of the discovery it appears to have prevailed in most of the tribes from the Great Lakes to the Gulf. The

*Narrative of Oceola Nikkanoche, Prince of Econchatti, by his Guardian, pp. 71-2, (London, 1841.)

†Annals, in Louisiana Hist Colls, p. 196.

‡Memoires Historiques de la Louisiane, Tome ii, p. 109.

§Lettres Edifiantes et Curieuses, Tome i, p. 261.

*History of Louisiana, vol. ii, p. 188, (Eng. Trans, London, 1763).

bones of each phratry or gens—the former, probably—were collected every eight or ten years and conveyed to the spot where they were to be finally interred. A mound was raised over them which gradually increased in size with each additional interment. The particulars of this method of burial have often been described and it is enough that I refer to a few authorities in the note.* Indeed it has not been pretended that such mounds necessarily date back to a race anterior to that which occupied the soil at the advent of the white man.

I have not included in the above survey the important Dakota stock who once occupied an extended territory on the upper Mississippi and its affluents, and scattered clans of whom were resident on the Atlantic coast in Virginia and Carolina. But, in fact, I have nowhere found that they erected earthworks of any pretentions whatever.

From what I have collected, therefore, it would appear that the only resident Indians at the time of the discovery who showed any evidence of mound building comparable to that found in the Ohio valley were the Chahta-Muskokees. I believe that the evidence is sufficient to justify us in accepting this race as the constructors of all those extensive mounds, terraces, platforms, artificial lakes and circumvallations which are scattered over the Gulf States, Georgia and Florida. The earliest explorers distinctly state that such were used and constructed by these nations in the sixteenth century, and probably had been for many generations. Such too, is the opinion arrived at by Col. C. C. Jones, than whom no one is more competent to speak with authority on this point. Referring to the earthworks found in Georgia he writes: "We do "not concur in the opinion so often expressed, that the mound "builders were a race distinct from and superior in art, govern-"ment, and religion, to the Southern Indians of the fifteenth "and sixteenth centuries."

It is a Baconian rule which holds good in every department of science that the simplest explanation of a given fact or series of facts should always be accepted; therefore if we can point out a well known race of Indians who, at the time of the discovery, raised mounds and other earthworks, not wholly dissimilar in character and not much inferior in size to those in the Ohio valley, and who resided not very far away from that region and directly in the line which the Mound Builders are believed by all to have followed in their emigra-

*Adair, History of the North American Indians, pp. 184, 185:—William Bartram. Travels, p. 561: Dumont, Memoires Historiques de la Louisiane, Tome i. pp. 246, 264, et al.: Bernard Romans, Natural and Civil History of Florida, pp. 88-90, (a good account). The *Relations des Jesuits* describe the custom among the Northern Indians.

tion, then this rule constrains us to accept for the present this race as the most probable descendants of the Mound Tribes, and seek no further for Toltecs, Asiatics or Brazilians. All these conditions are filled by the Chahta tribes.*

It is true, as I have already said, that the traditions of their own origin do not point to the north but rather to the west or north-west; but in one of these traditions it is noticeable that they claim their origin to have been from a large artificial mound, the celebrated *Nanih Waiya*, the Sloping Hill, an immense pile in the valley of the Big Black River;† and it may be that this is a vague reminiscence of their remote migration from their majestic works in the north.

The size of the southern mounds is often worthy of the descendants of those who raised the vast piles in the northern valleys. Thus, one in the Etowah Valley, Georgia, has a cubical capacity of 1,000,000, cubic feet.‡ The Messier Mound near the Chatahoochee River, contains about 700,000 cubic feet.§ Wholly artificial mounds 50 to 70 feet in height, with base areas of about 200 x 400 feet are by no means unusual in the river valley of the Gulf States.

With these figures we may compare the dimensions of the northern mounds. The massive one near Miamisburg, Ohio, 68 feet high, has been calculated to contain 311,350 cubic feet —about half the size of the Messier Mound. At Clark's Works, Ohio, the embankments and mounds together contain about 3,000,000 cubic feet;‖ but as the embankment is three miles long, most of this is not in the mounds themselves. Greater than any of these is the truncated pyramid at Cahokia, Illinois, which has an altitude of 90 feet and a base area of 700x 500 feet. It is, however, doubtful whether this is wholly an artificial construction. Professor Spencer Smith has shown that the once famous "big mound" of St. Louis was largely a natural formation; and he expresses the opinion that many of the mounds in Missouri and Illinois popularly supposed to be artificial constructions, are wholly, or in great part, of geologic origin.¶ There is apparently therefore no such great difference between the earth structures of the Chahta tribes, and those left us by the more northern mound builders, that we need suppose for the latter any material superiority in culture over the former when first they became known to the whites;

*Antiquities of the Southern Indians, particularly the Georgian Tribes, p. 135, (New York, 1873.)

†For particulars of this see my *Myths of the New World*, pp. 241,-2, (New York, 1876.)

‡C. C. Jones, *Monumental Remains of Georgia*, p. 32.

§Ibid. *Antiquities of the Southern Indians*, p. 169.

‖Squier & Davis, *Ancient Monuments of the Mississippi Valley*, p. 29.

¶*Origin of the Big Mound of St. Louis, a paper read before the St. Louis Academy of Science.*

nor is there any improbability in assuming that the Mound Builders of the Ohio were in fact the progenitors of the Chahta tribes, and were driven south probably about three or four hundred years before the discovery. Such is the conviction to which the above reasoning leads us.

In the course of it, I have said nothing about the condition of the arts of the mound builders compared with that of the early southern Indians ; nor have I spoken of their supposed peculiar religious beliefs which a recent writer thinks to point to "Toltec" connections*; nor have I discussed the comparative craniology of the Mound Builders, upon which some very remarkable hypotheses have been erected ; nor do I think it worth while to do so, for in the present state of anthropological science, all the facts of these kinds relating to the Mound Builders which we have as yet learned, can have no appreciable weight to the investigator.

DR. BRUGSCH—BEY:—ON THE ORIGIN OF THE EGYPTIANS, AND THE EGYPTIAN CIVILIZATION.

BY REV. O. D MILLER.

During the 11th. general session of the German Anthropological Society at Berlin, in August, 1880, a notice of which appears in the 4th number of the "Oriental and Biblical Journal ;" Dr. Brugsch-Bey being present at one of the sittings, was introduced by the President, Prof. Dr. Virchow ; when he presented his views at length, on the origin of the Egyptians, of their civilization, its antiquity, etc., etc. We present below a translation of the material portions of Dr Brugsch's address, together with some comments of our own :—*

"Gentlemen :—While I must study, in the interest of all, an aphoristical brevity, you may well allow me to express my joy and my thanks, that a representative of Egyptian Science is permitted to appear in this assemblage of German Anthropologists. I say *German* Anthropologists ; for it is Germany which during the last decade, has contributed in the highest measure to the advancement of the young Science, whether we regard the government, or individual scholars. I was only a boy of thirteen years, when a well preserved mummy, in the Egyptian Museum of the old Monbijou palace in Berlin, inspired me for these studies to such a measure, that now a man of white hairs, I still feel this inspiration. I have realized the

*Thomas E. Pickett, *The Testimony of the Mounds : Considered with especial reference to the Pre-Historic Archæology of Kentucky and the Adjoining States*, pp. 9, 28, (Maysville, 1876)

*For the original text, see Verhandlungen der x allgemeinen Versammlung der Deutschen Gesellschaft [illegible]logie, etc. Berlin, Aug. 1880, pp. 134-138.

words of the poet: "What one in youth desires, has one in old age in abundance." Forty years have now passed, during which I have devoted myself to these studies, and during twenty years of this time I have lived in Egypt itself, which has thus become my second home. Thus you may well repose some confidence in me, when I permit myself to lay before you the general results of my own investigations.

Egypt has marched in the van of civilization. That is an ancient word. So many monuments have been brought from the womb of earth to be found as well in Europe as in Asia and Africa; so many of them have inscriptions, containing dates and names of kings; that no country at present known can compete with Egypt, in respect to the high antiquity of its existence. Egyptian monuments reach back certainly 4,000 years before the birth of Christ. Chronology is unable to fix exactly the date; but the foregoing figures are rather under than above the actual chronological limits. Variations may exist of 500 or even 1,000 years. There are indisputable monuments, which belong to the highest historical epoch, and that fall in those times, which in Europe were parallel, perhaps, with the Stone, Bronze and Iron Ages. I have often questioned myself, in the midst of this monumental world in which it has been permitted me to live and labor so many years; whether it is not probable that, in Egypt also, with its richly developed culture world that reaches so high into antiquity, the proofs of a prehistorical epoch might not be found? While I seek to give an answer to this question, may I be permitted, first, by way of brief introduction, to speak of the Egyptians themselves, and then of their artistic activity.

The monuments which are so eloquent—I may say, so often loquacious for almost every implement bears an inscription, and every papyrus is bedecked with hundreds and thousands of signs —these monuments afford us abundant information concerning the ideas of the Egyptians themselves, respecting their position among the races of men; ideas prevailing as early at least as the 15th and 14th centuries before Christ. We find in the tombs of the kings of Biban-el-Moluk (or Thebes), appertaining to the 18th., 19th., and 20th., dynasties, very frequent representations on the lower borders of the walls, which teach us that the Egyptians maintained the existence of four human races, distinguished by their color and by the contour of the profile. I place before you here the representations of these four races. You behold as representative of the first human race, a man with a reddish brown skin. The inscription which accompanies it gives to this representative the name *Kot*; that is, *Man кат*

εξοκεν. Then follows, always conforming to the same mode of representation, a second human form which appears with a yellowish skin, and which the inscription designates as *Amu*; that is, *Semite*. You have before you, as the first race, the Egyptian; as the second race, the Semitic. The Egyptians had a dark eye, the Semites likewise. Then follows as third representative of race, which was recognized in the 15th and 14th centuries B. C., a negro; sufficiently distinguished by a black skin. As representing the fourth race is shown, finally, a man with a white skin, whom we will call European, and who takes the name *Tamhu*. If we translate this term we have: 'A man of the North;' from the Egyptian standpoint, an inhabitant of the Libyan coast-lands, or Southern Europe. The first race which, by its position, is regarded as chief, or principal, according to the Egyptian belief, is the red race; to which belong not only the Egyptians, but, as the monuments express by their colored representations, the Assyrians and the inhabitants of the Arabian Peninsulas. We have, thus, three great groups of population, which, by their red color, are regarded as the same race; namely, the Egyptians, Arabians, and Assyrians. As regards the people of the second race, or those with the yellow skin, they are always designated as Semite on the monuments, as the inhabitants of Palestine, exclusive of those settled in northern Syria, the Hittites. The negro race is represented as black. I remark here that, in individual representations of the dark race, even the dark brown appear among those of the negro types. Finally, comes as fourth race those with the white skin; and, relative to these, I must remark, that there are conclusive proofs of a migration, which took place from Europe to the Libyan coasts of Africa, in the first half of the third millenium (B. C.) I can hold this migration as certain, for the monuments afford abundant proof of it."

"I have already remarked, that the Egyptians include not only themselves in the reddish-brown type, but also the Arabians and Assyrians. When I examine the Egyptian inscriptions, which afford information of these populations, I find it fully shown in the texts, as well in the mythological as in the individual histories, that the Egyptians, according to their own ideas, were not an autochthonous people in Africa, but that they had migrated from the East. This fact stands in opposition to the opinion of individual scholars, who, upon the grounds of cranial formation, ascribe to the Egyptians an African nativity. But the Egyptian gods, at their head the goddess Hathor, the Egyptian Aphrodite, migrated to Egypt; and especially the Sun-god, and individual Star-gods of a planetary nature, went

from Arabia into Egypt. I can point you to hundreds of inscriptions, in fact, which show that the Egyptians with their gods migrated from Asia to Egypt, partly by way of the sea, and partly over the great natural bridge of Suez. With this is connected the historically important fact, that the Egyptian civilization took its course in Egypt, not from the South to the North, but from the North to the South. You have the most ancient monuments, (I speak of the pyramids) in the North, and the farther you go South the later are the monuments. When it was held by the ancients, that the Egyptian culture proceeded from the South to the North, it arose from a misunderstanding, which, for the Greeks, was quite pardonable, since the Egyptians appeared to the Greeks already in the light of antiquity. They knew little or nothing of the most ancient times, and what Herodotus has transmitted to us may well be taken as the representations of the Egyptian interpreters, who, as even in the present day, knew little respecting the primitive history of their land. That Herodotus had direct intercourse with the Priests is improbable. To the real sources, as the papyrus-rolls and the monuments, he had no access. I admit here that, in later times, in the 9th and 8th centuries (B. C.,) through the migration of kings banished from Egypt, something of a culture material originated in Meroe, upon Egyptian foundations, and they had adopted there not only the Egyptian architecture, even to the pyramids, but also the writing and language. But when you examine carefully these Ethiopian monuments, you find that they contain nothing but an imitation and deterioration of Egyptian art. From Ethiopia, then, Egypt was never civilized; but, on the contrary, the culture proceeded out from the North to the South, from the sea up the River Nile.

How is it, now, with those most ancient times, in which took place that proper Egyptian development, as it appears reflected in the pyramid-tombs, and the wonderful works which originated in this most distant horizon of the world's history, and are preserved to-day in abundant examples in the museum of Bulach? How is it with these culture materials, which took their development in the unknown past? Here, Gentlemen, I must say, that a riddle lies before us which has not been solved; and I may say that the land of the Egyptians, in all the excavations which I for twenty years, and Mariette for thirty years, have made, affords no proofs of a prehistorical period. All that we have found in the deepest layers of earth, so far as it carries inscriptions, is historical. The ancient Egyptians appear in the first act upon the stage of the world's history, as a fully

furnished and prepared people, in all culture development; and so fully furnished that, in later epochs, no artist, no master-builder, no sculptor, has attained the perfection which the most ancient monuments exhibit to us.

If, now, you question me respecting the working of stone and of the metals, I reply that we can verify epochs in which the stone, bronze, and iron material, each in its turn, predominated; but on the other hand, even in this most distant horizon of history, iron was well known to the Egyptians; for in the great pyramid of the king *Chufu* (Cheops), which we assign to the period 4,000 years (B. C.), we find strong iron clamps employed for binding the stone together. These clamps are preserved at the present time in the British museum, as witnesses of the working of iron in that primitive era. So, also, you find iron by the side of bronze and stone work, in the same most ancient period. You see, here, that there can be no question of distinct pre-historical epochs in stone, bronze, iron. How comes it now, that no traces of a pre-historical epoch are visible? This appears to be capable of a natural explanation; when the Egyptians first migrated into Egypt, they brought with them a certain knowledge from Asia, which enabled them on their entrance to their new homes to play the *role* of a great cultured people. They possessed the knowledge of the working in metals, in stones, and in especially hard materials, and commenced now to create a new, rich and native culturs, which we admire to-day in its lost remains.

But when, now, after what I have said, there is question in our journals of ancient stone works in Egypt, I am able to bear witness that those *Ateliers* (work-shops) apparently do exist; but they have nothing to do with the ancient active world. Such places are found near the city of Edber (in Upper Egypt), near Silsilis, upon the tops of the mountains of Thebes, and in other localities. I must avow that, at first, through their similarity to real art products, I was led to regard these remains as such; but a more critical examination conducted to the conclusion that there was here a deception. You find in certain places knives, saws and arrow-heads by thousands, lying on the ground. I have made a collection of such instruments and have them to-day in Berlin, and I had believed, at first, that they were made by human hands; but such is not the fact. It is by pure accident that these stones have been so wonderfully formed. My own testimony will have but little weight, probably, in support of these facts. Thus, I fortify mysely with the treatise of our great master in Egyptian sciences, Dr. Lepsius, who, ten years since, with his known sober but convincing

criticism, developed the proof that there exists here a deception, that these silex instruments are not the work of human hands. This treatise appeared in 1870, in the 'Journal of Egyptology,' from which it results that, on comparison of these instruments, knives, saws, arrow-heads and scrapers, with real implements of the stone age, the proof was developed that an error lies here; that we have to do here with simple stone knobs which were split through the action of the heat and other atmospheric influences, and were not the products of human activity.

Thus the soil of Egypt offers us really nothing by way of contribution to prehistorical studies. But I will so far limit my opinion here as to state that Egypt, in another direction, affords an important contribution to prehistorical science, which, as I believe, has been heretofore neglected by anthropologists, namely, *the language.* When you study the Egyptian language you find the proof, the witness, that there was a time in which man had lived under the most simple relations and conditions, in which he had to find out and develop everything by his own efforts, in which he had to deal with the crudest materials, in order gradually to arrive at perfection. In this respect the ancient Egyptian language is an instructor of the first importance."

The speaker closed his remarks with various practical illustrations of the point last raised, which need not be repeated here, especially as all the ancient languages, in their primitive root-formations, carry us back to those times when the conditions of human life were of the most simple order. We proceed, now, to offer some comments upon Dr. Brugsch's remarks which, as will be seen, involve many points of great importance.

1st. It is doubtful whether Dr. Brugsch is perfectly correct in the opinion that no actual deposits of stone implements are to be found in Egypt. At least, this opinion was contested by some distinguished members present at the sitting, among others, Drs. Ecker, Fraas, etc.* It is true that Dr. Brugsch supports himself with the opinion of Dr. Lepsius. But Dr. Lepsius, as stated by the president Prof. Virchow, admits the existence in Egypt of actual deposits of stone utensils, denying, however, that they afford, under all the conditions, any proof of a distinct stone age in Egypt.† Such, also, as we shall see hereafter, is the interpretation which M. F. Chabas puts upon Dr. Lepsius' opinions, which he adopts in full. While Prof.

* See "Verhandlungen," etc. before cited, or published proceedings, p. p. 140-142.
† Ibid. p. 142.

Virchow does not deny absolutely the existence of a stone age in Egypt, he is obviously inclined to accept Dr. Lepsius' views.‡ The facts are, first, as Dr. Brugsch states, that all the metals were in common use in the Nile country from the earliest historical epoch. On this point the distinguished Egyptologist just named, M. Chabas, remarks:

"The hope of discovering on the banks of the Nile certain traces of an age of stone, *anterior to the use of the metals*, seems quite precarious, so long as we are unable to discover those even of the commencement of the civilization. When the Egyptians first reveal themselves to us, they are already in possession of all the metals, the use of which continued down to the period of the destruction of the nationality.§

The concurrent and positive statements of Drs. Brugsch, Lepsius, M. Chabas and many others who might be cited, admit of no contradiction; the use of the metals in Egypt dated from the earliest known epoch. The employment of iron clamps in the great pyramid of Cheops, as stated by Dr. Brugsch, is certainly a notable and important fact. But secondlv, on the other hand, the fact is equally beyond question that the use of stone implements continued in Egypt down to the lowest period, and it is remarkable that their use continues even to the present day. During the debate following Dr. Brugsch's address, Herr Ascherson said: "I desire to remark, only, that in Egypt, flint-stone is worked at the present day, in great quantities and in many localities."‖ M. Chabas also remarks:

"Definitely, *historical* Egypt has already proved to us that it made use of all the utensils usually assigned to the prehistorical epoch, and which are too generally believed to be associated with a barbarous state of man, and an entire ignorance of the metals. The more we investigate this class of facts, the more we discover the traces of this co-existence of stone and bronze instruments on one hand with those of the metals on the other. When M. Mariette-Bey saw at Abydos his laborers shave themselves and flay the head with silex; when the Arabs of Qurnar exhibited to him the lances of the Bedouins pointed with gross silex, he believed himself transported into an age of stone, and he has arrived at this conclusion, namely, that the

‡ Id.

§ Etudes, sur L'Antiqité historiques, etc., Paris, 1873, p. 66. Note. This is a work of 60 pages, royal octavo, containing a vast fund of critical information relating to the pre-historical epoch The author undertakes to show that all the facts at present known relating to the geological proofs of man's antiquity can be reasonably accounted for within the period of 10,000 years B C He rejects entirely the recent extreme views which assume an antiquity for man of fifty, a hundred, or hundreds of thousands of years.

‖ Proceedings, p. 143.

stone age has existed in Egypt under the Pharaohs, under the Greeks, and under the Romans; that it has existed, also, under the Arabs, and, to some extent, actually exists to-day."*

Dr. Brugsch's statement that stone material, very like the real utensils of the stone age, are formed in Egypt by natural cleavage, a fact recognized by Dr Lepsius, is confirmed likewise by M. Chabas, who says:

"The fact that silex cleaves itself with a certain noise, or report, under the action of the solar rays, is to-day placed beyond all question. The operation has been actually observed by many naturalists and voyagers, especially by M. Desor, Escher, Fraas, Livingstone, Dr. Metzstein, etc. This question has been treated with great authority by Dr. Lepsius." (As cited by Dr. Brugsch and often by M. Chabas.)†

Thus it is necessary to guard against deceptions in the study of so-called stone implements. However, that real stone utensils were employed in Egypt side by side with those of the metals, from the earliest to the latest epochs, and are thus employed even at the present day, admits of no doubt. Hence it is that Egypt affords no certain proofs of the existence of a stone age *anterior to the use of the metals.* It may be assumed on general grounds, if one prefers, but there exists no possibility of proving it by the facts known.

2nd. Dr. Brugsch fixes the opening of the historical period in Egypt corresponding to the accession of Menes, the first king of Manetho's list, at the epoch not later than 4,000 years B. C. In round numbers M. Chabas also assigns Menes to the 40th century B. C.‡ But these figures are not intended as exact. Definitely, in 1859, Dr. Brugsch assigned Menes to the era 4455 B. C.§ In 1875, however, he corrected this date 4,400 B. C.‖ More recently, also, M. Chabas believes to have determined astronomically the era corresponding to the 9th year of the reign of *Menkara*, as that of 3,010 years B. C., which would place Menes in the period very near to that assigned him by Dr. Lepsius, or 3,892 B. C.¶ But M. Chabas' views here are not yet fully accepted by the generality of Egyptologists.

Confessedly the subject of "Egyptian Chronology" is one involved in much doubt, and attended with many difficulties. The extremes of dates assigned for Menes, by different authors show differences amounting to over 3,000 years, ranging from

* Op. cit. p. p. 395, 396.
† Op. cit. p. p. 396, 397.
‡ See. p. 16. Op. cit.
§ In his Histoire D'Egypte. 1st ed. p. 287.
‖ Histoire D'Egypte, 2nd ed. p. 179.
¶ Determination d'une date certaine, etc., Paris, 1877, p. 27. Cf Lepsius' Königsbuch, etc. p. 11, introduction.

5867 to 2781 B. C., and even lower.* But it is probable that these wide differences are due in part to the influence of preconceived ideas upon writers. A strictly scientific treatment of the known facts could never conduct to such discrepancies. It must be allowed in all candor that the general tendency of modern discovery in Egypt has been to vindicate the strictly chronological character of Manetho's lists and numbers. The two tables of Abydos, the table of Sakhara, and the Papyrus of Turin, each containing lists of kings and dynasties, tends strongly to the conclusion that from the 60 dynasties now known to have existed,† Manetho has selected his 31 dynasties under the impression that they were successive, and in no case contemporaneous. It is possible to suppose that Manetho was mistaken in individual cases, taking certain dynasties for successive, which, in fact, were contemporaneous; but that his intention was to select only those dynasties which were properly chronological, is apparent on the face of the facts known to us. However, it is not our purpose here to discuss thoroughly these questions, but to leave them for some future opportunity, adopting for the present Dr. Brugsch's figures.

3d. In Dr. Brugsch's opinion, the Egyptians and their civilization came originally from Asia. On this point M. Mariette-Bey observes:

"By the progress of the science, based upon philological facts of an incontestable value, we know that, in truth, far from having come from the South (Ethiopia), following the course of the Nile, the prehistorical civilization of the Egyptians came from Asia."†

M. G. Maspero, also, after a summary of the proofs of it makes the statement: "The Egyptians appertained, then, to the proto-Semitic races. Like them, coming from Central Asia (the Plateau of Pamir), they passed into Africa by the way of the isthmus of Suez."‡ Sir G. Wilkinson observes: "The inhabitants of the valley of the Nile were not the most ancient of mankind; they evidently derived their origin from Asia. They are evidently related to the oldest races of Central Asia."‖ We might add other authorities indefinitely, in support of the point before us, but it seems unnecessary to do so. The Egyptians came originally from Asia, and even from Central Asia, as M. Maspero holds, in agreement with many other critics, from the great Plateau of Pamir, and the

* See Prof. G. Baska, DieChronologie des Bibel, etc. Wien, 1878. Vorwort, s. iv, Baska places Menes reign between 2235 and 2206 B. C. s. 163.

† Ibid., p. 15.

‡ Histoire Ancienal de L'Orient, p. 17.

‖ Notes to Rawlinson's Herodotus: Amer. Ed., vol. ii. p. 234.

traditionary first abode of man on earth.¶ When they first entered the Nile valley, the Egyptians had already attained a high civilization and artistic development. Although, for a certain unknown period, the Hamites in Egypt had lived under a theocratic government, prior to the reign of Menes, it is not probable that they learned the use of the metals during this period. It is far more probable that they acquired the knowledge of the metals before their departure from Central Asia; especially as M. Lenormant has proved the existence of a widespread metal-craft in Central Asia, at an epoch immensely remote.§

4th. The Egyptian idea of the "four races," as set forth by Dr. Brugsch, seems quite important. It is evident that the Semitic race, as conceived by the Egyptians, was not the same as that which is known to-day as Semitic. The Assyrians and Arabians, known to-day as Semitic, together with the Hebrews, etc., are classed with the Egyptians, as belonging to the red race named *Kot*, or *man, par excellence.* We know that the Hebrews belong to the same race as the Arabians and Assyrians, termed Semitic by modern writers. According to the data, then, since the Egyptians classed themselves with the Arabians and Assyrians, they were of the same race which we term Semitic. The origin of the whole has thus to be traced to a primitive, proto-Semitic race. Is there any direct connection between the Egyptian notion of this race, as the *red*, and the etymology of the Hebrew term *Adam*, the "red," from *adamah*, "the red earth?" The Egyptian notion may have given rise to this etymology of *Adam*, at an early period, although it be itself incorrect. In the Assyrian, as appears from the cuneiform, the meaning of *Adam* is the "dark race," n stead of the red. But is there not a slight error, on the part of Dr. Brugsch, in using the terms *Assyrian* and *Arabian?* Does not the Egyptian notion apply rather to the Cushites of the Euphrates valley, and those of Southern Arabia, whose civilization was, perhaps, as ancient as the Egyptians? If we were at liberty to take this view, it would confirm the ethnology of the Mosaic Text, which connects the Cushites with the Hamites, the former of Babylon and South Arabia, the latter of Egypt. But we forbear extending these speculations.

Recall the fact here, that the Egyptians migrated originally from Asia—probably from Central Asia. They were well advanced in culture, in civilization, before they left their primi-

¶ See Maspero, Ch. Cit. p. 132: Cf. my article, "The Gan-Eden of Genesis," in the 3d No. of the "Orient and Bib. Journal."

§ See L'Epoch Neolithique et l'invention des Metany, in Premiere's Civilizations, pp. 72-172, T. i.

tive abode. If we go now to the valley of the Euphrates, we find from the cuneiform texts that, according to the primitive traditions of the country, the founders of the Babylonian civilization had migrated originally from the East. In other words, according to these traditions, there was a civilization prior even to the Babylonian, and from which the Babylonian had inherited its fundamental ideas, located somewhere in the far East or North-east. This accords perfectly with the Mosaic Record, which brings the first civilizers of Babylon "from the East" to the plains of Shinar. To confirm all, it is now known, from the investigations of Lassen, D'Eckstein, Lenormant, and others, that a primitive Cushite population was located on the banks of the upper Indus, in the region of the Hindoo Caucasus, or "Hindu *Cush*," and which, before the Aryans entered Hindustan, had extended itself into this country, cultivated its rich fields, inhabiting large cities, and addicted to astronomy, metallurgy, etc.* It was doubtless from this Cushite population, and from this region bordering on the Gan-Eden of Genesis, identified with the diluvian mount, that the original Nimrodic migration to the Euphrates took place. It must have been from the same region that the Hamites first departed, when they left their Asiatic home and migrated to the African Nile.

But that to which we are especially conducted by all these data, is the fact that there existed *a primordial civilization*, so to speak, in Central Asia, which was the real foster mother of all those known to history. The Egyptians, while yet in their Asiatic home, were not the only people who had attained a certain development and culture. If not the Chinese and Aryan, at least the Cushite civilization of Babylon had inherited its fundamental ideas from this prehistorical development, whose home was the high table lands of Central Asia. Thus, the most ancient civilizations known to history had actually a genealogy: their common origin is to be traced back into the prehistorical times, and to that common centre of populations, which was the traditional birth-place of humanity. These most ancient civilizations known to history, were never the outgrowth from a savage condition of man. As before remarked, they had a genealogy, a common origin and parentage, in those primeval times, before the races had separated from their common home, around the great Olympus of Asia, where centered

* See Lenormant, Manuel D'Hist. Anc. de L'Orient, T. iii, pp. 415-429, on Les Rouschites des bards de l'Gredus et du Gunge, Cf. Dr. G. Grill; Die Erzvater des Menschheit; Leipzig, 1875, pp. 242-279. Ernst Bunsen: Biblische Gleichzeilig Keitew etc, Berlin, 1875, forward, p. 3 and p. 11. NOTE.—This author assumes that there was a Cushite-Hamite population primitively settled on the Plateau of Pamir, in Central Asia, from whom the Cushites of Babylon, and Hamites of Egypt, originally migrated. We had long been of this opinion before receiving his treatise.

the earliest traditions of nearly all the Asiatic Nations; the *Meru* of the Hindus, Albordj of the Persians, *Kharsak* mat Kurra of the Babylonians, one with the *Gan-Eden* of the Hebrews. We repeat it; the ancient civilizations were not the offspring of an original barbarism. All those known to history can be traced directly back, with a high degree of certainty, to our primordial prehistorical development, whose extreme antiquity far out-reaches any positive proofs of the existence of savage races. We believe, in fact, that civilization was as ancient, if not far more so, as any authenticated savagism.

But briefly, now, respecting the theory of a pre-Adamite race, upon which the data before us have a direct bearing. If the choice is presented us of admitting the existence of such a race, or of giving up Usher's, or Hale's, or any other so-called "Biblical chronology," then, on the basis of facts now known, we should not hesitate to part with the chronology. The discrepancies existing between the dates assigned for the Paradisiacal Man, in the earliest texts and versions of the Hebrew Scriptures, as the Hebrew Text, the version of the "Seventy," the Samaritan, etc., prove that we have not, to-day, any divinely authorized basis for the chronology of the primitive ages, either before or after the flood.* We know not to how many redactions the Text of Genesis has submitted, nor can we say that the usual interpretations of its genealogies are in accord with the original intent. With all these elements of uncertainty, it is impossible to assume that we have a fixed, infallible Biblical chronology of the early ages. Besides this, it was never a prominent aim of inspiration to reveal a system of dates. Not so, however, with the notion that Adam and Eve were the first human pair, or that the inhabitants of Gan-Eden were the first progenitors of humanity. That such was the belief of the author of Genesis, and of the other writers, both of the Old and New Testaments, can hardly be doubted. The Christian scheme of redemption, in fact, is based, to a great extent, upon the doctrine of the first and second Adam. Thus, we would much prefer, in the interest of the Bible, to carry back the date of the Paradisiacal Man five or even ten thousand years (B. C.,) than to admit the existence of man on earth prior to the epoch of Gan-Eden. So, too, we would give a corresponding antiquity to the primordial, Asiatic civilization, of which there has been question here, rather than concede the existence of savagism prior to civilization,

* On these discrepancies, see Prof. Trowbridge in the 4th No. of Orient. and Bib. Journal, pp. 191-192.

and as the original condition of man. Indeed, as it has long appeared to us, considering the facts developed by modern research, the old and short chronologies are no longer in the interests of the Scriptures, but directly contrary.

But we wish to note here an important fact, bearing upon the geological evidences of the extreme antiquity of man; evidences whose entire significance is based upon the estimated periods supposed to be necessary to account for certain geological changes on the earth's surface. It is obvious, we think, from the facts to which we allude, that these geological changes have taken place in the past with a rapidity tenfold greater than in more recent epochs. The fact to which we allude is astronomical in character, and one whose bearings on this subject have never been sufficiently considered. As due to the so-called "preceision of the equinoxes," the inclination of the earth's axis to the plane of the ecliptic is completely reversed during every period of 12,500 years, or half the period of an entire circle of "preceision," estimated at 25,000 years.

It results, from this reversion of the inclination of the earth's axis, that the earth's position in its orbit to-day, which causes summer in the northern hemisphere, would cause winter in the same hemisphere, and in the same point of the earth's orbit, 12,500 years ago. Again; whereas to-day, the earth is farthest from the sun in summer, it was nearest the sun in summer 12,500 years ago. Thus, during the past 12,500 years, these exceedingly important revolutions have taken place in the earth's condition and in its relation to the solar orb. Obviously, during this period, there must have been epochs when geological changes on the earth's surface took place, with tenfold, if not a hundredfold, greater rapidity than in modern times. These facts show that it is impossible to estimate the periods necessary to account for those changes on the earth's surface, which are supposed to bear upon the question of man's antiquity.

Suppose, now, that we assign the Paradisiacal Man to this period of 12,500 years ago. The pole-star was then in the constellation Lyra, about 47° distant, in a right line from the present pole-star. The inclination of the earth's axis to the plane of the ecliptic was exactly the opposite to its present inclination; the earth's position, in its orbit, causing summer in the northern hemisphere, to-day, would then cause winter, and the earth would be the farthest from the sun in winter, instead of nearest to it, as at present. It is impossible to estimate, then, what geological and climatic changes, on the earth's

surface, may not have taken place during this complete reversion of the condition of our planet relative to the sun; but it is morally certain that all those changes, bearing upon the question of man's antiquity, have taken place within this period.

MYTHS OF THE IROQUOIS.

MRS. ERMINNIE C. SMITH.

The instinctive desire in man to fathom the great mystery of human life; to solve the enigma of "whence he came and whither he goes;" to comprehend the beginning and history of the dim prehistoric past, and the more undefined future; and to account for the marvels ever presented to his senses, has in all times excited the imagination and originated speculation. To account for all the phenomena of life and nature the human mind has seized upon every analogy suggesting the slightest clue to their solution. In the statement of these analogies they have gradually become formulated into tales or accounts of supposed events, these only varying with the temperament of the narrator, or the exigencies of the locality, where, oft repeated, they have in time been recorded on the hearts and minds of the people either as myths or folk-lore embodying the fossilized knowledge and ideas of a previous age, misinterpreted perhaps by those who have inherited them.

For the ethnologist who would trace in mythology the growth of the human mind nowhere in this direction is the harvest so rich and over-ripe as among the aborigines of our own country, who have hardly passed the boundaries of the charmed mytheopic age; and among these none are so rich in this lore of "faded metaphors" as their highest type, the Iroquois, with whom the language, even, containing this wealth of folk-lore will soon disappear—lost through its contact with American civilization.

To what dignity this folk-lore might have attained had these people been left to reach a lettered civilization for themselves, we cannot know; but judging from the history of other peoples, their first chroniclers would have accepted as facts many of these oral traditions, which none could have disproved and much tended to corroborate.

For our grandfather Hih-nu^{n}h, the Thunderer, say they, was gifted with powers which he used solely for the benefit of mortals; hand-in-hand with his brother, the West-Wind, he

brought from the black clouds vivifying rain, and from his abode under the great Niagarian cataract (at that time a mighty cave reaching from shore to shore), he issued forth and with his crashing bolt destroyed the great sea monsters which, poisoning the waters, sent abroad a deadly pestilence; in proof of all this were not the bones of his victims, the giant lizards, often discovered?. Then when this earthly mission of Hihnunh was accomplished, a powerful current of water destroyed his terrestrial home, the spacious watery cave, and he took up his abode in the sky.

Then came the race of pigmies, small in stature but mighty in skill and deeds, who carved out the beauties of rock, cliff and cave, and also endowed with the mightier power of destroying monster land-animals, which infested the forest, endangering the life of man.

And did not cliff, rock and grotto test the skill of that departed race, and did not exhumed bones of giant animals bear as perfect witness to their former existence and power and the truth of this lore, as did the "Homo diluviæ testis" of a century ago confirm the story of the deluge?

The historian who treats of Rome does not disdain to tell us that its founder Romulus and his twin brother, were in their infancy thrown into the Tiber by order of Aurelius, but that the gods who had ordained his destiny stopped the river in its course, and sending the she-wolf to nourish the rescued infant, he was preserved to become the founder of Rome and the Roman people.

Josephus tells us that Japhet had seven sons, and from Ivan, the fairest, the Grecians were derived. The Hebrew race, reaching further into the past, claim Adam and Eve as their ancestors.

So, also, the Iroquois has his ideas of an origin of the human race, which includes also the creation of the Spirits of Good and Evil. It was in the great past when deep waters covered all the earth. The air was filled with birds, and great monsters were in possession of the waters, when a beautiful woman was seen falling from the sky! Then huge ducks gathered in council and resolved to meet this wonderful creature and break the force of her fall. So they arose, and with pinion over-lapping pinion, unitedly received the dusky burden. Then the monsters of the deep also gathered in council to decide which should receive this celestial being and protect her from the terrors of the water, but none was able except a giant tortoise, who volunteered to endure this lasting weight upon his back. There she was gently placed, while he, constantly increasing

in size, soon became a large island. Twin boys were at last given to the world's great mother—one being the spirit of Good, who made all things good and caused the maize, fruit and tobacco to grow; the other was the Spirit of Evil, who created the thistle and all vermin. Ever the world was increasing in size, although occasional quakings were felt, caused by the efforts of the monster tortise to stretch out his extensors or by the contraction of his muscles.

After the lapse of ages from the time of this general creation, Ta-rhu^{n}-hia-wah-hu$_{n}$, the Sky-Holder, resolved upon a special creation of a race which should surpass all others in beauty, bravery, and strength; so, from the bosom of the great island Ta-rhu^{n}-hia-wah-hu^{n} brought out the six pairs which were destined to become the greatest of all people.

The Tuscaroras tell us that the first pair were left near a great river, now called the Mohawk. The second family was directed to make its home by the side of a big stone. Their descendants were termed the Oneidas. Another pair was left on a high hill, and have ever been called the Onondagas, and thus each pair was left with careful instructions, in different parts of what is now known as the State of New York, except the Tuscaroras, who were taken up the Roanoke river into North Carolina, where Ta-rhu^{n}-hia-wah-hu^{n} also took up his abode, teaching them many useful arts before his departure. This, say they, accounts for the superiority of the Tuscaroras. But each of the six tribes will tell you that his own was the favored one with whom Sky-Holder made his terrestrial home, while the Onondagas claim that their possession of the council fire proves them to have been the chosen people.

Later as the numerous families became scattered over the state, some lived in localities where the bear was the principal game, and were called from that circumstance the Clan of the Bear; others where the beaver were trapped, and they were called the Beaver Clan; and for similar reasons the Snipe, Deer, Wolf, Tortoise and Eel clans received their appellations.

One of the Bear Clan relates that once on a time a sickly old man covered with sores entered an Indian village where over each wigwam was placed the sign of the clan of its possessor, the beaver skin denoting the Beaver, the deer skin the Deer Clan, and so forth. At each of these wigwams had the old man applied in vain for food and a night's lodging, but his repulsive appearance rendered him an objcct of scorn, and the Wolf, the Tortoise and the Heron had bidden the abject old man to pass on. At length, tired and weary, he arrived at a wigwam where a bear skin betokened the clanship of its owner. This

he found inhabited by a kind hearted woman who immediately refreshed him with food and spread out skins for his bed. Then she was instructed by the old man to go in search of certain herbs, which she prepared according to his directions, and through their efficacy he was soon healed. Then he commanded that she should treasure up this secret. A few days after he sickened with a fever and again commanded a search for other herbs and was again healed. This being many times repeated he at last told his benefactress that his mission was accomplished and that she was now endowed with all the secrets for curing disease in all its forms, and that before her wigwam should grow a hemlock tree whose branches should reach high above all others, to signify that the Bear should take precedence of all other clans, and that she and her clan should increase and multiply.

Iroquois tradition tells us that the sun and moon existed before the creation of the earth, but the stars had all been mortals or favored animals and birds. Curious indeed are the myths regarding these transformations.

Seven little Indian boys were once accustomed to bring at eve their corn and beans to a little mound, upon the top of which, after their feast, the sweetest of their singers would sit and sing for his mates, who danced around the mound. On one occasion they resolved on a more sumptuous feast, and each was to contribute toward a savory soup. But the parents refused them the needed supplies and they met for a feastless dance. Their heads and hearts grew lighter as they flew around the mound until suddenly the whole company whirled off into the air. The inconsolable parents called in vain for them to return—it was too late. Higher and higher they arose, whirling around their singer until transformed into bright stars they took their places in the firmament where, as the Pleiades, they are dancing still, the brightness of the singer, however, having been dimmed on account of his desire to return to earth.

A party of hunters were once in pursuit of a bear, when they were attacked by a monstrous stone giant, and all but three destroyed. The three, together with the bear, were carried by invisible spirits up into the sky, where the bear can still be seen pursued by the first hunter with his bow, the second with the kettle, and third who, farther behind, is gathering sticks. Only in the fall do the arrows of the hunter pierce the bear, when his dripping blood tinges the autumn foliage. Then for a time he is invisible, but afterwards reappears.

An old man, despised and rejected by his people, took his bundle and staff and went up into a high mountain, where he began singing the death-chant. Those below, who were watching him, saw him slowly rising into the air, his chant ever growing fainter and fainter, until it finally ceased as he took his place in the heavens, where his stooping figure, staff, and bundle, have ever since been visible, and are pointed out as Na-ge-tci (the old man).

An old woman, gifted with the power of divination, was unhappy because she could not also foretell when the world would come to an end! For this she was transported to the moon, where to this day she is clearly to be seen weaving a forehead strap. Once a month she stirs the boiling kettle of hominy before her, during which occupation the cat ever by her side, unravels her net, and so she must continue until the end of time—for never until then will her work be finished.

As the pole-star was ever the Indian's guide, so the Northern Lights were ever to him the indication of coming events. Were they white, frosty weather would ensue; if yellow, disease and pestilence; while red predicted war and bloodshed; and a mottled sky in the spring-time, was ever the harbinger of a good corn season.

When engaged in wars with different nations, the voice of the Echo God served for signals, as it would only respond to the calls of the Iroquois. At the edge of evening it was used by them to call in those who were out on the war-path. When the warrior would whoop the Echo God would take it up and carry it on through the air, their opponents not being able to hear it, as this was the special god of the Six Nations. Therefore when they had gained a great victory a dance was held to give praise to this god. When enemies were killed their victors called out as many times as there were persons killed, the cry being Goh-weh! Goh-weh! I'm telling you! These words the Echo God took up and repeated. But if one of their own tribe was killed they called out Oh-weh! Oh-weh! meaning Our own!

After any of these signals were given all assembled together to hold council and make arrangements for an attack or pursuit. Then were sent out runners who also proclaimed; but if no response was made by the Echo God it was an omen that they should not start, but they continued calling, and if the god still remained silent a service was held to ask the cause of his anger.

When a warfare was finished victoriously a dance was held to the Echo God, and the nations assembled to rejoice, but first

to mourn for the dead and decide on the fate of the captives. As the Echo God was never called upon except in emergencies during warfare, now, since wars are over, the feast and dance to the Echo God have ceased to be a part of the Iroquois ceremonies.

A hunter in the woods was once caught in a thunder shower, when he heard a voice calling upon him to follow. This he did until he found himself in the clouds, the height of many trees from the ground, and surrounded by human beings in appearance, with one among them who seemed to be their chief. He was told to look below and tell whether he could discern a huge sea serpent. Replying in the negative, the old man anointed his eyes, after which he could see the monster in the depths below him. They then ordered one of their number to try and kill this enemy to the human race; upon his failing, the hunter was told to accomplish the feat; he accordingly drew his bow and killed the foe. He was then conducted to the place where he was protecting himself from the storm which had now ceased.

This was man's first acquaintance with the Thunder God and his assistants, and by it he learned that they were friendly toward the human race, and protected it from dragons, sea serpents and other enemies.

It was the custom, at that season, for the medicine men to go about demanding gifts of the people, but an icy figure had also appeared demanding a man as a sacrifice; whereupon the Thunder God was appealed to, who came to the rescue with his assistants, and chased the figure far into the north, where they doomed the icy demon to remain; and to this day his howling and blustering are still heard, and when any venturesome mortal dares to go too far toward his abode, his frosty children soon punish the offender. He is termed Ka-tashhuaht, or North Wind, and ranks as an evil spirit.

A man, while walking in a forest, saw an unusually large bird covered with a heavily clustered coating of wampum. He immediately informed his people and chiefs; whereupon the head chief offered as a prize his beautiful daughter to the one who could capture the bird, dead or alive, which apparently had come from another world.

Whereupon the warriors, with bows and arrows, went to the "tree of promise," and as each lucky one barely hit the bird, it would throw off a large quantity of the coveted coating, which, like the Lernean hydra's heads, multiplied by being cropped. At last, when the warriors were despairing of success, a little boy from a neighboring tribe, came to sat-

isfy his curiosity by seeing the wonderful bird of which he had heard; but, as his people were ever at war with this tribe, he was not permitted by the warriors to try his skill at archery, and was even threatened with death. But the head chief said, "He is a mere boy; let him shoot on equal terms with you who are brave and fearless warriors." His decision being final, the boy with unequalled skill brought the coveted bird to the ground.

Having received the daughter of the head chief in marriage, he divided the oh-ko-àh between his own and the tribe into which he had married, and peace was declared between them. Then the boy husband decreed that wampum should be the price of peace and blood, which decree was adopted by all nations. Hence arose the custom of giving belts of wampum to satisfy violated honor, hospitality, or any national privilege.

A boat filled with medicine men passed near a river bank, where a loud voice had proclaimed to all the inhabitants to remain indoors, but some disobeying died immediately. The next day, the boat being sought after, was found containing a strange being at each end, both creatures being fast asleep. A loud voice was then heard saying that destroying these creatures would result in a great blessing to the Indian. So they were decoyed into a neighboring council house, where they were put to death and burned, and from their ashes rose the tobacco plant, that inestimable boon not only to the Indian but to his pale-faced brother.

In the beginning the birds, having been created naked, remained hidden, being ashamed of their nakedness. But at last they assembled in a great council of all winged creatures, at which they petitioned the gods to give them some kind of covering. They were told that their coverings were all ready, but were a long way off, and they must either go or send for them. Accordingly another council was held to induce some bird to go in search of the plumage, but each one had some excuse for not going. At last a turkey-buzzard volunteered to go and bring the feathery uniforms. It being a long journey to the place whence he must bring them, he, who had been a clean bird heretofore, was obliged to eat carrion and filth of all kinds—hence his present nature. At length, directed by the gods, he found the coverings, and selfishly appropriated to himself the most beautifully colored one; but, finding he could not fly in this, he continued trying them on until he selected his present uniform, in which, although it is the least beautiful of any, he can so gracefully ride through

the air. The good turkey buzzard then returned bearing the feathery garments from which each bird chose his present colored suit.

Three sisters are supposed to preside over the favorite vegetables, corn, beans, and squashes. They have the forms of beautiful females, and are represented as loving each other dearly and dwelling in peace and happiness. The vines of the vegetables grow upon the same soil and cling lovingly around each other. She who is the spirit of corn is supposed to be draped with its long leaves and silken tassels. She who guards the bean has a crown of its velvety pods with garments woven of the delicate tendrils, while the spirit of squashes is clothed with the brilliant blossoms under her care, and in bright nights they can be seen flitting about, or heard rustling among the tall corn. At the yearly festivals held in their honor they are appealed to as "our life, our supporters."

These are but a few of the very many similar myths gathered among the Iroquois during the past season. To some they may seem as idle tales, but to those from whom I received them they were realities, for many of those forest children of "larger growth" still cling to their myths as the only link which binds them to a happier past. And shall the pale-face, who has not yet rid himself of the shackles of superstition in a thousand forms, and who sees daily his household gods torn down before him by Comparative Mythology and its allied sciences—shall he turn with contempt from these strivings of the infant human mind in its search after the unknowable?

The reply of Tecumseh to Gen. Harrison, during the treaty of Tippecanoe, was no figure of speech. The General presiding, requested the distinguished chief to take a seat. Tecumseh shook his head and refused. Harrison repeated his request, saying, "Your father commands you to sit there." That instant Tecumseh, stretching forth his hand, said, "The Sun is my father, the Earth my mother; upon her bosom will I rest;" and he dropped upon the ground.

From the ground had the Indian been brought forth. The earth had ever sustained, and when his life was over she received him back again.

LAST WORDS AND DEPARTURE OF

Ta-rhu^{n}-hia-wâh-hu^{n}, (the Hi-â-wâ-tha of Longfellow.)

It has been with design that I have omitted giving in full that interesting myth of the Onondagas, the story of Hi-â-wâh-

tha, beautiful as it is even in its crudeness. But the gold has been extracted from the ore by America's most gifted poet, and with its beauties enhanced a thousand fold it is not meet that the unskilled should encroach within its boundaries to mar its perfection. But there could be no more fitting conclusion to these myths of the Iroquois than to give the farewell words of the legendary founder of that confederacy which ever rendered them invincible.

Before the great council which had adopted his advice dispersed, he arose and with a dignified air thus addressed them:

"FRIENDS AND BROTHERS:—I have now fulfilled my mis-
"sion in this world. I have taught you arts which you will
"find useful. I have furnished you seed and grains for your
"gardens. I have removed obstructions from your waters,
"and made the forest habitable by teaching you to destroy its
"monsters. I have given you fishing and hunting grounds.
"I have instructed you in making and using implements of
"war. I have taught you how to cultivate corn. Lastly, I
"have taught you to form a confederacy of friendship and un-
"ion. If you preserve this, and admit no foreign element of
"power by the admission of other nations, you will always be
"free, numerous and happy. If other tribes and nations are
"admitted to your councils, they will sow the seeds of jealousy
"and discord, and you will become few, feeble, and enslaved.

"Friends and brothers, remember these words. They are
"the last you will hear from the lips of Hi-â-wâ-tha! FARE-
"WELL!"

As the voice of the wise man ceased, sweet sounds from the air burst on the ears of the multitude. The whole sky seemed to be filled with melody, and while all eyes were directed to catch glimpses of the sight and enjoy strains of the celestial music that filled the sky, Hi-â-wâ-tha was seen seated in his snow-white canoe in mid air, rising with every choral chant that burst forth. As he arose, the sounds became more soft and faint, till he vanished in the summer clouds and the melody ceased.

Thus departed Hi-a-wa-tha,
Hi-a-wa-tha, the beloved,
In the glory of the sunset,
In the purple mists of evening;
To the regions of the Home-Wind,
Of the North-west-Wind, Kee-way-din,
To the Islands of the Blessed,
To the kingdom of Po-ne-mah,
To the Land of the Hereafter.

A DESCRIPTION OF PREHISTORIC RELICS FOUND NEAR WILMINGTON, OHIO.

PREPARED BY DR. L. B. WELCH AND J. M. RICHARDSON.

The mound in question is situated upon the road leading from Wilmington to Harveysburg, and known as the Wilmington and Waynesville Pike, and about three and a half miles from the former place, due west, upon the Sparks farm, and has long been known as the Sparks Mound. It is on the north side, and perhaps two hundred yards from the pike. In shape, the mound is almost round, being forty feet north and south by forty-five east and west, and in height six and a half feet. As the timber was removed but about four years ago, and the ground has never been plowed but once, the mound is perhaps near its original height. The earth of which the mound is composed is of the same character as that found in the fields adjacent, being the yellowish clay of the glacial period. Upon the summit of the mound and about the center stood a large sugar tree (*Acer saccharinum*) stump; about fifteen or sixteen feet north of the center, stood another of same kind and size. There is nothing remarkable in the surroundings of the mound, save the evidence of an ancient roadway or approach leading up from the valley of Todd's Fork, which by a gradual rise brings one to the mound, which, after being reached, is found to occupy a position from where a wide and extended view of the creek bottoms and the hills beyond can be had. Included in the landscape are other mounds.

The opening was made from east to west. After reaching a depth of three feet, a layer of charcoal and ashes from four to six inches in depth, and which covered the entire surface of the mound, that is, what was the surface at the time the deposit was made, was struck, amidst which were found skeletons. The bodies had been buried in regular order, each having the head to the center and the feet toward the outer edge of the mound, radiating from the center as the spokes in a wheel radiate from the hub. Here reposed, side by side, infancy, manhood and old age, as evidenced by the fact that here was found that least perishable part of all the human anatomy, that portion upon which the ravages of time make slowest inroads —the teeth. Side by side with the nearly crownless teeth of old age we find the undeveloped teeth of youth and the fully developed teeth of middle age.

After penetrating the layer last described, the same characteristics marked the next three feet as did the first three. When the original surface of the ground was reached, and within eight feet of the center of the mound, two square holes were found, one south east and the other north east of the center. These holes were near eighteen inches deep and twelve by twenty inches, and were filled with charcoal and ashes with many bits of bone. At an elevation of about six inches above the original surface, and four or five feet from the center, embedded in charcoal and ashes, was found a piece of mica three eighths of an inch thick and ten by thirteen inches in width.

No. 1.

When the center of the mound was reached a truncated cone shaped mass, about two feet high and four feet in diameter, composed of clay that had evidently been mixed and burned until it assumed the color of a salmon brick, was found. Directly west, and one foot from the base of the cone was discovered a vault nine feet long and three feet wide, the head and foot of which were plainly marked by a wall of round, smooth boulders. The vault was filled with charcoal and ashes, which, after being removed to a depth of nearly two feet, disclosed the skeleton of a man who had been buried face downward and in a horizontal position. The body had beenburied two feet below the original surface or level of the ground. The walls of boulders extended no farther than to the shoulders on either side of the head, and those at the feet no farther than to the ankles. Upon a removal of the bones of the skeleton, within those of the left hand was found clasped the tablet marked Figure 1. This tablet is of Waverly sandstone, three and seven eighths inches wide, four and seven-eighths long, and five eighths of an inch thick; the obverse being shown in Plate No. 1, it is only necessary here to speak of the reverse, which is unmarked save by five deep and three shallow grooves, and of these markings we have but this to offer as to their significance or meaning: Those acquainted with the character of the Waverly sandstone know that it possesses a fine sharp grit, and is well calculated for polishing purposes, and therefore we have no hesitancy in saying that so much of this stone as is missing was removed to be used in polishing the surface, or drilling holes in some object of interest to the people or person to whom they belonged.

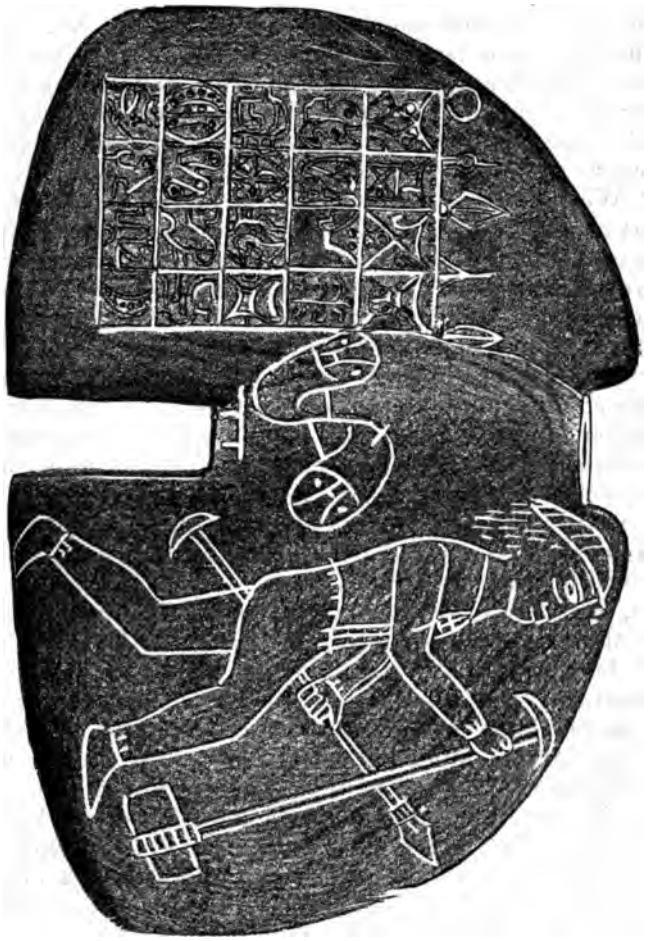
No. 2.—Reduced to one fourth real size.

Plate No. 2 is an exact representation of the arrow that encircles the tablet, reduced to one-fourth its real size.

This relic was found by Mr. J. M. Richardson on the 31stday of January, 1879, and is named the "Richardson Tablet," in honor of the discoverer. He was assisted in his labors by John W. Jones.

After a thorough investigation of the vault was made, nothing farther of interest being found, the opening was filled

up. Extremely cold weather setting in nothing more could be done at the time, but on the 12th day of the month following another excavation was commenced and continued in a southwesterly direction from the vault. Scarcely two feet from the edge of the vault, and about the same distance from the base of the cone-like center of the mound, was encountered



No. 3.

a circle of round stones similar to those forming the extremities of the vault. This circle was upon the original surface of the ground, and in diameter was about thirty inches and was built up to a height of twenty inches. The space enclosed by these stones was filled with charcoal and ashes, and during their removal the piece shown in Plate No. 3 was found

standing upon edge near the center of the pit, the bottom of which was formed of two stones, lying in a trough-like shape.

By reference to the engravings, Nos. 3 and 4, the reader will no doubt admit that this last piece found is perhaps the most interesting relic of that age about which so little is known and so much is speculatory—the Mound Builder's Period—that has ever yet been found. Probably the most notable object in plate No. 3 is the figure of a man, large, well formed, and of excellent proportions. The features are bold, massive, and of such a character as a student of ethnology would expect to find in a man of the race that constructed such almost imperishable monuments as the Mound Builders have left throughout the Middle and Western States. The head is of the *brachycephalic*, or short-headed type; it is squarely set on a neck and shoulders that are indicative of strength. These facts are all apparent, however, and need no farther explanation from us. In connection therewith we find an illustration of the use that was made of a certain half-moon shaped stone implement that is frequently met with in archæological collections, viz: an ornament, hand hold or finish to the spear and axe handle. Another mooted question is also settled, that of the manner of fastening the spear and axe upon their handles; and another important matter is set at rest certainly beyond all doubt, and that is that the so called Indian-battle axe is not of Indian origin, but belongs to a people who evinced a skill in the formation of implements devoted to warfare or the chase, far in advance of the red man, who only made use of the labor of other hands. The next thing in order is the costume, of which but little need be said, for all can see it and study it; but we are greatly of the opinion that it is conclusive evidence that the wearer thereof was an inhabitant of a warm climate. As to the central figure, we can say but little; but as it suggests to us the union of two bodies might it not be typical of marriage?

In the square or tablet upon the left wing of the butterfly is the center of interest, to us at least. And of this what can we say? What mean those mysterious angles, curves, circles and squares? How much of history is hidden in these strangely wrought figures; how much that science has sought for, and how much of the origin, the habits, the life, language, and possibly the destiny of the people who are only known to us as the Mound Builders.

In Plate No. 4 we have a representation of the reverse of Plate No. 3, and in it we find the most difficult part of our task. So much is suggested by the figures here represented.

Of what is the scene here given emblematic? Does it represent an act of worship, propitiation, or is it sepulchral in its significance? The animals here represented have all been, at some time, objects of worship to a people that have not yet entirely passed away. As slabs of mica are almost invariably found in connection with human remains in ancient mounds, may not

No. 4.

the object in front of the recumbent figure be a mica mirror? As to the reptile in the rear of the female figure we need say but little. It is plainly a rattlesnake, one of the species now known as the *Crotalus horridus*, and is in an attitude of antagonism to the animal upon the extremity of the Plate. Here, again, we are presented with good evidence that the person

No. 5.

represented is an inhabitant of a warm climate, as shown by the costume, which, in ornamentation, at least, resembles the one worn by the male figure on the obverse of the stone.

The last described relic has been named by Mr. Richardson the "Welch Butterfly," in honor of Dr. L. B. Welch, of Wilmington, O.

Plate No. 5 is a reproduction of the tablet on the left of Plate No. 3, enlarged two and a half diameters, for the purpose, if possible, of rendering it more legible.

We well recollect the cry of fraud that was raised against the Cincinnati Tablet when it was found, and that the circumstances connected with the discovery of it was of such a character as to possibly throw some discredit upon its genuineness, we do not dispute; but as to the circumsfances attending the discovery of the relics herein described, we are free to say that no chance for doubt exists, and having enjoyed a privilege no others ever have, that of seeing the Richardson Tablet and the Cincinnati Tablet (through the kindness of Dr. H. H. Hill, of Cincinnati) placed side by side, we do most unequivocally pronounce the Cincinnati Tablet genuine. Farther: we do unhesitatingly say that in these tablets we have the fact well established that pre-historic man, upon this continent, possessed a written language; not a pictorial language, but a language composed of different and distinct characters, well and plainly written.

A description of Plate No. 1 was published in the Cincinnati *Commercial* of February 22, 1879, which was furnished by Mr. O. S. Frazer, the regular Wilmington correspondent of that paper, and afterward, in connection with a description of the relic figured on Plates No. 3 and 4, in the Wilmington *Journal* of March 12, 1879, and again in the *Commercial* of a later date.

It has been too often the case that persons who have come into possession of relics of interest, and particularly those pertaining to Archæology, have given too little attention to time, place and circumstances under which they were obtained, thereby leaving room for doubt and discredit to assert themselves. Having an intimate knowledge of the locality where the previous described relics were found, as well as a long and intimate personal acquaintance with the parties who made the discovery, we are at a loss to express how great would be our chagrin did we for a moment think that any doubt could be entertained as to the genuineness of the articles. And having no other object in view than the advancement of science, it

would indeed pain us deeply should we think our honesty of purpose doubted. L. B. WELCH, D. D.. S.

In conclusion we feel that it is due from us that the assistance rendered by Frank L. Fornshell in the preparation of the matter herein contained, be acknowledged, and we do hereby extend him our sincere thanks therefor.

POLYANDRY IN INDIA AND THIBET.

BY PROF. JOHN AVERY.

The social custom called Polyandry may be defined as the marriage at the same time of one woman to several husbands, who are usually brothers or near relations. It is thus a species of polygamy, though the latter term is generally restricted to the marriage of one man to several women. Polyandry appears never to have been so wide-spread as its twin custom, but it is still practiced in not inconsiderable communities, and there is evidence that it once prevailed in regions and among races where it is now unknown. Cæsar, describing the customs of the Britons, says: "Ten or twelve men, usually brothers or fathers and sons have wives in common."* When Herodotus says that "the Agathyrsi have their wives in common, that so they may be all brothers, and as members of one family, neither envy nor hate one another,"† he may refer to a similar custom. Such passages in the Bible as Gen.38: 8, 11, and the story of Ruth suggest that polyandry may have existed among the Semites. This seems to have been so far recognized in the Mosaic law as that in the event of a husband dying without issue his widow was not allowed to remarry out of the family, but it was the duty of the brother of the deceased to take her as a wife.‡ That polyandry was sometimes practiced in ancient Aryan communities is rendered very probable by the well known story of Draupadi in the Mahabarata. In briefest form it is as follows: Pandu, the son of Vyasa, was a prince of the Lunar race, and reigned in Hastinapura. Having acquired great possessions he retired from the throne to the forests of the Himalayas with his two wives, Kunti and Madri, and devoted himself to the pleasures of the chase. Having killed a male and female deer that chanced to be a Brahman

* De Bello Gallico, lib. v. 14.
† Rawlinson's Herod. Vol III. p. 76.
‡ See Deut. 25: 5.

and his wife in disguise, Pandu was cursed by the dying sage, who foretold that to beget children would cause his death. Hopeless of offspring of his own, the king consented that his wives should, by the use of magic arts, invite attentions from celestial beings. As a result they gave birth in due time to five sons. While the princes were still boys their father died, and they, together with their cousins, the sons of Kuru, were educated by a Brahman named Drona. Owing to the jealousy of these cousins the sons of Pandu were driven from home with their mother, and left to shift for themselves. By direction of their grandfather they repaired to the court of King Drupada, the father of the peerless princess Draupadi, who was about to celebrate her *svayamvara* or public choice of a husband. The five brothers joined the crowd of suitors for her favor. As in the familiar story in the Odyssey, the matter was to be decided by a trial of strength and skill in archery. A huge bow was produced which the suitors were invited to bend, and shoot five arrows at once through a revolving ring into a target beyond. Each tried it in turn, but all failed save Arjuna, the third son of Pandu, who easily met the test and carried off the maiden. When the princes returned home with their prize their mother, who was within doors, thinking they had brought the usual supply of food, called out to them to share it between them. This command of their parent, though uttered by mistake, must not be disregarded, and Draupadi was married, first to the eldest brother and then to each of the other four in turn. Objection to this arrangement was made by the father of the bride, who declared that, though a man might take more than one wife, it was contrary to custom and the Veda for a wife to have a plurality of husbands. The correctness of this position was disputed by the eldest brother, who cited examples of the practice. The dispute was finally settled by the grandfather, who declared that the marriage had been ordained by the gods, for Dranpadi had in a former existence as the daughter of a sage practiced austerities in order to obtain a husband. Her request repeated five times had brought the unexpected response from Siva that she should have five husbands, and now the prophecy was fulfilled. In another passage of the Mahabharata a dark picture is drawn of the immoralities of the tribes living in the Panjab, and in connection with gross irregularities in the relations of the sexes it is stated that a man's property was inherited not by his own but his sister's sons. This is a regular feature of polyandry. It appears probable, then, that polyandry was an occasional, though not general, custom

among those Aryans who lived somewhat outside the pale of Brahmanic influence.

If we inquire whether the Vedas allude to this practice, little evidence is to be obtained, which is not surprising when we consider that they were the authoritative scriptures of the Brahmans, who never recognized polyandry as lawful, and had the hymns originally contained allusions to the custom, these would have been regarded as apocryphal and been mostly suppressed when the standard text was formed. Still, one may cite Rig-Veda I. 119, 5, "Asvins, your strong chariot harnessed by yourselves for glory; its two shafts drew (to the goal); the noble maiden, come for friendship into marriage with you, chose you two as husbands." In another passage, X. 40. 2, is an allusion to a widow marrying the brother of her deceased husband. This practice is apparently sanctioned by the lawgiver, Manu, who allows such a relation to continue until one or two sons are born.

In more recent times polyandry has been noticed by travelers among widely separated peoples, as the Kalmucks, the Tasmanians, the Iroquois, and other sporadic instances.‖ At the present day the custom survives chiefly in southern India and Ceylon and in Thibet. It has been supposed that if it ever existed in northern India, all traces of it have now disappeared. This does not appear to be true, for Mr. C. S. Kirkpatrick, writing to the Indian Antiquary (No. 77, p. 86), states that the practice still survives among the Jats, an agricultural people of the Panjab. As the result of careful inquiries he says: "When a Jat is well-to-do he generally procures a wife for each of his sons, but if he is not rich enough to bear the expenses of many marriages, he gets a wife for his eldest son only, and she is expected to, and as a rule does, accept her brothers in law as co-husbands. There is no attempt to conceal the fact, and it is even a common thing when women quarrel for one to say to the other, 'You are so careless of your duty as not to admit your husbands brothers to your embraces!' It is true that the Brahmanical law prevents open cohabitation with an elder brother's wife, but no great pains are taken to conceal it. The custom of forcing a younger brother to take the elder brother's widow (to raise up seed to his brother), is well known. Many tribes practice it. I have even heard of the thing being done by the poor Banyas of Dehli."

But it is in that part of India where the population is mostly

‖ Wilson· *Abode of Snow*, p. 227; also *Ceylon*, by an officer of the Ceylon Rifles, Vol. I. p. 388.

non-Aryan, and the influence of Hinduism is less prevalent, that polyandry is best illustrated. It is practiced by some of the lower, agricultural castes among the Telugus, and by the Moplas and Nairs of Malabar. Among the latter people it appears more like restricted license than like polyandry as practiced elsewhere. Mr. Walter Hamilton says: "The Nairs marry before they are ten years of age, but the husband never cohabits with his wife. He allows her oil, clothing, ornaments and food, but she remains in her mother's house, or after her parents' death with her brothers, and cohabits with any person she chooses of an equal or higher rank than her own. In consequence of this strange arrangement no Nair knows his own father, and every man considers his sisters' children as his heirs. His mother manages the family, and after her death the eldest sister assumes the direction. A Nair's movable property, on his decease, is equally divided among the sons and daughters of all his sisters."

The most noteworthy instance of polyandry found in India, is among the rude tribe known as Todas, who are supposed to number less than a thousand souls, and who occupy that portion of the western coast-range of the Dekhan called the Nilgiris. When a Toda wishes to marry he goes to the father of the girl whom he fancies, and offers him a price, usually a certain number of buffaloes, for his daughter. If the request is favorably received the father makes a present of cattle in return. These reciprocal gifts are pledges of mutual good faith. The only remaining ceremony is the seclusion of the couple in a hut for a day and night. If, after this probation, the girl concludes to have the man, she becomes his wife. In case, now, the husband has brothers they may be admitted to a share in the wife on payment of their proportion of the dower. If they have sufficient means, they may also each purchase a wife in the manner described, and take the other brothers in as partners. Thus a group of brothers may, in a perfectly lawful way, have several wives in common, from which circumstance extraordinary complications of relationship necessarily arise. If a husband dies, care is taken that his widow shall not remarry out of the family, and she becomes the wife of his brother, who, if already married, may feel bound to put away his own wife in order to take her.

The law of inheritance among the Todas differs from that prevailing among most polyandrous tribes. In communities where the mother only of a child can be known with certainty, it is most natural that property should descend in the female line. But among the Todas the females hold no property,

and are supported wholly by the males. When a man dies his possessions are divided equally among his sons, or, in default of these, among his brothers.

In Ceylon polyandry is not unknown even at the present day, nor is it confined to the lowest castes. It was formerly a more general custom, but has been much restricted by European rule, especially in the maritime provinces.

If we look elsewhere for present illustrations of polyandry, we find them best in the Himalayas, and particularly in Thibet. Here the custom exists in its simplest and most consistent form. It prevails mostly among the poorer families, though not confined to them. The matrimonial partners are nearly always brothers, but sometimes the woman chooses another husband from outside the family. The children of this union are claimed in common by all the husbands, and call them all fathers. This condition of society does not seem to cause disputes among relatives, which is probably due in a measure to the quiet and unimpressible character of the people; nor does it cause an unusual lack of modesty in the women. In fact, the circumstances are as favorable in Thibet as in any part of the world for displaying the custom at its best. When we inquire for the motives which have led to this singular practice, several are suggested, which have, doubtless, operated with varying force in different localities. In Thibet the hard struggle to maintain life under most unfavorable conditions has made it necessary to keep the population down to the lowest limits, and polyandry is the natural contrivance for insuring a low birth-rate. It is thought also that the prolonged absence of some of the men of the family, for the purpose of pasturing their flocks in the higher ranges, has led to an arrangement by which some one should be left who would feel an interest in the proper care of the household.

The motive most commonly urged is economy, and as the practice in India and elsewhere is most common amongst the poorer classes that is doubtless the most influential cause. If, on the death of a father, the property were divided equally between his sons the share of each would be small, and destined to become smaller with each succeeding generation; but when the sons remain at home the property is kept together, and thus furnishes a more adequate support. The expense of marriage, as fixed by inexorable custom, is always dreaded by the Indian peasant, who is never long free from the danger of starvation, and it is not strange if he has in more than one way used his wits to avoid it.

Among the Todas poverty seems a less probable cause, and

we perhaps see in their customs traces of a communistic stage of society, of which the practice of the Nairs is the best surviving illustration.

It has been thought by some that polyandry has a tendency to perpetuate itself by originating a race in which the male exceed the female births, but the theory has not yet been substantiated by sufficient evidence.

THE SITE OF CAPERNAUM.

BY PROF. J. EMERSON.

Capernaum and Bethsaida are places so fixed in our minds that we want them fixed on our maps—a want which is illustrated by the discussion which is so rife respecting them. It will be worth a careful and systematic study to determine what we can know of them. Our chief resources must be the Gospel narratives and the permanent features of the country, and our chief aids must be Josephus and subsequent history, and the local traditions, if such there be.

The following suggestions are the result of some personal examination of the localities as well as of books:

Where, then, was the Capernaum of the Gospels?

I. It was by the sea. It is so described when first named in Mat. 4: 13, 21. Again, in Mat. 17: 24, 28, Jesus in Capernaum bids Peter go and cast a hook in the sea. In John 6 17, 21, 24 the disciples and the people came to Capernaum by boat. This would be consistent with any location which has been proposed, except that at the Round Fountain, which is more than a mile from the sea. But more particularly:

II. It was at or closely adjoining Gennesaret and Bethsaida. After feeding the five thousand, Mark, (6: 45,) tells us that Jesus constrained his disciples to go over to *Bethsaida*, and John (6:17,) says that they "went over toward *Capernaum*," and that after Jesus came to them (6:21) "immediately the ship was *at the land whither they went*," and both Matthew (14:34), and Mark (6:53), say that "they came to *the land of Gennesaret*." This must fix Capernaum as at least close by Gennesaret, and apparently as identical with Bethsaida. In John 1:44, Bethsaida is described as "the city of Andrew and Peter." But in Mat. 8:14, in Mark 1:29, and in

Luke 4:38, Jesus passes from the synagogue in *Capernaum*, "immediately into the house of Simon and Andrew."

Do not these passages prove that the names Capernaum and Bethsaida were applied to the same place, and that place one at which boats might land and be counted as at Gennesarct?

What do the Gospels tell us of the position of Bethsaida, the city of Andrew and Peter? It was in Galilee, (John 12:21) therefore it was not the Bethsaida, east of the Jordan, of which Herod Philip made the city Julias. That Bethsaida may have been known to the evangelists, as well as to Josephus in the next generation, but probably the only allusion which they make to it is this designation by which John is careful to distinguish the city of Philip as "Bethsaida of Galilee." What, then, was this Bethsaida, which was at Capernaum and yet was itself a city?

The name itself may suggest the answer. Bethsaida means "House of Fish," and did it not designate the community of fishermen who lived round the little bay, which lies just at the northeast border of Gennesaret, and just below the great fountain, which Josephus seems to call Capharnome?

It is time to turn to the map and to Josephus.

On the northwest coast of the sea of Galilee we find the rich plain of Gennesaret, about three miles in length along the lake, and one or two miles in breadth toward the inland. It is bounded on the north by a steep bluff, which terminates in a bold cliff rising from the water's edge, whilc the Galilean highlands are behind it. Immediately east of this cliff is a little bay into which flow the warm waters of the fountain, now called Tabiga, upon the hillside above, which is a part of the slope rising from the lake and extending five miles more to the inlet of the Jordan. "Capharnaum" is mentioned by Josephus as the name of a most fertilizing fountain which waters Gennesaret and Capharnome, as a village to which Josephus was carried after a mishap in the marshes near Bethsaida Julias, and from which he was carried, probably by boat, to Tarichaea, at the outlet of the lake. Recent observation has traced a system of works, by which the waters of this fountain Tabiga were raised and conducted over half a mile of distance and round the end of the cliff to a position from which they could be distributed over the whole plain of Gennesaret.

Present opinion is settling very decisively in the conclusion that Tabiga must be the Fountain Capharnaum of Josephus,

and that the Capernaum of the Gospels must have been in its vicinity.

But where was it? Was it at Khan Minyeh, half a mile west of Tabiga, or at Tel Hum, a mile and a half to the east? Perhaps our first question should be—what was it? Josephus calls it a "village," which must mean an open, unwalled town, and he says of the Galilee of his day, that "the villages are everywhere so full of people that the very least of them contain more than fifteen thousand inhabitants." Capernaum in the time of the youth of Jesus, before the building of Tiberias and of Julias, must have been among the chiefest towns of Galilee. There was no better harbor, nor so good fishing elsewhere on the lake. Its great fountain gave an excellent water power. It was the point where the great road from Damascus and all the east came down to the rich plain of Gennesaret on its way to Samaira, Jerusalem and Egypt. It was such a position as the wealthy farmers of the plain would choose for their homes, and the natural market town for Bashan as well as for Galilee. Its importance is illustrated by its throng of publicans, as well as by its wealthy Roman centurion. If Galilean villages were as large as Josephus represents them, Capernaum could hardly have contained less than twenty thousand people. Could they, living in an open village, have occupied less space than the entire two miles from the edge of Gennesaret to the Cape of Tel Hum? May we not then lay aside the dispute between Tel Hum and Khan Minyeh, and consider both as included in the one Capernaum?

Accordingly, Bishop Arculf, who saw it about 700 A. D., describes it thus:* "Those who wish to go from Jerusalem to Capernaum, take the direct way by Tiberias, and from thence along the sea of Gennesaret to the place where the loaves were blessed, from which Capernaum is at no great distance. Arculf saw this place from a neighboring hill, and observed that it has no walls, but lies in a narrow piece of ground between the mountain and the lake. On the shore, towards the east, it extends a long way, having the mountain on the north and the water on the south."

The point of view will be readily recognized by any one who has passed along the west shore of the sea of Galilee, and may be easily understood from a good map. It must have been from the eastern point of the ridge which bounds Gennesaret on the south, the mountain where, if we agree with Arculf and Wilson, as to the place of the miracle,

* Early travels in Palestine, Bohn's edition. Page 9.

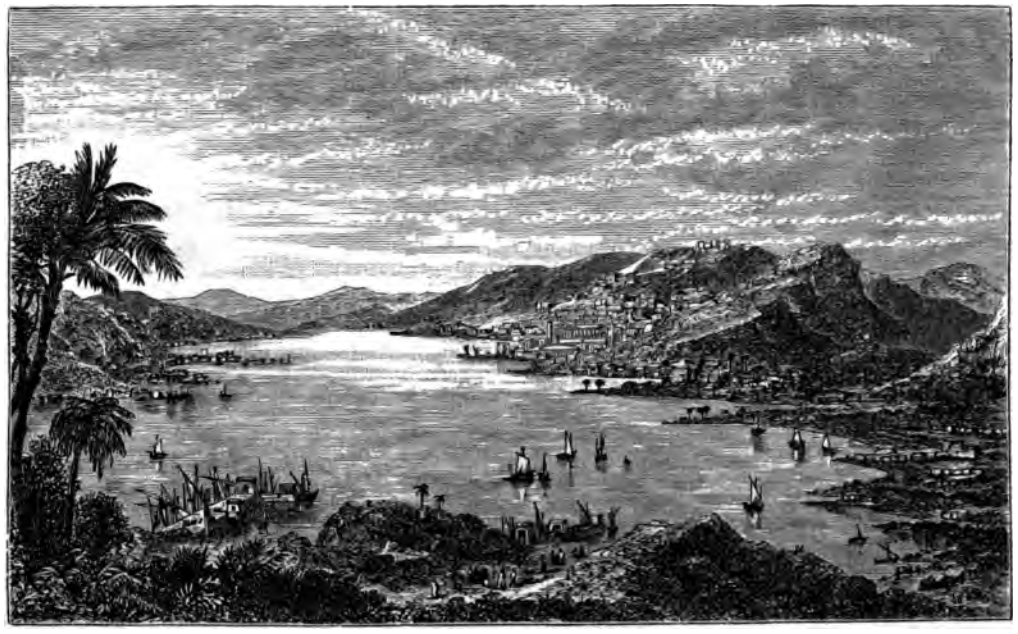
Jesus went to pray after feeding the five thousand. From this point he must have looked over the bay, which washed Gennesaret and seen at a distance of fromthree to five miles the side of the ridge, which forms the north shore of the lake, all the way, perhaps, from the border of the plain to the cape of Tel Hum, covered by a long village or unwalled town. So also Thomson found "traces of old buildings nearly all the way along the shore from Tabiga to Tel Hum.‡" Thomson, arguing in favor of Tel Hurn, concludes that Tabiga "was the great manufacturing suburb of Capernaum, and hence the fountains took name from the city.†" This conclusion extends the name of Capernaum over all this line of coast, for the fountains of Tabiga are close upon the edge of Gennesaret so that their water was taken to irrigate the plain, and the distance from there to Khan Mingen, which is in the plain, is but fifteen minutes, while their distance from Tel Hum is thirty-five minutes.§

But which is the city and which is the suburb?

An hour's observation on the spot should decide that question. At Tel Hum there is no harbor, no advantages for fishing, trade, agriculture or manufactures. It is simply such a spot—raised by dry volcanic rock above the marshes at the mouth of the Jordan and the edge of Gennesaret and commanding a fine view of the lake—as the provincial aristocracy might ehoose as an escape from the fevers and the fishermen, the sights, sounds and scents, the publicans and sinners which filled the other end of the town. Here a wealthy Roman centurion having soldiery under him to guard the region, might fix his residence, as his master Tiberius did at Capreae, and might build a synagogue for his Jewish friends, and their structures may have been more substantial than those of the busy town of which they formed the court end, so that while the mud walls of the town have sunk into the soil, the suburb remains as the "Tel" or "heap" with a fragment of the old name of the town.

But the center of business must always have been in the vicinity of the great fountain. Probably its water was used for manufacturing purposes in earlier as well as later times, Thomson supposed that it had its present name, Tabiga, from the use of its abundant warm waters by the Arabs for tanning. But in the time of Josephus* they were used for the irrigation of the plain of Gennesaret, being raised for the pur-

‡ Land and Book, vol. 1. p. 540.
† p. 547.
§ Robinson, vol. III. pp, 345-346.
* Jewish Wars, IV. 8.



SEA OF GALILEE.—CAPERNAUM AS IT WAS.

TEL HUM.—CAPERNAUM AS IT IS.

pose by massive walls of stone, and conducted by an aqueduct and a channel-cut in the road, works of which great traces remain to this day; and if there were any surplus it must have been used, as it now is, for manufacturing, for the steep descent to the lake side gives an admirable water power.

Here, again, is probably the best harbor on the lake for the vessels which thronged its waters in that day. Josephus† tells us of a fleet of two hundred and thirty vessels gathered by himself upon it. Here was also the best fishing on the Lake‡ Immediately adjoining this harbor and fountain is the bold ridge which forms the northern wall of the rich Gennesaret. Round the extremity of the ridge the waters of the fountain were carried in a broad, rock-cut channel, ample enough to be the present track of travelers who visit that shore. These waters distributed over the plain, insured the fertility of the teeming soil, while the ridge afforded to its cultivators a site for building their houses, from which they could look across that wonderful "Garden of Princes" to the opposite heights, upon which Christ gave the sermon on the mount, enforcing it perhaps by pointing to their "city set upon a hill." Just here, again, came down the great caravan road from Damascus to Egypt, meeting here the paths by which all Galilee came down to the sea of Galilee.

Such a combination of advantages could not but gather a large and busy population, which in the time of our Savior had not felt so seriously as afterward, the division caused by the founding of Tiberias on the south and of Julias on the northeast. It was in its decay when in the seventh century Arculf saw it "from a neighboring hill." But it must have been an imposing sight as the Savior and his disciples looked upon it from the same eminence. Arculf did not visit it, but turned to Nazareth. A few years later, however, Willibald went from Tiberias "by the village of Magdalum to the village of Capernaum, where our Lord raised the prince's daughter. Here was a house and a great wall, which the people of the place told them was the residence of Zebedaeus with his sons John and James. And thence they went to Bethsaida, the residence of Peter and Andrew, where there is now a church on the site of their house."* These pilgrims prove what was the belief of their day on the spot.

The road necessarily led them first to Capernaum, the city set on the hill, from which it was but a step down to the "fish houses," the Bethsaida, whose people made their huts by the

† II. 21.
‡ Rob Roy on the Jordan, p. 336-342.
* Early Travels in Palestine, p. 17.

shore of the bay, while their life was upon the waters of the lake. Probably these fishermen were from the first a distinct community from the manufacturers and tradesmen on the hill. For Bethsaida is called a city, and seems to have held land upon the other side of the bend of the sea which washes Gennesaret. Mr. Mac Gregor, who explored all these villages in his canoe, the Rob Roy, says of the bay just below Tabiga, and into which its waters flow.¶ "The place now asserted its right to the name Bethsaida by the exceeding abundance of the fish we saw tumbling in the water. The hot springs flowing in here over these rocks, and a little further on in larger volume over a clear, brown sand, warm all the ambient shallows for a hundred feet from shore, and as much vegetable matter is brought down by the springs, and probably also insects which have fallen in, all these dainties are half cooked when they enter the lake. Evidently the fish agree to dine upon these hot joints, and, therefore, in a large semicircle, they crowd the water by myriads round the warm river mouth. * * * I paddled along the curved line of fishes backs and flashing tails. Some leaped into the air, others struck my boat or my paddle. Dense shoals moved as in brigades, as if by concert or command. But the hubub around in the water, and the feathered mob in the sky are all unheeded now, for we have come in full view of the land of Gennesaret."

For this little bay is separated only by a point of rock from the plain, and was the natural harbor for the people upon the northern part of it, as the height above was the place for their residences.

Only in that bay was Mr. Mac Gregor able to find the ceracinns, the Nile fish which Josephus describes as distinguishing the fountain, though he was informed that it is at some seasons found elsewhere, "but in the colder months only beside the hot springs of Bethsaida."‡ If, then, we consider Bethsaida as the fishing quarter of Capernaum, and the port at once of Capernaum and of the adjacent portion of the plain, we shall understand how the same voyage brought the disciples at once to Bethsaida, to Capernaum and to Gennesaret, and how they could go at once from the synagogue in Capernaum to the house of Andrew and Peter, who lived in Bethsaida.

The name Capernaum would probably belong more especially to houses around the fountain and on the ridge which looked over the plain and about the Damascus road, including

¶ Rob Roy on the Jordan, p. 336.
Rob Roy on the Jordan, p. 358.

also the long street which stretched a mile and a half to the east to where the centurion may have builded the synagogue and made the suburb, where wealthy men made the structures whose stones now mark Tel Hum. This, of course, was not the same synagogue which was near the home of Simon. Capernaum must have had a synagogue before that centurion came.

This fact of the distance of the centurion's synagogue from the busy town and port, may explain the circumstances of the healing of the centurion's servant, and the raising of the daughter of Jairus, the ruler of the synagogue. Both accounts seem to suppose a considerable distance from where Jesus was, in Capernaum, to the scene of the miracles.

In the first case* Jesus has come from the mount to Capernaum, and the centurion sends to him elders of the Jews. As he is going with them, he again sends servants, to whom Jesus speaks the healing word, and they "returned and found the servant whole that had been sick."

In the other case, Jesus has returned from the other side of the lake, and Matthew (chap. 9:1, 17) introduces the healing of a paralytic, the preparation of a supper, and an extended conversation at table with Pharisees and with the disciples of John, before the coming of the men of the synagogue. At his request Jesus leaves the table and goes with him. On the way the woman touches the garment and is healed. Then messengers came from the ruler's house to tell of his daughter's death, and when they come they find the musicians and professional mourners already engaged in their lament, (Mat. 9:23—Mark 5:38).

All these incidents, occurring in the course of matters of the greatest urgency, will fill at least the hour or two required for word of the arrival of Jesus at Bethsaida to reach Tel Hum, and for the passing of the messengers and of the Lord between the same extremes of the town.

This view would give us Capernaum as a great "village," perhaps half a mile in breadth by two or three miles in length along the slope and ridge from the edge of Gennesaret to Tel Hum, having for its center the great fountain, and for its western end the busy market, where the paths from interior Galilee came down to the great thoroughfare of the Gentiles† and to the sea. Here also were the homes of the farmers of Gennesaret, while the long street toward the east led to the aristocratic suburb, where the centurion and Jairus had their

* Luke 7:1, 10.
† Mat. 4:15.

palaces—a location chosen, no doubt, in order to escape from the malaria of the plain. But they found that, for their households as well as for Peter's, at Bethsaida, there was need of something more than their own wealth and care.

It is remarkable, though not strange or different from what occurs continually in the west as well as in the east, that close under the very center of this town was another, Bethsaida, so near as often to be included under the name Capernaum, and yet politically distinct. In it was the residence of Simon and Andrew, as well as that of Philip the apostle, while we may infer, from the silence of John, that the home of Zebedee, as well as that of the Lord's mother, was in Capernaum proper. But the sons of Zebedee and of Jonas were active partners in the same company of fishers.

It is the usage in the east for each village to have its fields. Those of Capernaum could be and probably were in its vicinity, so that the city extended over them as it grew. But Bethsaida was but a beach of a bay, and it would seem that its field was, as is often the case, some miles away aod across the water. For we read that for rest and quiet he took his disciples and went by boat, apparently from Capernaum, to "a desert place belonging to the city called Bethsaida," (Luke 10:17). Here he fed the five thousand, and after the miracle he constrained his disciples to take boat again and go "to the other side unto Bethsaida, (Mark 6:46). It has been supposed that this must refer to the other Bethsaida mentioned by Josephus as at the entrance of the Jordan. We find, however, that the scene of the miracle is described by John (6:23) as being near to Tiberias. This interpretation, which is the most natural with the common text, is required by that of the Sinai manuscript. But how could a spot in the vicinity of Tiberias be said to be "on the other side" from Capernaum? A glance at a correct map will answer. The water which they crossed was the broad bay which washes the coast of Gennesaret, and the open place to which they came, and where they "went up to the mountain," was in the elevated valley just south of Gennesaret and just north of Tiberias. Any doubt, as to our explanation of the term "the other side," will be relieved by turning to Mark 8:10, 13, 22, where we see that they sailed from Dalmanntha—which, as appears from Mat. 15:39, was near Magdala, and so, perhaps, at the very place now in question—"to the other side" and "came to Bethsaida." In this view we can understand very well how the people from the villages along the shore "ran afoot and outwent them and came together unto him," (Mark 6:33) which could not so well

be done if that foot race had involved the crossing of the Jordan river and marshes.

On the much green grass of that gentle valley he fed the multitudes. At evening he sent the disciples away, and retired for prayer to the mountain side which separates it from Gennesaret. Thence, in the morning, he came to the disciples upon the water, and immediately the ship was at the land, Capernaum, Bethsaida, Gennesaret, "whither they went."

CORRESPONDENCE.

THE OCCURRENCE OF SEA SHELLS IN THE MOUNDS

BY WM. MCADAMS.

Abstract of paper read before the Boston of the A. A. A. S. and has not been published.

Yesterday, while exploring a small mound on the bluff near the mouth of the Illinois river, at the depth of some two feet or more we came upon a fragment of much decayed bone, which upon careful inspection proved to be the under jaw of a very young person, probably 5 or 6 years old at death.

Most bones of the body had returned to dust but about where I supposed the neck to have been lie some dozen or more beautiful sea shells, in such position as to plainly show they had been worn after the manner of beads. Between each shell was a number of circular shell beads, the flat disk being perforated in the center.

The shells are entire, well preserved, and from an inch to two inches in length. They are probably young of the *Busycon perversum*, as they are almost exactly represented by fig. 35 in *Foster's Prehistoric Races of the United States*. About the outer end of the extended lip of each shell is a notch and groove by which it was suspended to the string. Other substances either of wood, bone or peculiar nuts, had evidently also formed part of the ornaments with the beads, but so decayed as to be only vaguely seen. No doubt the ornament about the child's neck was considered of great value and was really very pretty, while it shows that paternal love was the same among the savage mound-builders that prompts us to decorate our children with pretty ornaments to-day.

It is quite common to find in the mounds of Illinois, marine

shells, apparently from the Atlantic coast. We have in our collection near 20 different species, taken from the mounds. The most common and apparently highly prized seemed to have been the Busycon and Pyrula, from their large size; from these the columella being removed a vessel was formed, making a handsome cup for drinking and other purposes. From a mound near the mouth of the Illinois river we recovered a splendid shell vessel, probably a Pyrula, that measures around the larger part near 30 inches. Upon showing this shell to that eminent conchologist, the late Prof. H. H. Haldeman, he was astonished at its great size. The inner portions, after being removed from the large shells, were used to make many pretty ornaments. The Columella was sometimes fashioned into a spear or dagger shaped weapon. One large Columella from a mound in the American bottom is nearly a foot in length, and was possibly used as a spear point or dagger, and we will remark that this curious relic, when taken from the mound, was covered with red paint which remains in the same condition. Many of the smaller marine shells were perforated and used as beads by the aborigines. Among several hundred marine shells from the mounds in our collection we have not a single bivalve, all being univalves.

An extensive traffic must have been carried on with the mound builders to have furnished them with so many shells from the sea shore.

Although the mound builders were so partial to shells from the sea, they seem not in any great degree to have used our fresh water shells, some of which are very attractive and pretty as ornaments. The fresh water shells found in the mounds are mostly the common *Unio*, a valve of which is generally found in the earthen vessels of the pottery mounds.

We have seen nothing in the Illinois mounds that could be properly called a pearl, and it is doubtful if the mound builders of this region had pearls in their possession, although they seem to have been found in some of the southern mounds, and the early Spanish explorers speak of great quantities of pearls in possession of the southern Indians. The small pearls not uncommon in our fresh water shells were probably not known to the mound builders, although it is evident they often utilized these unsavory shell fish as food, as great quantities of the shells are found about their ancient dwelling places.

CONCERNING GENTES AND PHRATRIES.

To the Editor of the American Antiquarian.

In the Sioux Nation the man is the head of the family; the woman is not accounted of. No Dakota woman ever aspired to be a chief. And this chieftainship descended from the father to his sons, the eldest born taking the precedence. But in the elements which go to make up the GENS, the woman is an equal factor with the man. Thus, a child counts his father's brothers all fathers, and his father's sisters all aunts; while his mother's sisters are all mothers and his mother's brothers are only uncles. Hence, a man's brothers' children are all counted as his children, and his sisters' children are nephews and nieces. On the other hand, a woman's sisters' children are her children, while her brothers' children are nephews and nieces. These same distinctions are carried down through the generations. Hence, a Dakota man on visiting a strange village often finds many relations. An old crone comes in and recites the family genealoogy. This all constitutes the GENS, but there is lacking the TOTEM to keep them bound closely together. Hence the gentes among the Dakotas are scattered and mixed. While the elements of the Totem idea exist in the the name of Sioux men, as Red Eagle, Standing Buffalo, Sitting Bull, etc., it now seems to have been worked out. But there were villages made up of clans, and composed mostly of a single Gens, such as, in former times, Little Crow's, Black Dog's White Eagle's and others. Within the gens proper, that is the circle of relationship, it was not customary to intermarry.

Among the eastern Dakotas the Phratry was never a permanent organization, but resorted to on special occasions and for various purposes, such as war or buffalo hunting. The exponent of the Phratry was Teeyoteepee, or Soldiers' Teepee. It was the lodge of lodges. There the soldiers gathered and feasted. There the laws were enacted and published from thence by the cryer. It is said that in the camp of the Prairie Sioux, the real buffalo hunters, the Soldiers' Lodge was pitched at the front end of the circle encampment, at the gateway. This was called "Hoonkpa," which may mean the "Ends of the Horns." And from the habit of camping on either side of this gate way, two of the gentes, which have worked up into larger clans of the Teeton part of the Sioux Nation, have doubtless obtained their present names, viz: the "Hoonkpateena" and the "Hoonkpapa."

While within the historical period no political organization

has been known to exist over the whole Sioux Nation, the traditional alliance of the "Seven Council Fires" is said to be perpetuated in the common name Dakota.

A. L. RIGGS,

Beloit, Sept. 12, 1881.

To the Editor of the American Antiquarian.

Dear Sir:—There is a class of antiquities in the eastern counties of Mississippi to which I would direct your attention. These are artificial pits or excavations, and are of two kinds, the large and the small. The larger are always found isolated, and of circular form, varying from ten to twenty feet in diameter, and from two to four in depth. The smaller are found lying parallel to each other, are about six feet long and two wide, and about ten inches deep; in short, they bear a close resemblance to old, sunken graves. These pits are evidently of artificial origin, and the nature of the soil where many are found precludes the idea that they were made by the aborigines in seeking potter's clay. They have given rise to some curious speculations. The statements made to the writer by an aged Choctaw furnish, in all probability, a correct solution of the mystery. My Indian friend states, in ancient times, whenever the Choctaws and Muscogees were at war, the latter would often invade the territory of the former, sometimes penetrating far into the interior. Occasionally it happened that a Muscogee war party would be surrounded by an overwhelming force of Choctaws, who would block up every avenue of escape. In such a case. the Muscogees, who were desperate fighters, would go to work with knife and hatchet and dig out a circular pit, in which they would ensconce themselves and fight to the bitter end. This aged Indian showed me one of these pits in Neshoba county, where, according to tradition, such a scene had occurred. As to the smaller kind, he stated that in general engagements the Muscogees would sometimes, each for himself, dig pits, in which the warrior would lie down at ful length and fight in that position. He called my attention to an ancient Indian battle field in Noxubee county, situated in a primeval forest, which contains several of these pits made parallel to each other but with varying intervals. The information imparted by the aged Indian clears up the mystery attached to these pits of both kinds. These antiquities are found in the counties of Noxubee, Kemper, Winston and Neshoba, which was the portion of Choctaw territory so much subjected in ancient times to the inroads of the warlike Muscogees.

Yours, truly, H. S. HALBERT.

Crawfordville, Miss.

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To the Editor of the American Antiquarian:

Dear Sir:—Will you give the information in the magazine, or ask for it that it may be elicited: "Where the westernmost trail of the Iroquois led from north to south," that is, as definitely as it could be made now. What I more particularly wanted to know was its location from Pittsburg or Uniontown south. As you will recollect, Mason & Dixon, when running their line in 1720 or 1726 (was it not?), were stopped by their guides (who were of the Iroquois Nation) at a point 26 miles east from the present corner of Penn., (southwest corner), the guides saying that it was the will of the six nations that they should go no further. The great land trail must have followed at an equal distance the general direction of the Ohio.

The Andastes must have all disappeared long before this, and I am unable to find in any of Mr. Gallatin's writings the information, although that great man must have been familiar with this whole subject.

Very respectfully, JOHN G. KELLEY.

New York, July 27, 1881.

EDITORIAL.

THE EGYPTIAN MUMMIES.

The recent discovery of mummies in Egypt, concerning which so much has been said in the papers, is proving to be something of a puzzle to archæologists and scholars generally. The mummies, thirty in number, were found in a cave which had been excavated out of the rock in a gorge, about five miles from Thebes.

The circumstances of the find are narrated by the *Saturday Review*, New York *Tribune* and other papers, and need not be repeated.

But the singular thing about this discovery is that the sepulchres of nearly all these kings are known, while here the bodies are, away from the sepulchres. The coffin, for instance, of King Seti I, is in the Soane museum, his tomb having been opened and explored by Belzoni, but his mummy is among those which Herr Brugsch takes to Boulak. How they came to be placed in the cavern is the mystery.

Some great disaster or change of dynasty, like that of the displacement of the reigning kings might possibly account for

it, for we can imagine how the priests of each deceased king would take the precious bodies from their graves where they were too much exposed and place them in this secret cavern. The kings of Egypt were reckoned as gods, and each mummy had its own priest whose duty it was to preserve and care for it, and so this supposition becomes plausible.

The oldest mummy found in the cave is that of King Raskeken, one of the latest monarchs of the seventeenth dynasty, and next to him in age is king Aahmes I, who drove out the shepherd kings and formed the brilliant eighteenth dynasty—his wife, Aahmes Nofeut Ari; his son Sa Ammon and daughters Arhotep and Sat Ammon. His successor, Amenhotep, is also here. His mummy is wrapped in linen shrouds of the finest imaginable texture, held in place by cross bands of pink muslin. These are strewn with lotus flowers which look as if they had been picked but a few months ago, and across the outside band of this trimming is an inscription in hieratic letters, stating that the body had been concealed during a foreign invasion.

The bodies of Thothmes I, the third king of the same dynasty, also Thothmes II, the fourth king, of Thothmes III the fifth king of the same dynasty were here. The mummied body of this last king, Thothmes the Great, was broken into three fragments and the case badly mutilated. The identity of the body is proved by a long inscription found inside the winding sheets, containing the full name and titles of this king. The condition of the mummy would indicate violence and a hurried burial.

The mummies of Ramses I, of Seti I, Ramses II (Sesostris), the three kings of the nineteenth dynasty, are all here. The twenty-first dynasty is also represented by a king, namely, Pinotem, the third of the dynasty.

The period covered by the reign of the different kings is not less than 700 years. At least four changes of dynasties occurred in that time. We know of no historical event or change however, which can be identified as the one in which this removal of the bodies of the kings from their tombs could have taken place.

Egypt was, however, subject to invasions. It was surrounded by barbarous tribes and was also quite subject to internal revolutions. There was an invasion between the 18th and 19th dynasty, the very period represented by these mummies. Amenophis of the 18th dynasty, whose celebrated statue Memnon is so well known, was followed by the "stranger kings," seven of them in succession. These appear to have been in-

vaders of a foreign race. They ruled despotically and supplanted the national gods. Their memory was so much detested that their monuments and inscriptions were everywhere effaced. It was in the riegn of Ptahmen, one of these kings, that Wilkinson supposes the Exodus took place. This reign of the stranger preceded the invasion referred to by the inscription on the mummy of the king, yet it illustrates the point.

In reference to the locality of the cave it should be said that it is near the place where these kings have been known to be buried, and not far from Thebes, the capital of the Egyptians during these prevailing dynasties.

Kenrick says: "The royal sepulchres are chiefly in a valley which bore the Arabic name of Bab el Melook, "Gate of the Kings." It is not far from the Thothmeseion, one of the great temples of Thebes. The Bab el Melook is well adapted by solitude and seclusion to be the burial place of kings. It is enclosed by perpendicular scarps of limestone rocks and appears originally to have been a basin among the hills without an outlet. A narrow passage has been cut through the rock at the lower end, hence the name of the "gate."

Twenty tombs at least have been found to exist in this valley. They are all of monarchs of the 18th, 19th and 20th dynasties which were Theban. Each monarch appears to have selected the spot which pleased him and prepared his own tomb, as at Memphis, he raised his own pyramid.

The sepulchre of Ramses I consists of two long corridors. That of Seti Memptah is near. It was discovered by Belzoni. In the center of the tomb stood the alabaster sarcophagus, which is now in the museum of Sir J. Soane. It was entire, but Belzoni was not the first who made forcible entrance into the tomb. *The mummy was gone and the cover of the sarcophagus broken to pieces,*

The cave where the mummies were found was then not far from the tombs of the very kings and their being found here is not, under the circumstances, so strange and unaccountable a thing as we might suppose. The kings of this period did not bury in pyramids, but were accustomed to expend much time and expense in building their tombs instead. The tombs are very elaborate. Some of them were filled with paintings. In that of Seti I there is an astronomical painting on the ceiling, in which the sky is brilliant blue and the stars white. The walls are covered with hieroglyphics and figures. The effect of this discovery on the history of Egypt and on the scripture record is next worthy of our attention.

In the first place it is a matter of gratification to know that

the king who erected the obelisk whose removal from Egypt to Central Park has been the subject of so great interest, is among the number of these mummies.

Again, the fact that the great Sesostris still exists although in a mummied form is novel and interesting. The knowledge of it seems to bring us very near to the time of his reign and makes us very familiar with the ancient days. The fact, too, that the Pharaoh of the scriptures has been supposed to be among the number, is almost startling to our minds. In reference to this it may be said that historians are not altogether united on the point as to which one of the kings of this period was the Pharaoh of the Exodus. Wilkinson, as we have said, claims the invader Pinotem was the one; Brugsch, on the contrary, thinks that Ramses II or Sesostris was the king who was reigning when Moses was born, but that Meneptah was the Pharaoh of the Exodus. If this be the case, then Pharaoh is not among these mummies, but in all probability was drowned in the Red Sea.

The editor of the *Christian Advocate*, of Cincinnati, has made the assertion that the actual Pharaoh has been found and gets around the scripture narrative in an amusing manner by claiming that after all Pharaoh was not drowned, but actually survived and lived after the departure of the Israelites and was buried in the tomb and finally concealed in this cave. The next thing to look for is one of the chariot wheels which came off when Pharaoh drove through the sea and was drowned with his host, and then it may be expected that Pharaoh's daughter will be recognized.

It is singular that thus far no record has been found on the monuments which in any way refers to Moses or to the Israelites. The history of Egypt as handed down by Manetho and by Diodorus Siculus, and others cast contempt upon the name of Moses and there seems to have been great silence in the records on the subject; yet the fact that Ramses II is here among these mummies and Meneptah *the Pharaoh* is not, is at least significant.

THE MAP OF PETER MARTYR.

We are happy to begin with this number of the ANTIQUARIAN a series of early maps, which, if continued, will be of very great value.

There are maps of the Atlantic coast and of the Interior,

which throw great light on the early history of our country. Some of them are in manuscript never having been published. It is our purpose to publish these as soon as our subscription list shall have increased sufficiently to warrant the expense. In the mean time we shall try to give our readers other maps, which, though once published, are now scarce and only found in a few libraries.

We hope that we shall have the co-operation of historical societies and publishers, and of map collectors in this undertaking.

The map which we present with this number is a copy of one of the earliest ever published. It appears in a work by Herman A. Schumacker, German consul in New York, published by Steiger & Co.

This map presents us with the geography of the Atlantic coast as it was known to the illustrious historian, Petrus Martyr. It also gives to us a picture of the history of the epoch in which he lived.

The "Three Decades" are written in Latin, and embrace the period of American discoveries from 1492 to 1516, and in a fourth decade he added some facts of a later date. Petrus Martyr was by birth an Italian, born on the east side of Lago Maggiore, in Lombardy. He passed his life in the civil and ecclesiastical service of Spain, was prior of Granada, Protonothtary of the Apostolic see and member of the King's Council at the time he published his book, and died, about 70 years old, in 1526.

The map subjoined to the book has peculiar interest for students of American history, and was made in 1510, and printed in Seville. The outlines of the islands of the West Indies and of the coasts of North and Central America are pretty correct. The Canary Islands, however, are placed too near to San Juan, the Isla Verde too near Trinidad. A part of the Atlantic called "el Estrecho" near the Bermuda Islands, is rather enigmatical in its real meaning. Los Yucaios are the Bahama Islands, Isla de Beimendi is Bimini, or the coast of Florida; the Isla Española is San Domingo; the Cabo de la Cruz, the Cape of Guyana; the Rio Grande, the Orinoco; Coquibacoa, Maracaibo; the Cabo de la Vela, the spurs of the Sierra Nevada de Santa Marta; Uraba, Cartagena; Tarune, the Isthmus of Darien; el Marmol, the country arouud Aspinwall; the Guaxasa, the Bay Islands in Honduras Bay, and Bahia de Lagartos is Yucatan.

MAIDEN ROCK.

There are many traditions in this country which connect the natural scenery in various localities with the incidents in the life of that native people which has now passed away, and which render these localities and the events historic and notable.

One of the most remarkable of these traditions is the one which connects itself with the beautiful lake and river which for so long a time have been the favorite resort of tourists and pleasure seekers, namely, Lake Pepin and the Upper Mississippi. One of the most prominent objects of that region is Maiden Rock. The picture of it which we give as our frontispiece is an interesting one. Thoughts and associations cluster about it and the tradition clings to the spot. The story is that an Indian maiden was in love with an Indian brave but her parents were opposed to the match and were determined that she should marry another chief. She resisted their commands until she found that it was of no use, and so silently gave her consent. As the time for the nuptials with the new chief arrived she was filled with conflicting emotions. The family just then in their migrations happened to encamp near the foot of this rock. It was during a moonlight night that the maiden arose and silently stole out from her father's tent and began to ascend the steep hill. As she reached the summit while passing along the edge of the bluff above the encampment, she began her death song. The sound startled her parents and all in the camp. They at once started in pursuit, but before they could reach the summit she had come to the brink, and then before their eyes she took her fatal leap.

The scene and the story compare remarkably well. But there are some points about the story which do not correspond so well with the aboriginal life. These points are so connected with the tribal habits and the marriage customs of the people that they cannot be explained in the present notice, but we call attention to the tradition and the scene more by way of suggestion than anything else. If our readers will take the pains to write us concerning the tales and traditions connected with other localities we shall be glad to publish them.

We shall be glad also if it is possible to identify these poetical myths and touching tales of aboriginal life with the particular tribes and families so as to make the prehistoric event an historic fact.

The present is the time to fix these floating myths, these waifs of literature, for shadowy as they are, they may be traced to their origin and they may assist us also in understanding the people who are so likely to be forgotten.

THE SILOAM INSCRIPTION.

Almost by accident an important inscription has recently been brought to light in Jerusalem. Everyone is aware of the existence of a tunnel leading from the fountain of the Virgin to the Pool of Siloam. It is very difficult to make one's way through this passage, although the feat has been accomplished by Dr. Robinson, Colonel Warren and others. Col. Warren made the entire length of the tunnel to be 1,708 feet. The inscription exists in what may be called the eastern wall of the tunnel, at about nineteen feet from the place where it opens into the Pool of Siloam.

The discovery attracted the attention of scholars, and efforts were made to copy and decipher the inscription. The histoy of these efforts we cannot give in detail.

Some very enthusiastic scholars, among them Prof. Sayce, were disposed to give a very high antiquity to the new monument, making it older indeed than the Moabite Stone. Prof. Sayce would "assign it to the age of Solomon, when great public works were being constructed at Jerusalem, more especially in the neighborhood of Tyropean valley." He says further, "the inscription not only gives us the Phoenician alphabet in a more archaic form than any previously known, but it brings before us the Hebrew language as it was actually spoken in the age of the kings. But the chief interest of the inscription lies in the indication it affords of the extent to which writing was known and practiced among the Jews in the early age to which it belongs."

We present a copy of Sayce's first translation: "Behold the excavation! Now this is the further side (or the history) of the tunnel. While the excavators were lifting up the pick, each towards his neighbor, and while there were yet three cubits to the mouth (of the tunnel), the excavators were hewing. Each came to his neighbor at a measure's length (?) * * * in the rock on high; and they worked eagerly at (the) castle they had excavated (?); the excavators worked eagerly, each to meet the other, pick to pick. And the waters flowed from their outlet to the pool for a distance of a thousand cubits, from the lower part (?) of the tunnel (which) they had excavated at the head of the excavation here."

While these confident statements were being published, Dr. Neubauer claimed that the inscription contained evidence that the tunnel in question was either constructed or repaired by King Ahaz. Meantime Dr. Kautzsch, in Germany, found ev-

idence for supposing that the inscription was not older than the age of Hezekiah; but Prof. Sayce rejected this supposition as "worthless."

Isaac Taylor likewise presents some strong arguments showing that the claim put forth by Prof. Sayce for the great antiquity of the inscription was not a valid one, and in his opinion Dr. Neubauer was more probably right, viz: that it belongs to the reign of Ahaz, or about 750 B. C.

Mr. M. W. Shapira also made a translation of the inscription, which he ascribes to the age of Uzziah, who was renowned for building towers and digging wells. The following is a copy of Mr. Shapira's translation:

"1. * * * canal of [U]zziah. He dug the canal [and cut the pool; or, it is the pool] in Ophe[l]. * *

"2. With the pick together at a distance of three cubits to the canal. * *

"3. direction * * to Ophe[l] * * in the east side the water streamed in from the canal, and on the west side of the

4. canal the stone-cutters cut one against his friend * * picking and using the level, and so they let through

5. the water from the outlet into the pool, at about one thousand and two hundred cubits and * * *

6. * * * cubits they cut * * up * * near the well * * ."

Some of the letters of the inscription were found to be filled with lime, and this, by means of hydrochloric acid, has recently been removed, so that accurate squeezes and casts have been taken. From these Mr. Sayce has published what he calls a corrected translation as follows:

"Behold the excavation! Now this is the history of the tunnel. While the excavators were lifting up the pick, and while there were yet three cubits to be broken through * * * each called to his neighbor, for there was an excess in the rock on the right. They rose up * * they struck on the west of the excavation, the excavators struck, each to meet the other, pick to pick. And the waters flowed from their outlet to the pool for the distance of a thousand cubits; and [three-fourths?] of a cubit was the height of the rock [or tunnel] towards the head of the excavation here.

Mr. Neubauer, however, is not satisfied with this rendering, and proposes respectively for lines 2, 3, 5 and 6, the following: "And while there were yet three cubits to dig up to the stick [the signal where the excavators had to meet from both sides of the excavation], each called to his neighbor that there was an error on the west of the stick. They perforated and struck

on the west of the excavation." * * "The waters from the outlet to the pool at Mathi [?] about a thousand cubits, and less than a cubit was the height of the rock upon the head of the excavators."

Without giving further particulars the readers of these notes will conclude, justly, that an important monument pertaining to Hebrew antiquities has been recovered. He will conclude also, that the age of this monument has not been definitely determined, and perhaps cannot be; moreover that the meaning of this inscription is not yet settled beyond dispute.

It is to be regretted that scholars will allow themselves to jump at conclusions before they have all the necessary facts upon which to base a judgment. In the present case the age of this inscription was declared even before the form of many of the characters in it had been certainly ascertained. S. M.

LINGUISTIC NOTES.

EDITED BY ALB. S. GATSCHET, WASHINGTON, D. C.

On Shoshoni Dialects in Southern California.—The San Gabriel dialect, spoken on the California coast, is known to us through a few vocabularies, phrases and sentences only, which hardly allow us to catch a faint glance at its grammatic structure. Near the Mission buildings of San Gabriel this language is almost extinct, for the latest investigator, Oscar Loew, could in 1875 learn of two aged men only who were able to converse in their paternal language. They called their tribe Tobikhar, (the "residents, settlers," from toba, *to sit*), a name which agrees pretty well with that given to this location by the Padres of the Mission, Tobiscanga, or Toviscanga. One of the Franciscan missionaries stationed there, José Maria Zalvadeas, preached a sermon to the Mission Indians every Sunday in their language, translated the prayers of the church, and about the year 1824 had also reduced the language to written grammatical rules and composed a dictionary of it. The present whereabouts of these important writings no investigator has been able to discover.

Another mission, San Fernando, existed northwest of the above, in the same county of Los Angeles. From the speci-

mens of its language we conclude that it differed considerably from the dialect of San Gabriel, as did also that of San Juan Capistrano, on the coast. The inhabitants of the latter place call themselves *Gaitchim,—im* being a plural ending. Father Boscana has left us a vivid picture of their ancient customs, beliefs and ceremonies in his *Chinigchinich* or "World Maker," a book, the contents of which were preserved to us only in the English translation appended to A. Robinson's "Life in California;" New York, 1846. Many Indians are still left in San Fernando and in San Juan, from whom the language may be studied almost in its ancient purity. The Indian settlement on the site of San Fernando Mission was anciently called Pashekna. San Juan Capistrano Mission was the most populous and flourishing of all the Californian missions.

Southeast of it, on the coast line of San Diego county, was the Mission of San Luis Rey (de Francia) inhabited by Indians of Shoshoni and of Yuma affinity. The Shoshoni dialect spoken there does not differ greatly from that of San Juan Capistrano, In 1868 E. Teza published several papers concerning these Sanluiseños, which once belonged to Cardinal Mezzofanti, and are now preserved in the city of Bologna; his "Saggi inediti di lingue americane; appunti bibliografici," (Pisa 1868, 8vo) contain two christian hymns in this language with Spanish translation (page 87-91), a description of three kinds of their dances, an essay by Padre Jak on the San Luis Grammar: "Prima linguae californiensis rudimenta a Patre Jak proposita," and, last but not least, a fragment of a dictionary written on 72 small sheets and containing the words from acuotaj, *to alleviate*, up to cupùcupùimocuis, *who produces sleep repeatedly*. If this latter manuscript was in print, it would probably enable us to judge correctly of the real character of this language.

Teza's "Saggi" also contain Lord's Prayers, Credos, and other devotional pieces in Baure, Canisianá, Mure, Guariza, Rocorona, Cayubaba de Mójos, Encabellada, Cahuapana, Tarasca; also a list of words in Pampanga (Malay).

NOTES ON THE IROQUOIS.—About the middle of the last century the German missionaries Christoph Pyrlaeus and David Zeisberger spread the gospel among the Iroquois in the state of New York and both have left treatises upon dialects spoken by the tribes among which they had been sent. Zeisberger worked among the Onondagas and Pyrlaeus among the Mohawks.

The American Philosophical Society in Philadelphia owns a manuscript in Quarto, of 178 pages, with German and Latin

text and definitions composed by Pyrlaeus, (No. 526), and entitled: *Affixanominum et verborum linguae macquaicae cum vocabulis eiusdem linguae.* From its preface we extract the following:

Tgarihóge is the tribal name of the Mohawks; Niharuntagoa of the Oneidas; Yagochsanogéchti (his ch: the guttural aspirate), of the Onondagas; Sanonawantowane of the Cayugas; Tionionhogaráwe and Ganochgeritáwe of the Senecas.

In another of the Iroquois dialects the names of the several tribes, including the Tuscaroras, were given to him by Swatane, an Indian, as follows: 1, Gani-inge hága; 2, Onondage; 3, Tsenontowa; these were called untattegéä: *brothers;* 4, Anayot hága; 5, Gayugu; 6, Tuscarore hága—these were called unquattiéä. The relative position of the six tribes in council are indicated for 1 and 4 by the terms: ne ragoáno and oquácho, for 2 and 5 by: ne ganechran and ochquári; and for 3 and 6 by: aquach ganechran. The word hága means *people, tribe*; rono (rone): *men, people.*

In the Mohawk or Maqua dialect the Nanticokes were called Ganniataratich-rone; the Conoy Indians (he writes Canaï) Gachnawas hága. (The Delaware name of the Nanticokes was Tawachguáno, abbr. Tockwoghs). The Lehigh or Lecha Indians were called after an island inhabited by them, Gachwechnágechge; Lancaster town: Canastoge; the Blue Ridge: Tionontachsa-áchta. David Zeisberger was called by them Onousserácheri; Pyrlaeus (by the Senecas); Tganniataréchio. Some of the Senecas were acquainted even with the distant Greenlanders and their mode of life, country' etc., calling them Tchiechrone, "people of the seals."

For the origin of the Five Nations (Aquanoshióni) a tradition given by Pyrlaeus accounts as follows: "At first our Indians lived in the ground; they were in the darkness and could not see the sun. Hunting was to no avail, and all the food they obtained were moles (*zinonwa*). When they perceived moles they smote them to death with their hands. By a mere chance Ganawagéhha discovered an issue out of the earth, followed it up and walked around on the surface. There he found a dead deer, cut it up, carried the meat into the ground and gave it to the others. They tasted of it, found it palatable, and when he described to them the sunlight and the beauty of nature above, the mothers resolved to ascend on the surface with their families. Here they began to plant maize and other vegetables. One creature alone declined to go with the others, and it still remains underground. It is the woodchuck or ground hog—nocharaúoront."

NAMES FOR MOUNDS.—Up to the present day the Indian languages have not yielded any term for *mound*, which could account for or explain historically the origin of the more ancient ones among them. They are called by the Creeks or Maskōki: ikan-läiki: "*ground settling down*," the first part of this compound term being íkana *earth, ground, dirt*. Adair, in his "History of the American Indians," p. 377 sq. (1775) gives a graphic description of the large circular and oblong mounds seen by him in various parts of North America. Two mounds, twelve miles north of the northern limits of the "Choctah country," are of an oblong shape. He regards them as "old garrisons," and states that the Choctahs called them: nanne yah, "*the hills, or mounts of God*." The Wintúns on the upper affluents of the Sacramento River, Cal., have large artificial mounds, over twenty feet high, which at the present time serve as family burying places. On the Minnesota River, near the mouth of the Yellow Medicine, a southern affluent, the same custom was observed twenty years ago, concerning the large mound existing there, by the Dakota people. This mound is circular, has a diameter of about thirty feet, a height of over fifteen feet, and is called pahá kagápi, "*a made mound*." Natural mounds, of which there are many in the prairies, are called in Dakota: páha "*hill*," or pashódĕ, "*little hill*."

MALBANCHIA.—*New Orleans* is called by the Chá'hta and Chikasa, Indians Pálpansha, Bálbansha, and from them the Creek and eastern Maskōki have obtained the name, which they use in the same signification. Rev. Cyrus Byington explains it in his Chá'hta Grammar as "place where there is promiscuous talking." The documents published in P. Margry, *Découvertes et Etabtissements des Francais*, furnish ample evidence that the name was originally used in a different meaning. The Indians on the lower Mississippi used Malbanchy, Malbanchia to designate the river itself, not any settlement erected on its banks. Thus d'Iberville writes in 1699 (Vol. IV, 118): "I left for the Malbanchia, this being the name given by the savages to the Mississippi;" ibid. p. 121, "all the rivers falling into the Malbanchia from the country of the Arkansas to this place;" ibid. p. 287: "they replied, they came from the Mississippi, otherwise called Malbanchya;" cf. ibid. p. 312, 315, and many other passages. The large number of dialects belonging to totally different linguistic stocks, spoken on the Mississippi, from the Taensas downwards, evidently prompted the Chá'hta and Chikasa to call the river "the promiscuous speaking," and since the Chikasa dialect had become the general

trade-language in these parts, understood by the majority of these tribes, the French heard the term from them and adopted it to designate the "large river," or Missi-sipi, Meshacébé. At one time Spanish navigators called it the river of the Palisades, on account of the numerous cliffs surrounding the outlet of one of its passes.

EGYPTOLOGY.—The article, "The Son of the Virgin" has recently been supplemented by another on the same subject by its author, Count H. de Charencey, and published separately in Paris, 13 Quai Voltaire, 1881; 8vo, 40 pages.

This pamphlet becomes of so much more interest to us, because it contains a new French translation of the ancient Egyptian *Tale of The Two Brothers*, made by Mr. Maspero, the successor of Marietta Bey in the directorship of the Egyptian Government Museum of Boulaq. This celebrated tale is remarkable, not only by being one of the oldest books and certainly the oldest novel in the world, but also by the two conflicting mythologic systems which are contained in it. They enable us to study the Egyptian divinities from a new point of view, and Charencey takes the ground, that the elder of the two brothers is the god Anubis, the younger one the god Osiris.

TOO RASH—In the *Council Fire* of Oct. 1881 will be found an address delivered to the Seneca Nation, Indian Territory, on the 4th of July, by D. B. Dyer. Among the manifold humanitarian and christian sentiments poured forth by the orator on that occasion, we also find the following: "Then, I say, let your children abandon your language, learn ours and become Americans." What would the mother of Dyer have replied, if somebody had once told her to let young Dyer abandon his English language, and be taught to speak only Russian or Swedish?

OLD MEXICO.—According to last accounts, the explorer Ad. F. Bandelier, of Highland, Illinois, was making investigations of a linguistic and archæological import south of Cholula, in the Mexican State of Puebla, and has just terminated an archæological map of that section. He had entered the Mexican territory by way of Vera Cruz in the commencement of March, 1881, and has since visited and examined the ruins of several of the southern Mexican States.

RECENT INTELLIGENCE.

ABORGINAL REMAINS IN BOLIVIA.—In the valley of the Beni River in the northern part of Bolivia, Dr. E. R. Heath has recently discovered many indications of former occupancy. On the rocky walls of the stream rock pictures are abundant, many of the characters resembling rude representations of the human form, anchors, etc. At high water mark a peculiar character was frequently noticed, which was evidently intended as a guide for navigators. Extensive ruins of buildings were seen in different portions of the river valley, a full description of which will be published by Dr. Heath in his report of the expedition. E. A. B.

ANCIENT RUINS IN UTAH.—Mr. A. L. Siler, of Pahreah, Kane county, Utah, states that old Pueblo remains occur near that settlement, at the head of a cañon tributary to Pahreah Creek. Circular houses or apartments eight feet in diameter are found beneath a sandstone ledge which shelters them from the elements. Sand has blown in and covered the floors to a depth of several feet. The walls, which arise to a height of three feet above this accumulation, are a foot in thickness, the outside surface being very hard and smooth and of a reddish hue. In the *debris* which covers the floors, cobs and charred grains of corn are found, associated with the excrements of sheep or goats. Two feet beneath the sand deposits is a bed of manure, evidently formed by fowls. On the rocks in the neighborhood of these ruins are many pictographs which have been etched by sharp implements. At another point twelve miles above Pahreah numerous hieroglyphics occur in a side cañon. The latter are painted on the walls in red, white, pale blue and yellow colors. Some of the devices represent human beings, one being evidently intended for a chief, while others represent officers of a lesser degree, indicated by the number of dots or lines over the heads. Hand prints in red and yellow also occur numerously, and there are figures resembling serpents, animals and geometrical designs, varying in size from six to fourteen inches in height. Fragmentary pieces of painted pottery are found in abundance in the vicinity of these remains, with a few specimens of delicately fashioned arrow heads, which are similar to those occurring in Colorado and New Mexico. E. A. B.

A CURIOUS DISCOVERY IN CALIFORNIA.—At a recent meeting of the Academy of San Francisco Mr. Redding called at-

tention to the fact that Capt. Mallon had presented a curious Indian dress or mat, found in a bed of rock salt near the bank of the Colorado. Dr. Stout, who had visited the great salt mines of Krakow described how the gradual movement of the salt filled up the tunnels so no traces remained, and suggested that perhaps this Indian dress had been covered up by a gradual movement of the salt deposit where it had been found.

Several donations have recently been made to the Museum of the Academy. Among them are the upper stone of a hand mill found 1 foot below the surface on making a cut for the S. P. R. R. on the banks of the San Pedro, Arizona, from J. H. Strowbridge; four shell ornaments made of red adobe, found in beds of gravel near the shore of Lake Humboldt, Nevada, and a tomahawk dug up after the water had receded from the bottom of the lake. The *Mining and Scientific Gazette* for August, 1881.—

THE CAPTURE OF BABYLON.—An interesting discovery has been made by a gentleman in the British Museum, from the examination of the Babylonian inscriptions. The capture of Babylon took place on the sixteenth day of Thammuz, a day when the celebration of the rites of Thammuz or Adonis took place. The marriage of Thammuz was celebrated with orgies at which, contrary to custom, the women were admitted to the feast. This agrees pretty well with the description given by Daniel, and shows the correctness of the Bible account.

Some bones have been found at Corabocel near Nice, France, nine feet below the surface, embedded in a deposit of calcareous clay. The deposit contains a mixture of pliocene and eocene shells. The bones are supposed by Quatrefages to belong to a man of the Cromagnon type.

In the course of the excavations for the new fort at Lier, in the neighborhood of Antwerp, a number of bones of extinct animals, mammoth's teeth, and the almost complete skeleton of a rhinoceros have been dug up. It was in the same district that in 1760 was found the immense skeleton of a mammoth, which has been preserved in the Natural History Museum at Brussels.

PROCEEDINGS OF SOCIETIES.

The British Association met at York on the 31st of August.

The third meeting of the International Geographical Congress was held at Venice, Sept. 1 to 22.

The French Association met at Algiers in April. One peculiarity of the meeting was that there were excursions to Tunis, to the Sahara, to Morocco and elsewhere, thus giving a practical knowledge of North Africa.

The Congress de Americanistes was opened at Madrid, Spain, by King Alfonso in person.

A large number of documents in reference to the precolumbian America exist among the archives at Seville and Simanca. A special commissioner brought from Seville alone 800 bundles of manuscripts of the highest importance. Some of these manuscripts were gathered by the order of Phillip II, and others by Charles III, and illustrate the archæology of Peru and Central America as well as the Fauna and Flora of these countries. The members of the congress were the guests of King Alfonso and of the town council during their stay in Madrid. Excursions were taken to Toledo and the Escurial and a banquet to 250 people given. The first day was devoted to the history of America before its discovery, the second to archæology, the third to ethnology, and the last to language and palrography.

A society has been formed in Norway for the study of Norwegian dialects and folklore. Among its promoters are P. C. Asbjornsen, Prof. Bugge, J. Fritzner, the author of the old Norse dictionary, and others.

THE HISTORICAL SOCIETY OF MISSOURI.—Gen. J. H. Simpson, U. S. A., recently read an interesting paper on early Spanish explorations in New Mexico. He thinks that the seven cities of Cibola may be identified in certain ruins in Arizona which he visited. The walls of these buildings were of sandstone, six or seven stories high with floors formed by logs. There were 300 or 400 rooms in each house, all connected by narrow passages and in each there are one or two large estufas. Gen. Simpson also exhibited photographs of ancient inscriptions [illegible] the Society, and a map in which he [illegible] the routes of Coronado's march.

At [illegible] meeting of the Historical Society a [illegible] by W. S. Stimpson, of [illegible] of the voyage of [illegible] to [illegible]

ACADEMY OF SCIENCE, CALIFORNIA.—Two carved images brought from the Hawaiian Islands on the way to the Imperial Museum of Berlin, were the subject of a recent paper by Chas. W. Brooks. The writer takes the ground that one represented a Spanish cavalier, and was carved with iron tools, showing that the Spanish visited these parts as early as 1452.

The AMERICAN ORIENTAL SOCIETY met in Boston May 18. Officers for the following year: Pres. J. Wells Williams, LL. D.; vice presidents, Messrs. Clark, Parker and Woolsey, recording secretary, Prof. C. H. Toy, D.D. LL. D.; other secretaries, Messrs. Whitney, Goodwin and Van Name. Papers read: Guyards theory of Semitic internal plurals, by Prof C. H. Toy; Darmsteters translation of the Vedidad, Prof. J. Luquiens; Metres of the Rig Veda, W. Haskell; Sinkhya Philosophy of the Hindus, Prof. C. C. Everett; Studies on the Mahayana, W. W. Rockwell; Lepsius' view of African languages, Prof. W. D. Whitney; Manuscript Fragments of the Samaritan Pentateuch, Prof. J. H. Hall; Assyrian Monuments in the Museum of Fine Arts at Boston, Dr. Selah Merrill.

THE AMERICAN ASSOCIATION AT CINCINNATI.—Among the papers read in the Anthropological section, the most important were as follows: The sign language among the aborigines, Col. Garrick Mallory; the interpretations of the pictographs by the application of gesture signs, N. S. Hoffman; Animal Myths of the Iroquois, by Mrs. Erminnie Smith; Stone Images and Idols of the Mound Builders, Wm. McAdams; Mound Builders' Skulls, Watson C. Holbrook; The black drink of the Southern Indians, J. G. Henderson; The Mound Builders an inquiry into their southern Origin, Wm. DeHaas; Comparison of Maya dates with those of the Christian Era, Cyrus Thomas; The Buffalo Drives on the Rock River, Rev. S. D. Peet.

The Fifth international Congress of Orientalists met in Berlin on Sept. 12-17, under the presidency of Professor Dillmann. The payment of 10 marks ($2.50) entitles one to membership, and to the publications of the congress.

GENERAL REVIEW.

THE KOREAN LANGUAGE.—The *Chrysanthemum* for September has a few remarks on the subject. The Korean, like the Japanese, is a member of the Turanian family, the characteristics of which are that they are agglutinative. If the epithet "agglutinative" is confined to those forms where neither root nor any of the particles attached suffer change, there is much in both these languages which is not agglutinative. It is more convenient to consider as agglutinative all those combinations whose terminations, although consolidated with the root by phonetic changes, are yet capable of being distinguished from it with ease and certainty. Omitting combinations, which can be readily resolved into their component elements, there remain in Japanese and Korean only four or five forms of the verb and adjective. The only possible method of dealing with each form is to enumerate them with a description of their meaning. Analyze parts separately where the inflections describe forms. Describe the separate particle individually distinguishing between the inflected and uninflected, and classifying them according to the forms to which they are suffixed, giving the meaning under different circumstances, the order and principles of their combination and the phonetic changes to which they are subject. In the case of the terminations of the noun, the phonetic changes are so great that something closely resembling a genuine inflection is the result. The nominative is, however, not selected as the form to be modified, for the root is known and the inflections agglutinated to this. The statement that the Korean, like the French, has ten parts of speech, viz., the article ,noun, adjective, pronoun, verb, participle, adverb, preposition, conjunction and interjection, is not surprising, yet in such languages the ordinary English classification leads to endless confusion. The nature of the art coincides roughly to European languages. The great majority of the forms deducible by the inflection or aglutinative from verbal roots are not verbs at all but nouns, adjectives or adverbs, while the adjectival roots are deducible like verbs.

AN EARLY ALPHABET IN JAPAN.

At a recent meeting of the Academie des Inscriptions et Belles Lettres, M. de Rosney read a paper upon a manuscript which had been sent to him from Japan. He inferred from it two startling conclusions; first, that there existed in Japan in early times a primitive monotheism, second, that the Japanese possessed also before the introduction of writing from China, an ancient alphabet of Indian origin.

Studies on the History of Semitic religions by W. W. E. Bandissie contains: 1. An essay on scripture Holiness (separate from uncleanness). 2. On waters trees and hills, among the Semitic races, and the author traces the life-giving power of the Heavenly gods in formations and fountains, and Poseidon Dagon, etc., were only the sun gods ruling over the sea. The society of the hills and mountains points to the society of the celestial gods.

In 1879 the Berlin Museum acquired a quantity of torn bits of parchment from Egypt containing parts of a series of lines from Sappho and parts of fifty lines from Euripides. The writing belongs to the 814th century.

Proceedings of the Societe de Asiatique:—Certain documents, which have been supposed to exhibit the commercial transactions of a Babylon banking house called Egibi Sons. Oppert now maintains to be juridical records in which appear news of the tribe of Egibi.

Des origines du Zoroastrisme—C. de Harley, E. Leroux, Paris. Zoroaster's system was the product of neither storm myths nor solar myths, nor of the conflict between the Iranians and the Hindus. It was not a simple development of popular beliefs. Its object was to banish the old culture and to introduce new doctrines, monotheism, dualism, a new cosmogony and eschatology.

The date of the Avesta must be fixed not earlier than the period of Darius Hytaspie.

Dr. Wells Williams' Chinese dictionary, notwithstanding the criticism of Chalmers and Gibbs, is the best Chinese-European Lexicon in existence.

The Phœnician Alphabet. The insufficiency of the Hebrew character to represent the Phenician language has been shown by M. Berger in the Journal antique.

The *Bulletin* for March, 1881, of the Essex Institute, contains a mention by Prof. F. W. Putnam of the discovery in Wakefield, Mass., of clipped stone implements, similar to those found in the gravel beds of Trenton, N. J.

The *Popular Science Monthly*, for September, contains an article by Prof. N. H. Winchell on ancient copper mines on Lake Superior.

The *Ipswitch Chronicle* (Ipswich, Mass.,) has a series of articles on "Prehistoric Implements" by the editor. No. II contains some valuable items in reference to the materials of which the arrow heads of the vicinity are made. Among these the author mentions the blue phorphyry from Marblehead, iron from the Newberry ledges, quartz crystal, and a feldspar from an ancient quarry in Rowley. Jasper, also, is mentioned. The article is interesting, as it shows study on an important point, namely the corellation of the prehistoric relics to the mineralogy of the locality.

The *American Naturalist* for June has an interesting article by Prof. Geo. H. Perkins on the Archæology of Vermont. The author notes the resemblances between the stone relics of Vermont and New York. The implements called gouges are evidently characteristic of eastern collections, but the author thinks they were modern, peculiar to Algonquin or Iroquois, and unknown to more ancient people. Some distinct types of the gouge are described and represented by cuts in the article, which, as an original contribution, is really of great value.

The *Popular Science Monthly* for June contains an extract from Tylor's Anthropology, with cuts, illustrating the races of mankind. The relation of the living face to the cranlological peculiarities is the most important point in the article, though it is somewhat difficult to trace with any system of measurements now in use, any definite lines of the crania in the faces of living persons. In fact there are no lines which are definite enough to describe the race by measurements. The character of the hair, the color of the complexion, and the general shape and contour of the face and head all need to be considered if we are to distinguish races.

One by one the pioneers in the modern school of philology are dropping out and leaving to younger hands to build the science of which they helped to lay the foundations. Among these no one was more widely known, or will be more sincerely lamented, than Professor Theodore Benfey, of Goetsingen, who died on the 30th of June. Born in a village near Goettingen in 1809, Prof. Benfey prosecuted his university studies at the latter place and at Munich, receiving his Doctor's degree when 19 years of age. From 1830 to 1834 he studied and taught at Frankfort and Heidelberg. In the latter year he joined the corps of instruction at Goettingen, and, passing through the usual grades, was made ordinary professor in the philosophical faculty in 1862. Though Prof. Benfey achieved his highest distinction in Sanskrit studies, he was a scholar of broad learning, and his labors in other parts of the field have been highly esteemed. In early life classical studies engaged his attention, but he soon turned from these well-beaten paths to the ancient literature of Persia and India, which was beginning to awaken the enthusiasm of scholars. In 1847 he published the text of the Persian cuneiform inscriptions, with translation and glossary, a valuable work at the time, but of less authority now. The works for which Prof. Benfey will be longest remembered are: An edition of the Sama-Veda, with translation and glossary, (Leipsic, 1848); a large Sanskrit grammar, including the Vedic dialect, (Leipsic, 1852); the same in brief form for beginners, (Leipsic, 1855, afterwards published in English); a Sanskrit English Dictionary, (London, 1866.)

Besides these greater labors, Prof. Benfey was a constant contributor of brief papers on general and oriental linguistics to periodicals and learned societies. It is well known that the last years of his life were devoted to the preparation of a grammar of the Vedic speech, which was to be the crowning work of fifty years of toil, but it is feared that his death will prevent the realization of his purpose. It is three years since his half century Doctor's Jubilee was celebrated at Goettingen, an occasion which the learned world improved to express its appreciation of the modest worth and brilliant achievements of this conscientious and laborious scholar.

The *Indian Evangelical Review*, for January, contains an appreciative notice of Dr. John Wenger, another eminent worker for India, though in a different field, who, about a year since, closed an honorable and useful life, of which forty-one years were spent among the Hindus. Dr. Wenger was born in 1811, near Berne in Switzerland. After completing his theological studies he withdrew from the National Church, and after spending some years in Greece, found his way to England. Here his attention was directed to missionary work in India, and in 1839 he sailed for Calcutta to join the Baptist mission there. Shortly before leaving England he had begun the study of Bengali, and so rapid was his progress that within three months after landing he was able to join Mr. Pearce and Dr. Yates in translating the Scriptures into the vernacular. Early in the following year it was decided to prepare a translation of the whole Bible in Bengali. Within a few days Mr. Pearce was removed by death, and the work was carried on by Mr. Wenger and Dr. Yates. In 1845 Dr. Yates' health compelled him to withdraw when the work had proceeded as far as Galatians, and the labor was finished in the same year by Mr. Wenger alone. In 1847 he began a revised edition of the Bible, completing it in 1852. Four years later a third revision was begun, and in 1862 a fourth edition, which was finished in 1867. Two later editions were published, the last one in 1877. Each of these editions was prepared with the most scrupulous care, the translation being compared line for line with the original languages. Dr. Wenger also prepared an excellent translation of the Bible into Sanskrit, by which it was brought more directly to the attention of the learned caste. Besides these strictly missionary labors, Dr. Wenger completed Dr. Yates' Sanskrit Dictionary, and prepared a Hand-Book of Sanskrit, and an introduction to Bengali. He translated a number of educational books and pamphlets into the vernacular, and was a frequent contributor to periodical literature. These literary labors, of which we have given only a hint, together with evangelistic work among the foreign and native population, filled the life of one of the noblest of the many noble missionaries, who have done more than the world is ready to confess to awaken the Hindu intellect from the torpor of ages. His singular modesty, his gentle spirit, his untiring industry, and his sound judgment endeared him alike to Europeans and natives, and will cause his name to be long held in grateful remembrance. J. A.

There have been many attempts to derive from conflicting traditions the date of Buddha's death, but without assured success hitherto. The date claimed by southern Buddhists and usually accepted is 543 B. C. Professor Muller, for a variety of considerations, fixes upon 477 B. C. as the date. Mr. Rhys Davids prefers 412 B. C., while Professor Kern comes down to 388 B. C. A source of perplexity to scholars has been the fact that the rock inscriptions make Buddha's death occur about 60 years later than the sacred books of Ceylon. A writer in the *Academy* suggests an explanation of this disagreement by supposing that the Nirvana which Buddha attained in 543 B. C., according to the Southern Buddhists, was not the final Nirvana, or extinction of being, but the preliminary Nirvana, or complete sanctification, which is attainable in this life. This would make his death year about 483 B. C. J. M.

We learn from Truebner's Record that it is proposed to form a Pali Text Society on the model of the Early English Text Society, in order to make more generally accessible the Buddhist manuscripts, which at present lie buried in European libraries. The society designs to publish first the whole of the *Pitakas*, or canonical books of the Southern Buddhists, a part of which are already in course of publication. These will be followed by such Jain and uncanonical Buddhist texts as are likely to throw light on the early history of Buddhism. Notes, introductions and analyses in English will help to an understanding of the texts. A yearly fee of one hundred guineas entitles to membership and a copy of the issues of the society. J. M.

The demand for back numbers of the *Calcutta Review* has led the proprietor to re-publish those papers which best deserve preservation. Several monthly parts have been already issued, beginning with February, at a price of five shillings each. It is expected that the whole will make from six to ten volumes of 400 pages each.

THE DAVENPORT ACADEMY OF SCIENCE.—We have received the address of Wm. H. Pratt, president of this society, printed in the Davenport *Gazette*. The address gives an account of the exploration of mounds by the members, and of the various relics in the cabinet. Seventy-five mounds were excavated by Rev. Mr. Gass during the year 1880, fifteen of which afforded relics. Copper relics have been found in this vicinity, but in such rare quantities as to give rise to the opinion that they were made from drift copper and that they had no connection with the mines of Lake Superior. The specimens all give evidence of having been hammered, but none of having been melted or cast. Copper axes were probably used as marks or badges of distinction but were not used as tools. A great number of mound builder's pipes have been found. The typical form is that with a curved base, with the bowl frequently carved into various animal forms. There are two pipes having the form of an elephant or mastodon carved on the bowl.

Mr. Pratt maintains that the Davenport tablets give undoubted evidence that the art of writing was known to the mound builders, and believes them to be certainly genuine. These tablets were on exhibition at Washington while the National Academy was in session, and at Boston during the session of the American Association. They have, however, never been the subject of discussion in either association.

MINNESOTA ACADEMY OF SCIENCE.—This society was established seven years ago. It is out of debt and in a fair way for growth and prosperity. Prof. N. H. Winchell has been elected president. In his opening address he discusses the comparison between denominational colleges and state institutions, and maintains that only the latter have proved or developed any interest in advanced scientific studies, and argues that the state patronage should be extended to the higher departments.

AT THE GERMAN ANTHROPOLOGICAL CONGRESS, 1881, M. Kollmon, of Switzerland, read a paper showing that prognathism is of frequent occurrence among civilized races. Some skulls from the heart of Germany show a greater degree of it than do the natives of Australia. It was maintained that this prognathism in Europe is not accidental, but of frequent occurrence.

THE SKULL OF EMANUEL KANT.—A paper has been read before the same congress on the skull of Emanuel Kant. This is described as follows: The forehead had none of the majesty attached to a thinker. It was not broad and was a little retreating. The only extraordinary feature about the face was the height of the orbits. The temples have a fullness, especially in the region where it is supposed the faculty of speech resides. The bones of the nose are turned toward the right. The greatest terminal length was 182 millimetres, the height 132 millimetres, the width 161 millimetres, that of ordinary Persian skulls being only 144 millimetres.

BOOK REVIEWS.

THE IMAGE OF THE CROSS AND LIGHTS ON THE ALTAR IN THE CHRISTIAN CHURCH AND IN HEATHEN TEMPLES BEFORE THE CHRISTIAN ERA, ESPECIALLY IN THE BRITISH ISLE. Toronto ; Hunter, Rose & Co., 1877.

This pamphlet as may be seen from the title is not so much a history of the Cross, and an essay on its ancient or prehistoric origin, as it is an argument against the use of the symbol in christian churches.

The allusions to the Druidical use of the cross, and to the prevalence of serpent worship, are more to point an argument than to bring out the facts concerning them.

THE HISTORY OF THE ALPHABET.

This is one of the interesting subjects, and one which must receive increasing light as the discoveries among the monuments go on. The latest book on the subject is one written by Prof. Karl Faulman, entitled an Illustrated History of Letters. A popular scientific representation of the origin of writing of all the people of the earth, (Leipsic, A. Hartteman, 1880, pp. 32.)

THE ARCHÆOLOGICAL INSTITUTE. The Second Annual Report, 1880-81.

This pamphlet contains an account of the organization of the Institute, and a brief history of its operations, both in this country and in Europe; Mexico and Crete being the fields where explorations have been made.

ANTHROPOLOGICAL INVESTIGATIONS DURING THE YEAR 1879. Smithsonian Report. Otis F. Mason.

The classification made by Prof. Mason is as follows: 1. Anthropogeny; 2. Prehistoric Anthropology; 3. Biological Anthropology; 4. Psychological Anthropology; 5. Ethnology; 6. Linguistic; 7. Industries; 8. Sociology; 9. The Science of Religion. Nearly all important papers on these separate topics are included in the list of titles.

PROGRESS OF ANTHROPOLOGY FOR THE YEAR 1880; from the *American Naturalist*, Aug., 1881.

This is a continuation of the paper in the Smithsonian Report, and is very valuable. Other papers on Anthropology, from the *American Naturalist*, have also been received.

MEMOIR OF SAMUEL STEHMAN HALDEMAN, LL. D., PROF. OF COMPARATIVE PHILOLOGY—IN THE UNIVERSITY OF PENNSYLVANIA. By *Chas. Henry Hart, etc.*, Hestoriographer, etc. Reprinted from the *Penn Monthly* for Aug., 1881:

This memoir of that learned scholar and good man, Prof. Haldeman, it is gratifying to see. It is eminently fit, also, that Mr. Hart should write it. No man in this country has done more for the science of comparative philology than Dr. Haldeman. In the line of archæology much praise is also due him, for he was *continually* contributing to the advancement of this science.

The editor of this journal has known Prof. Haldeman only since 1876, but it is a privilege to have known him. The memoir gives the facts of his literary and scientific labors, and is a becoming tribute to the memory of one who needed only to be known to be loved and honored.

The following list will show how far his comparative studies in philology reached American subjects:

The number of the paper, and the dates, are given as found in the memoir: 57—On the phonology of the Wyandots, 1846; 58—On some points in linguistic ethnology, with illustrations chiefly from the Aboriginal languages of America, 1849; 69—Relations between the Chinese and Indo-European languages, 1856; 70—Report on the present state of our knowledge of linguistic ethnology, 1856.

Several papers on archæology have also appeared from his pen. The last one is a folio, descriptive of the relics taken from the Rock Retreat at Chickie's, close by his residence. He had a large cabinet which was divided among several institutions after his death.

GALILEE IN THE TIME OF CHRIST. By *Rev. Selah Merrill, D. D.*, with an introduction by *Rev. A. R. Peabody, D. D.* Boston Congregational Publishing House, 1881.

This useful little volume contains the results of the explorations and studies of the author put into a comprehensive and instructive shape. The material first appeared in the *Bibliotheca Sacra*, in the form of two essays, but appears here to have been modified and some of it rewritten.

Galilee is known to be one of the provinces of the Holy Land, but the peculiarities of its soil and climate, the number of its cities and its population, its productions and history, as well as the character of its people, are not so well known. The volume treats especially of the province, and not of the whole land. It first defines the province. The author holds that it was divided into four districts, but it is uncertain if it extended East of the Jordan and the sea. "Galilee of the Gentiles" was not, as Jahn held, "Upper Galilee."

The population of this district—2,000 square miles—the author thinks may have reached the great number of 3,000,000. Its climate and soil are described as very favorable to so dense a population, and confirms the description of Moses that it was a land "full of the blessings of Jehovah." The descriptions of the fertility of the soil, of the variety of the scenery, the character of the rivers and lakes, of the mountains and valleys are brief but striking. "The agricultural products, and manufactured articles are also referred to." "The sea of Galilee." "A focus of life," "The noted cities and towns" and other geographical points summarized into single chapters are followed by a more general discussion of the character of the Galileans," "the poetical talent," "the prophets and judges," "the wealth and material prosperity, and finally a description of "Nazareth and its character."

The book leaves out all labored arguments over doubtful sites, and all minute descriptions, but the reader will probably consider it the more valuable on that account. It however brings before us very strikingly some facts connected with Christ's life, which, as side lights, are extremely valuable.

Two hundred and four cities or villages, the smallest of which numbered about 15,000 inhabitants, show what Christ accomplished when going about among the cities of Galilee. Some doubtful points might have been discussed more at length, the author might have given the reasons for his conclusions concerning for instance, the locating the transfiguration not far from Cesarea Phillipi, or on one of the foot hills of Mt. Hermon; also the placing *i. e.* the feeding of the 5,000 on the east side of Jordan by the "Eastern Bethsaida" instead of near the "Western Bethsaida." Capernaum, also, where was this place? It is described as on the carrier route between Jerusalem and Damascus?

There is one point which we are glad to see that the author does discuss, and that is the "poverty" and "abject meanness" of Christ's earthly condition, and to know that he holds that these, and many other points of the same nature, "are all suppositions of later times."

He says: "The coloring is false. We find the Galileans to have been a moral, intelligent, industrious and enterprising people of that country fitly chosen as the training place of 'Master and disciples,' who were to move the world."

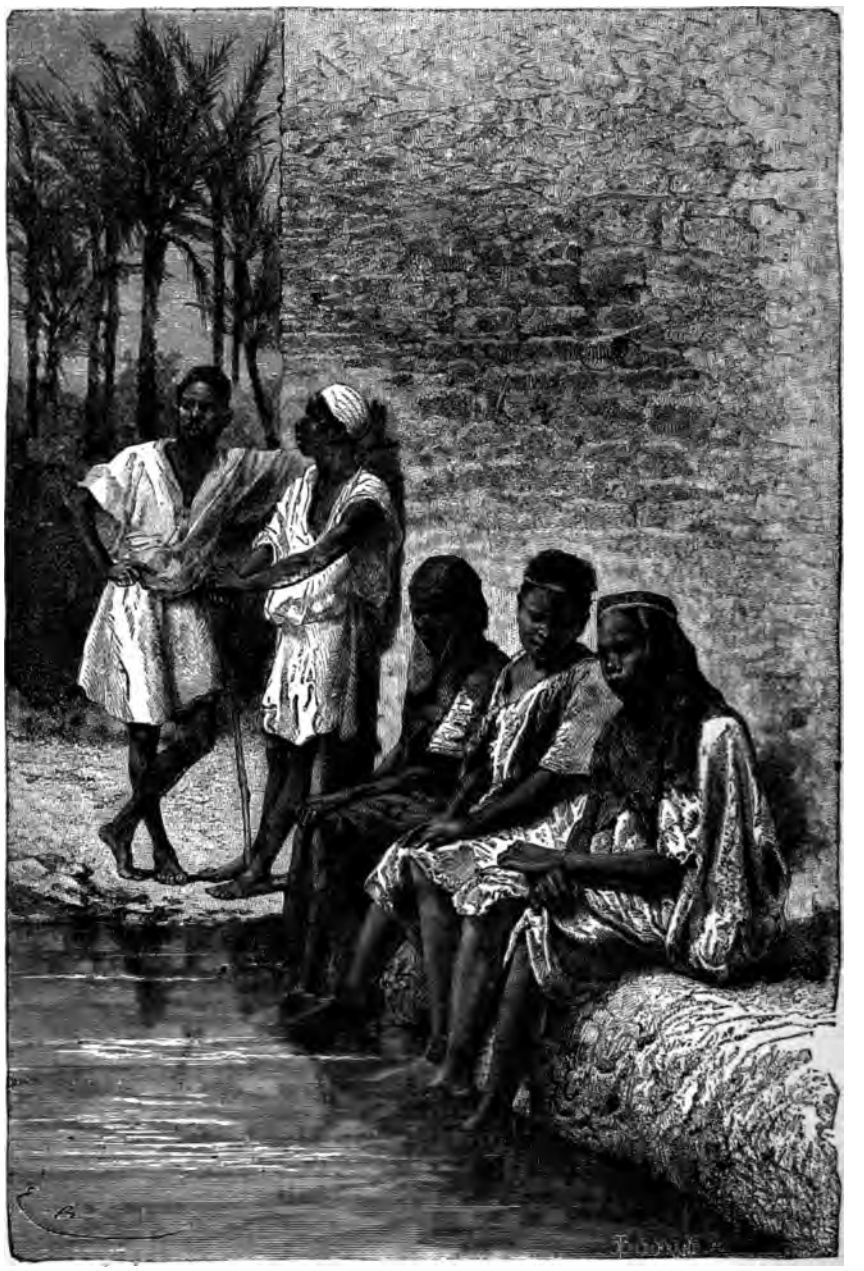
THE ARYAN VILLAGE IN INDIA AND CEYLON. By *Sir John B. Phene.* Macmillan & Co., 1880: pp. ivi. 286; 800.

One of the most curious institutions of India is the village community. This rural organization, which is found in every part of the land, is the unit of Hindoo society, and like the atom of the chemist remains essentially unchanged whatever convulsions disturb the general body. The Moghul, the Patan, the Mahratta, the Sikh, the Briton may successively overrun the land and subvert existing forms of government; the worshiper of Vishnu or Siva may turn Mohammedan or Christian, but these little self-contained communities live on, unchanged through all. The study of the Hindoo village system is important because it is not of modern growth; its origin, far back in prehistoric ages, throws valuable light on the growth of social institutions in general, and on those of the Aryans in particular. Attention has been drawn to this subject by several European writers, among them Sir Henry Maine, in his Village Communities East and West, and Elphinstone, in his history of India. The book before us is the latest contribution. We have, first, an introduction of about fifty pages, in which the author traces the development of civil institutions, as he conceives it to have been, from a condition of savage isolation, as a starting point, to the rise of organized communities. Next, follow three papers of unequal length; the first and longest one, on Modern Village Life in Bengal, the second on The Agricultural Community in Ceylon, the third on the Evolution of the Indo-Aryan Social and Land System. A glossary explains native terms used in the text.

The Hindoo village is a little republic having its self-constituted authorities, and everything else within itself needful for the maintainance of order and the management of its foreign and domestic relations. The lands around the village are separated by clearly-defined limits from those of other villages, and, whether the title rests in the government or the zamindar (landholder), are held in common by the whole community, and allotted to the several householders in equitable portions. A minute description of the holding of each is entered in the village records, and rent is assessed according to the value of the land. The general manager of internal concerns, and the spokesman of the people in all outside

communications, is the *mandal* or headman. He is nominally elected by the suffrages of the people, but, in fact, the office generally descends from father to son. It is his duty to see that the rents are collected and paid over, and to settle petty disputes, in which he is sometimes assisted by the *panchayat*, or council of elders. Next, in importance to the headman, is the village watchman, who guards the crops, ferrets out thieves, and looks after the general safety. The accountant keeps the village records, which contain the public dues of each member of the community, draws up deeds, and writes letters for the unlettered. The astrologer casts the horoscope for the children, and decides when the celestial signs are favorable for any important undertaking. He may also keep the village school, such as it is. Besides these prominent functionaries, the village has its blacksmith, barber, potter, washerman, and representatives of the other crafts which minister to the needs—one can hardly speak of comfort—of the little community. An important character residing in the village, but not properly part of its organization, is the money lender, who advances grain or cash to the cultivators, to be repaid from the proceeds of the next crop. His rates are usually exorbitant, and the man is happy, who, once in his clutches, escapes without being ruined. Hindoo peasants, as a class, are extremely poor and improvident. Living from hand to mouth on the coarsest fare, they are confronted with famine whenever a single important crop fails.

To give any adequate idea of the life of such a village community would require an extended article, and we prefer to invite the reader to study the book itself, which will amply repay perusal. The author is an eminent member of the civil service, and has resided many years in India. His statements are the result of personal observations, and may be relied on as trustworthy. The book is written in a pleasing and popular style, and will not fail to interest and instruct a wide circle of readers. J. A.



Modern Egyptian Faces.

THE AMERICAN ANTIQUARIAN

VOL. IV. JANUARY, 1882. No. 2.

ANCIENT TEMPLE ARCHITECTURE.

BY STEPHEN D. PEET.

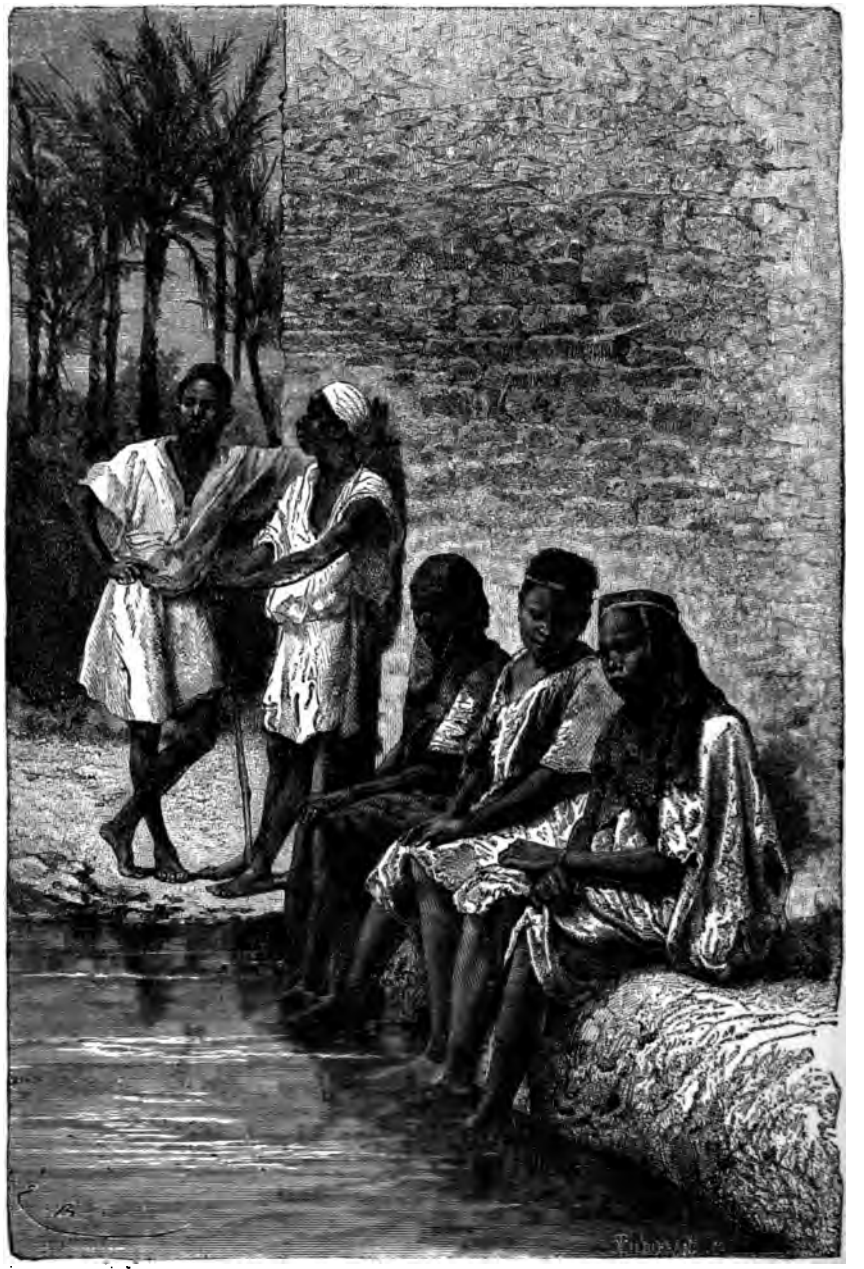
The origin of religion as evinced by the ancient languages has been a subject of interest for several years. The researches of Max Müller have brought out the thought that possibly religion was a creature of natural growth, having its origin in the worship of the material forms, such as the sun and moon, or the "bright heavens."

The analogy of language brought all historic religions to one common source, and that source, existing in some prehistoric age, when a primitive mode of worship is supposed to have prevailed.

The subject has also been studied in connection with the folk-lore and traditions of ancient races. There is even now going on a discussion among Scandinavian scholars whether the mythologic tales of the Northland were derived from classic lands, or from early Aryan ancestors, or were the products of a separate line of thought and worship. Others, too, are studying the folk-lore of the various Aryan or Semitic races to ascertain if possible whether they are not founded on a common basis derived from one early fountain.

The subject has also been followed somewhat in the line of ethnology, and the celebrated M. Renan once startled the world with his theory that each of the great races of antiquity presented a religion peculiar to itself, and so the origin of religion could be found in the ethnic peculiarities.

There is, however, one line of investigation which has hardly been entered but which is more important perhaps than either of those mentioned, namely the line of archæology. The subject of ancient architecture has been abundantly illustrated, and the bearing of it upon the history of religion somewhat shown, but the subject thus far has been limited.



Modern Egyptian Faces.

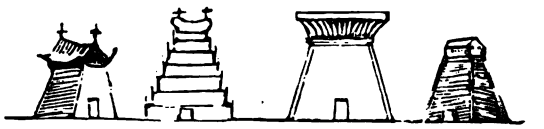
It was indeed the opinion of the ancient writer Vitruvous that all worship could be traced back to one primordial form, namely the worship in groves, and that the forms of trees were to be found in the early architectural shapes which survived to later historical times. Thus it has been a favorite theory with many that the columns which so frequently surrounded the Greek temple were but imitations of the trunks of trees, and that the adornments of the frieze and cornices were imitations of the ends of beams which were originally placed in the trees above to form the roof.

According to the same theory the famous Gothic arches and roofs of the ancient and medieval temples of Europe were but imitations of the beautiful sylvan arches and lofty columns of the northern forests.

An old author, Maurice, has carried this fancy to the extent that he has imagined that the ideal temple of all is to be found in the spreading banyan tree, and that the mysterious darkness and the many columns of these sacred recesses of nature are really the models of earthly temples.

If this theory be true we should conclude that each nation had borrowed its peculiar style of temple architecture from the suggestiveness of nature surrounding them; the inhabitants of the North seeking to imitate the loftiness and the mysterious darkness of the pine groves of the North; the inhabitants of India and the South building their thousand columns in imitation of the spreading banyan, while the more ancient inhabitants of Egypt and India found in the cave their model. Hence the cave of Dendera, of Elephantine, and the many other cave temples of those lands. Possibly, too, the pyramids were imitations of mountains, being the survival of the primitive religion which prevailed in Gan-Eden, where the great mountain Meru was the primitive temple and where the heavenly bodies were the first attendants upon the worship of man.

It is in fact a fancy expressed by Dr. J. P. Lesley in his lecture before the Lowell Institute that the early form of temple in Thibet and Norway, as well as in Egypt, was in representation of the mountain with the ark on its summit, as if the tradition of the ark were at the basis of temple worship.



THIBETAN. HINDU. EGYPTIAN. NORWEGIAN.

PRIMITIVE TEMPLES.

These fancies might be followed further. There are many striking analogies in this direction, and it is possible that if studied more attentively a theory might be formed from some archæological basis which would be as well founded as that which Max Müller, has sought to establish on the basis of language.

But without tracing the origin of temple architecture back so far, we would call attention especially to the fact that the separate races had their own form and style even at a very early date, and that this style was the result of their own religious systems and spirit. Not only is this true of the three great nations which are best known to history, but also of others more ancient than they.

The orders of architecture known to history—such as the Doric, Ionic, and Corinthian—were probably preceded by orders which were as distinct and pronounced as they. In fact, these styles which we call so primitive and so fundamental are themselves but a late outgrowth and are comparatively modern. If these bear in themselves the effects of national growth, so that we give to them the names of the people among whom they originated, with how much more reason may we say that there were also before them those orders which were even more marked by ethnical traits. The Egyptian, Assyrian, and the Hebrew races certainly had a history long before Greece was known, and we may therefore say that the Assyrian, Hebrew, and Egyptian orders of architecture are as worthy of study as either Doric, Ionic, or Corinthian. These nations evidently impressed their cultus and their religious spirit upon their own architectural works, and we may well study the temples of these ancient people to see if we may not in them learn what the religious life and growth of each of these races has been. We maintain that in the ancient temple architecture we may not only find the progress of the race in religious thought generally, but we may also discover the particular line through which that development and progress has come.

There is certainly one lesson to be learned, and that is that in nearly all cases the ancient temple architecture was the result of the religious growth of the people, and in it can be seen the very spirit of religion which controlled the people. This is true of the races and nations as much as it is of the ages. If there was a development of the forms of architecture at certain epochs, yet that development seems to have been in ethnical lines. The ancient races may indeed have borrowed many features of their architecture from one another; yet they

seem to have not only embodied their particular national cultus but also their national religion in these their sacred buildings. This was certainly true of those three nations best known to history, namely, the Egyptian, Hebrew, and Greek. Each one of these nations embodied their own religion in their temples. Situated as they were on the different sides of the Mediterranean Sea they have given to us some of the grandest specimens of temple worship in the world. Yet they have given us temples which differed as well as resembled one another. These differences we propose now to consider.

The resemblances in the general plan of structure have already been referred to in a previous number. [See AMERICAN ANTIQUARIAN AND ORIENTAL JOURNAL, Vol. III., page 333.] The threefold division of the sanctuary was not peculiar to the Jews, for we find it prevalent among the Egyptians before the time of the exodus, and if we take the Alstis of the Greeks as answering the same purpose as the court of the Jews, we find it also prevalent among the Greeks long after the destruction of the tabernacle. The various temples which were erected at Jerusalem were modelled after the original tabernacle, and retained their primitive features throughout all changes; yet it is remarkable that the same form or plan should also have existed among the other neighboring races.

It might be said, indeed, that one borrowed this plan from the other. In that case, we should go back to Egypt as the primal source both of the architectural style and the temple plans and divisions, and so we would be virtually acknowledging that the Egyptians gave their religious conceptions to Jew and Greek alike.

There is not much doubt that the Egyptians did give the earliest models both of columns and of roofs, and possibly of architectural finish. The Doric columns of the earliest Greek temples were undoubtedly borrowed from the massive pillars which surrounded the courts of the Temple of Edfou and Karnac. The bulging pillar and big round capital of the Egyptians became the tapering column and neat capital of the Doric style, and these again were modified by the Greek taste into the Ionic and the Corinthian.

It is a fancy of certain writers that the columns of these various orders were modelled by the Greeks after the proportions of the human body: the Doric having a diameter one-sixth of its height, the Ionic one-seventh, and the Corinthian one-tenth of its height; the latter being the proportion of the female form; each representing different styles of beauty in the human person.

There is no doubt that much of the architectural finish of the first temple of Solomon was derived from Egypt, and it may be that in reconstructing the great porch of Solomon we shall find many suggestions from the lofty pillars and the massive propylae of the Egyptian temple.

It is a question too whether those who are now reconstructing the ancient tabernacle after the model of a modern tent with its poles and cords and especially with its lofty peaked roof and its long ridge pole, are not introducing a style of building totally unknown to the ancients. The Egyptian temples were all of them constructed with flat roofs, and the oriental style of erecting houses is to this day with the roof so flat that it may be used for sleeping upon. There is no necessity certainly for this change in our conception of the ancient tabernacle, for the scripture account of the tabernacle, and especially of the measurement of its curtains, would require that it be as it is shown in Calumet's Dictionary, with flat roof and straight sides.

Any one who is familiar with Egyptian architecture cannot fail to be impressed with the anomalous shape which the tabernacle is made to assume. One need only to look at any ordinary picture of the ruins of Baalbek or of Karnac to be convinced that as far as Egyptian style is concerned, the flat roof and straight square walls and cubical shape was the form which prevailed. The only modification which we find is the yramidal or inclined shaped facade, but that was peculiar to the Ptolemies, and was not known before the time of the Exodus. In the details of architectural construction we must conclude that Bezaleel and Aholiab drew from their Egyptian training and incorporated many things which were prevalent in that land of their captivity. So Jews and Greeks alike borrowing from Egypt and from Assyria evidently incorporated many of the same elements into their temples.

It is a question whether the bevelled stones which are still seen at the base of the wall in the Tyropean valley are not modelled after an Egyptian style, though they are the only things which remain of the original Solomon's temple. Long before the Saracens, before the Romans, the Hebrew temple stood on these ancient walls. Not unlike the Cyclopean walls found in the gate of the tomb at Mycenae, they are neither Greek nor Phoenician. If they were Tyrian they were unlike many which have been discovered in later times, and so may have been common to antiquity. The architectural finish and detail both of the tabernacle and the temple then we may acknowledge to have been borrowed.

But the question arises, does the plan and arrangement of

their temples show that the same religious conception and spirit prevailed among these great nations of history.

In examining this point we shall need to analyze the elements which go to make up the details of the plan.

It will be noticed by those who will take the pains to compare the picture of the temple at Olympia with that of the temple at Jerusalem, and again with that at Karnac, that after all, quite different ideas prevail in the details of these plans. In fact, the greatest contrasts prevail. For instance as we examine the Greek as compared with the Egyptian we find that the columns of the Greek temple are altogether outside and the walls inside, thus presenting an imposing appearance to the eye but having within only a dark and limited shrine for the divinity. On the other hand with the Egyptians we find a dead wall surrounding the whole sacred premises, and the ornamentations by pillars or columns are only partially visible, the great beauty and grandeur being confined to the sacred precints within, and the utmost amount of impressiveness being imparted to these lofty columns, many rows of which were supposed to crowd the interior. If we look now at the Jewish temples we find that method of giving such prominence to the temple over its court that the temple proper was the object of admiration, and that the court and chambers around this were only the accompaniments, the arrangement being such however that the whole structure might with its courts and walls and chambers only the more impressively set off the beauty and magnificence of the inner sanctuary.

The temple of Solomon was so arranged that the whole structure became impressive with beauty and grandeur. It was situated on the summit of the mountain or sacred hill, and though like the Egyptian temple was surrounded by a wall which was exclusive and close, yet each part so arose above the other that the celebrated Solomon's porch may be supposed to have been only a beautiful setting for the great gem of the Jews architecture, the temple or sanctuary itself.

Thus, instead of the unity of design to which we have called attention in the general division as was at first suggested, we find the superstructure of the three temples entirely unlike in many respects and this was probably owing to the dissimilarity of the national spirit. The Greek made his religion the handmaid to art, and accordingly the Greek temple itself became a mere cella or shrine on which the adornments of art were displayed, but the inner sanctuary seemed to have been almost forgotten in the magnificence of its surroundings. (See cut of the temple at Olympia.)

The Egyptians on the other hand enveloped religion with a wonderful mystery, and therefore while there was a greater development of beauty in the interior of the sacred edifice yet the temple itself or the adytum where the divinity presided was always removed to the utmost distance and kept in obscurity amid the multiplicity of the courts and pillars.

The Jewish temple on the other hand magnified the temple proper, making it a sacred dwelling place for the divinity, guarded to be sure, and mysterious in its privacy, yet surrounded by the halls and porches as if it were a house within a house, and the place where the divinity dwelt in all sacred proximity.

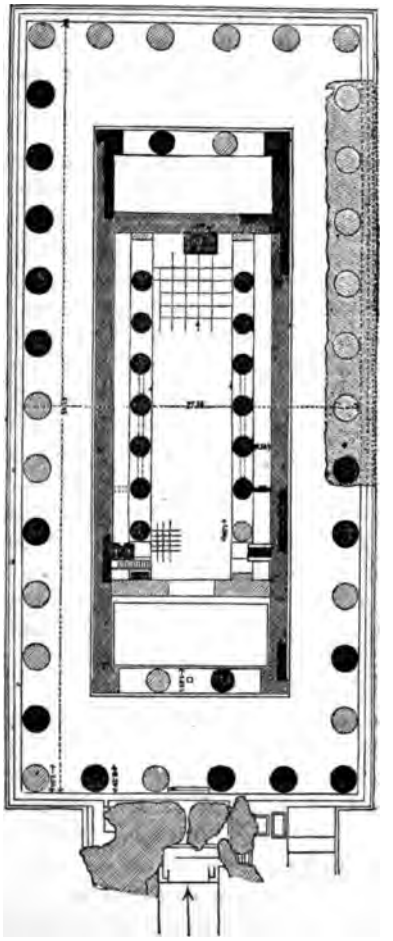


Fig. 2.

PLAN OF THE TEMPLE AT OLYMPIA.

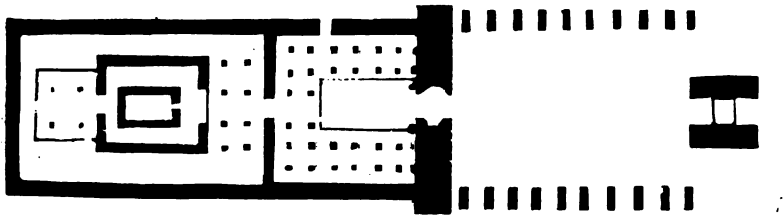
Now that these three fundamental conceptions did prevail in the different temples will not be doubted.

They appear not only in the later stages of development, but even more clearly at the earlier stages, as we may recognize them throughout all the changes which occurred.

The original form of a Greek temple it is well known was a simple "cella," or small square apartment, suited to contain an image of the divinity; the front being what is called "distyle in Antis," or having two pillars between square piers or pilastres, but entirely open in the front. Each modification, however, brought the temple more and more into the shape of an outer porch surrounding an inner shrine or cella. The first change was to separate the cella from the porch in front by a wall and door; the next was to throw the ends of the walls back, and place across the front the porch of four pillars. Finally the plan was adopted of placing the pillars around the sides sometimes leaving the wall of the cella plain, and sometimes with false pillars or pseudo pipteral.

The earliest Egyptian temple was a simple square enclosure with a character in the form of a cross on the inside. This temple is the one which was found in front of the second pyramid between the paws of the sphynx. It is described by Ferguson as composed of several prisms of syenite granite without base or capital, and supporting architraves as simple. The walls are ceiled with immense alabaster slabs with bevelled joints, a form of masonry as we have seen, not uncommon in that age. All its parts are plain, straight and square, without ornament, but perfectly proportioned, having all the lithic grandeur which is inherent in large masses. "The oldest, perhaps, the simplest and best adorned temple in the world." Following this as to time was the tomb of Beni Hassan; a simple cella or dark chamber, having a porch with square columns in front. The Labarynths of the twelfth dynasty may also be classed with it. Another form was the one which was composed of an enclosure with a pyramid at one side of the enclosure. Perhaps the first typical Egyptian temple was the Rhamession built by Ramses I. 500 B. C. This temple has the following elements: 1st, a facade of propylae; 2d, a court yard with porticoes on two sides: 3d, an inner court with a double row of columns, square piers being also used as pillars front and back of the court; 4th, Hypostyle Hall formed by two rows of columns with a clerestory through the center, and three rows of smaller columns on the side; 5th, several smaller apartments. (Compare with cut of Karnac.)

The temple, however, which embodies the most of history early and late, is that at Karnac (a plan of which we give on this page.) It was built by Osirtasen in the twelfth dynasty. Amenophis enclosed this in another temple twelve feet square. Thothmes I. built in front of it a splendid hall; Thothmes II. erected a palace behind it 140 feet by 55 feet. Maneptah built the great hall. Ramses I. of the nineteenth dynasty built the small temple, and the kings of the twenty-second dynasty added the courts in front.



PLAN OF KARNAC.

From these various structures we learn that the court was the chief feature, and that all the other parts were altogether inferior. The great propylon and the many columned court or hall were the objects on which the Egyptian architects expended their utmost skill. The Hypostyle Hall of Maneptah, says Ferguson, is one of the greatest of man's architectural works.

In this temple of Karnac the Adytum is entered by a double hall, and has not only a double court in front but a court also in the rear, thus being deeply buried in the midst of the hypethal courts, and guarded on all sides by the peribolus or hall, and was probably silent and dark. It also had an immense propylon in front, which was itself approached by an avenue of sphynxes. Everything about it seemed built on the principle of making the approach to it as imposing as possible, and the real inner sanctuary most difficult of access, and thoroughly enshrouded in mystery. At first sight it will be seen that the sanctuary was altogether subordinate to the courts. The propylon was very imposing in appearance. The elaborate courts were in front of the temple. These were exceedingly massive and elaborate, and were the most important part of the structure. This with its many columns and elaborate corridors was the place for processions. The Adytum which was the oracle of the Divinity, could scarcely be seen in the distance, and the greatest privacy and exclusiveness characterized it. The sa-

credness of this place was shown by its remoteness, and by the many and frequent apartments or courts which surrounded it, and by the darkness which pervaded it.

The peculiarity of the Hebrew temple however, was that the sanctuary or shrine was the most conspicuous feature, while the court was altogether inferior. This was the case all through its history. The temple of Solomon and the temple of Herod both have the same ruling elements.

Like the Egyptian temples the arrangement became complicated as it advanced, yet the same idea ruled through all the changes, of which the court of the Gentiles, the court of the women and the other courts surrounding remind us.

The earliest form of the Hebrew temple was the Tabernacle. This is too familiar to need description. The chief feature of it was that like the Egyptian it was composed of a court and a hall or temple proper; or the temple itself being divided into a cella and an Adytum, the Holy place or the Holy-of Holies. The court also went around the temple and enclosed it as did the Egyptians. In fact as far as the division was concerned there seem to have been striking analogies.

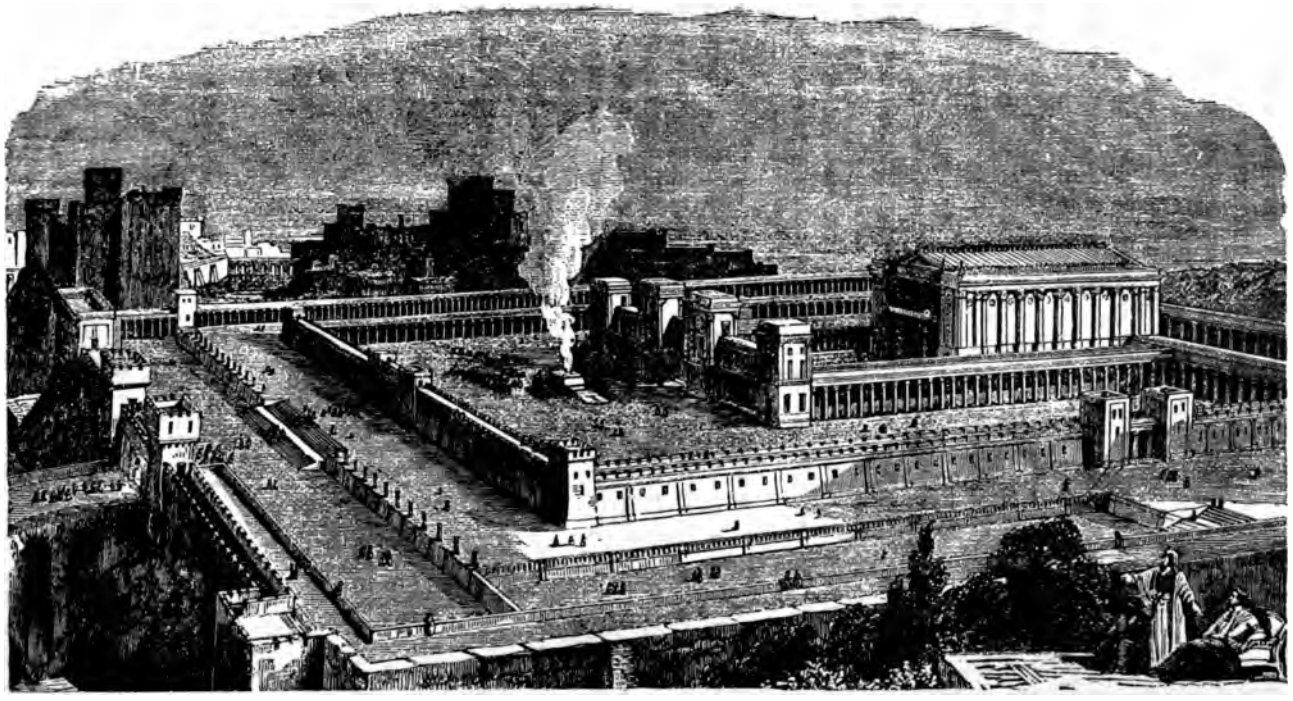
But there was this peculiarity about the Hebrew temple that it was accessible, the courts being open to the people, and the temple proper or sanctuary always being in full view of the temple.

The second form of the Hebrew sanctuary was the magnificent Solomon's temple. This was built probably in imitation of the Egyptian; its celebrated porch possibly being built in such magnificence to out-rival even Egyptian grandeur. The third was that erected after the return from captivity; and the fourth was that built by Herod a short time before Christ's birth. We give a cut of this last temple.

In all these temples we find that notwithstanding the changes in the surroundings, and in the courts with their various divisions, yet the chief feature was after all the sanctuary itself or the shrine.

The tabernacle with its simplicity became modified just as did the Egyptian temple; the courts became more elaborate, and in the time of Herod were divided into many apartments, such as the court of the Gentiles, the court of the women, and the court of the men; yet the sanctuary itself never lost its imposing and superior character.

While the Egyptians placed their magnificent propylae at the gateway or entrance, it guarded the entrance by the avenues of sphynxes; the Hebrews made the pillars in front of the shrine or temple the imposing feature. While the Egyptians sur-



TEMPLE AT JERUSALEM.

rounded their sanctuary with the magnificent courts, into which their religious procession could enter, and with the greatest pomp and display; but kept the adytum or shrine of the divinity at the distance, and only visible even to the priest, the Hebrews made their shrine the most conspicuous. The priesthood and the procession were only waiting upon their divinity, and the Divinity dwelt without form among them; a spiritual presence, but one who was holy, and who dwelt in a holy place.

A FIND OF CEREMONIAL AXES IN A FLORIDA MOUND.

BY A. E. DOUGLASS.

During an extended exploration of Indian mounds in East Florida, it was my good fortune to make a "find" of considerable interest, the particulars of which I venture to communicate.

The locality was the north-eastern corner of Volusia County, where an estuary, known as Tomoka Creek, makes its outlet in the northern extremity of the Halifax Lagoon, intersecting it at a very acute angle from the south, making a long, narrow peninsula, whose elevated plateau was, no doubt, a favorite resort for the primitive tribes who populated that section of Florida.

Previous to the Indian war of 1837—42, this point was under cultivation (as well as the opposite bank of the creek,) but since that date it has been deserted, and is now covered with a park-like growth of pine, live oak and palmetto trees sprinkled sparsely over a surface of luxuriant grass, to which is now given the title of "old fields."

On the east bank of the creek, about two miles from the extreme end of this point, about three hundred yards from the creek, and fifty from the marsh which here intervenes between the edge of the upland and the actual bed of the stream, are three mounds. Two of these are inconsiderable, but the third is of very imposing dimensions, at least for this region. The upland of this peninsula is gently undulating, at an average height of ten feet from the water level. The swells or undulations are in nearly parallel ridges, and possibly indicate the sand-hills of an ancient sea-beach. At the extremity of one of these ridges, the constructors, taking advantage of the natural elevation, as is frequently found in the mounds of this region,

have raised this remarkable mound. From this level its height on the north side is fourteen feet, the summit being reached by an ascent of 45°.

On the south and south-east, however, the sand has been excavated from the natural hollow of the depression between the two ridges, and the perpendicular height appears as twenty-five feet, the summit being reached by an easy ascent of about 30°. In this depression, which extends around one-third of the base, is a pond of sweet water, nourishing a thick growth of cypresses with a few dwarf palmettos.

The summit of the mound is a slightly convex plateau, twenty-eight feet in diameter, bare of trees except the center and the northern section of its surface which, with the northern and north-eastern declivities, is covered with a thick growth of scrub and vines, sprinkled with huge oaks and cabbage palmettos, hickories and sweet bay, while a dense thicket of scrub palmetto, clothes the west and south-west slopes, from whose base the surface, by easy ascent, tends downwards to the adjacent marsh before mentioned.

We found a trench already sunk in the summit plateau by some previous explorers, (reported as connected with the United States Coast Survey). This trench, starting from below the edge on the southern declivity, had been run twelve feet to a point about eight feet north-east of the actual center, and commencing with a breadth and depth of three feet, increased to five in breadth and eight in depth at its terminus.

I had no means of learning if this search had resulted in any discovery of importance, but as no further extension of the excavation had been attempted, could only infer that it had been barren of any results. The extreme labor of felling, uprooting, and removing the trees, may have suggested the line adopted for this excavation, and as the vital point of this, and of most mounds, its center, had been left unexplored, we felt that some chance of success might be reserved for our force, which was quite prepared for, and fully familiar with so severe a task as clearing the ground involved.

We devoted what time remained of the first day towards accomplishing this work, using our axes and heavy block and tackle from the yacht, cutting down, and swinging off in sailor-fashion, the timber covering the plateau and about one-third of the descending slope on the south and south-west sides.

All the scrub was then cut with bush-hooks and thrown beyond reach, and after this the ground carefully raked over and the debris of grass, leaves and twigs thoroughly examined before removal. On all these mounds the weathering of cen-

turies occasionally exposes objects originally dropped or slightly sunk in the soil, and if the exploration is designed to be a thorough one, such a precaution, though possibly barren in results, can not well be overlooked. In the present instance it was rewarded by an interesting stone ornament which will be hereafter described.

Having by careful measurement fixed the exact center of the mound, a trench four feet broad and deep was sunk on the very edge of the plateau, following the line of its circumference for a distance of twenty-five feet. When completed the workmen faced at right angles to its direction, and dug directly across the mound, contracting the sides of the excavation so that they should meet at a point on the opposite edge of the plateau, and at the same time sinking the excavation downwards, so that when crossing the center it should reach a depth of about fourteen feet. The material of the mound being a light yellow sand sufficiently moist to cohere, our work was only rendered severe by the palmetto and other roots which penetrate in a tangled mass far beneath the surface. The spading was done in steps or tables, each about four feet high and broad, the workmen commencing with the upper one, using the spade horizontally, taking off slices of an inch in thickness, until, having reached the level upon which he stood, that was in its turn taken down by standing on that next below it. Each laborer had five feet assigned for his special work, and then took off the earth in slices, turning it upon a heap at the end of his section, and thence throwing it in spade-fulls upon the heap behind him. The horizontal direction of the stroke enabled him to check with ease the force of the thrust, the moment by sound or touch, he found his implement in contact with any solid object. He kept his eye upon these slices of earth as they were broken up in turning them over at the end of his table, and when he spaded the mass upon the heap behind him it was the business of another with hoe and rake to spread it out, while the party in charge of the work kept his eye on the whole process. This excessive care and vigilance, the result of long practice at this work by the same crew, rendered it absolutely impossible for the smallest object to escape detection. When in spading the sound or resistance of any solid body was observed, the spade was dropped, and with the hands only, the object was sought for, and the most minute and delicate objects preserved uninjured. I have mentioned our mode of work with some particularity, at the risk of being thought prolix, thinking it might be of use to other explorers, and can say for it that when adopted and the men became familiar with the process

we could accomplish the work with a rapidity and exhaustiveness very surprising, considering the vast amount of labor it required.

Our first day's work produced no important results. We found no burials, no potsherds, and no implements or ornaments. Two sections of shark's vertebræ, a small piece of coquina and, at intervals, a very slight admixture with the sand, of minute shell of "Donax," a very abundant bivalve upon this coast in primitive times, and still found living, though in very inconsiderable quantity.

We resumed work at eight o'clock next morning, and at nine were working through the center of the mound, when one of the workmen detected a foreign body, and using his hands exhumed five ceremonial axes, (popularly termed "Banner Stones") of an unusually fine finish. These were the first specimens of this class of objects it had ever been my fortune to find on the Florida peninsula, and quite unknown to my sai - ors, though up to this time we had explored together some twenty or more mounds.

They were found about two feet north-east of the true center of the summit plateau, lying in a horizontal plane about fourteen inches beneath the surface, in an extended line and but two or three inches apart. They were carefully handled, rinsed with water so as to remove the soil without injuring the patina or bloom of antiquity, and I was greatly gratified to find that, with one exception, they were free from blemish or fracture and, while the stone had been slightly bleached on the face that lay uppermost, the objects were as sharply cut and as polished upon the surface, as if they had only yesterday been turned out from the workshop of the manufacturer.

The work of excavation was continued and about two hours afterward the same workman was fortunate enough to find three more specimens of similar pattern, beauty and finish. These last were laid loosely upon each other about three feet directly under the previous find.

When the day closed we had excavated in the mound a triangular pit, whose base was the trench of twenty-five feet with which we had started, and the apex the point on the opposite margin of the plateau toward which our sides had converged. At the center of the mound we reached the depth of fourteen feet where indications appeared of the original surface of the ground. On the way toward the center of the mound one of the workmen encountered a strip of sand so loosely packed that the spade with but little effort could be driven downward up to the handle. Thinking possibly that this might

be due to the subsidence of the roof or covering of some cavity or chamber below, we sunk a pit through the loose mass, and some four feet into the solid soil below, but without result; and no doubt we had struck the track of the root of some ancient oak, which in the course of ages had decayed and disappeared. If this surmise is correct we may form some idea of the extreme antiquity of the mound.

No further exploration of this mound was considered requisite. No other objects of interest or importance whatever were found. There was no indication of any burial, nor were there any vessels or fragments of pottery. So far as this special find was concerned, the indications were unmistakable that it had nothing to do with the original purpose of the mound, but that this had simply served as a place of concealment for the stock in trade of a manufacturer or dealer in ceremonial axes, which he had been either forced to avail of by some imminent personal risk, or chose to appropriate to the purposes of a store house whence he could unearth the articles one by one as he found a purchaser.

It is curious to observe that in careful examination of these axes, and in particularly noticing the division of the hoard into two parcels, we learn how he excavated the ground, and his device for saving a portion of his store should the other be sought for and found. The only axe which showed any mark of hard usage and injury was the largest of all. One flange of this was perfect, its surface smooth and polished (*over* the patina); the other flange was chipped and scaled along the entire edge, precisely as would have resulted if brought in contact with the fibrous roots of the cabbage palms which must have been encountered if this implement was used, as seems probable, in excavating the sand to make the cavity in which the objects were buried. No better implement for such a purpose could have been found. The extreme limit of his excavation was, under such circumstances, barely wider than the tool he used, and here, at its lowest depth, he laid three of the axes one above another, then filling in the sand upon them to the depth of three feet, the bed was again smoothed off and the other five laid evenly upon that surface, again to be covered in by hand, the implement being laid at the end of the row, as it was found. His Indian cunning taught him that, if this upper layer should be found and appropriated, it would never occur to the pilferer to search for such a pocket three feet below. One peculiarity deserves notice in this particular axe: while it faithfully resembled the others in every peculiarity, it differed from them in being entirely covered with a white concretion

crust or patina, and only on the edge which was frayed or chipped, could the original texture of the stone be detected. From this fact result two curious inferences: first, that as the frayed edge was free from patina, it must have been so worn by the process of digging, and to permit the formation of such a patina, its manufacture must date many centuries before this use and burial; and, second, that the remaining seven objects being, as they were, free of any patina, were most probably the recent work of the artificer who buried them. No doubt this was the pattern from which he had shaped four of these objects; and one marked peculiarity is common to all, in that the projection or ridge raised to accommodate the perforation is on one side round and on the other flat. The indications of age upon seven of these abjects are surprisingly slight. The upturned surface is slightly bleached, and it is only by careful examination that minute pellicles on some, and diminutive pits in others, can be detected. The more notable particulars they present are exquisite symmetry, smoothness and polish, and absolute freedom from any evidence of use.

It is a fact not a little remarkable that although I have thoroughly explored on the eastern coast of Florida thirty-two ancient mounds, this is the only instance in which I have found ceremonial axes.

The accompanying engravings represent with complete fidelity these beautiful objects, showing even the characteristic markings of the stone. They present the three patterns into which the eight are fashioned.

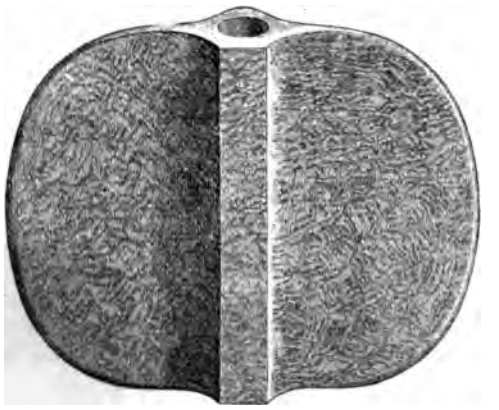


FIG. 1,

Fig. 1 represents one of five similar objects, differing only in size. Of the one figured, the length along the axis is $4\frac{1}{8}$ inches,

and the breadth across the flanges or wings 5 inches. The edge of flange is $\frac{1}{8}$ inch thick, slightly rounding. The thickness through the axis is 1 inch, and diameter of perforation $\frac{1}{2}$ inch. Three of the five are of these dimensions; the fourth, which has been referred to as the implement used, is $\frac{1}{8}$ inch larger in length and breadth only, while the fifth is 1 inch less in those dimensions. The one here figured is a diabase, of hornblende and felspar; another is soapstone, dark in color and studded with sparkling scales of mica; the third a ferruginous stone of brownish tint and extremely close texture; the fourth is of fine grained limestone, so far as it is possible to judge, while the fifth is a light gray stone, similar in character to the preceding.

FIG. 2.

Fig. 2 represents the sixth specimen. It has the ridge designed to accommodate the perforation only upon one side, the other being a plane surface. The artisan, however, has, with much taste and delicacy, bevelled the edge at each end of the axis, so as to give at its extremities a slight relief to the ridge. This specimen is of same length and breadth as the fifth, but considerably thicker. The stone is a diabase similar to that represented in fig. 1, but rather coarser in texture. It would be interesting to know the source of this beautiful material. I have celts of the same in my cabinet, not only from Florida mounds but from Kentucky, Ohio, Missouri and New York.

Fig 3. represents what may be termed the battle-axe pattern; and illustrates the last two of my specimens, the shape being so far as I can learn quite unique. Notwithstanding their suggestive form, it is very obvious that they were not to be used as weapons. Although this would be a natural idea to us of the present age, it was not so with the prehistoric native ignorant

FIG. 3.

of metal as he was. The best proof of pacific design is afforded by the fact that both cutting edges, so to speak, are squared three-sixteenths of an inch thick. The breadth of these blades from point to point is in the larger specimen 4 inches, and in the smaller $3\frac{3}{4}$ inches. The entire breadth from edge to edge across the face is in the larger $5\frac{1}{4}$ inches, and in the smaller $4\frac{7}{8}$. The thickness at the ridge or axis is 1 inch, and length of axis $1\frac{1}{2}$ inches, the perforation being $\frac{1}{2}$ inch in diameter. These objects have been finished with the same scrupulous nicety as the others, free from blemish or fracture or any indication of wear. Both were of greenstone, though the larger gave more indications of weathering than the other, one surface (represented in the engraving) having faded considerably; the one least effected being found in the lowest deposit. Both, while retaining a general marked smoothness of surface, exhibited the effects of time in minute pits where decomposition had corroded some more susceptible of its stony constituents.

The stone ornament found among the surface debris was evidently made from the flange or blade of a smaller axe similar to these last, converted to a secondary use by rasping off the fractured edge, leaving but slight trace of the perforation. It was so carefully rounded on its lower edge that it might be worn on a child's neck without fraying the skin, and a hole was pierced at each corner or angle of the outer edge of the blade. It was doubtless worn as a brooch, attached to a string of small shells or shell beads. The substance was a dark soapstone studded with lustrous scales of mica, whose brilliancy made it an attractive ornament in Indian eyes.

It is difficult to form an idea of the object of such a mound as the one which concealed this hoard. I am inclined to think

[illegible]

is excessive, and it is not surprising that such attempts were brief.

I have frequently found an abundance of this shell in the usual shell mounds of this coast; but always among other shells infinitely more numerous. In such case they are found in strata of six to eight inches thickness, as if at some time the supply of other shell fish temporarily failed, or these were abnormally abundant and perhaps appetizing. The vast eminences upon Hernandez Point appear however to contain no other shells, although they are confronted on the opposite shore of the river, and not half a mile away, by the shell ridge before mentioned; which, so far as can be determined by abrasions of surface, or occasional cuttings, gives no indication of this shell. We are almost compelled to the conclusion that in primitive times the supply of other shell fish failed, and for a long period of years a profuse population were compelled to use exclusively this minute bivalve. Before leaving the vicinity of the mound which is the subject of this paper we thoroughly explored the two smaller ones described as near it. Both were in a northerly line from the first, and about the same distance from the edge of the marsh. Of these the first was 150 yards from the large mound, and the second 300 yards beyond. The first was four feet high with diameter at base of thirty-five feet. It had already a pit sunk near the center, but, as the excavation was of trifling extent, we removed the entire center for a diameter of ten feet, with a depth of four feet to the original surface, but without results of any importance. It was composed of the "Donax" in proportion of three-quarters shell to one-quarter sand. The second, and larger mound of the two, was seven feet in height, and sixty feet in diameter at the base. For four feet of its height it was composed of the "Donax," the remaining three being the yellow sand of the country. It was crowned by three massive palmettos, and flanked by numerous live oak and other trees. Our labor upon it was entirely unproductive, it being destitute of burials, pottery or relics, except an oyster shell chisel or scraper and a few fragments of coquina. There were other points of interest about this locality worthy of note, but I have already exceeded the limit assigned to this paper.

THE DAKOTAN LANGUAGES, AND THEIR RELATIONS TO OTHER LANGUAGES.

BY A. W. WILLIAMSON.

To the ethnologist and to the philologist the Dakotas and those speaking kindred languages are a very interesting people. There are four principal Dakota dialects, the Santee, Yankton, Assinniboin and Titon. The allied languages may be divided into three groups:

I. a, Winnebago; b, Osage, Kaw, and 2 Quapaw; c, Iowa, Otoe and Missouri; d, Omaha and Ponka.

II. Mandan.

III. a, Minnetaree (Minitari) or Hidatsa; b, Absauraka, or Crow.

Pawnee and Aricaree seem also to be somewhat related.

In my father's opinion the Dakota dialects differ about as much as the Greek dialects did in the time of Homer, and the Assinniboin is much nearer to the Yankton dialect of which it is an offshoot than is the Titon. Judging by the vocabularies to which I have access chiefly in Hayden's "Indian tribes of the Missouri," I would suppose the first group to differ from the Dakota about as much as the German from the English, and to differ among themselves somewhat as Hollandish, Friesian, and English. The Mandan appears to be separated much more widely from them than they are from each other. The Minnetaree and Crow constitute a distinct group diverging from each other more than the Santee and Titon, the extreme dialects of the Dakota. They show more resemblance to the Mandan than to any other one of the class, but diverge very widely from it. But very few words approximate identity. About one half of the words in Matthew's Hidatsa dictionary appear to me to be in part at least composed of material related to the Dakota, and about five per cent to fairly represent Dakota words. Many of these show little similarity except as compared in the light of sound representation.

When first discovered the Dakotas and Assinniboins were nomads, living almost entirely by hunting and fishing. The Dakotas, then probably less than ten thousand, are now more than thirty thousand in number. There are probably about three thousand Assiniboins. The allied tribes, except the Crows, when first found lived chiefly by agriculture. They have during the last hundred years rapidly diminished in numbers, and do not number over twelve thousand including the Crows.

All of the Dakotan tribes and some others formerly made

and baked pottery similar to that found in the mounds of the Ohio valley. The Osages and some others lived in earth houses, whose ruins are similar to those of the houses of the mound builders. The Minnetarees, Mandans and Aricarees still live in houses of the same kind, and make and bake pottery. Measurements indicate that the crania of the Dakotas in size of brain and angle decidedly approach the European form. The cheek bones of the Dakotas are much less prominent than those of the Chippewas, and those one-fourth Chippewa and three-fourths white have on an average darker complexions than those half white and half Dakota. Among the Minnetarees and Mandans are many persons of light hair, blue eyes, and tolerably fair complexion, not attributable to an infusion of Caucasian blood since the time of Columbus.

No people take more pains to speak their language accurately than the Dakotas. Their social condition is similar to that of the Arabs, whose language has within historic observation changed more slowly than any other. The Assinniboins have been separated from the Dakotas about three centuries, perhaps a little less, possibly much more. During all this time they have been entirely separated, associating wholly with tribes speaking languages entirely different, and yet their dialect remains almost identical with the Yankton. We are then encouraged to believe that their language has not changed so rapidly as to obliterate traces of its origin.

So far as I have been able to ascertain them the most important features characteristic of the Dakotan languages generally are the following:

I. Three pronominal prefixes to verbs, i, o and wa. I, this, forms nouns of instrument. O forms nomen actionis, etc. Some Crow and Minnetare words seem to indicate that its original form was a. Wa, meaning some or something, prefixed to transitive verbs makes them intransitive or general in their application. Wa is in Min. ma (ba, wa), in Crow, ba. Scantiness of material prevents me from more than inferring the existence of these and other prefixes in the other allied languages, from a few words apparently containing them.

II. A system of verbal prefixes used to form verbs from certain stems, regularly varied in signification, according to the prefix used. The Dakota has seven of these prefixes. The Min. has three of these almost identical in force. I should suppose that I would, with as much material, find greater similarity in the other languages, but the only one I have been able to trace at all generally is Dak yu. This merely converts the stem into a verb without changing its meaning. Dak y is nearly always represented in the allied languages so far as I

have observed by r, d, l or n; so that I find it in Min. du (ru, lu, nu), Iowa, Mandan, and Crow ru, Omaha ra.

III. A reflexive pronoun tawa, Min. tama (tawa, taba), Iowa tawe, Osage tabe, forming from possessive pronouns double possessives, related to their primitives somewhat as mine to my. In some features of structure the Dakotan languages present an amazing diversity.

According to Powell (Int. to stud Am. Lang.) a Ponka in order to say "a man killed a rabbit," would have to say "the man, he, one, animate, standing, in the nominative case, purposely, killed, by shooting an arrow, he, the one animate, sitting, in the objective case." "For the form of the verb to kill would have to be selected, and the verb changes its form by inflection, and by incorporated particles, to denote person, number and gender, as animate or inanimate, as standing, sitting or lying."

On the other hand the Dakota could not vary the form of the verb to denote any of these things except number, with reference to either subject or object. He would probably say: "Wichasta-wan mastincha-wan kte,"—"man-a, rabbit-a, kill,"—in which each word is about synonymous with its English equivalent, and case as in English denoted by position. If he wished to show that the action was done by shooting, he would probably not vary the form of the verb kill, but would use the verb kute, meaning shoot whether with arrow or bullet. Except that the Dak. order corresponds to the Icelandic the only difference in structure between the Dak. and English expression is that the Dakota word kte may mean any time, the particular time being indicated whenever desirable in all cases in Dak. as mostly in English by auxiliary verbs and adverbs. If the word man were represented by a pronoun the Dak. would be still more analytic, since its pronoun would indicate any actor, male or female, or inanimate, unless it were desirable to distinguish, in which case the distinction would be made by compounding the pronoun with a suitable auxiliary word. In this feature, often given as characteristic of American languages, is a variation the greatest possible between two languages closely related. It is also worthy of remark that the Minnetaree, which I should suppose the most analytic of the group next to the Dakota, is one of those that least resembles the Dakota in vocabulary. Some of the features often assigned as peculiarties of American languages were according to Bopp and Schleisher features of the I. E. languages in their earlier stages. Of most other features said to characterize American languages I find in Dak. but faint traces. The Dak. *does have* verbs nearly synonymous with *go, walk, eat, drink, strike, etc. It is well sup-*

plied with purely copulative verbs. It has differentiated the various parts of speech even to the *definite* and *indefinite article.* It is sufficiently supplied with nouns denoting genera and classes. This is not a feature of recent development. A much smaller proportion of general than of special names have lost trace of origin.

The Dak *does not* have inclusive and exclusive plurals, etc. It *does not* have a multiplicity of verb forms to denote mode and tense, but when necessary does denote them with elegance and precision, by auxiliary verbs and adverbs, very much as we do in English. The Dakota is not made up chiefly of very long words. On the other hand it uses a great many little particles and connectives to express fine shades of meaning, wonderfully reminding one of the Greek. It fully agrees with other American languages in its wonderful facility for forming derivatives. The I. E. languages in their earlier stages possessed equal facility.

As a matter of fact we know scarcely anything concerning the structure of American languages aside from the Algonquin and Iroquois groups, and a very few isolated languages. They have been classified, in fact, almost entirely by examination of scanty and not very accurate vocabularies. In investigating the relations of the Dakotan to other American languages we are therefore compelled to base our conclusions chiefly on vocabulary. I once resided a year among the Chippewas, and in various ways have had much better opportunities of comparing the Dakota with the Chippewa than with any other American language. I have not been able to find a word alike in the two; and but very few words even slightly similar in sound and sense. In pronouns few languages in any part of the world are so strikingly contrasted. If I were to attempt an argument for original affinity between Dakota and Chippewa my argument would be that so great dissimilarity could not be the result of accident. Aside from the Cheyenne an Algonkin language, which has incorporated some Dakotan words, and the Pawnee group, the similarities east of the Rocky mountains are surprisingly few, though the Huron, Iroquois and Mobilian languages do not seem quite so strongly contrasted as the Algonkin. Among the Eskimo, the tribes of the Pacific Slope, Mexico, Central and South America, we occasionally find identical and not infrequently similar words. In some the resemblances seem remarkable considering the size of the vocabulary. Closer examination shows however that they are not of a kind to indicate a special relationship. They are almost exclusively confined to a few pronominal bases of very wide diffusion, and the following: 1. ata, tata. 2. papa, each meaning

father; 1. ana, nana; 2. ma, mama, each meaning mother. As an example I take the base ata, tata. Dakota, ate (dialect ata); Minnetaree, ate, tata, tatish; Mandan, tata; Omaha, adi, dadi; Ponka, tade-ha; Aricaree, ate-ah; Pawnee, ate-ish.

Tuscarora ata; Cherokee e-dauda; Eskimo—Greenland ahtata, Aleutian ata, California, San Miguel tata; Mexico Aztec teta; Otomi, ta, te; Yucatan, Cakchequil tata; Central Am. Tarasca tata; Darien tauta; Eastern Peru, Mossa tata; Western Paraguay, Villela tata.

Congo Western Africa, tat, tata.

Japan dialect tete; Chinese dialect tia.

Turko Tartar, Turkish ata; Tatar ata, atha; Kunan atta; Kasanish, Orenburg, Kirgis ata; Samoyedic dialects, Eastern Russia and Western Siberia ata, atai, atja, tatai: Finno Hungarian, Lap attje; Hungarian atja.

Caucasus, Kisti dada. Basque (Pyreenees Mountains) aita.

Indo European: Sanskrit ata, tata; Hindustanee dada: Latin, atta, tatta; Greek atta, tatta; Albanian, Albania, at, atti; Calabria and Sicily tata; Celtic, Welsh tad; Cornish and Bret tat; Irish, daid; Gaelic daidein; English (according to Skeats of Welsh) dad, daddy; Old Slav, tata otici; Moldavian tata; Wallachian tate; Polish tatus; Bohemian, Servian Croatian otsche; Lithuanian teta; Preuss thetis; Gothic ata; Old Fries tate; O. H G tato; Old Swed atin; Swed island Runoe dadda.

In fifty-nine of the one hundred and forty-six versions of the Lord's prayer given by Adelung in the Sclavonic, Lithuanian and Teutonic families, the word for father is from this base. Atta is the form used in Ulfillas Gothic version of the fourth century, the oldest Teutonic relic.

Papa and mama in Dak, as in I. E languages, occupy a subordinate position, having about the same scope as in Latin and Greek. Words apparently related to these are rare in N. A. languages, but frequent in S. A., African, Malay Polynesian and Turanian languages. The Semitic aba, etc., is perhaps related. The base ana, nana (Dak ina), though not very much used in I E languages appears to be more widely distributed than any of the others.

All the Dakota pronouns which show much similarity to other American forms are representative of Fick's I E bases, and appear to be widely disseminated. Adelung and Latham do not however give pronominal forms in as many languages as they give words for father and mother, and I cannot so well determine their distribution.

Professor Roehrig, in his able paper on the Dakota, points out some very interesting analogies to Turanian languages. Others might be added. These similarities are chiefly in fea-

tures common to I. E. and Turanian. On the other hand the Dakota shows on the surface striking contrasts to Turanian languages. The numerals are eminently dissimilar. The Dakota, like I. E. languages, varies both root and suffix in forming words, and uses both prefixes and suffixes. In Turanian languages the suffix only is varied, and prefixes are scarcely at all used.

It seems to me therefor that it is not unscientific to inquire whether the similarities of the various Dakotan languages to various European languages, modern and ancient, so often remarked are or are not accidental. It is very easy to see that the Dakota resembles the English in vocabulary much more than it resembles the Chippewa. The similarities of the Dakota suffixes, pronouns and prepositions to those given by Bopp, and the general resemblance of Dakotan languages to Sanskrit, Gothic, etc., in vocabulary, made me certain of relationship before I ever saw Fick's dictionary. Yet as I turned over his pages I was amazed at the similarity of the I. E. roots to the Dak roots. The Slav Teut bases of Fick seem to me most similar to the Dak. I am certain that neither the Teutonic or Graeco-Italic dictionaries resemble the Dakota as much as do the European, Indo. European and Aryan dictionaries. The I. E. consonants are represented in Dakota, Santee and Titon dialects, and in Minnetaree in accordance with the following table. I omit representatives concerning which I am doubtful. I have too little material on the other languages to justify me in including them.

I E	k		g	gh		p	bh	m	w
S	k, h, kh, sh*		k, h†	gh, kh, zh		p	m, b, w	m	w, p
T	k, h, g†, khsh		k, g†	gh, kh, zh		p	b, w	m, b‡	w, p
M	k, h, gh‖, sh		k	gh‖		p	m§ (b, w) p		
I E	t	d	dh	n	r, l¶‖	y¶‖	s		
S	t, n	t, d, n	d	n	n, d	y, z	s, sh, z, zh, t		
T	t, n	t, l, n	l	n	n, l	y, z	s, sh, z, zh, t		
M	t, d	t	d§ (l, n, r)			ts	ts, sh,	t	

* Chiefly, probably not always, for Fick's second k, Lith sz (pron sh), Slav s. The k's and g's liable to labialization in Eu. languages appear to be occasionally labialized in Dakotan languages.

†In S. hd, Yankton kd, T. gl; S. hn, Y. kn, T. gn or gl; S. hm, Y. km, T. gm.

‡In S. md, Y. bd, T. bl.

‖In a previous paper I represented this by kh; and do not know whether it is nearest Dak kh German ch, or Dak gh; I E gh.

¶Santee d always becomes l in Titon.

¶Dak y becomes r, d, l or n in the allied languages, except perhaps the Osage, and perhaps in part represents I E r.

§In Minnetaree m, interchanges so freely with b and w, and d with l, n, and r, that Matthews represents each group by one letter. The same irregularity occurs largely in Crow, and somewhat also in Mandan.

Ch as in chin very often occurs in Dak as a euphonic modification of k. Otherwise it stands chiefly for d, r, l, n of the allied languages. On the other hand Win and Iowa ch usually represents Dak, and I E t. R is found in all the allied languages, and in Winnebago is more frequent than even in Icelandic. Iowa aspirate th, represents Dak s, and other sibilants. Hayden does not distinguish the subvocal and aspirate th in Omaha. From a small list gathered by my father I judge that the aspirate is probably similar to the Iowa, and that the subvocal represents Dak and I E dentals. F in Iowa represents some Dak p's.

There is wonderful regularity in the sound changes in passing from Santee to Titon Dak, and so far as I can yet discover great irregularity in passing to the allied languages. Possibly fuller materials and closer study may reduce the changes to system.

Dak proper has but five vowels; a and e represent I E a; i, i; u, u; and o, either u or a. They are weakened as in I E languages, and suffixes which raise I E vowels raise i and u to a. The allied languages have a larger number of vowels, the Minnetaree ten.

VERB STEMS.

The reduplication of roots in Dak as in I E is extremely frequent, in both, as in other languages, developing iteratives which occasionally become intensives. The reduplication of Dak words is like Skt of but one syllable, usually but not always the root.

The suffix a, aya, which formed verb stems of I E roots usually becomes a, e, i in Dak as in old Eu. languages.

Ya seems to be rarely preserved: I E pak cook, Skt papakaya parch; Dak papakhya parch; I E agh say, Lat ajo for aghya say; Dak eya say. The Dak has many relics of the n of suffix na, which worked its way before the final consonant; I E tag touch whence I E tang, Lat tango; Dak tan touch. There seem to be relics of the other methods, which were however so closely akin to methods of forming nominal stems that they need not be discussed here.

Schleicher gives two methods of forming secondary verb stems: by suffix sa forming frequentatives; by suffix ya cause to be, forming transitive verbs from verbs, adjectives and nouns. Both are living suffixes extremely frequent and having the same force in Dak.

NOMINAL STEMS.

As in I E a few Dak roots either single or reduplicated form nomen actionis, etc. This similarity is too widely spread to be of value. It is far otherwise with suffixes, which are in a majority of cases usually representative of one or more of Schleicher's twenty suffixes, and if otherwise at least derived from I E roots, excepting a few of obscure origin.

1. I E -a formed from roots, adjectives, also appellatives, and abstracts, of which the Dak has many relics: I E stag, Teut stak strike beat; Dak staka beaten, broken; Slav. Teut kak sound; Dak kaka rattling; I E pu stink, rot; Min pua stinking, rotten; Eu sap understand; Lat sapa wise; Dak k-sapa wise.

Slav Teut kak cackle, kaka the crow; Pawnee kaka; Man keka the crow; Eu sara stream flow, sara butter; Min tsara; Tit Dak sla grease; I E ar join whence our arm; Win and Min ara, the arm; Slav Teut lap, lamp shine; Dak ampa light; Slav Teut krup fear; Dak kopa noun fear, a fearful place; adj insecure; a Scandinavian base naf, nap, our nab, Icel nefi; Swed nefwa (perhaps i was the original suffix) the hand; Dak nape the hand; I E kak spring; Lith szaka (pronounced shaka) twig shoot, etc; Dak shake nails claws; Om shage finger; Min shaki hand paw.

In Dak as in I E -a usually raises the stem vowel; I E kid burn; Teut haita hot; Dak kata hot; I E sik dry; Dak saka also shecha dried; I E lip adhere; Tit Dak lapa sticky adhesive; I E migh pour out water, Skt megha cloud; Om magha, mangha cloud sky; Crow makha sky; Dak in makhpiya (=maghapiya) cloud sky, maghazhu rain. The zhu is Dak-zhu, Min-ghu, I E ghu pour.

2. I E -i formed abstracts and nouns of agency; I E ar go; Min ari, way, track, trail.

3. I E u formed adjectives; I E ragh spring, raghu light, whence lungs; Min dagho, agho; Dak chaghu lungs;* Eu park whence parka wrinkle; Dak pako crooked, wrinkled.

4. I E -ya formed nouns, adjectives and participles. The Dak still retains some adjectives thus formed, and hundreds of participles rendered by English participles, but used only adverbially, and it has become an adverbial suffix.

5. I E -wa formed passive participles, adjectives and nouns. It is in Dak a living passive participial suffix combined with the like suffix -an, forming wa(h)an. When added directly to the root it raises the stem vowel as in; Eu ku contain to be hollow; Lat cava; Dak -ko be hollow, noun ko a hole; kawa open. After consonants the w becomes p; I E akwa water of ak: Gothic ahva river; Dak wakpa river.

6. I E -ma, -mana, -man formed adjectives, present participles and nouns; I E akman stone of ak, A S iman; Dak imni stone.

7. I E -ra, -la formed adjectives and nouns; Eu kira yellow; Old Slav seru; Crow shira, Min tsidi, tsiri, Man psida, Iowa thi, Om thi, zi; Win and Dak zi yellow; I E ghu pour; Min ghu pour; Dak zhu pour, ozhu pour in, in ozhudan, Tit ozhu la full; Eu wasra spring of was; Icel vara, Lat ver; Win wera spring; Eu tag cover whence; Welsh and Irish ti house, our thatch; Win chira house; Man, Min, Om, Dak ti house; Aryan nira water of ni; Tit Dak nila water; Om and Win ni water.

Ra, la is also a diminutive suffix in I E languages. It is the regular diminutive suffix in Win, -ra, in Tit Dak, -la, in Yank -na, in Santee Dak -dan also -na.

8. I E -an formed past passive participles whence our en in fallen, etc. It is still the regular passive participial suffix in Dak either alone or combined with wa. As Dak verb stems end in a vowel it is preceded by a euphonic h. When added directly to the root it raises the stem vowel, as in Eu wik whence Gothic veiha holy; Dak wakan sacred.

9. I have not found infinitive suffix -na in Dak.

10. I E -na was a passive participial suffix, developing also denominatives. The Dak has perhaps a few relics; I E ku bring low, kauna low; Dak ku- in kuchedan, also kun low. I E mi, diminish (mince); Yank and Tit Dak mina knife.

11. I E -ni formed abstracts and nouns of agency. Possibly it is found in; I E migh pour out water; Dak mini water; and a few others.

*For I E r—Dak ch compare En wira Dak wicha -man; Eu wera; Dak wicaka true. Tent legya thigh whence leg of lak; Win lega and legra; Iowa reke; Mandan doka; Min diki, liki the leg, the thigh; Dak checha the thighs. The r probably first became d.

12. Two words containing -nu, are recognized by Schleicher as I E; I E and Dak su bear; I E sunu son; Dak sun younger brother. I E and Dak tan extend; I E tanu adj thin, noun body; Dak tan body.

13. I E -ta (our -d) formed the past passive participle, and nouns of similar signification, in which uses it is tolerably frequent in Dak; I E ski collect, arrange; Dak shki plait gather, skita bound together tied on; I E pu destroy rot; Min pu rot; Dak po in pon (=po an) rotten, po -ta used up, worn out; I E sta stand, stata standing, stopped, brought to a stand; Dak -sdata standing, stopped, hence also sdata feeble; I E su sew, suta sewed; Dak suta strong, compare Min ashu a string cord; I E and Dak wi wind, wrap around, encircle; Dak wita island; wita bound together, in witaya together.

14. I E -tar, formed nouns of agency and future participles. It is derived by Bopp from I E tar pass-over, whence also Eu tar, tur pass-over, possess, accomplish, fulfil. The root is extremely frequent in these uses in the Dakotan languages, and in Dak at least is much used as a suffix. The last half of the word Mini-tari is tari, cross over. In Dak, Eu tur is represented as accurately as possible by ton possess, accomplish, fulfil, have, give birth, and the preposition tan in composition from equally represents Skt tar, from.*

As forming nouns of agency it has in Dak lost the r; Eu pa, whence Eu pana fire; Dak peta fire; I E ak Skt iksh see, whence our eye; Min aka, ika see; Crow am-aka, Iowa at-aka see; ishta eye, in all Dakotan languages.

We perhaps have a few relics of tar as a comparative suffix; I E uk increase whence Old Sax agen our again; Mand age, Dak ake again, Dak akton more than.

15. I have not recognized -ti in Dak.

16. Dak wetu, etu time, season, may be I E and Dak, -wi encircle, with -tu, but is more probably related to I E vatas year, adj. old.

17. I have not recognized -dhi in Dak.

18. I E -ant (our ing) forming active participles necessarily drops t and prefixes h in Dak, and in this form, han, is used as active participial suffix with some verbs.

19. As a plural suffix I E -as seems to be presented by the Mandan plural suffix osh.

20. I E -ka as a primary suffix forms a few nouns and adjectives; I E ku contain be hollow; Dak root ko the same, koka a cask, barrel, box, etc; I E and Dak tan extend, stretch; Dak tanka large (c f Iowa tanra large). I E da bind; Dak daka

*Dak n—I E r is supported by al out fifty examples.

bound by obligation, relationship or league, whence their name Dakota, those bound by league, those making a league, friend, comrade (-ta for I E tar). As a secondary suffix it is extremely frequent in Dak as well as I E, forming in both words of multifarious relotions to their primitives. I E kuan, kwan, kwanka dog; Lith szun (prouounced shun); Dak shunka dog; Old Slav suka a bitch; Min shuka a dog. Ka is used both in I E and Dak as a negative suffix. In Sanskrit and several other I E languages it is used as a diminutive suffix, and forms one syllable of the various Min diminutive suffixes.

PREPOSITIONS.

The Dak is like the I E languages remarkable for its copiousness in prepositions. In their use or omission the Dak differs from the English less than does the Anglo Saxon. As in some of the old I E languages they are either verbal prefixes or follow their nouns. Nearly all of them seem to be of I E prepositions mostly compounded. I give examples of the more obvious similarities.

Sam. together with, in skt. A. S. and Dak.

En in, Greek, Teutonic and Dak.

On, A. S. with dat, for, on occount of, of, Dak the same.

A verbal prefix on, Icel, A. S., Dak.

I E ana A. S. an on, Dak an in composition on.

A. S. at our at; Dak ta at necessarily transposed.

Eu da Old Ir du, our to, Germ zu; Min du, during, at that time; Dak tu to, till etc.

Eu ek over, of I E ak; Min ak over, Dak in ak -an upon, ak -am beyond over upon, ek -ta at, etc.

Eu api about, around; Min api with.

Eu ambhi about, around, over; Dak am in akam over upon; A S and Ger um. Swed om same meaning; Dak om with, used with plural object only.

A S ni negative; Dak ni prefix in nicha none and base of negative words in shni not combined with reflexive sa.

PRONOUNS.

The Dak and Algonkin pronouns are amazingly dissimilar the Dak and I E are remarkably alike.

1st person sing. inflection, ma, mi, m, in I E and Dakota. The Dakotan forms are however oftener prefixed than suffixed eg; Dak root ha have (Teut aih own) yu formative prefix, 3 yuha he has; 2 duha thou hast; 1 mduha I have; Titon 3 yuha, 2 luha, 1 bluha.

1st p stem. The ga of Lat ego A S, ic etc. appears in Iowa, ka, ke, etc. The chief base of nearly all the Dak languages is

however, ma, mi, corresponding to I Ema, mi; Lat me, mi; Eng me, etc.

1st dual and Plural stem. I E na, Lat no, Mandan nu; Teut dual onki, Goth ugki, A S unc, Dak unki and un. The base wa whence we, has become in Dak wa I, in Omaha wi me, in Iowa inflection plural wa, us, etc.

2d. I E twa has become in Dak ni (cf Swed ni thou). It is however in Omaha thi identical in sound with our thee, and da, di in most allied languages similar to German du. Dak ya pl yapi you, and our you are probably also of this base. The Iowa forms the possessive of personal pronouns like the Icelandic by -n; Icel min my; Iowa min my.

3d person, I, he, she, it, extremely frequent in I E languages, is the base used in all the Dakotan languages as least partaking of a demonstrative nature. In Dak it is omitted except when emphatic.

I E sa reflexive and emphatic; Min she, the same. Contracted to s it forms I E nominative; in Dak, as sh nominatives of i (ish), mi, ni and unki, and occurs in composition; in Min it forms proper names.

I E sa, ta, Teut tha, this, that; Om the, this; Dak ta, to in many compounds.

I E sawa genitive of sa, ta reflexive possessive for all persons; Dak tawa the same, also ta. It is in the third person used alone in Dak, but suffixed to i in Minnetaree. All its forms in Min, and those of the first and second persons in Dak are double possessives anologous to mine, thine.

Eu ki, kina, that, this, he, she, it; Dak ki, his, her, its, etc. In Nom kana those, etc.; sing ka that, the vowel is raised as in the Greek keinos. For abridgement of stem in singular compare our ox, pl. oxen, Nortumbrian oxena, and other relics of stems in na; Teut hina this; Crow hina this.

From kina, hina, originated the Icelandic and Swedish postpositive def, article the; likewise Dak kin postpositive def, article the; ke emphatic pronoun kuns, clf, etc. Of this base A S stem he, he, she, it; Dak he (pl hena) he, she, it, that.

Slav Teut da this; Dak de (pl dena) this.

I E antara other; Mandan ant that.

I E i demon, pref, this; Dak i.

I E a dem. pref; Min a, o; Dak o.

I E wa pronominal base used in compounds; Dak wa pronominal prefix some, something. Prefix wo (wa-|-o) forms abstract nouns and nouns of agency.

I E ka int. and rel. pronoun; Pawnee ka interrogative; Dak ka interrogative suffix and in compounds; Ger wer; Dak

tu-we who int. and rel; Gk po; Min tape who, tapa or tako what. I E neuter base ku what; Dak ta-ku what rel. and int.

I E wika all the whole; Dak wicha them, incorporated objective. Iowa wi; Dak pi plural suffix seems to be a contraction of this base.

Analogous to A S, accusative mik of ma-|-ga we have; Dak accusitive michi, in which the k has become ch through the influence of i; also the accusatives unki-chi, ni-chi, i-chi.

NUMERALS.

I have compared the Dakotan numerals with all others accessible to me, including some of the forms of more than five hundred dialects. I can find less than half a dozen American or Turanian sets that resemble any Dakotan set as much as the English numerals resemble the Hebrew. The similarity of the Dak to the I E numerals can therefore be accounted for only as the result of special relationship or of accident. Except as noted below all changes are in accordance with well sustained laws.

1, A S an, Lith (w) ena; Dak (w) -an, ind. article wanzhi one, wancha one, once.

2, I E dwa; Min d(o)pa; Iowa n(o)wa; Dak n(o)m pa cf A S ta two; Dak ta a pair.

3, I E traya; Iowa tanye; Dak ya -mni [or ya (m) ni?]

4, I E k-atwar; Iowa towa; Dak S topa; Y tom; T tol.

5, I E kankan, kwankwan; Mand kikhun; Dak zaptan?

6, I E kswakswa; Win hakwa; Iowa shagwa; Dak shakpe.

7, A S seowon; Dak shakowin.

8, I E aktu, Gk hokto; Dak Y sh-akdo-ghan; Sant sh-ahdo-ghan.

9, I E nawan; Dak na (pchi) wan-ka.

10, I E dwakan; Lat decem; Dak wikchem-na.

5, I E k Dak z otherwise sustained but not proved. Kw — kp — tp — pt, t and k being interchangeable before labials in Dak.

7, Neither A S seowon nor Dak shakowin are legitimtelay deducible from saptan. Perhaps sakan, sakwan was the true base.

8, Either Gk h or Dak sh may equal I E s. Dak d for I E t is rare but S. hd, Y. kd is a favorite combination.

9, I cannot explain inserted pchi.

10, In Dak m and n are interchangeable before labials, but m for I E n is here unsupported.*. D cannot stand before w in Dak.

*Whitney Skt Gr 487 appears to regard m, as in Latin decem, the original nasal.

VOCABULARY.

The table of sound representation heretofore given serves to compare the materials of the main body of the Dak with Fick's I E bases. The results are, however, in many cases ambiguous. Besides the number of accidental resemblances of the Dakotan to the I E languages seems, to be much greater than the whole number of similarities between Dakotan and Algonkin languages. Dak anapta is identical with I E anapta in sound, closely similar in meaning. Dak a-na-pta is prep. a =Icel a on, na prefix converting root to verb, and pta separate; c f I E pat fall, also open (Lat pateo). I E an-apta is an negative prefix, and apta participle of ap attain. My father compared Dak chepa fat with Lat adeps. I have since found Min idip. fat almost identical with Lat stem adipi. I E and Lat d and p are nearly always d and p in Min; but it is extremely doubtful whether the words are related. On the other hand there is little apparent similarity between Eu karpya shoe, and Dak hanpa shoe; but the Dak word represents the Eu as accurately as possible; similar forms are found in every Dakotan language, and it seems scarcely possible to me that the similarity can be accidental.

In giving a few additional examples of similar roots I select those that are the most obvious, rather than the most certain. I exclude those not in accordance with sound representation, and the analogies of such allied Dakotan and I E forms as are known to me.

Where the Dakotan forms are not used as separate words it is indicated by a hyphen, before, if used alone as a verb stem, after if it requires suffixes. Where the root is found primarily combined with only one suffix or prefix the derivative form is given. In some cases the Dak root has one of the meanings given in one combination, another in another.

Eu i go; Dak i go.

Aryan u mangle; Min u wound; Dak o.

Eu ak tell, relate; Dak o(y)-aka.

Eu aka mother; Min ika mother.

Eu ap attain; Dak ape wait for, expect.

Eu ad; Icel eta eat; Dak ta eat.

Eu as be; Ital, Alb, Pers e is; Dak e is, -esh be it so.

Eu as mouth, asta lips; Dak i mouth, ishti the under lip.

Eu unk dwell; Dak un dwell, be; unkan be, unkan and, (act part for unkant continuing.)

Eu ka bend, curl, kak (for kaka) laugh; Min ka laugh; Dak kha bend, curl, i-khakha laugh.

Eu kak be injurious, Gk kakos bad; Mand khekosh bad; Crow kawi bad; Dak shicha bad?

Eu ka and; Dak ka and.

I E ka, kan, kar desire; Dak kon desire.

I E ka, kar, gar honor; Dak kan honor.

I E ka, ga know; Min eke know; Dak ka mean, signify.

Eu ka pierce, cut in; Dak ka dig.

Eu kat cover; Dak o-kati, o in, kati cover.

Eu kap take hold of; Dak yu-kapa catch as a ball, kapa surpass.

Eu kam; Teut him bend, curve, arch; Dak S -hmi, Y-kmi curve; S hmi-hma, Y kmikma round.

Eu kas rub against, scratch; Dak kashe rub against, kaza pick to pieces.

Eu skar, kar shave off; Dak ka strip off, as the feather part of a quill.

Eu ki, gi possess by force; Dak ki take by force.

Eu ki, kit seek; Dak a-kita seek.

Teut han waver, hang; Dak -han hang, totter, waver.

Teut haf lift, heave; Dak -ha lift, heave.

Teut hata hate; Dak -hiti hate.

Teut hama the hull; Dak ha the hull.

Teut hiwan related of the same family. Icel hjun household; O. H. G. hun both husband and wife; Dak hun- of the same family, also hun mother.

Teut kan, kin beget, germinate; Goth kuni related; Dak ku suffix kin, root ku-, kin-, chin- in many derivatives. Goth kwino woman; Dak wino.

Eu gha open out, whence gate, gape; Dak -gha, ghapa, ghata open out.

Eu ghagh move convulsively; Dak gheghe swing the arms like a drunken man.

Eu ghans; goose; Win wighanna, Mandan mihan, Dak magha goose.

Eu ghans be rough; Min -gha, Dak kha be rough.

Eu tap press; Min tapi press; Dak -tpa.

Eu tarp satisfy; Dak tpa satisfying, etc.

Eu tan thunder; Dak o-tin thunder.[]

Icel taka take, touch, fasten; Dak yu-taka take, touch, na -taka fasten.

Eu da know, dak show, suppose; Dak da, daka think, regard, have an opinion.

Eu da give; Dak da ask.

Eu di go, hasten; Min di go, travel.

Eu du go forth; Dak du-za run.

Eu dup sink in, our dive; Dak dopa mire; Min dipi bathe.

Eu nu now; Dak i-nu suddenly, na-ka now, wan-na now.

Eu nar man; Om no, nu man.

Eu pak, Gk pakto- bind; Dak pakhta bind.

Eu pat press; Min pati press.

Eu pat fill up, crowd; Dak in pta-ya together.

Eu pa swallow nourish; Dak- pa - nourish papa the nourishment, Min pè swallow, take nourishment.

Eu pap swell up, puff out; Dak popa swell burst.

Eu par divide (our part); Dak a-pa a part.

Eu pi hate; Crow -pi hate.

Eu pik pierce; Min pi tatoo, -pi pierce.

Eu pu dry; Dak pu- dry.

Icel fok our fog; Dak po fog, mist, steam, etc.

Icel finn, Swed, Nor, M. H. G. fin, Dan, Sax finn, O. Du fijn M Eng fine; Win pin, Dak -pi, Iowa pi good, perfected.*

Eu bub (of bu) make a noise; Dak -bu make a noise, bubu noisy.

Teut and Ir bata boat; Min mati, bati, Cr bashe, Dak wata boat.

Teut blas flame, our blaze; T Dak bleza clear, transparent.

Lat and Gr bison from Teut; Crow bishe the bison; dak pte.

Lat and Gr mamma the mother breast; Dak mama the mother breast.

Eu man remain; Dak man remain, stay.

Sclav Teut man go, step; Dak mani walk.

Eu magh grow; Ir magh field; Dak magha field.

Teut marka limit, boundary, territory of a tribe; Dak maka the ground, the earth, makoche country.

Eu ya go; Dak ya go.

Eu rup break; Min dupi, rupi break.

A S throte the throat; T Dak lote, S dote throat.

Eu wak say, speak, wad speak, sing; Gk wepos word; Dak wo-wa-pi that related by pictures and writing, root wa in various compounds, relate, count, write, sing, etc. (Gk p is root, Dak p suffix.)

Eu wagh carry, our way; Dak o-we way, trail.

Eu wad flow forth, our wet; Dak wi-wi a marsh, a springy place.

Eu wasu good; Dak wash-te good.

Teut wantra winter; Dak wani- winter.

Icel wakta watch, guard; Dak wakta watch, guard.

Teut widu wood; Min mida, bida wood.

Eu sa refrain from; Crow suffix sa the same.

Teut swa, Old Fris sa like as; Dak se like as.

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*A word of this kind used every day by the masses of all Teutonic people, and corresponding in the principal languages in such a variety of meanings, could not possibly be derived from the Latin finitum. Our fine may be in part from finitum, but fin — I E pin is certainly a Teut word.

Eu sak divide, cut; Min tsaki divide cut.
Eu sama summer; Min tsame hot, very warm.
Eu si bind; Min -shi bind; Dak -shi command.
Swed si! lo! behold! Dak shi! hark!
Eu su good; Dak -su good.
Eu suk suck; Min tsuki, Dak zoka suck.
I E ska shine; Lat candidus white; Dak ska white shining.
I E ska separate; Dak ksa separate.
I E ska kill, Gk kten- kill; Dak kte kill.
I E ska tarry, Gk kta possess; Dak kta defer, tarry, used also as sign of future tense. The Mandan future inflection -kit -kt -t appears to be an abridgement of this.
Eu skat spring, leap; Dak skata play.
Eu ska, skad burn; Dak shku roast.
Eu skap annihilate; Dak skepa evaporate, remove entirely, cause to disappear.
Eu skap strike; Dak -skapa strike.
Eu skad, Gk keda spill, scatter; Dak kada spill, scatter, applied only to solids.
Eu skap scratch, shave; Min kape scratch.
Eu kopa concave; Dak skopa concave.
Eu skid press; Dak -ski- press.
Eu sku shave off, flay; Dak -sku shave off, flay.
Eu skru rough hew; Dak sku broken in gaps.
Eu snigh cold; Dak sni cold.
Eu swan sonare; Dak sna ring, rattle.
Eu skud, Teut skut shoot; Dak kate shoot.
Teut sota soot; Dak shota smoke, shotkazi soot.
Eu sad sit; Dak si, siha the foot.

The Dakota words that most resemble I E forms are those in daily use, those roots entering into the largest number of compounds, those most widely distributed in languages more nearly related.

Excluding words repeated in compounds and those contained in phrases I have not satisfactorily analyzed, and including words derivative rather than compound, I find in Hayden, Morgan and Schoolcraft 262 different Iowa words. Of these thirty-five as words represent words discussed in this paper; thirty-nine others appear to be derived from roots herein discussed, a number of them varying from the Dak word only by using a different suffix also herein compared. Out of 159 that I have been able plainly to trace to Dakota words and roots 121 are to Dakotan roots and words which seem to be related to I E forms. If I had sufficient Iowa material to enable me to find Iowa roots independently, I doubt not the resemblance to the

Dakota would be much increased, and the resemblance to the I E in a still greater degree.

The parable of the prodigal son as printed in Dr. Rigg's dictionary, page 61, contains as there printed 417 words, 199 different* words. Of these 36 words, occuring 186 times, are in the exact form† given in this paper; 8 other words, occurring 11 times, as given in my preceding paper; 75 other words, occurring 106 times, are composed wholly of the words, roots and pronominal elements compared with I E forms in the two papers. There remain 114 words, 80 different words. If I have correctly analyzed them they contain the following elements compared in this paper: words and verb roots, 9 times, pronouns 19 times, prepositional and pronominal prefixes 35 times. Much of the remainder, in all about nine-tenths of the whole, seems to me represent I E materials with which I have compared it. I do not doubt that some of the similarities will prove in the end fallacious. On the other hand I have no doubt that many new similarities will be found. My father made a list of 1,243 Dakota verb stems, radical words and words which he could not satisfactorily to himself derive from simpler elements. Of these about 500 seem to be similar to I E forms with which I have compared them, and from them are derived more than three-fourths of the 16,000 words in Dr. Rigg's dictionary.

The pronouns, prepositions and suffixes herein given seem to indicate that the Dakotas did not separate from the Teutonic family till long after the latter separated from the South European family. The fact that the Dak resembles the Icelandic and Gothic in vocabulary and in structure much more than it resembles the older Latin, points in the same direction. The laws of consonantal change in many cases produce the same result as Grimm's law, but the laws themselves are entirely different. It *is certain*, therefore, that the Dakota has not been connected with the Teutonic since the development of Grimm's law made any considerable progress. I have studied the question less, yet I think I have enough evidence in the system of consonantal change *to prove* that the Dakota has not been connected with the Slavonic or Lithuanian since they separated from each other, or for some time previously. It is possible so far as I can now say that the Dak may have borrowed material from some language not I E, but I have found no evidence of it. Undoubtedly the adoption of prisoners has introduced a considerable percentage of Algonkin blood. It is also certain that they

* Words varied by inflection are classed as different words.

† Except that in accordance with euphonic laws initial k becomes ch sixteen times, and final a e seven times.

have adopted some Chippewa religious observances, but even in these they do not appear to have adopted any Chippewa words.

WERE THE MOUND BUILDERS INDIANS?

A CRITICISM, BY J. P. MACLEAN.

The September number of the *Popular Science Monthly* for 1881 contains an article entitled "Ancient Copper Mines of Isle Royale," written by Professor Winchell, of Minnesota. The intent of the communication is more to prove the identity of the Mound Builders with the American Indians, than to illustrate copper mining on Isle Royale. The article is remarkable for its erroneous statements and its misapprehension of facts. It seems that a mere tyro in archæology would have been more careful than Professor Winchell has been; but when a man known to be a geologist, and consequently engaged in the study of exact knowledge, commits unpardonable blunders it presents a peculiar phenomenon, or an anomally before unknown. It is but just to American archæologists that the corrections should be speedily made in a journal well known to be engaged in promoting the study of antiquities.

The very first sentence of the article referred to is incorrect, and necessarily places the reader on his guard as to the statements which follow. In regard to the depth of the ancient copper mines we are left to infer that they never exceed twenty feet. Instead of twenty feet being the extreme depth of the ancient mines, Colonel Charles Whittlesey informs us that "the greatest depth of the ancient excavation is thirty feet. At the place of the above section (Minnesota Mine) the vein had been removed to a depth of twenty-six feet."*

The statement (p. 602) that the first large mass of copper was found in 1874 may be a typographical error. It is probably the same mass that Colonel Whittlesey gives an account of in his "Ancient Mining" (p. 18), published in 1863. It is also described in Lapham's "Antiquities of Wisconsin" (p. 76), published in 1855.

The quotation from Squier and Davis (p. 606) is both incorrect and misleading. If the quotation had embbraced the re-

* "Ancient Mining on the Shores of Lake Superior," p. 18.

mainder of the sentence together with the one immediately succeeding, it would not only have presented a different, view but would have failed to subserve the purpose for which it was extracted. The real view of Mr. Squier is given in the paragraph immediately preceding the one given. It is of sufficient importance to be quoted in full:

"The vast amount of labor necessary to the erection of most of these works precludes the notion that they were hastily constructed to check a single or unexpected invasion. On the contrary there seems, to have existed a *system of defences* extending from the sources of the Alleghany and Susquehanna in New York, diagonally across the country, through central and northern Ohio, to the Wabash. Within this range the works which are regarded as defensive are the largest and most numerous. If any inference may be drawn from this fact, it is that the pressure of hostilities was from the north-east; or that, if migration flowed from the south, it received its final check upon this line. On the other hypothesis, that in this region originated a semi-civilization which subsequently spread southward, constantly developing itself in its progress, until it attained its height in Mexico, we may suppose that from this direction came the hostile savage hordes, before whose incessant attacks the less warlike mound builders gradually receded, or beneath whose exterminating cruelty those who occupied this frontier entirely disappeared, leaving these monuments alone to attest their existence, and the extraordinary skill with which they defended their altars and their homes. Upon either assumption it is clear that the contest was a protracted one, and that the race of the mounds were for a long period certainly exposed to attack. This conclusion finds its support in the fact that, in the vicinity of those localities, where, from the amount of remains, it appears the ancient population was most dense, we almost invariably find one or more works of a defensive character, furnishing ready places of resort in times of danger. We may suppose that a condition of things prevailed somewhat analogous to that which attended the advance of our pioneer population, when every settlement had its little fort, to which the people flocked in case of alarm or attack."*

It is not definitely stated, but the language employed on page 611 implies, that archæologists are ignorant of the fact that the Indian made use of copper. In order to prove that the aborigines used this metal, eleven quotations and six additional references are given; hence it can not be doubted that the charge of

* "Ancient Monuments," page 44.

ignorance is indirectly stated, although some of the quotations may be found in works on American antiquities. This accusation is certainly very unjust; and the enumeration of historical references to prove that the Indians used copper is unnecessary. But the charge is both a serious and a grave one, especially when it is made in such a high standard of authority as the *Popular Science Monthly*. If the accusation be true, then the class arraigned is unworthy of confidence, and their speculations were idle vaporings. A reference to works on American antiquities will either confirm or else disprove this severe indictment. It is true that all archæological works do not treat on this subject, for the reason that the question was not necessarily involved. One of the methods by which an archæologist interprets the object of a relic is by comparing it with similar implements in use by existing tribes or nations in a corresponding degree of civilization. If the archæologist is ignorant of what is more or less common to the aborigines, and if the pre-historic races of America had certain characteristics in common, then he would prove himself to be incapable of forming definite or correct conclusions. That the charge cannot be sustained may be shown from the following references:

Squier and Davis, recognize the evidence that Indians along the Gulf preserved copper hatchets obained from the north, yet they declare at the time of their explorations (1847) that they had not the evidence of the northern Indians possessing copper articles of this description.* This refers to *hatchets*, and not to the use of copper in other forms. In speaking of the copper deposits on the shores of Lake Superior they further add: "Henry (*Travels*, p. 195) observes that the Indians obtained much copper from the above localities, which they worked into spoons, bracelets, &c."‖ Writing some four years later, Squier states "that the Indians of New England, New York and Virginia, to a limited extent, possessed copper ornaments and implements at the time of the discovery, is undoubted; but it is not to be supposed for an instant that they obtained it by smelting from the ores. They unquestionably procured it from the now well known native deposits around Lake Superior."‡ He further states it to be highly probable that the copper implements figured on page 201 of *Ancient Monuments* are relics of existing Indian tribes. Colonel Whittlesey, writing nearly twenty years ago, says, in speaking of the Indians of Lake Superior: "The Indians had

* "Ancient Monuments," p. 199.
‖ *Ibid*, p. 280.
† "Antiquities of New York, p. 267.
‡ *Ibid.*

neither copper kettles nor axes when the French came among them, but only rudely fashioned copper knives that were evidently beaten out from small boulders."§ Haven informs us of copper bracelets taken from an Indian burial place in Canada; and further adds, "From whatever source or sources derived copper seems to have been in use throughout all America, on the Atlantic coasts it was noticed by all the early navigators from Nova Scotia to Patagonia."* Dr. Joseph Jones, in his "Aboriginal remains of Tennessee" (pp. 8 to 35) gives instances of copper ornaments taken from Indian graves. Lapham declares that "when the country about Lake Superior was first visited by French missionaries, about the middle of the seventeenth century, or two hundred years ago, copper was used by the Chippewas."† Foster in his "Pre-Historic Races," (p. 262) repeats the evidence given by the Jesuit missionaries. Rau tells us that the North American Indians made "some use of native copper, which they chiefly obtained from the region where Lake Superior borders on the northern part of Michigan. Colonel Charles C. Jones in his *Antiquities of the Southern* Indians, devotes six pages (227-233) to illustrating the use of copper among the Indians. But why continue multiplying the evidence? Is this not sufficient to exonerate our American archæologists?

A sentence on the same page (611), while possibly true, generally speaking, is misleading. The one having reference to Lapham ascribing the mounds of Missouri and the copper mining to Indians. Before Lapham's volume appeared Colonel, Whittlesey made the following observation: The mounds "of Wisconsin are very numerous, but they are low and of small dimensions. They are about to be described by I. A. Lapham, Esq., of Milwaukee, and I think it will appear that they belong to a different race or a different era from those of Southern Ohio. In fact those found near the south shore of Lake Erie differ from both, and are probably due to a different age or people. I do not feel inclined to attribute the great works of Central and Southern Ohio to the progenitors of our Aborigines; but in regard to those of Wisconsin and Minnesota there is room for doubts and careful discussion on this point."‡

Pages 616-619 are devoted to proving that the Indians built mounds, a fact which, probably, no archæologist ever denied. That this has been fully recognized any one may find out by ex-

§ "Ancient Mining on the Shores of Lake Superior," p. 2.
* Archæology of the United States," p. 156.
† "Antiquities of Wisconsin," p. 75.
‡ "Archaeological collection," p. 59
* "Ancient Works in Ohio," p. 6.

amining such books as are devoted to antiquities. Only one reference will here be given, and that taken from Squier's "Antiquities of New York," (p. 97), "Various references to mounds or tumuli, resembling those found in the valley of the Mississippi, have been made in the preceding pages. These mounds are far from numerous, and hardly deserve a separate notice. It is, nevertheless, an interesting fact to know that isolated examples occur in situations where it is clear no dependence exists between them and the grand system of earth-works of the Western States. It serves to sustain the conclusion that the savage Indian tribes occasionally constructed mounds, which are, however, rather to be considered as accidents than the results of a general practice."

In the next place the methods of proof demand an examination. The only evidence cited to disparage the idea of antiquity is the finding of a string of raw-hide, supposed to be of the Caribou (p. 603) discovered under a mass of copper. It is a well known fact that copper has antiseptic properties, and consequently decomposition may be arrested for an indefinite period.* Add to this the climate, the position of the raw-hide, its burial, &c., the evidence of a greater antiquity than that implied might be reasonably presumed. Under what might be termed less favorable circumstances, fleshy parts of the mastodon have been preserved. It is well known to all geologists (Professor Winchell being one of the number) that the skeleton of the mastodon found in Wythe County, Virginia, preserved the ontlines of its trunk, and one discovered in Illinois, retained the fleshy part of the mouth. Both skin and hair accompanied the one from near the entrance of the Wabash into the Ohio river. Hair also occurred with the remains of skeletons found in Orange and Montgomery counties, in New York. Even the most enthusiastic archæologist does not demand that the period of the mound-builders should be carried any farther back than the close of the epoch of the mastodon. That one tribe or another of Indians possessed and even made implements common to the mound builders has always been admitted, and there appears to be nothing singular about it. Similar implements and ornaments are found in the stone age of Great Britain and on the continent, but this by no means proves that all these pre-historic people belonged to one race or type. It is hardly a fair method of argument to pick out some suitable peculiarity of the Indians of New York or Florida, another

* Dr, Farquharson In *Proceedings of Am. Ass. for the Adv. of Science*, Vol. XXIV, p. 305) states that the cloth found around the copper hatchets discovered in a mound at Davenport, Iowa, had been "preserved by the antiseptic action of the salts of copper, in all probability of the carbonates."

of the Mandans, another of the Navajoes, another of the Chippewas, &c., which may have been known to the Mound Builders, and then declare that from these circumstances all must be of one race. If this be a correct method of argument, then it can easily be shown that the Caucassian is identical with the negro. This method, however, was pursued a little too far (p. 609), for it makes the Aztec identical with the North American Indian, and consequently the same as the Mound Builders.*

The testimony that the Indians used copper is not conclusive that they engaged in mining operations. Out of all the references introduced by Professor Winchell, not a single one either directly or indirectly states that the Indians worked the mines. He simply assumes that which he set out to prove. On the other hand the old mining shafts when discovered were found to be filled with *debris*, and forest trees growing over all. The Indians obtained their copper from detached and water-worn lumps found in great numbers in the gravel, clay, and loose material that covers the rocks, which has been separated from the veins by glaciers, or other natural causes.† Jacques Cartier, one of the witnesses cited, (p. 173), stated "they had gathered it in lumps." Even the early Jesuit missionaries knew nothing of the mines, nor of any traditions among the Indians concerning them.

The next and last argument resorted to is the building of mounds by the Indians. The statements given appear to relate wholly to places of sepulture. Although the writer depends largely upon this argument, yet he unwittingly overthrows his position by stating that mound-building is not distinctive of any race, (p. 615).

Now listen to the conclusion of the whole matter: "From the foregoing it appears that every known trait of the mound-builder was possessed also by the Indian of the time of the discovery of America," (p. 619). What are the known traits enumerated in the article? Both had similar domestic implements, ornaments, sculptures, &c., used copper and built mounds!

If Professor Winchell's article is remarkable for its erroneous statements and its misapprehension of facts, it is still more remarkable when we consider its assumptions for what it does not contain.

Let us suppose it has been clearly demonstrated that all the ancient copper mines of Lake Superior were excavated by the

* Foster (*Pre-Historic Races*, p 226) is mistaken when he declares that the Indians did not possess the art of cloth manufacture, prior to the advent of the white man. Farquharson gives a number of instances of tribes manufacturing cloth,(*Proceedings Davenport Acad. of Sciences*, vol. I, 131—132). This, however, involves a very interesting inquiry. Was the art obtained from the Aztecs, or in fact did the early Jesuit missonaries introduce it

† See "Ancient Mining on the shores of Lake Superior," p. 1.

red man, would that necessarily invalidate the idea that the mound-builders were a distinct race of people? It is possible that the term "mound-builders" has been misapplied and consequently wrought confusion. This name by common consent, has been given that race or races which erected the tumuli in the great basin of the Mississippi, covering a territory of over one million square miles. The whole of Europe embraces less than four million square miles of territory, and yet no one would presume to cut it up into four parts, and then assign her pre-historic people to any four types of mankind, for the relics appear to show many distinct races. The same is true in regard to the mounds of the Mississippi. The earth-works of Ohio are different from those of Wisconsin, Illinois, or Missouri, besides showing evidence of having been made at an earlier period. The ancient mounds so characteristic of Wisconsin are not found in other States, save in a few isolated cases. It may he that cotemporary nations were inhabiting the different States during the epoch of the mound-builders, and towards its close the Indian may have not only had his possessions, but also contended for domination. Among the various tribes or nations a system of bartering was instituted. Now if there is proof that the Indians mine for copper, it would only show that the mound-builders instead of engaging in that pursuit, only bartered for the precious metal. Until that point is proven, it will continue to be the prevalent opinion that the ancient mines of Lake Superior attest the industry and indefatigable spirit of the mound-builders. The same must also be said of mica mining in North Carolina.

The proof that the Indians sometimes erected barrows over the dead, does not demonstrate that their methods of burial were the same as that common to the mound-builders. Dr. Morton has shown* that it is almost a universal custom among American savage nations, extending from Canada to Patagonia, and from ocean to ocean, to bury their dead in a sitting posture.† This was particulaly true of the Northern Indians east of the Mississippi. On the other hand the mound-builders buried their dead in an extended position, with the arms carefully adjusted at their sides.‡ Over the grave, or rather body, and almost contiguous to it is a layer of burnt clay, almost impervious to both air and water. Have examples of this kind been noticed among the Indians? Remains of Indians are met with

* "Crania Americana,.' pp 244-246.

† Among some of the Western tribes it is the custom to pile logs over the dead: among others to place the body on scaffolds, or in the forks of trees; while among some of the Southern Indians the body was exposed until the flesh had decayed, and then the bones were deposited in the huts of relatives, or else some building reserved for that purpose.

‡ "Ancient Monuments," p. 172.

in the mounds, but by their position and the disturbances of the earth it cannot be doubted that they belong to an intrusive age, and consequently are not found under the same circumstances and conditions as those of the mound-builders. In Tennessee, Dr. Jones has shown ‖ that the ancient race buried their dead in rude stone coffins.

The crania from the mounds are worthy of some consideration. Let it be shown that Dr. Morton is wrong in ascribing the mound-builders cranium from Chilicothe to the Tolticans.* that Nott and Gliddon were laboring under an hallucination in declaring it to be "exceedingly characteristic of our American races, although more particularly of the Toltican;" † that Dr. Daniel Wilson does not know whereof he affirms when he declares "a comparison of the two skulls (Chillicothe and a Cherokee chief) serves no less effectually to refute the supposed correspondence adduced in proof of a typical unity traceable throughout tribes and nations of the Western Hemisphere the most widely separated alike by time and space;" ‡ that Dr. John C. Warren was not competent to judge when he identified the mound crania with the Peruvian; "that Dr. Joseph Jones is an imbecile for saying that the crania of the mound-building race of Kentucky and Tennessee appear to be belong to the Toltecan division of the American nations, being characterized in common with those of the Inca, Peruvians and the Toltecs of Mexico, by the quadrangular form, compresssd and almost vertical occiput, lateral swelling of the sides, and elevated and retreating forehead." ‖

Nor will the labor cease with the above task, for it will be necessary to show that the Indians erected great temple mounds, stratified altar mounds, wonderful combinations of geometrical figures, and impregnable fortresses, which are so commonly met with in Ohio. The Indian method of defence does not show such skill, foresight, and planning as that exhibited in the ancient fortifications. The Indians defended their villages by rows of pickets firmly fixed in the ground, placed far enough apart so as to permit various kinds of missiles to be discharged. The entrenchments of the Mandans and Richarees cannot be said to be similar to those of Ohio; besides it appears to be an established fact that their method was introduced by the whites.

Ancient Mexican history tells us of migrations from the north, that the Toltecs, Aztecs, and other races swept over the

‖ "Aboriginal Remains of Tennessee," p. 34.
*Ancient Monuments, p. 289.
† "Types of Mankind," p. 291.
‖ "Aboriginal Remains in Tennessee." p. 72.

country, having come from the north. It must be shown that these migratory nations had nothing to do with the ancient monuments of the Ohio and Mississippi valleys, besides many other things not necessary at this time to mention.

SOME SUPERSTITIONS OF THE LIVE INDIANS.

READ BEFORE THE ANTHROP SOC. OF WASHINGTON, D. C.
BY H. C. YARROW.

The paper which I propose to read before the Society to-night is not to be considered in any sense as an original effort, for the material of which it is composed has been furnished me by Dr. James C. Merrill, U. S. A., who obtained it from William E. Everett, a well known government scout, at Fort Custer, Montana, in response to the circular on Mortuary customs sent out by the Bureau of Ethnology. Dr. Merrill, in his letter transmitting the manuscript, remarks that "the Crows have the same custom which Mr. Everett attributes to the Sioux, of conversing with wolves, and the same idea about white tailed deer, which they never kill in the spring, and do not like to slay at other times unless short of meat. They tell many curious stories of hunters found dead by the side of a 'white tail' with finger marks on the neck as if strangled, and small moccasin tracks on the ground around them. The last case of this kind was three years ago." I believe Mr. Gatschet mentions in one of his papers that the Modocs have some sort of superstition also regarding the white tail deer, for they will not kill one unless in company with others. It is unneccesary for me to offer any apology for the verbiage of the report if the circumstances are recollected under which it has been prepared, for we cannot expect a person so situated as Mr. Everett to have much time or opportunity for literary culture. He deserves great credit for what he has done, and his statements as given are very interesting, even should we be obliged to accept some of them *cum grano salis*.

BURIAL TRADITIONS AND SUPERSTITIONS OF THE SIOUX.

There are many traditions among the Sioux that are not known, which, if published, would make an interesting volume. For instance, they imagine when they die that they go direct

to the "happy hunting grounds;"* that is, they have to cross a long divide, and maybe fight the spirits of their dead enemies that are prowling. This is the reason why they want their best horse killed with them and their arms put by their side. If they cross the divide all right, they are received by their friends and relatives and escorted to a fine lodge, where they meet their wives and children that have gone before; all their war horses that have been killed in battle reappear before them; if they have been maimed in war their missing members immediately return to them on their arrival; if they have mutilated themselves greatly for some friend or relative the aforesaid person comes to them and embraces them and makes them large presents; they are encamped in a beautiful valley surrounded by tall mountains, which have cool water trickling down their sides all the year; beautiful animals gambol on the grass not afraid of them in the least; large herds of elk, deer and antelope roam over the foot-hills; the little lakes are full of ducks, geese and swans that swim in the lakes close to the camps. All ugly animals, as the bear, mountain lion and wolf, are left behind on the divide, where the bad spirits have to roam, and nothing but good animals can cross the divide that separates the cold, bad country from the warm, pleasant valleys. On the plains above, herds of buffalo eat grass without being annoyed by the white man hunting them for their skins. The lakes are full of fish, and the streams are full of beaver and otter. The women gather cherries and plums, and turnips grow everywhere. Thus they lead an uninterrupted life: no crying or sorrowing after lost relatives; no cold or hunger; no fearful winds to overturn their lodges at night; nothing but happiness forever and ever. Such is the Sioux Indians' idea of the next world.

Their idea of sickness is that a bad spirit of one of their enemies has entered the sick person and he must be driven out by noise; so the tom-tom is brought into requisition, and sweet grasses and herbs are placed over coals of fire so that their fragant smoke can reach the invalid who inhales them to drive out the bad spirit; meanwhile the drum is beat, and amidst howling, singing and the horrible noise of the drum, if the sick person cannot get any better and dies it is laid to the bad spirit being too strong; if, however, he gets better the medicine-man is extolled to the skies, and the sick man dares the bad spirit to hurt him while they possess such a good doctor; if a rich person has been sick he loads the medicine man with presents so that generally a medicine man is the richest man of the tribe.

*The Sioux words for this mean "The Great Spirit's big village," not "Happy Hunting Grounds" (hc4. C. M.)

Sometimes old women are the doctors, but generally the men have a man medicine and the women a woman medicine. The practice of obstetrics is very similar with these Indians. Almost any woman if called on can help the parturient woman, though generally if an unnatural presentation occurs the old medicine woman is sent for to express the child.

If a child dies unborn it is taken care of by the friends of its parents in the happy land, and upon the arrival of the mother or father they immediately present it to them.

Bad spirits are sometimes sent back to earth in the shape of animals to undergo penance for their sins; they are believed to be in the wolf and bear, although some Indians say they have talked to their friends in the shape of a buffalo, others in a deer, and in general if a bad woman dies she turns into a deer or owl. In British America I saw an Indian conversing with some one on a hill, that is, I saw the Indian making motions with his hands and now and again howling like a wolf. I went to him and saw him talking to a large wolf, and apparently the wolf understood what he said, for whenever he would make the sign for "Do you understand?" the wolf would throw up his head and howl. After both had thus conversed for a half hour the wolf threw up his head, gave a few howls, and trotted off. The Indian seemed well pleased, and advanced towards me; judge of my surprise when I found it was Sitting Bull, with whom I was living at the time. He told me he was making medicine to find where the main herd of buffalo were; and whether it would rain or snow before the hunters got back; he said the wolf was the spirit of a great hunter, and always gave him warning whenever there was any danger close at hand, and where the buffalo were to be found; he said the wolf told him the buffalo were all south of Milk River, but small straggling bands were to be found in the forks of the Porcupine north of the Missouri River; although they were all on the *Long Knives'* soil, he *must* go to them and get some meat for his children to eat; that it would snow very deep before he would get back (*which it really did*), and the camp would be without meat two days, another thing he prophesied true. Sitting Bull also said: "The night before *Long Hair* (Gen. Cus-"ter attacked me I was warned by this same wolf. I knew I "should be victorious, and I knew who was going to be killed, "and I made preparations; and if any *Long Knives* (Ameri-"cans) come here to attack me, my brother, the wolf will warn "me."

WHITE TAIL DEER MYTH.

I have known several young braves to return home empty-

handed rather than shoot a white tail deer; and again I have seen a whole village on the move hunting one poor white tail to the death; Sitting Bull himself took a hand in this, and only desisted by being thrown thrown from his horse; he had fired five shots at it, and had not hit it; it was finally killed among a lot of women and children, pots, kettles, &c. But as a general thing, especially if his sweetheart is dead, he will not shoot at a white tail deer, for they are afraid that the spirit of the woman it contains will appear before them and make their life a tortture. I have known several Indians who, in spite of the warning to kill the deer, to start out on a hunt and not return; when their friends got anxious and went out after them they were invariably found along side a white tailed deer, *strangled*, the marks of a woman's hand on their throat. I remember an anecdote that was related to me when I was on the *Medicine Lake Creek* in '73. I am well acquainted with the country in which the story lies, and also the *precise spot*; I have passed it many times while *scouting* and *hunting*. Many years ago when there were no white men in this country, a camp of Sioux were coming up this creek from the Republican river; they were going to war with their enemies the Pawnees, after which they were going to the Arickarees in Kansas, and go into winter camps there. While they were debating whether to go up a small creek and camp, or camp on the main creek, a scout that was ahead brought in word that buffalo were very thick on the divide between what is now called Wolf creek and the Medicine, so they decided to camp at the mouth of Wolf creek and hunt buffalo from there. Some of the young men wanted to hunt turkeys, and go across the Medicine to a thick plum patch close to the south side of the creek; before going, however, they were warned by the old woman of the camp not to molest any white tailed deer, not to shoot at them by any means, and if possible not to hunt near them at all; "if "you see any near the plum patch turn around and leave the "place, for if they see you they will charm you with their eyes and bewitch you." "All right," the young men said, but as soon as they crossed the creek and plunged into the brush they forgot all that the old crone said, and laughed and said, "Let's "kill some white tail and bring them to camp and show them "they are all fools; that we are not afraid of what an old woman says." So saying, they struck out for the plum patch with as light hearts as any young brave before the advent of the white man put a stop to these hunting excursions. Little did they think that six out of the seven would never return and that their bones would rot in the fatal plum patch. Most of

them had sweethearts, all excepting the young lad who accompanied them; it was his first hunt and he gloried to be able to tell his companions on his arrival at camp, that *he* had killed a white tail. Well, they crossed the intervening open between the bends of the creek, and found themselve close to the *plum* patch; some turkeys were gobbling in there they were sure, for they could not only hear them but could see them also. They told the young lad to go around the thicket and scare the birds towards them. The young lad left them and went through a box elder grove to get in the rear of the turkeys unperceived. It was the last he saw of his companions alive. While he was crawling in the brush he heard the twang of arrows, and fancied he heard groans. What was his astonishment to see a herd of white tail come scampering by him and six women running with them. He was so frightened that he ran around the other side of the plum patch, and having to pass up a small hill, he looked back and saw *six* of his comrades lying in the thicket of plum brush. He was surprised at their not making any movement, so he started down towards them. As he was going down the hill he saw seven white tailed deer coming up the bottom towards him; they went down a small gully and disappeared. When they came out of the gully they appeared to be frightened at something and turned towards the thicket; what was his surprise to see only six deer instead of seven that he first saw. Mcre surprised was he to see a woman come out of the gully and join the deer; they disappeared behind the plum patch, and when they made their appearance again there were seven deer and no woman. So scared was he that he could hardly crawl to the plum patch where his comrades lay; when he did summon enough courage to go on the little hill that the thicket stood on, what was his dismay to see all six of his comrades *dead*. Lying beside them were six dead white tail and an arrow in each of them. The tongues of the young men were protruding, and on their necks were the unmistakable marks of fingers, showing each one had been choked to death; upon all their faces was a horrible look as if they had seen something awful. The young lad was so horrified that he could hardly move; at last he made a spring and darted out of the thicket. On his way he stumbled over a log of wood, and throwing out his hand to save himself he struck a rattlesnake which fastened its fangs into the hand of the now thoroughly scared boy; rising with the snake in his hand he ran across the open, plunged into the wood, crossed the creek and fell just outside of the village. Some old women and men saw him coming and said, "Here comes the Little Wolf; he

"must have seen a bear. What has made him so? Let us go to him and see." So saying they went, and seeing him lie so still, they asked him, 'What did he see?' 'What was the matter?' 'Was he hurt,' etc. Not getting any answer, they imagined he had fainted, and turning him over they saw to their affrighted gaze he was dead; in his right hand was a rattlesnake also dead; his eyes were wide open as if he had seen something so horrible that his eyes were petrified while looking. They carried him to the lodge in which he had lived and sent out for his father and brothers who were hunting buffalo on the divide. Meanwhile the old women moaned and lamented his fate, and somehow, all the dogs would join in; nothing could stop them, more especially the dogs belonging to the lodges of the young men that had been with him; the dogs would go in front of the lodges of the parents of these young men and howl as if some one were dead. The sun went behind a cloud, and the screech owl commenced its shrill, mournful cry. Finally the father of the boy returned, and seeing how the case stood, said it was wrong for him to go hunting, for they were bad young men that went with him. "They have been shooting white "tail deer; we will never see them again. Come, I will follow "their trail and show you that they are dead; my medicine told "me so (a *kilt fox*) while I was hunting." So speaking he started down to the creek followed by some others, amongst whom was the medicine man of the tribe. They crossed the creek, went through the timber. crossed the open, went through the box elder grove, and in crossing a small gully there they saw the body of Red Moccasin, one of the young men. At his side was his bow and near him was a dead white tail deer with an arrow through it. Upon a nearer inspection of the body they saw the impress of fingers on his throat; his eyes like the boys were wide open, and moccasin tracks of a woman's foot were found near him, and the dirt also aronnd him was thrown up and showed evidence of a struggle. Carrying him to the plum patch they commenced making a scaffold to put him on. As they entered the thicket there they beheld the remaining six, in the same position as the first one was in, marks of fingers on their throats, and their eyes wide open as if looking at a bear; around them also were the marks of women's feet, and the dirt was also torn up as in the case of the first one. While they were looking and thinking of what to do, the form of an old man was seen coming toward them from the direction of the village; he was their oldest man and chief councilor; he came up to each of the bodies and stroked his face with his hand and then said to the people present: I was

"out of a certain kind of medicine; I crossed the creek after "the young men had crossed; I had to go in this box elder "grove to get the kind of root I wanted; from that hill I saw "all that happened." (Here he related the story to the people "present.) "I saw the boy leave the party, come through this "wood to pass around the plum patch, saw the deer come from "the hill, saw the young men string their bows and point the "arrows, saw the deer fall and six women rise; saw them strug-"gling and finally fall. Saw the boys run up the hill and stop, "frightened at what he saw; saw seven deer come up from the "creek; saw them disappear in a gully; saw them coming by "a bush in the gully, and saw that young man (pointing to the "one taken from the gully) draw his bow on them; saw one "fall and one woman rise, and saw his struggle; saw the look "of horror on the body, and saw him go in the thicket; saw "him come out of it yelling and screaming; saw him fall and "when he rose he had a snake in his hand; saw him run to the "creek when I followed him and upon reaching the village "found he was dead and you all had come out here. I informed "the camp of what I had seen and come out to join you and "help bury the bodies." Such was the speech of the old man. There was much lamentation and mourning for the young men for they were very much liked, although they were a little wild. After they had mourned sometime some of the women present cut poles and made one large scaffold in the midst of the plum brush, and upon it were laid the bodies of all the young men. They were well-wrapped up with blankets of buffalo and deer skins, and tied on the scaffold. Alongside of them were their bows and arrows. Their favorite horses and treasured objects were brought from the village, and the horses were slain that they might have them in readiness when they reached the divide; all their pretty things and objects most dear to them were placed by theia sides, and then the women began to mutilate themselves and howl; they dragged the deer together in a pile and burned them, and then giving one last long look on the *accursed* place, left with heavy hearts for the village. When they arrived there they found the lodges all torn down, the people preparing to make another camp. The body of the boy had already been buried on a high part of the Divide overlooking the medicine. When all was ready to move the medicine man rode up and cursed the creek, more espeeially the spot on which the young men met their death. He began thus: "May the fruit that you, trees bear be ever sour! May your "thicket harbor snakes and frogs, so that no one will enter! "May the lightning strike you every year, and gradually may

"you die! And may the hill upon which you are growing "turn to a rock so that nothing can grow! May the woods in "the vicinity become burnt by fire and never grow again! Fi-"nally, may you become a barren place only fit for snakes and "frogs!" After the delivery of this oration the village moved up the Divide, crossed the Medicine at mouth of what is now called Fox creek, went up Fox creek to the head, crossed over to the South Platte and camped. Nothing occurred to them until after they had crossed the Platte, when every evening they saw just at dusk the forms of seven white tail deer and one wolf, playing around the camp. A sickness broke out in the camp, and every day some one would die, and every evening the herd of white tail would grow larger. Things kept on this way until only seven were left, when they agreed to separate and go north to the mouth of the Laramie, or Duck river, as they call it where some of their people were. Upon their arrival they were all seized with the same sickness and died. That night seven wolves were observed running around the scaffolds on the hill and howling. Shots were fired at them but to no effect. One man lingered long enough to tell the story to some French traders, and from them I have it; though not them, but their half breed children. *I have been in the plvm patch, myself* and the plums *are sour; every year the lightniug does strike it*; the hill is becoming a rock, and *it is* a paradise of rattlesnakes and frogs. The box elder grove in the vicinity *is dead*, and has been so for many a year. In short, the *full prophecy* has come to pass. I relate it literally as near as I can remember it. I have known Indians to go out hunting and return with all white tail deer and no harm befall them. How the Indians met with their death I am at a loss to account for; and that they are there in one scaffold is true, for there is the old scaffold supported by green and dead plum brush with parts of seven human skeletons on it. At any rate it is a queer story. I have seen the grave of the boy on the divide; the scaffold is made of hard dry ash wood, and looks fair to bid defiance to the elements for many years; it stands about half way on the divide between Wolf creek and the Medicine creek.

One thing I know, in '73 there were some Indians, Sioux, camped on Wolf creek; when the plums were ripe on the Medicine, they would travel miles to get large yellow sweet ones. All the plums around the aforesaid plum patch would be picked, but in the bend in which the plum patch stood not one would be touched, though many sweet varieties grew near the hill on which grew the famous plum patch; true, those on the hill were sour and acrid, but close to them were lots of bushes that were

fairly one mass of red and yellow plums all sweet. Now, the qnestion is, why would they not pick them? True, the place was infested with rattlesnakes; probably that might have been the cause of their not going there, but for that matter the whole creek was full of them. I cannot see that they were afraid of snakes, for it was a common thing to find rattlesnakes everywhere. Did the curse of the old medicine man still infest the place, or did the spirits of the seven murdered men roam around in the night and scare all that would dare to camp close? Really, noises were heard as if some one was groaning and choking, but upon investigation it turned out to be hogs eating plums, and swallowing them so fast that they nearly choked. Hence the noise. I have hunted deer in the same thicket and have never seen any ghosts, but I heard queer noises, and saw lots of snakes and frogs.

From this account although Mr. Everett pretends to explain certain mysterious noises heard in the celebrated plum patch, it seems clear to my mind that he gives full credence to the legend. Perhaps some of the members present may have heard of a similar superstition among other tribes of Indians, but this is the first time it has come to my knowledge.

PROPOSED READING OF THE DAVENPORT TABLET.

BY JOHN CAMPBELL, M. A.

As the Hittite hieroglyphics furnished us with the key to the reading of this inscription of the mound-builders, and, as the story of the Hittite monuments is one not generally known, I deem it necessary to preface my statement with an account of Hittite decipherment.

READING THE HITTITE INSCRIPTIONS.

In 1812 Burkhardt, the traveler, saw in Hamath, the Hamath of the Bible, a stone on which were hieroglyphic characters unlike those of Egypt. It was not, however, till 1870 that any further attention was directed to the Hamath stone. Then Consul General Johnson and the Rev. Mr. Jessup discovered the four stones with Hamathite inscriptions which are now in the imperial museum at Constantinople. By them and by others copies were taken and published in the American and English Palestine Exploration Societies' statements, and in Burton and Drake's Unexplored Syria. By very far the most correct copies, although these, I think, are not absolutely perfect, are those edited by the Rev. W. Hayes Ward, D. D., in the New York Palestine Exploration Society's statement. Other similar inscriptions have been found at Aleppo, at Carchemish, and at several points in Asia Minor. They have therefore received the more general name of Hittite inscriptions. My only means of judging of these inscriptions during the past summer, while distant from libraries, was through some selections from them which the Rev. Professor Sayce, of Oxford, published in the transactions of the Society of Biblical Archæology. Among them appeared the bi-lingual cuneiform and Hittite inscription of Tarriktimme, king of Erme, in Cilicia. The first character in the inscription, which represented the head of an animal, and which, if alphabetic or syllabic, should, as the beginning of Tarriktimme's name, have the power of *t* or *ta*, directed me at once to the analogous Aztec head of the hare or rabbit, the phonetic value of which is *to*. That this was not a mere coincidence I felt assured, since I had already published papers asserting on other grounds the Hittite origin of many of our aboriginal tribes. Returning to my library and pursuing the comparative studies which the animal's head had suggested, I was at last, towards the end of October, able to determine the phonetic values of some 25 characters, chiefly through the Aztec, but also, to a certain extent by means of the Cypriote, which Professor Sayce regards as the cursive descendent of the Hittite hieroglyphic system. Thus I found that I could

read all the fragments of inscriptions figured by Professor Sayce. These readings, together with an account of my process, I sent to the Canadian Institute of Toronto, the Smithsonian Institution at Washington, the Society of Biblical Archæology at London, and the Institution Ethnographique at Paris.

About a week ago, Dr. W. Hayes Ward, of New York, kindly lent me his own copy of the Hamath inscriptions, as I found it impossible to arrive at any definite result with the imperfect copies made by Mr. Drake. Although some difficulties appear, I have, so far, succeeded in reading the greater part of them, and in determining some points of Hittite grammar. While not absolutely coinciding with that of any American language known to me, the grammar of the Hittites is in its main features the same as that of the aboriginal families which I have elsewhere asserted to be of Northern Asiatic origin. The Hittite first personal pronoun is *ne; ca* or *ka* is the suffixed past temporal index of the verb; *ca* and *ne* are the locative postpositions or particles; *ne* is the suffixed sign of the plural, and *sa* the similarly suffixed sign of the genitive. Thus *Keti* denotes a Hittite, and *Ketinesa* means of the Hittites. The forms *Hamati ca*, at Hamath, *Kala ne*, in the city, are as Aztec or as Iroquois as they are Hittite.

While waiting for Dr. Ward's copies of the Hamath incriptions I wrote to Dr. Farquharson, who had sent me copies of his invaluable articles on the Davenport mounds and inscriptions, asking him to procure for me an enlarged copy of the Cremation Scene, since I deemed it probable that its characters were forms of the Hittite. Thanks to the kind aid of Mr. Pratt, the curator of the Museum, Dr. Farquharson was able to comply with my request; and, on glancing for a moment at the admirable copy sent me, all doubt of the Hittite origin of its signs vanished from my mind. Already, however, before I received the enlarged copy, I had detected in the inscription some five or six Corean characters, the phonetic values of which agree with their corresponding Hittite, Aztec and Mound-Builder forms. This would seem to link the Coreans with the Hittites on the one hand and the Mound-Builders on the other.

THE CREMATION SCENE.

The hieroglyphic part of this inscription consists of two divisions, the lower between the three lines forming an arc over the pictorial representation, the upper occupying the space above it. In the lower part it will be observed that there is a difference in the direction of the characters of the one line as

mi u ta ca al ta ta te ma sa ca! te ba * * *

ca al sa po ca? ta ne mi *** ca? al ta te ma? sa sa

ca sa ta u ra ca ca? ya ish ca ma ra ca ta te ne po

ca po? mo? u ti ca

u ra ca a sa? ta ba ta ne? mi te ra alne?

pi ma ra ke ta sa po ca pa ta ne mi

ra? ta ca mi u ta te te po ca al ca al ish ca?

ta ma ca al? pa

sa ta ba? al pi ma ca ma ca pi al ta sa ba

The Davenport Stone.

(The latter order is most natural, but gives no light. The figures to the right seem to denote the age of the person commemorated, or the date when he died. The two lines = should give 10, the four dots 4, the succeeding single line 5. The next character is *to*, followed by three dots or 3. The next may be 44 or 46, but will need much study to determine.

	Davenport.	Hittite.	Phonetic Value.	Cypriote.	Phonetic Value.	Corean.	Phonetic Value.	Aztec.	Aztec Name.	Phonetic Value.
1			i, u				i		uh	a
2			ra		ra					
3			ca						calli	ca
4			ha						atli	a
5					ta				tochtli	to
6			ta							
7			ba							
8			te						tla, totlan	to, ta, te
9									pil	pi
10			ma						maitl	ma
11			ke		ke		kh		chinhnauk	chi
12			sa						xayacatl	xa
13			po				p		poc	po
14			ca				k		quanhtlaca?	ka
15			pa						pan	pa
16			ta							
17			ca						quanh	ca
18					ta		t		calacouayan	ca
19			ca							
20			al		te		l		al	al
21			ish						ixtli	ix
22			sa						citlalli	ci, si
23			ma		mo		m		matlactli	ma
24			mi		mi					
25			ti		ti				chiquinitl	chi
26			ta							
27			ca						coctli	ca
28			ne		ne					
28			al							
30			ca							
31			ne						neitl	ne
32					te					
33			ca							x
34					ga					

compared with that of the other. This may be seen by comparing the 6th character from the left in the upper line with the second from the right in the lower, and the 11th from the left in the upper with the 12th from the right in the lower. This indicates that the Mound Builders wrote Boustrophedon fashion, and is the first proof of their Hittite origin, for, as Dr. Hayes Ward suggested, and as I have conclusively proved, the Hittites always wrote in this manner. Again, in the two lines of the upper part above the arc the continuity is broken at intervals by groups of characters arranged perpendicularly in threes, fours and sixes. This practice also is Hittite, and was generally employed by the scribes to call attention to proper names. For instance, to render the Hittite characters by their phonetic values, the first line in the 4th Hamath inscription reads thus:

po maca ke ca ba ma ti ha ma
al ba ca ba ca ti
ca ne ta al

or *po Baal macaca keba Caba mati Hamati ca Canetaal*, which may be rendered literally, "to Baal killed chief Caba King Hamath in Khintiel;" or, in more intelligible order, "Khintiel, King in Hamath, sacrificed the chief Caba to Baal." In its boustrophedon order and in its groups of characters, therefore, the Davenport Tablet claims a Hittite origin.

An actual comparison of the Hittite and Mound Builder signs confirms the claim. True, there is not always absolute identity. This indeed could hardly be expected, as the Hittite inscriptions were engraved some 2600 years ago, so that a distance in time not far short of 2000 years must have separated their writers from the ruder scribe who engraved the Davenport stone. Still, although a somewhat cursive form has superseded the purely hieroglyphic in many cases, it is not hard to detect the likeness to the original. Commencing with the first line within the arc in the lower part of the inscription, the first character to the left is a perpendicular line. This in Hittite stands for a vowel sound, either *i* or *u*, and is the Aztec *uh* a thorn. The following sign, two diverging lines joined above, is the equivalent of the Hittite yoke, the phonetic value of which is determined through the Cypriote as *ra*. The rounded form of this character which appears in the second line of the upper part of the tablet immediately to the left of the fracture is more in accordance with the original Hittite. The next, separated from the yoke by a mark of punctuation and resembling an abortive *h* or a Hebrew *cheth*, is a rude rendering of the Hittite and Aztec house, the phonetic value of which is

ca (*calli* a house). In the Hamath inscriptions I find, however, an equally rude form of this character. It is followed by a cursive representative of the Hittite and Aztec conventional sign for water, in Aztec *a* and in Hittite *ha* being its phonetic values. The next character I am not sure of, but it is succeeded by a form almost identical with the Cypriote *ta*, *to*. That again is followed by the Hittite *ba*. Next comes an imperfect oval, which I suppose, like the fourth character from the right in the same line, to be the equivalent in Mound Builder sign writing of the Hittite and Aztec animal's head, with the phonetic value *ta*. Passing over the two succeeding characters, a sign appears resembling the second in the line lying upon its side. The same sign is found in the line below and twice in the part of the inscription above the arc. It is the Hittite and Aztec form for tooth, and has the phonetic value *te*. Following it comes the yoke *ra*, and, after two characters that present some difficulty, there is another mark of punctuation. The first sign after the punctuation mark is a rude representation of a hand or rather such a simple representation as appears in Egyptian frequently. Its value in Hittite and Aztec is *ma*. The yoke follows, and then four perpendicular strokes. This latter character is purely Hittite and gives the sound *chi* or *ca*. In Cypriote it is *ke*. I may say that the vowels do not appear to be well differentiated in Hittite. The next character is the animal *ta*. It is followed by a rude representation of a hand pointing to the face, the value of which in Hittite is *sa*. Then comes a pot from which two rays representing smoke or steam proceed. In Hittite and Aztec it is pronounced *po*. The last character in the line represents a weapon of some kind which in Hittite and Aztec, from he verb "to cut," has the value of *ca* or *ce*.

The figure at the beginning and at the end of the lower line is the Aztec flag, in Hittite and Aztec *pa*. To the left of it is *ta*, and next to it a rude representation of an arm, in Hittite and Aztec *ne*. The third character from the arm consists of two perpendicular lines, a Hittite form of *ta*. Next comes the tree with a value *ca*, then, after a more obscure character, the line or thorn *u*, and next two lines one of which joins the other in the centre at right angles, being identical with the Cypriote *ta*. After another period a character appears, the form of which is also Cypriote, for in Cypriote three lines diverging from a common base represent *te*. Then come *te* and *po* already found, and, next to the latter, a two-leaved gate which in Hittite and Aztec has the phonetic value *ca*. The third sign from the gate is in form like the figure 8. In Cypriote and in

Corean its value is *l*, *al*, *le*. The circle is either the moon *sa* or the eye *ish* in Hittite. The only other sign I need mention in this line is the square, or parallelogram, with a dot in the centre. This is a rough form of the Aztec symbol for 10 with a value of *ma*. The annexed comparative table of characters will be found to indicate the probable values of most of the Mound Builder forms.

As I have added a table setting forth the characters in order as they are written, together with the values, it remains only that I should indicate the meaning of the inscription. Provisionally I read it thus:

Miuta caal ta Tatema Saca Sataba (? Cataba) * * * * * * * * * ca al Sapoca tanemi pa * * * * * * * Caal Tatema Saca casata uraca cayaish ca maracata tatenepoca poma utica.

Ura caa Sataba tanemi Taralanepi, marachita Sapoca pa tanemi rataca miuta, tetepoca Alcaalisca tamaca Capa (? Alpa).

The language is that of the Aztec—Sonora family, comprising the Tarahumara, Cahita, Pima, Opata, Cora and other dialects allied to the Aztec. According to these languages, of which it may be regarded as belonging to a parent form, the inscription gives us:

Sacrificed to Caal, Lord of heaven, Sataba * * * * * * * Sapoca the female slave * * * Caal, Lord of heaven *casata* in the men, in the women, the maidens, the boys *poma utica*.

The man is Sataba, the slave of Taralane, the maiden Sapoca, the female slave, *rataca* died (*or* sacrificed), the boy Alcaalisca the son of Capa (or Alpa).

As the new inscription which I have just received from Dr. Farquharson, and for which he tells me he is indebted to Mr. Pratt, reads perhaps from right to left *Sataba Alpi maca*, which might be translated "Sataba kills Alpi," an explanation of the tablet may be more completely furnished by its aid. We may regard Sataba as justly incurring the penalty of death for murder, but it is hard to say why the maiden Sapoca and Alcaalisca, who was probably the son of Alpi, should have suffered at the same time. The expression, in the men, in the women, the maiden, the boys *poma utica* would seem to convey the idea that the sacrifices were offered on their behalf, or in order that Caal, the god might be propitious to them. It is interesting in this connection to compare the first line of the fourth Hittite inscription from Hamath which reads: Khintiel, King in Hamath, sacrificed the chief Caba to Baal. The Hittites of Syria seem, either to have neglected the worship of their national divinities or to have adored them under Semitie names,

Before dealing with the vocabulary of the inscriptions I should mention a fact that has been known to me for some years past, namely the verbal connection of the languages of the Aztec Sonora family with that of the Yukahiri of Siberia, who call themselves Andon Domni. The following are examples.

	Axtec Sonora	*Yukahiri*
man	huth *Pima*, teata *Cora*	yada
	dor, dohema *Eudeve*	toromma
maiden, girl	maraguat *Opata*	marchet
father	atzai, hechai *Cahita*	etchea
brother	tihatzi *Cora*	tschatsha
sister	boui *Tarahumara*	pawa
head	moola *Tarahumara*	monoli
	mouk *Pime*	yok
nose	yachkala *Tarahumara*	yongul
tooth	totlan *Aztec*, tatamo *Tepehuana*	tody
tongue	nanurite *Cora*	onnor
food	tlaqualli *Aztec*	lagul
boat	acali *Aztec*	akshel
wind	helcala *Tarahumara*	illejennie
give	kia *Tarahnmara*	keick

The name of the chief Deity of the Mound Builders at Davenport appears from the inscription to have been Caal. This name may be compared with Quezal in the Aztec Quezalcoatl and with such connected forms as Culhua and Kukulkan, but it appears in all its integrity in Chail or Koil, the principal God of the Yukahiri.

VOCABULARY OF THE CREMATION SCENE.

miuta	muhat *Pima*=kill
	mueat, muchit *Cora*=die
	mictia *Aztec*=sacrifice
Caal	Quezal-coatl *Aztec*
	Chail, Koil *Yukahiri*
tatema	titamacatum *Pima*=heaven
saca	yzcacauhtli *Aztec*=father
	hechai *Cahita*, oca *Pima*=father
tanemi	tlama, teomicque *Aztec*=captive
	tineba *Hamath inscriptions*=servant
pa	upi *Tarahumara*=woman
	uba, huup *Pima*, woman, female
	hubi *Cahita*=wife
ura	uri *Opata*=man, male
cayaish?	ciuatl *Aztec*=woman
maracata, marachita	maraguat *Opata*=girl

	marchet *Yukahiri*=maiden
tatenepoca, tetepoca	teichpuch, tetelpuch *Aztec*=boy, son
	tiperic *Cora*=boy
caa	cua *Cora* coa *Tarahumara*=to be
	ca *Aztec*=to be
ca	co, ca *Aztec*=in, at, with
ta	tetech *Aztec*=to, for, in
tamaca	temachi *Opata*=son

The final *pi* of Taralanepi may be the suffixed Aztec sign of the genitive *pa*.

Some agreement appears between the Hittite inscriptions of Hamath and that of Davenport. The verb "to be," *ca* and the postposition *ca* appear in both. *Sake*, a word apparently denoting lord in the Hamathite tablets, answers to the *Saca* of that of Davenport. The *tancmi*, servant, of the latter corresponds with *tineba* in the former. The Hamathite kill is *maca*, and this seems to appear in the second inscription which I have just received. It may be some time yet before our knowledge of the Hittite language will enable us to arrive at perfectly accurate translations of their inscriptions. Nor does it matter very much for the present that a few words in the Davenport tablet which cannot affect the sense of the reading to any great extent remain a mystery. Were its language altogether unknown, it would still, as a purely Hittite monument, link the Old World with the New, destroy many false ethnological theories, and prove a stepping stone to a truer science of the past in this continent.

CORRESPONDENCE.

To the Editor of the American Antiquarian.

Dear Sir:—I have often reflected upon the question proposed in yours of the 9th inst., that is, who were the ancestors and who are the descendants of the Mound Builders. The result has not been satisfactory. It is evident they have occupied the country between Lake Superior and the Gulf of Mexico, the aborigines of the Mississippi river with the waters of the Ohio as a central point.

Their walled towns at Newton and Marietta, in Ross, Butler and Hamilton county, and little Fort Ancient on the Little Miami, are too strong to be captured by assault. They were not a military people, but relied largely upon fortified towns and their outworks for safety while they worked the soil.

Their successor, the red Indian of the north, had no earth works, and if he conquered the Mound Builder, could only have done so by regular siege, but of this there is no evidence. He has no traditions of such a conquest. I think some other reason must be sought after for the abandonment of their works and their country than a general war by the northern tribes; perhaps a diminution of numbers by pestilence and a concentration south of the Ohio country. There is still much obscurity about the origin of the American tribes. Arctic travelers agree pretty well that from the Eskimos to the Dog-ribbed Indians, Chippeway, Assiniboins, Dakotas, and Chipeways there is a graduation going south, and an improvement in physique and intellect, but that a distinct line cannot be drawn as they pass from tribe to tribe. None of them had the organization, the skill or the courage to drive out the Mound Builders from their strongholds. They would value the Ohio country only as hunters, and while the Mound Builders held it, game must have been scarce. Since the advent of the white race these northern Indians have remained unchanged, which leads us to infer that wherever they were in the days of the mounds they were nearly the same people as at present. The presumption is that they are of Arctic and Mongolian descent. As to the origin of the earth building, I am too much in the dark to hazard an opinion.

Mr. Jones, in his work on the Southern Indians, has furnished proof in favor of the fact that when the Spaniards came upon the tribes on the banks of the gulf, earth mounds were being built. This proof is not absolutely conclusive, but it clearly shows that platform mounds were occupied by Caciques with gorgeous palaces overlooking the walled towns around. There are precisely such mounds on the waters of the Ohio, with ramps or sloping roads leading to the platform on the top.

In the southern mounds there are found the same implements of cold wrought native copper from Lake Superior as in those of Ohio, which seems to connect the builders of these structures still closer than the form of their works. These and other strong features of similarity in their social condition go very far to sustain the conclusion that the ancestors of the gulf tribes occupied the earth mounds on the Ohio. Those tribes were far more advanced than the northern ones, and have shown a disposition to improve, which those at the north have not.

But as yet I do not find sufficient evidence to connect them ethnologically with the Pueblo Indians of the west, the Aztecs of Mexico, or the moqui races southwest of the Gulf. More

research is necessary, and at the rate such investigations are progressing, it cannot be long before reliable conclusions may be formed. I write this in haste and with difficulty, but send it for what it is worth without revision. Yours truly,

CHAS. WHITTLESEY.

Cleveland, O., Nov. 16, 1881.

EDITORIAL.

OUR FRONTISPIECE.—ANCIENT AND MODERN EGYPTIAN FACES.

We present a picture for a frontispiece which may prove quite a study for ethnologists. Our readers will notice the resemblance between these faces and pictures of the early statues, and sculptured portraits with which they are familiar. We refer now to the statue of Memnon, the face of the Sphynx, and the portraits in Belzoni's tomb. The appearance of the water from the first artesian well, drew the modern Egyptians together but they represent the races, which were distinct from one another four thousand years ago. The wonder is that these race types have coutinued so long. They were distinct from one another at the very opening of history. Authors have endeavored to prove the diversity of origin of the human species from these differences. Others have supposed that they proved the extreme antiquity of man. We present this picture for its suggestiveness.

IN MEMORIAM.

We are sorry to record the death of several contributors to this Journal.

Hon. L. H. MORGAN. Born at Aurora, Cayuga Co., N. Y., Nov. 21st, 1818. Was graduated at Union College, 1840. Practiced law in Rochester, N. Y., from 1844 to 1862. Author of League of the Iroquois, 1861; The American Beaver, and his works, 1867; Systems of Consanguinity and Affinity of the Human Family, 1870; Ancient Society, 1877; House life and Architecture of the North American Indians, 1881; Died Dec. 17th, 1881.

J. D. PUTNAM, Davenport, Iowa, Secretary of the Davenport Acadamy of Science, and one of the principal founders of that society. Chief editor of the first, second, and third reports. One of the prominent entomologists of this country.

Rev. E. A. DALRYMPLE, S. T. D., Secretary of the Maryland Historical society and Fellow of the American Association, and a member of many other scientific and historical societies.

These gentlemen have been among our warmest friends and the best supporters of this magazine, and their death is a personal bereavement to the editor.

We are happy to announce the accession to the ranks of our contributors several gentlemen in foreign countries who, for their scholarly attainments, and the advantages for investigating in their locality are highly prized by us, and we believe will be also by our readers. We refer now to Rev. Wentworth Webster of St. Jean de Luz, Basses Pyrénées, France, who is thoroughly acquainted with the early literature of the Basques; also to Dr. Flint who has long been an explorer in Nicaragua and is thoroughly acquainted with the antiquities of that region; Mr. E. G. Barney, a resident in the United States of Columbia, South America, and a thorough student in the history and archæology of that country; Rev. H. S. DeForest, one of the best informed missionaries of Japan, and General J. S. Clarke, of Auburn, N. Y.,who for the literature and history of the early American races has no equal; and Mr. Paul Schumacher the well known explorer on the Pacific coast. We would hereby acknowledge our obligations to the persons who have introduced these gentlemen and are glad to mention their names that our readers may know what efficient co-operators we have among our subscribers. We extend our thanks to Prof. G. C. S. Southworth, to Prof. J. T. Short, and Robt. Clarke Esq., to Dr. Geo. J. Engleman of St. Louis, to Prof. F. W. Putnam. We would also say that other gentlemen are diligently at work extending the range of our work and bringing in the best contributions from all parts of the world.

RECENT INTELLIGENCE.

THE STONE AND BONE AGE IN PUGET SOUND. Rev. M. Eells has been exploring the shell heaps of Washington Territory. He says we have no mounds or earth works or cliff dwellings or sculptured slabs and very few graves of the olden time, but we have shell heaps not unlike those of Denmark, Japan and other countries. These are constantly forming as the Indians deposit their clam and mussel shell outside of their houses. These

heaps are too common to attract much attention. The articles found are as follows: a bone comb, containing seven teeth an inch and a half long, stone hammers without groove, resemblng pestles, but from six to seven inches long; they weigh from one pound to seven, and are made of different kinds of rocks, some are polished and some not, knives of slate or of bone from three inches to seven long, and from one to two inches wide; axes, and adzes of all sizes, of metaphoric rock and polished; chisels and wedges of elk horn from five inches to fourteen long; a bone awl; war clubs, one of stone and another with a whale rib for a handle, another of copper, each of these has the thunder bird on it; spears from five to seven inches long; arrow heads of bone, chalcedory and jasper, hooks of bone; a stone idols; bone implements for gambling; stone pipes; money made from the Dentalia and Abalona shells. Very few skeletons exist, from the fact that the ancient form of burial, was not in the ground, but in canoes above the ground. Mr. Eells is a missionary, and a very intelligent scholar, observing and cautious. He has no superior as a linguist, and is a good archæologist. We appreciate his assistance, and wish that every collector was as much interested in our journal as he is.

MAN AND MONKIES.

We have received a newspaper slip, giving information that the missing link has at last been found. It came from the valley of the Big Horn River in Wyoming Territory, and is the upper part of the skull, of a species of the Marmaosette monkey. It was found in the lowest eocene tertiary layer. A reporter has been interviewing Prof. Cope. This skull, says the professor, is remarkably similar to the human skull. I consider the skull as the earliest indication of the existence of man. It is a new species of a familiar class, and has hitherto been unknown to scientists. No animal at that time had a head like this. The brain space contrasts with the brain space of other animals at that time, and even of the monkey of to-day.

Our readers will doubtless be surprised to hear of this discovery. The progress backwards of this species will undoubtedly account for the fact that if the Calaveras skull is so much superior to the ordinary Indians who inhabited the region of California at a later date.

This seems to be the order of development. Each species appears at a high stage and declines, yet the development is from the monkey to the man. The only question is how much time will it take according to this law for the development to complete itself.

THE RECENT DISCOVERIES OF POTTERY among the Pueblo

Indians, inhabiting Arizona and Mexico, are worthy of note. The Moqui and Zunis are the most important of these tribes, and may be called semi-civilized. There are vessels which show the effect of the early presence of the Spaniards, as the pig and the donkey are found moulded into them. The common designs are the duck, the owl and the antelope. Some of the baskets are of a graceful form, and are supposed to be the sacred baskets used to contain meal intended for religious ceremonies. A curious kind of ware made by these Indians is called corrugated pottery. The clay is laid in threads united, the vessel assumes the shape desired; it is then smoothed on the inside, while the rough edges are left on the outside. Many grotesque forms are seen in their vessels, showing that the sense of the humorous prevailed with this ancient people.

30 TONS OF HUMAN BONES have been landed at Bristol, from Turkey, the results of the battles of Sept. 1877. The council fire for January, 1882, calls attention to this fact, and points a moral by it. Pre-Historic archæologists will be interested, for the bones of horses found in one locality in Europe, have formed a mysterious subject of study, and the bone heaps frequently found in this country, have excited surprise, but nothing has equaled this number, gathered from historic times, and civilized people.

MUMMIES IN MEXICO. Dr. Edward Palmer has discovered a number of mummies in south-western Couhilua, Mexico. They were found in the caves where nitre is worked, and resemble those found in the caves of Kentucky and Tennessee. The relics found with them were a feather head-dress, braided sandals, pieces of finely woven cloth, in different colored patterns, and a fringed skirt, on the edge of which feathers had been fastened. Dr. Palmer thinks that the bodies were placed in these caves, before the conquests by the Spaniards.

A NEANDERTHAL SKULL has been found at Kircheim on the Eck. It is strongly dolichocephalic, prognathic, and with heavy jaw bones. Quite handsomely adorned pottery, bones of the cow, dog, wild boar and sheep were found with it.

A PILE DWELLING has been found in Germany in a marsh at the entrance of Havel into the Spree. The relics, with it were 3 swords, 5 celts, a knife, 5 spear points, a ball of sand stone, several bits of horn, a grinding stone, a canoe 10 feet long, dug out from an oak log. The weapons were of bronze.

There have been dug out from the mud of the Bieler Lake, bronzes which were evidently made on the spot, armlets, finger-rings, buttons, celts, moulds for casting a rude copper ax, horn lance points, and a lump of tin. The pottery shows the use of

the wheel, and contained patterns resembling the Grecian. The relics are supposed to have belonged to a time before the Romans. A new cave equal to the Mammoth and Wyandotte caves, has been discovered near the corner of Tennessee, Georgia, and Alabama. Prof. Cope, who has explored it, found abundant traces of human habitation near its mouth, also farther in five kinds of animals living in the waters, but all differing decidedly from those of the caves of Kentucky, Indiana and Virginia.

ANOTHER PRE-HISTORIC CANOE has been discovered in the old bed of the Rhine, near Gardou, France. It is 38 feet long, 3 wide, 2 deep, will probably hold about 12 men. Braces were left to extend across the inside, and five pairs of holes were bored inside for oars. A canoe also is described in the Antiquary for November, 1881. It was found near———— England. It was 10 feet long.

INSCRIBED ROCKS. Dr. Flint has been exploring in Nicaragua and has gathered many copies of inscriptions in rocks and caves. The next number of the Antiquarian will contain an interesting communication from him.

BRONZE IMPLEMENTS IN RUSSIA. At the Archæological Congress at Tiflis, which was attented by about 800 persons nearly all from Russia, there were exhibited from Russia great numbers of bronze implements, hatchets, carved wild animal ornaments, and religious objects belonging to some unknown worship, also 200 jade hatchets from the bank of the Augara River near Irkutsk. These are the first jade implements observed in the graves of Russia,. About 200 graves belonging to the stone, bronze, and iron periods, have been excavated near Pyatigorsk in the Caucasus.

A COLLECTION OF PRE-HISTORIC AND ROMAN ANTIQUITIES, illustrating the history of the settlement of the Danube, for 200 years was exhibited at the congress of German archæologists which met at Regensburg, August 8th, 1881.

A DISTINCT COPPER AGE forming a transition to the bronze age, was one subject of the address of Prof. Ranke, the secretary of this congress. The evidences of this age have been found both in the Iberian Peninsula, and in Hungary.

ETRUSCAN RELICS found in Austria. Count Wurmbrand, delivered the opening address at the Austro-Hungarian Association in August last, and referred to the above fact. The mammoth and diluvial human relics found in Stansbury, were also the subject of discussion at the same congress. The Celtic question, that is the question, whether the later Germans were identical with the earlier Celts was also a subject of discussion at this congress.

GENERAL REVIEW.

PROCEEDINGS OF THE AM. PHILOLOGICAL ASSOCIATION. 13th annual session at Cleveland, on July '81.

Papers read vis: Homer, and Strabo, showing the reasons why Strabo so often refers to Homer and Homer's geography. The home of the primitive Semitic race, by Prof. Toy. The evidences of the original dwelling place of the Semitics are as follows: (1) National traditions, (2) Grammar of the parent language, (3) Words descriptive of primitive localities, (4) ancient history.

2—The precious stones of the High Priest's Breast-plate Ex. xviii: 17-20. Jade and camelian seem to be about the only stones which have been identified; the remarks on Jade are full of information.

3—On mixture of language by Prof. D. Whitney. Max Muller's theory is that a mixed language is an impossibility. The inflectional system seems to be inaccessible to mixture. Lepsius takes issue with him. Prof. Whitney shows what parts are modified when languages are mixed.

PROCEEDINGS OF THE AMERICAN ORIENTAL SOCIETY at New Haven Oct., 1881.

Papers read, 1, Notice of F. Delitzsch's views as to the alleged site of Eden, by Prof. C. H. Toy. Delitzsch holds that the Scriptural and Babylonian cosmogonies are similar, and that Eden was on the Tigris and Euphrates. Havilah was in the northern part of Syria and Kush on the Persian Gulf. Prof. Toy thinks there are difficulties in the theory, especially the fact that a river "divided into four heads." The river "encircles" the land of Havilah. Gen. x: 7 also confines Kush to Arabia. On the Aboriginal tribes of China by S. W. Williams. These tribes are connected in their several affinities with the Laos of Siam and Burmah. They resisted the control of the Chinese as early as 1000 B. C. Most of them were first conquered B. C. 250-220. Some of these tribes still live in cliffs, and dig caves for dwelling. Others have halls called Demons Hall, where they worship the dead.

4—Henotheism in the Veda, by Prof. W. D. Whitney. Max Muller holds that Henothism is the worship of one God at a time, the feeling being that their God is as good as all the Gods, and that there is no rivalry; the Ephesians when they cried out for the space of two hours: "Great is Diana of the Ephesians, were Henotheistic." Henotheism prevails in the Veda. Prof. Whitney thinks that this view is exaggerated. The Gods are addressed in pairs. The Veda cultus includes all the

Gods together. No polytheist ever made an exact distribution of his worship to all the Divinities. In the Veda, however, we find a primitive polytheism. When the idea of grades in the Gods takes foot-hold the first step to Monotheism appears.

THE JOURNAL OF THE ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN for February, 1881, mentions the fact that tumuli are very numerous in south Russia. They are of two classes. "Moghili" and small tumuli, 2 to 3 feet high. They are conspicuous features of the Steppes, relieving the level monotony of the horizon. The "Moghili" yield many relics in bronze, iron, bone and flint. Polished stone is scarce. In Central Russia pre-historic relics have been found on the banks of the river Oka. There are remains similar to Swiss Lake villages in this region, also paleothic implements accompanied by bones of the mammoth Rhinoceros Bospriscus, &c.

A JADE IMPLEMENT has lately been found in Switzerland. Hodder M. Westropp, Esq., thinks that it must have come from some indigenous rock in some other European locality. No proof has as yet been advanced that Europe had any communication with the East, either in language or the transport of tools in the same age. Mr. Carmichal could see no reason on the other hand for denying the possibility of the early importation of jade into Switzerland, A stone implement of paleolithic type has been found in Algeria. Sir John Lubbock refers to the fact that paleolithic implements were discovered by Mr. Bruce Foot in India. Some chert implements found in Babylonia approach closely to paleolithic types certain South African flakes may also be paleolithic. Rude implements of quartzite of Paleolithic type have been found in Madras. Some specimens found in the Nile Valley, are paleolithic. A single specimen presented by Mr. Lubbock to the Institute of Algeria, would indicate that paleolithics also exist in North Africa. Mr. Lubbock thinks that they have not been discovered either in Scandinavia or in Russia.

THE SAVAGE NOTION OF THE SOUL. The Fijian word for soul is yalo, shadow. R. H. Codrington thinks this the result only of a confusion of mind. There seems to be no certain line of demarkation in Fiji between departed spirits and Gods. Mr. Hyde Clarke gives an explanation of masques in this connection. The Medicine Man who wears the head or masque of the bear, is supposed to be possessed by the animal, whose resemblance he wears. The ancient type of fetichism was at the basis of mythology. A "fetich" or "Wraith" of a living being may be the equivalent of the spirit. This might enter another living body of a man or animal. The "ka" of the ancient Egyptians,

recognized among Babylonians and Hebrews, may be traced to the same source.

The Journal of the transactions of the Victoria Institute, July 1881, contains an article on the early destinies of mankind, by John G. Howard, F. R. S., also one on pliocene man in America, by James Southall, L. L. D. The latter gentleman says the latest claim for great antiquity of man, has proceeded from America. Man existed in America in the tertiary. He takes the position that the mortars and pestles found in the auriferous gravels were the results of the mining processes among the primitive people, but were not very ancient.

Rev. W. M. Beauchamp has sent us a newspaper article on the location of Onondaga. That gentleman has studied the map and pictures given by Champlain (1615) and has compared the topography as it is at present. Michael's pond is placed where this fort is supposed to have been located. Relics have been discovered; bone implements, pottery, stone and clay pipes, a bird totem, also one of those triangular war arrows which Gen. Clark used to consider a certain mark of Cayuga occupation.

KANSAS CITY REVIEW OF SCIENCE, for February contains a reply to Prof. Putnam's inquiry about copper inplements. Prof. H. A. Reid acknowledges that his specimen is not cast, but swedged. Molds were made of stone, and the cold copper hammered into the mold and so it had the appearance of being cast.

BOOK REVIEWS.

IS THE DAKOTA RELATED TO EUROPEAN LANGUAGES? BY A. W. WILLIAMSON, ADJ. PROF. OF AUGUSTANA COLLEGE, Rock Island, Illinois.

Prof. Williamson is a son of the missionary formerly among the Dakotas, who, with Rev. Dr. Riggs, has done so much in the study of the Dakota language. It was the opinion of the father that the Dakotas were of European origin.

The son has taken this opinion and endeavored to carry it out, illustrating the subject by various references to the language. He says when we hear the Dakotas say mi for me, ya for you, pap for papa, mama for mamma, wakta for watch we are almost surprised to learn that they are genuine words. He says also, "my father and many others have searched in vain for resemblances in vocabulary between Algonkin and the Dakota languages." It was the opinion of the elder Williamson that the Dakotas landed at the mouth of the St. Lawrence about three thousand years ago. At some remote period they settled in the valley of the Ohio, and finding a rich agricultural country they remained there and built the mounds.

THE MADISONVILLE PRE-HISTORIC CEMETERY. ANTHROPOLOGICAL NOTES, BY F. W. LANGDON, M. D.

The Madisonville cemetery is one of the most interesting finds. We had the privilege of visiting the place with the members of the American Association last

fall. Situated on a high bluff overlooking the valley of the Miami, and surrounded by deep gorges, it is such a spot as might well be chosen for a burying place for either Mound Builders or Indians. The deposits of bones and relics exceed anything that has hitherto been discovered. The ground has been dug over by the employes of the Madisonville Scientific Circle and every foot of it has yielded rich returns of pre-historic relics. The collections of bone implements in Cincincinnati which have been gathered from this place are marvelous, both in the number and variety and surpass any other collections in the country. The horns of deer, the thigh-bones of buffalo, the ribs of bears, the wing-bones of wild turkeys and other birds, are mingled with great variety of human bones. These were associated with very delicate flint scrapers, and with stone awls and many implements of various kinds; many of them showing very considerable degree of workmanship. The account of this find with a description of the ash pits and the pottery vessels and bone implements has been published by the Natural History Society of Cincinnati. (See quarterly report of Cincinnati Natural History Society, Vol. 2, Nos. 3 and 4).

This pamphlet may be regarded as supplementary to this, as it gives the measurements of the skulls and descriptions of the bones of the skeletons, and is valuabel on account of its specific character and its accuracy. The pamphlet is illustrated by cuts and tables. It does credit to the author and to the society by which it is published.

THE ANCIENT MOUNDS OF ILLINOIS, BY THE HON. WM. MCADAMS, FROM THE PROCEEDINGS OF THE A. M. ASSOCIATION, BOSTON MEETING.

Mr. McAdams is one of the best explorers and collectors in the west, and is withall a discriminating and careful student, and a terse and perspicuous writer. This pamphlet describes some interesting mounds in Illinois, which are supposed by the author to be the remains of buildings. Mounds are found in groups from three to twenty in number, one of which is always larger than the rest and occupies a commanding position. The subject is, however, one which needs more study both in connection with the mounds and with the customs of the native Indians.

THE CRANIA OF NEW ENGLAND INDIANS. By Lucien Carr, Asst. Curator of the Peabody Museum. Published by the Society Boston' 1880.

The study of bones is a specialty with the author of this paper. It is possible that in this line of study there may come more discoveries in reference to the prehistoric inhabitants than we have hitherto realized. It is a department in which very few are engaged. The vast collection of skulls formerly belonging to Dr. S. G. Morton, remains in the museum of the academy of science of Philadelphia, and probably there is not a man in the academy or in the city who knows anything about them worth telling. It is well that the Peabody museum has some one who is making this subject a study. Mr. Carr has the happy faculty of making a very dry subject seem interesting.

ABSTRACT OF TRANSACTIONS OF THE ANTHROPOLOGICAL SOCIETY OF Washington, D. C. Prepared by J. W. Powell, Washington D. C. 1881.

This pamphlet gives an abstract of the various papers which have been read before the society during the two years of its existence. It is somewhat unsatisfactory as it contains only brief reports of some very valuable papers.

ANCIENT MAN IN AMERICA. Including works in western New York and portions of other states together with structures in Central America. By Frederick Larkin, M. D. Published by the author, 1880.

This book was commenced as newspaper correspondence. It is completed in the same style. The author believes that the ancient man in America was a civilized being, very different from the ordinary Indian and very ancient. He thinks that the Mound Builders were cotemporaneous with the Megatherium and the "Meliosaurus." They also used the elephant harnessed; had extensive roads; built houses and used ising glass or mica for their windows; they understood the art of writing ahd printing, and tanning leather, and many other arts which pertain to civilization. The works in New York state are Mound Builders' works. The Mexicans were derived from the Mound Builders; both Mexican and Mound Builders delighted in great and imposing structures without regard to expense. The worship of idols not unlike that practiced in Babylon and Asia, prevailed among the Mound Builders. They used oil of petroleum and had oil wells which are now to be discovered.

MAN'S ORIGIN AND DESTINY. Sketches from the platform of the Physical Sciences by J. P. Leslie, Boston, 1881.

This book is a second edition of the lectures which were delivered before the Lowell Institute, in the year eighteen hundred and sixty-five. The style partakes very much of the platform and the reader can easily see that the lectures were prepared for a particular audience. There are however, some things in it interesting for the archæologist and many suggestive thoughts for the reader.

EARLY SETTLERS IN NEW ENGLAND. The condition, life and habits of the native Indians of America, and their treatment by the first settlers—an address before the R. I. Historical Soc'y Dec. 4, 1879, by Zachariah Allen, Providence, R. I., 1881.

The illustration of Indian life given by this pamphlet is very valuable. There are descriptions of the implements and tools used by the natives, and of the houses in which they lived which furnishe many suggestive hints as to to the use of relics which are now found in New England. The quotations from early New England authors on these points are very valuable. The pamphlet is very useful to the archæologist.

GENEALOGY OF THE CHILD. Child's and Childe family from 1630 to 1881, by Elias Child, published for the author, by Curtis & Childs, Utica, N. Y. 1881

This is a magnificent book. As a specimen of printing it is unsurpassed. It contains a large number of steel plates and photographs, and the names of eight thousand and fourteen persons. Among the portraits are Hon. Linus Childs, of Boston, Geo. W. Childs, of the Public Ledger, Philadelphia, Sam'l T. Morse of telegraph fame, and a number of others. The book contains 842 pages and shows an immense amount of labor and care. It is a monument of industry and a fine family memorial.

A CENTENNIAL ADDRESS delivered in Sanders' theatre at Cambridge, Mass., June 7, 1881, before the Mass. Medical Soc'y by Sam'l Abbott Green, M. D, Groton, 1881.

This address contains a brief and comprehensive history of the medical practice in Boston and New England for the last hundred years. The author has a happy faculty of seizing upon the salient points of his subject and bringing them out clearly.

REPORT UPON U. S. GEOGRAPHICAL SURVEYS west of the one hundreth meridian in charge of First Lieut. Geo. W. Wheeler. Vol. VII Archæology, Government printing office, Washington, 1879.

The contents of this volume are as follows: Reports upon Archæological and Ethnological subjects by F. W. Putnam; General Archæology and Ethnology of Southern California, report by Dr. H. C. Yarrow; Chipped stone implements, by C. C. Abbott, followed by a description of other relics by the same author, including mortars made of stone, steatite cooking pots, tubular pipes, perforated stones, plummet-shaped implements, ornaments, implements made of bone, and sculptures, also whistles and musical instruments. There is one chapter on textile fabrics, one on shell ornaments, by Prof. Putnam; one on beads, by Prof. S. S. Haldeman, and one on the Crania from Santa Barbara, by Lucien Carr. Part II treats of the Pueblo ruins. The Pueblo of Taos and the Pueblo of San Juan, by H. C. Yarrow. The Cachina, a dance at the pueblo of Zuni, by Francis Kett. Report on the ruins of New Mexico, Dr. Oscar Loew and Lieut. Rodgers Birnie, Jr; the remains of population in Mexico, by Prof. E. D. Cope; followed by an interesting chapter on the implements of stone and pottery obtained in New Mexico and Arizona. The appendix contains a large amount of material on Indian dialects, by Albert Gatschet. The volume is finely printed and splendidly illustrated, and is one of the finest reports ever published in this country.

ON THE RUINS OF THE STONE PUEBLO ON THE ANAMAS IN NEW MEXICO with a ground plan by Hon. Louis H Morgan, from the 12th annual report of the Peabody Museum.

CONTRIBUTIONS to North American Ethnology, Vol. IV. Houses and house-life of the American Aborigines, by Louis H. Morgan, Washington Printing Co., 1881. Part I. Social and governmental organization. II. The law of hospitality. Part III. Communism in living. Part IV. Usages in respect to lands. Part V. Houses. Under the head of houses; those of the Indian tribes north of New Mexico are first treated, next, the houses of the sedentary Indians of New Mexico, next, the Mound Builders, next, those of the Aztecs or ancient Mexicans, and

lastly the ruins of houses in Yucatan and Central America. Each receive a chapter. These descriptions are generally correct, being founded on narratives of early historians, and on reports of later investigations, and lastly on actual observations. The only chapter to which we can take exception, is that on the Mound Builders a subject on which the author was as little acquainted as any to which he gave attention. While accepting the theory that the communistic mode of life prevailed among the aborigines of America, we do not believe that the communistic houses were placed on the earth walls or mounds. In the first place the mounds themselves are found in a great variety of shapes, many of them are isolated and too small to accommodate a wigwam on their top. Secondly, the earth walls are frequently so narrow and crooked, and at the same time so extended, that they show that they were designed for some other purpose than as foundations for houses. Third, the few earthworks which were wide enough and straight enough to admit of the communistic or long house being built on them, would not have served as defences to the houses, and would have been very inconvenient. Frequently these earthworks have a deep ditch on the inside, but no ditch on the outside, showing that the enclosure was designed more for keeping game or guarding prisoners, than as a place where houses were to be erected. There are elevated platforms in the Southern states where the houses of Caciques were built, but these give no indications that the common people erected their houses on earth walls. The author's method of re-constructing the Mound Builders' houses does not seem reasonable to those who are familiar with the works themselves. The description of the Iriquois houses, and of the Pueblos and Cliffdwellers given by this volume is good. As the last product of the author's pen, we look at the book with great interest, as it is a reminder of the noble man's industry and power of thought. The volume is well illustrated and finely printed.

PRIMITIVE INDUSTRY, or illustrations of the handiwork in bone, stone and clay, of the native races of the northern Atlantic seaboard of America, by Chas. C. Abbott, M. D., Salem, Mass., Geo. A. Bates, 1881.

This is virtually a revised edition of the authors work, formerly published by the Smithsonian, under the title of the "Stone Age of New Jersey." This is nowhere stated in the book, but the reader will recognize the cuts as being the same, and many of the descriptions being very similar. The arrangement of the book is one, which follows the cabinet, or museum; the material being the basis of classification rather than the stages of handiwork, or the uses to which the articles are subject. This arrangement is better for the classification of relics in a museum, than in a treatise on primitive industry. It is very easy, but it gives no history. Another anomolous feature is, that the author's treatise on the rude stone implements is deferred until the very last chapter, so that if we look for the most primitive industry we must wait until the last. This gives the book a somewhat fragmentary and unfinished character. The descriptions of relics such as are found in New Jersey and in New England are clear and discriminating, and so the book has a value. If the author, however, could have taken a broader field, and included the relics of the Mound Builders and of the Pueblos and shown the differences between them, his book would have been much more valuable and better illustrated what was really the primitive industry of this continent. The publishers have presented the public with a handsome book, and it is to be hoped that they may meet with a ready sale, sufficient, at least, to pay the expenses of such a work.

THE MANUSCRIPT OF TROANO, by Prof. Cyrus Thomas. From the American Naturalist, Aug. 1881.

This manuscript was found about the year 1865, at Madrid, Spain, by the Abbe Brasseur de Bourbourg. The author thinks that the characters on it, are the same as in Landas alphabet, and that the work is some kind of a calendar containing directions to the priest, in connection with their religious duties. The author has succeded in deciphering a number of the hieroglyphics, bnt does not give in this paper either an explananation of these, or a chronological system of the Mayas. It is a valuable monograph.

MISSISSIPPI AS A PROVINCE, TERRITORY AND STATE, with biographical notices of eminent citizens. By J. F. H. Claibourne, volume I. Jackson, Miss., Power & Barksdale, Publishers.

This book, aside from the engravings and somewhat inferior paper, is a nicely prepared volume. It is a history of Mississippi from the time of the

Spanish explorations, to the present. The first volume reaches the period when the territory had become a state, and when its latest period of history had begun. The description given in it of the early explorations and the quotations from the personal narratives of explorers render it valuable to the archæologist. It contains mnch information about the Natchez, the Choctaw and other Indian tribes. The style is interesting and the material is well selected.

THE RELATIONS OF THE INDO-CHINESE and Inter-Oceanic races and languages, by A. H. Keane, London, Truebner & Co., 1880, pp 36.

The linguistic and ethnic relationship of the scattered populations of the Indian archipelago and the islands of the Pacific—commonly called Malay-Polynesians—to each other and to the rest of the human family, and the direction which their migrations have taken, have been the subject of much speculation among scholars, with conclusions, as yet, quite discordant. Among the various theories proposed that of Mr. Forster, and after him Humboldt, assumes that all languages of the brown races sprang from a common mother-tongue, and that the people speaking them belong to the same stock. Mr. Crawford, the author of a grammar and dictionary of the Malay language, holds that there are innumerable "distinct and independent" languages in Oceanica. A considerable number of distinct races is the logical inference from this. A third theory advocated by Mr. Wallace in his "Malay Archipelago" is to the effect that the brown Eastern Polynesian race is connected with the black Papuans rather than with the yellower Malays, though elsewhere he expresses a doubt whether it belong with either. Mr. A. H. Keane, who is favorably known as a writer on linguistic and ethnological subjects, accepting Mr. Forster's theory in a modified form, sets forth his views with cleanness and ability in the monograph before us. The following is a brief resume. The discovery of extensive ruins in Siam and Camboja which resulted from the French occupation of Saigon, and especially the expedition up the Ne Kong river in 1866-68 brought more directly to the notice of Europeans, a people of Caucasian form and feature, and skin shading from white to brown. It appears that they once formed a powerful kingdom extending from the Gulf of Tonquin to the Gulf of Siam, but are now found among the mountains west of Annam and on the highlands of Yunaan. They are variously named by their neighbors, but call themselves Khmers in the South and Stiengs, &c. in the wilder regions. This people our author does not hesitate to regard as an early offshoot from the larger groups which migrated from the Iranian plateau to settle in Europe and India. They are the oldest of the present populations of farther India, and have the best title to the name of Aboriginees. Subsequently to their settlement in this region, the Mongolian Hordes swarmed down from the north, pressing the Caucasians into the mountains, where they are found to-day, or toward the south and onward to the islands, which at that time may have been connected with the continent. Following in their track, the Mongolians gradually came into peaceful relations with them, resulting in intermarriage and the rise of the mongrel race known as Malays. The speech of the Mongolians was monosyllabic, in which "tones" were an important element, while that of the Caucasians was polysyllabic and toneless. As the two types of speech could not co-exist after the union of the two peoples a struggle arose between them, resulting in the survival of the polysyllabic tongue, which alone is found in this area at the present time.

The races did not commingle everywhere in the same proportions, so that in the western pars of the archipelagos the yellow of the Mongolians predominates, while to the eastern the fairer element prevails. When, proceeding in the same directions, we reach eastern polynesia the Mongolian strain disappears leaving only pure Caucasian. The physical differences of these two extremes of population are very marked, the Malays showing the short, squatty form of the Mongols, while the eastern Polynesians are remarkably tall and athletic. The ethmic movements resulting in these conditions all belong to pre-historic ages.

Besides these higher races representing well known Asiatic types, there are scattered populations of the black and wooly-haired people regarded by many writers as forming a single group, and called indifferently Negritos or Papuans, but thought by Mr. Keane to represent two distinct types. The Negritos are found mainly in the western part of the Oceanic area, and the Papuans in the western. The former have been generally supplanted by the higher race, while the latter have in part fused with it, the union resulting in the Albinos and Mel-

anesians. Thts black element, which seems to have occupied the Oceanic area before the advent of the superior races, Mr. Keane does not attempt to trace to its origin. These in brief are the views expressed in this interesting paper, and they certainly furnish an explanation of many facts which have hitherto puzzled ethnologists,

J. A.

EARLY CHICAGO, FORT DEARBORN, by Hon. John Wentworth, L. L. D.

The story of the early settlement of Chicago and the erection of Fort Dearborn is welll known. By the treaty of Greenville in 1795 the Pottowattomies and Miamis relinquished their right to one piece of land six miles square at the mouth of the Chicago river emptying into the south-west end of Lake Michigan. where a fort formerly stood. This was probably an old French trading post. The first Ft. Dearborn was erected in 1804. This was abandoned at the time of the massacre in 1812. It was re-occupied in 1828. Ft. Howard at Green Bay, and Ft. Winnebago were also at the time Garrisons situated among the Indians. It was finally abandoned in 1850.

DISCOVERY AND CONQUESTS OF THE NOTRH-WEST with the history of Chicago, by Rufus Blanchard, Wheaton, R. Blanchard & Co., 1881.

The early history of the old north-west territory has never been written. Excellent monographs on LaSalle and the great explorers have indeed been prepared by Hon. Francis Parkman and other authors. There are also many fragmentary sketches of the subject.

This work by Mr. Blanchard comes nearer to a connected history than any other, but is too much influenced by local considerations and the overshadowing magnitude of the one city to be really the work which we have looked for. The early explorations of the interior and the various Indians, wars and the experience of the early settlers of Illinois, especially in the vicinity of Chicago are admirably described and the book is very interesting and readable. In the absence of any more general and connected history of this interesting region it is invaluable, as it narrates the events in an orderly and suggestive manner, and brings out some points as to the localities and some incidents on the life of the notable explorers.

THE STATE RELIGION OF CHINA. By Inquirer, Shanghai American Presbyterian Mission press, 1881.

The Chinese call their supreme God, Tien and Shangti, that is Heaven. The Chinese also worship ancestors. The analysis of these two forms of religion has resulted in two different schools. Dr. Legge representing one side, and Rev. A. P. Happer of Canton, the author of this pamphlet representing the other side. The questions which have arisen are: Do the chinese mean the material Heavens? Is this worship of ancestors merely honorary or sacrificial? Mr. Happer believes that the Chinese are polytheistic, but they always think of the visible heavens as deified. It seems to be the object of this pamphlet to prove this point. It is an interesting contribution to the science of comparative religion.

ARYO SEMITIC SPEECH. A study in linguistic archæology, by James Frederick, McCurdy, Warren F. Draper, Andover publisher.

The scholarly work first appeared in the Bibliotheca Sacra. The effort to show the relationship between these two languages has been made by several authors before Rev. Dr. McCurdy undertook it. This book not only gives the history of these efforts but lays down a basis for discovery. Great advance has been made in comparative physiology, and the structure of a language with the root forms and inflections, and the Morphology of the two are now much better understood. Accidental resemblances in words, meaning the same thing, cannot be made a basis of proof of the affinity of any two languages. The old author, Bryant, in his ancient mythology carried accidental resemblance to a wonderful extreme. But there are many nowadays who are as full of vagaries as he. We recommend this book as instructive to read. Whether the author has really shown the connection between the Aryan and Semitic he has reached what might be called the scientific basis at least, a point which requires very profound study.

EAST OF THE JORDAN. A record of travel and observation in the counties of Moab, Gilead and Bashau, during the years 1875-1877, by Selah Merrill, Archæologist of American Palestine Exploration Society, New York, Charles Scribner's Sons.

This is a beautifully printed book and contained many fine engravings illustrative of the archæology of eastern Palestine. The publishers deserve the thanks

of the public for issuing it in so attractive a form. Among the engravings the most valuable to the archæologist are those of a cyclopean structure, found among the cities of Bashan, also a colossial head of Astarte with the crescent moon upon it. Also a rude sculpture supposed to be the God Bacchus and another sculpture found upon the wall of a castle at Salchad, representing two lions and a palm tree between them. Among the specimens of ancient architecture are windows and doors, and an arched room found in the Hauran. These are supposed to be Roman. A fine specimen of the beveled stone is found in the Palace of Hyrcanus at Arak. A Roman road is also represented with its tessellated pavements, showing the ruts made by the chariot wheels. A Roman road at Gadera, the finer specimens of sculpture are the theatre and the Temple of the Sun and the remains of an elegant edifice at Gerash, in Gilead. These are beautifully engraved. There are also fine engravings representing a large theatre at Bosrah, and other ruins on the Jabbok, also the ruins of an ancient bridge across the Jordan. Four engravings represent symbols on ancient altars, found at Jebail, among them a bearded serpent and an eagle. These engravings all show the tentative character of the book. The letter press does not quite fulfill the promise which is given by the appearance of the book and the reputation of the author. Like many other works of this kind there is two much straw for the grain.

Personal incidents would be better in a book of travels than in an archæological report. Still there is a large amount of valuable information in the book. It is written in a popular style, and should meet with a ready sale. It is to be hoped that popular interest may be awakened in the subject of Palestine exploration, so that America may be represented as well as England and Germany in this work. There has probably been carelessness heretofore as it is said that the squeezes of inscription which were brought back by the American party were actually used by a blundering Irishman in kindling a fire. The lead which Dr. Robinson took in the work of exploring west of the Jordan, has not been followed up by American scholars, the English exploration party having occupied the field. The lead which the Americans have taken in exploring east of the Jordan, seems also likely to be followed by English explorers. If the three nations could combine doubtless much more thorough work would be done. Dr. Merrill deserves thanks for having accomplished as much as he has.

THE RIDE THROUGH PALESTINE, by John W. Dulles, D. D., Philadelphia. Presbyterian Board of Publication.

This is a charming book, published in a most beatiful and attractive shape. We have not read a volume with so much interest for a long time. Its descriptions of the scenery, its allusions to the bible narrative and to historical events, and the minglig of personal incidents with careful observations, give it a peculiar fascination. The book ought to be popular It is not expensive, is beautifully illustrated, interesting in style and instructive in its contents.

THE ORIGIN OF THE WORLD. According to Revelation and science. By J. W. Danson, L. L. D., F. R. S. F. G. S., New York. Harper Brothers, Publishers.

Dr. Dawson is a reverent scientist. He takes delight in showing the harmony which exists between the book of nature and revelations. His thorough acquaintance with his own department of science, geology, and his candor in treating every subject, give him much influence in scientific circles. This book well represents the spirit and ability of its author. There is no dogmatism or narrow-minded bigoty about it, and yet none of the flippant and arrogant assertions which are sometimes seen. It is very suggestive both to the scientist and to the theologian. The book does not enter upon the province of archæology except in a few cases, where a chapter is devoted to the higher animals and man, and another to the unity and antiquity of man. Otherwise than these the reasoning seems to be based on geological facts. We commend the book to such scientist as think that there is no reconciling scripture and science. Possibly they may think differently.

THE LOST JEANNETTE.

THE AMERICAN ANTIQUARIAN

VOL. IV. APRIL–JULY, 1882. NO. 3.

THE NATIVE RACES OF COLOMBIA, S. A.

BY E. G. BARNEY.*

(First paper.)

"Los Estados Unidos de Colombia" cover more than 500,000 square miles in the North-Western part of South America, having a frontage of about 1,250 miles on the Carribean Sea, and about the same upon the Pacific.

The national government is composed of nine sovereign states and six organized territories, the latter comprising about two-fifths of the national territory.

The states are Panama, Cauca, Antioqua, Bolivar, Magdalena, Santander, Boyaca, Cundinamarca and Tolima. The territories are Caqueta and Cásanáre lying upon the waters of the Amazon, Gaojaira, North-Eastern part of Magdalena, Los islas de los Perlas, off the Gulf of San Miguel, and two groups of islands in the Carribean Sea.

At the time of the discovery and conquest of the territories and states above named, A. D. 1498 to A. D. 1545, there existed a dense population, variously estimated at from 8,000,000 to 20,000,000 souls, and of these the greater portion were then as now, crowded within the territories of the present states.

The state of *Panama* contains about 30,000 square miles, one-third of which is uninhabitable, because of being too mountainous, too marshy, or devoid of water. The residue, at the time of its discovery by Columbus, A. D. 1502, to its conquest by Balboa and others, 1510 to 1520, contained from 600,000 to 1,200,000 inhabitants. These were in various stages of advancement, from dwellers in the tree-tops to a degree of civilization very much superior to that of Briton at the time of the Roman Conquest, or indeed at the time the Saxons ruled that island, A. D. 500 to 650.

The letters of Columbus to the Catholic sovereigns of Spain speak of his brother having seen near the mouth of the river Belen a house devoted to the dead, in which were a large number of embalmed bodies, which emitted no unpleasant odor. Over these were wooden slabs, in which were engraved the figures of various animals, and one in which the figure and features of the defunct were very accurately delineated. Also during a journey of three weeks in the interior, B. Columbus found a dense population—entirely agricultural, and passed at one place eighteen miles through continued fields of corn. He speaks passingly of his reception by various Caciques, and of himself and party of thirty to eighty-five men being amply accommodated in the houses of the same.

Christopher Columbus was so well pleased with the results of this exploration that he writes to the king that he had seen more gold in this section in two days than in four years on the island of San Domingo. That part of the territory visited by Columbus, as above stated, lies West of Belen.

The inhabitants of the coast and islands adjacent wore very little clothing, but compensated for its absence by wearing many ornaments in gold, of so much value that even the great discoverer could not restrain himself from allowing force to be used to take from one Indian an ornament worth $180, and from another $120. In the interior, golden ornaments of much greater value were commonly worn, with more clothing.

It does not appear that either the ornaments or clothing were manufactured by the natives of this section, but by particular tribes in the interior of Cauca and Antioqua, as also it is probable, by the people of Peru, Guatemala, and, perhaps, Mexico, of all of whom Columbus heard from the natives of Panama, but which he understood as proving his vicinity to the land of his dreams and ambition, China and Far Cathay.

The gold in dust and crude lumps, dried fish, and some products of the soil were exchanged with the manufacturing tribes for the ornaments and clothing, which had more value in the eyes of a purely agricultural and sea-faring people than their own crude productions.

Balboa first heard of the *South Sea*—as the Pacific Ocean was at first called—at the Castle of the Cacique Comagre, where himself and force of 100 armed men were entertained in a castle 150 paces front by 80 paces deep, divided into spacious apartments, suited to the wants of a rich and powerful chieftain. In one of the apartments in rear of the family room of the chief were suspended the embalmed ancestors of Comagre, representing many generations. The grounds around the castle were spacious, and shaded by an abundance

of towering palm trees, while beyond were gardens of vegetables and orchards of fruits. A right royal present of 4,000 castellanas in golden ornaments—equal to $30,000 to-day—was given to Balboa by Comagre, and it was the pounding up of these ornaments into masses for convenient carriage that drew from Panguiaco, the heir apparent, the remark that "it was a shame to destroy so much of beauty for the mere purpose of gratifying their thirst for gold, that if gold was the only object, they should cross the mountains to the other sea, where they would find a people whose most common vessels were of gold." The interpreters of Balboa hearing this, informed Balboa, and he then and there determined to cross the mountains in search of this new land and ocean. The route of Balboa to the Pacific was somewhat circuitous, but until he reached the rough and precipitous mountain sides it lay through a series of nations of natives, whose princes were more or less the equal of Comagre in wealth and power. On the southern slope also, after passing through a desert space, he encountered rich and powerful caciques, and in places dense populations. In returning he varied his route so as to embrace many tribes not before visited, resulting in the most successful explorations hitherto made by any adventurer, having gathered in the way of presents nearly $1,000,000, in gold and pearls, without the loss of a man.

Historians name more than seventy caciques within the present limits of Panama, each of whom could bring from 500 to 10,000 warriors into battle; and their arms, discipline, heroism and patriotism will compare favorably with any European nation before the introduction of gunpowder, except, perhaps, Greece and Rome. These people, so far as I can decide after a very careful research and observation, were of the same race as the North American Indians—such as the Cherokees, Creeks, etc.—having similar manners and customs, but from the almost entire absence of game they were reduced to the sole pursuits of agriculture and fishing for a support, and there is abundant proof that what with a fruitful soil, a genial climate and great industry, they had the greatest abundance of all the requisites of life.

Their weapons of war were bows and arrows, darts, lances, war-clubs, etc. Their implements of husbandry were stone axes, and sharpened sticks hardened in the fire, and their mills were smooth stones, rubbed together by hand. Their nets for fishing were made of the fibres of the Agave Americana (Figue and Pita), and their hooks were made from turtle shells. None of the natives of Panama are mentioned as cannibals, or as being cruel to prisoners. They did not mutilate

the dead in battle, but like other American Indians began battle with their terrible war-cry.

The conquest of Panama cost more Castillian blood than that of Mexico, Peru, and Guatemala combined.

So far as I have been able to learn there exist no ruins of former civilizations within the State of Panama, and I am impressed with the belief that its people were essentially one and the same in origin, with no greater relative differences of condition than may at all times be found among even the most civilized peoples.

The State of *Cauca* borders nearly 1,000 miles on the Pacific, and near 300 miles on the Carribean Sea and Gulf of Darien (formerly called Uraba, from an Indian chieftain of that name, and is supposed to have been so named by Rodrigo Bastidas, who is believed to have explored the coast from "Cabo de Vela," northeast part of Colombia, to the Gulf of Darien, A. D. 1499 to 1501.)

The upper Cauca and the Atrato rivers divide this state into three principal sections, while the bordering mountain ranges again divide it into smaller divisions.

The Pacific slope of the coast range seems to have been mostly occupied by natives of the same stock, and of the same class as those found on the coast and interior of Panama, and therefore need not be described.

The Atrato slopes of the same and opposite range, so far as known, were also of the same or a similar class, with, perhaps, a large proportion of "tree-dwellers."

On the head waters of the Guaca, Negro and Oromiro rivers, tributaries of the Atrato from the "Sierra de Abibe," were found one tribe of very skillful artizans in golden ornaments; another equally skillful in spinning and weaving cotton cloths, nets, hammocks, etc., the former being very tastefully colored, and another tribe adjacent were agriculturists, but showed unusual taste in adorning the surroundings of their homes with gardens, fruit orchards, etc. One tomb is mentioned as having been artistically constructed, from which $40,000 was taken by César and party, who, with two subsequent attempts to conquer these tribes, by different leaders, were compelled to remain content with the sum at first obtained.

These tribes are said to have adoratorios, and a system of religious belief too variously stated to enable me to form any opinion of its character. They were of lighter color, greater stature, more indomitable courage and greater intelligence than the low land tribes, is agreed upon all hands. So late as 1550 they had not been conquered, and it is my impression

that they exist to-day as independent tribes, reduced, perhaps, in numbers and intelligence. By the map, it will be observed that the above named rivers have their sources not very distant from the Zenu or Sinu, which runs nearly north to the sea, and the San Jorge (St. George), which bears north-eastwardly to the Cauca. Under the head of Antioquia, it will be seen hereafter, that on the borders of each of these rivers were found a nation of "mound builders," one or both of which disappeared, having removed to another adoratorio in the Abibe, but having never since been discovered.

The upper valley of the Cauca was populated by no less than a million of souls as late as 1538, when the troops of Belalcázar began its conquest. Here, upon the slopes and valleys of two immense mountain ranges dwelt many tribes, either wholly agriculturalists or partly agriculturalists and partly fishermen, or manufacturers of salt, golden ornaments, or cotton cloth, etc. Here, too, were some tribes who were cannibals, one of them *salt producers*.

The custom of cannibalism was not common among the tribes, but the almost entire absence of animal food probably led some of them into the custom, just as hunger drove the Spaniards themselves to consume hundreds of human beings during their various perigrinations. Popayan, the present capital of Cauca, was, before the conquest, the seat of a powerful cacique of that name. Twelve miles from Popayan, near the left bank of the Cauca, was a large town entirely depopulated, whether from fear of the invader is not stated. In this town was an adoratorio of immense dimensions, in which were a few idols. The only worshippers, however, were the fleas and niquas (Pulex penetrans), which very promptly expelled the Spanish soldiers, who, with horses and 1,200 Indians had taken quarters in one corner of the edifice. The writers make this temple so large that I am at a loss to tell how high the roof must have been. A building 1000 feet square would require much architectural skill to construct a roof that would shed water and yet not endanger the people inside. Perhaps the roof on which the Phillistines were dancing, when Samson bent himself between the two center pillars, was of the same or similar construction.

Many of the tribes in this valley were considerably advanced in culture; some had the streets of their towns wide and regular; some were manufacturers of cotton goods; one of golden ornaments, and two made salt by boiling down saline waters which flowed from the central range of the Northern Andes—which has the highest peaks and snow-clad ridges north of the equator.

The salt and other productions found a ready market at enormous prices in all directions, and brought in exchange golden ornaments, crude gold, cotton goods and dried fish.

One tribe is mentioned as being quite light colored, but generally they were of the usual Indian type—industrious and simple—but warlike. It also cost much Castillian blood to subdue these people; but finding it impossible to contend against steel swords, guns, lances, coats of mail, horses and blood-hounds, they generally refused to plant; their women refused to bear children, and in two short years the Spaniards were compelled to begin the introduction of negroes to till the ground so lately occupied by a happy and contented people. Most of the tribes in this valley were dressed in variegated cottons, and wore on their persons a profusion of ornaments. From one old woman about $800 in golden ornaments were taken.

Antioquia extends from the Carribean Sea to the Magdalena river, but is so hemmed in by almost impassable mountains that ingress or egress is very difficult. At present the interior is best reached from the Magdalena.

Along the eastern side of the Gulf of Darien, and also along the northern slopes of the Abibe (Ah-bée-bay), the descendants of the independent tribes, whose poisoned arrows defeated nearly every attempt to penetrate their country, still hold their native land as free from the intruder as when the European invader first attempted its conquest.

Very little is known of them except that they occasionally exchange turtle shells, cocoa, etc., with English traders for guns and ammunition.

Protected as they are by a deadly climate in front, an almost impassable mountain barrier in the rear, they are not likely to suffer from external foes. Their location shuts the Antioquanians from the gulf and sea on the North and West.

Abibe seems to be as little known to the people of to-day as before the conquest of the interior.

The river Sinu bifurcates the mountain from near the source of the Guaca to near its Northern extremity.

In a valley or prairie of about 60 miles in circumference, situated about 150 miles south, south-west from Cartagena, Pedro de Heredia founder of that city, found A. D. 1534, a group of spacious, well-ventilated houses, occupied by a queen (*cacica*) of Finzenu.

The surrounding country did not seem to be densely populated. Heredia and his party of 250 men and 50 horses were abundantly supplied, however, with provisions by the hospitable queen. Here were found arms and implements captured

from Captain Becerra, who had penetrated to the river opposite Finzenu 19 years previously, there to perish to the last man of his command at the hands of the natives of the place.

Heredia was informed that at the time of the coming of Becerra, the country was densely peopled, but that subsequently a pest (supposed to have been small pox) had caused the death of a majority of the nation.

One of the twenty houses was a temple in which were twenty-four human figures in wood, arranged in pairs, and between each pair was suspended a hammock, in which to receive the offerings of worshippers.

In a tree or in trees outside the temple, were suspended golden bells which, moved by the wind, gave out sweet chimes in ever varying tones. The bells, which were taken by Heredia, were estimated at $150,000 value. From the text it is not clear that this sum did not cover the offerings found in the hammocks as well.

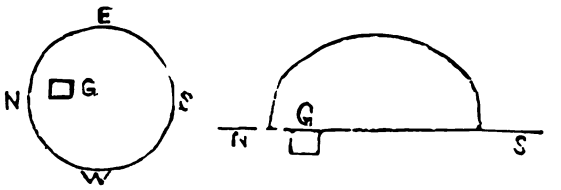
Surrounding this location the writers state that there was an *infinity* of mounds, varying from two or three to more than thirty feet in height.

Being informed by an Indian boy guide, that all these mounds contained gold, the entire force were soon at work seeking for the coveted metal.

Immense Ceiba trees were growing over some of the mounds while others were evidently of recent construction. [It is my belief that the usual idea of the number of annular rings shown in the section of a tree determining its age, is erroneous. It certainly does not hold good in this climate, as I have counted torty annular rings in trees that had but four years growth, and hence would suggest which this matter should be inquired into. In A. D. 1835 I aided in setting out sugar maples in front of what is now the High School in Dayton, Ohio. These trees had an average of about two inches diameter at the time of setting out. On a recent visit to Dayton I found *silver* maples more than a foot in diameter growing in the place of the sugar maples which I had aided in planting. On inquiry I learned that the sugar maples had become too large, and had been removed about 25 years after being planted, and their places supplied by the silver maples which I saw. For these and other reasons I would not put too great confidence in the growth of timber as indicating the age of the mounds on which they may be found growing.] The mounds in question were found to contain the bones of the dead, their arms of warfare, and implements of labor, jars which had contained chicha (a fermented drink), and corn in grain, with stones to grind

the corn. On the person were hung or placed the golden ornaments which the defunct had worn in life, and in a jar near his hand, his other wealth. In the case of the party having great wealth or influence, his favorite wives and servants, designated before his demise, were stupefied by a tea made from a certain herb, after which they were slain, their bodies burned, and the ashes placed in urns in the same grave with the deceased. The position of the body in the mound was invariably the same, so much so that after a little experience, the Spaniards would only sink a round hole over the place where they knew the grave to be, and thus in a little time would possess thimselves of the coveted treasure.

The mode of burial was as follows: Whenever a man died, a hole about four by six feet was sunk in the ground, into which the body was placed in a sitting posture facing the east, the other articles having been arranged near the body as above stated, the hole was covered by a flat stone or timber, after which the mourning for the dead commenced. Friends and acquaintances came in numbers, to whom were served food and drink (chicha), meantime each mourner brought from a distance *red clay* and heaped upon the mound. The dimensions of the mound depended, therefore, on the amount of food and drink supplied by the relatives of the dead. The plan of the mound and posture of the grave will be understood by the subjoined plan and section:



The result of the opening of these mounds was rich enough to cause the entire force of Heredia to desire to remain until all were opened, but the leader was suspected of desiring to secure the entire gains for himself, and as he caused the work to cease after some $350,000 in gold had been taken, the suspicions of his intentions were confirmed in the minds of many.

He undertook some further explorations which resulted disastrously, and on subsequently returning to complete the robbery of the dead, he found the people had removed themselves and the remaining treasures, and had hidden them so effectually that all subsequent search proved fruitless. The entire proceeds of the robbery of this people was a little more than $500,000, of which one fifth went to the King of Spain.

At Ayapél (I-ya-pále) between the San Jorge and Cauca, Alonzo de Heredia encountered another nation of "mound builders" more numerous and warlike than the former. Their location was Zanafenu.

The chief of this nation, thinking to destroy the invaders at a blow, laid an ambush by the side of the road by which they were advancing, but the brilliant plumage worn by the chiefs was seen by the horsemen of Heredia, and they halted to form for battle. Seeing this the chiefs at the head of 2,000 warriors attacked, but were defeated and their town was taken possession of by the invaders.

Here, too, mounds were found in great abundance, and the followers of Heredia desired at once to begin the work of opening the graves to search for treasure, but the leader, suspected to have had the design of defrauding his followers, ordered an advance for other parts. Returning subsequently it was found that the treasures had been removed, and the nation as well.

It is stated that some of these mounds were square at the base and pyramidal in form, but most of them were conical. It is also stated that the ornaments were made to imitate every form of life from the ant to a human being, and of every value from $10 to $30,000.

Here were the "*Catios*" also, very light colored and very skillful workers in gold and cottons, who printed or painted their histories on cotton mantles in hieroglyphics. These used weights and measures, had no temples but worshipped the stars, believed in one God, the immortality of the soul—some of them believed in transmigration, and had a tradition of the deluge. Their country was mountainous and sterile, but their industry and skill enabled them to become rich and powerful. I have not discovered that they were conquered.

I neglected to state that the Zanafenus were also makers of salt, and may here remark that of the many advanced tribes in Antioquia and Cauca, the men worked in the fields or performed the more laborious part of the working of gold, while the women spun and wove and colored cotton goods, and performed the household work, etc.

In one instance the writers mention that a party of Indian women came down the Cauca river on a "balsa" or raft made of (*Guadnas*) Caña giganticus, to visit the Spaniards in camp, and during the passage and visit, did not cease their spinning of cotton yarn.

Salt was made at three points in Antioquia, and was so much more valued than gold that at Zaragosa, within the confines of the same State $30 worth of gold dust was given for one pound of salt.

I might make mention of many other tribes more or less advanced, but will only add that in Antioquia, as in Cauca, there were several tribes who were cannibals, and these by no means the lowest in the scale of intelligence. The Yamises are mentioned as being the most stupid of the tribes.

It would be doing injustice to the memory of a brave people not to mention some of their more heroic acts in defense of their homes and freedom.

In more than twenty instances these brave nations battled successfully against blood-hounds, men clad in mail, with the best of steel swords and lances, with match-locks and other weapons for use of powder, and with the advantage of skill and discipline gained in the Moorish and Italian wars.

To these were opposed the unprotected bodies of the Indians whose arms were slings, darts, arrows and war clubs, or sharpened sticks hardened by fire.

It was the custom of the Spaniards when sorely pressed, to send interpreters to the hostile tribes requesting the chiefs, each with an escort, to visit the Spanish camp, to agree upon terms of peace. This conceded, the escorts would be separated from their chiefs on pretense of feeding both parties in adjacent localities, and when separated, the escorts were massacred by the men at arms, and the chiefs disarmed and devoured by blood-hounds. Such was the fate of 18 chiefs and 900 Indians at one time in Panama.

Pariza, also a cacique of Panama, after receiving the Spaniard in peace and presenting him with $30,000 in gold, was imprisoned and robbed of all he had, but escaping he attacked the Spaniard in turn, shut his forces up in the plaza of Pariza's own capital, set fire to the surrounding buildings, and compelled the remaining invaders to seek security in flight to the sea, leaving behind the entire sum of gold presented them by Pariza, and that robbed from him subsequently. So in Cauca. The natives would burn their towns, destroy their crops, and betake themselves to the forests, there to die of starvation, rather than yield to the invader. The women of many tribes refused to bear children who might become slaves. Volumes might be written over details of this class, but the subject is too painful to be followed.

I will close this outline of the condition of the South Americans of the 16th century by stating that some tribes in Antioquia had the custom of committing suicide for the most trifling causes. In one instance they choked themselves to death with their mantles at the mere sight of the Spaniards.

I will follow these papers with others in which the native tribes of the other six States will be considered.

THE DIVINITY OF THE HEARTH.

BY REV. O. D. MILLER.

The hearth, and the divinity of the hearth, constituted the focus of the most ancient civilization. It was around the firesides of primeval humanity, that those elemental organizations of human society were formed, those social and semi-political customs instituted, and religious rites consecrated, which subsequently, by the mere process of expansion and reduplication, developed themselves into tribal and national institutions. The hearth was the family altar; and the cheerful blaze kindled thereon was the symbol of the divinity who presided over the destinies of the household, seeming to share in its fortunes, and receiving the grateful remembrance and adoration of all its members. The altar of the tribe was its hearth; and the national altar was the national hearth; the same notions and customs were transferred from one to the other, being modified only so far as necessary to adapt them to the changed circumstances. The God of the hearth was regarded as really the head of the household, and its members as his family. So, too, when the same divinity had been transferred to the national altar or hearth, he became the Father of the Nation, while all the members of the commonwealth were his children. The entire territory belonging to the State was a common patrimony, and the State itself an organization of brothers and sisters, whose focus was the national hearth. It was impossible for a stranger to become a member of the commonwealth, except by regular adoption into some family. This principle of adoption was an important feature of the patriarchal institutions. By a fiction of law, a stranger could be made a regular member of the household, and admitted to the family sacra, or form of worship, being thence regarded as a blood relation, descended from the same ancestral head. The custom of *adoption* had a religious, as well as social and political significance, even from its origin; and this explains the fundamental importance attached to it, by the Jewish and Christian Scriptures. It was only upon the principle of adoption, that the stranger Gentiles could be received into the family of Jehoveh (*Yahveh*) and be admitted to the fellowship, as a regular descendant in the line of Abraham. All the allusions to this subject of adoption, in the Scriptures, dated from the origin of this custom, in the worship of the hearth divinity.

In the cuneiform inscription, there is a character constantly employed to which M. Lenormant, in his "Repertory of Ac-

cadian Signs," attaches the values: *Ni*, "to sweep, to clean;" "shovel, hearth," also "god." *Kisal*, "altar, sacrifice." *Zal*, "joint, neighborhood, vicinity." The values of *Ni*, "god," and *Kisal*, "altar," frequently occur, and are undoubted. The significations of "shovel, hearth," etc., we accept on M. Lenormant's authority.[1]

In the syllabaries, the Assyrian equivalent of this Accadian sign is *Yahu*, also *Ilu*, or *Ili*, "god," or "gods." The term *Yahu* is supposed to be a name of the character itself. Admitting this to be so, it is nevertheless employed in the Assyrian as a name of divinity, and as such is interchanged with *Ilu*, the chief divinity of the Babylonians, one with the Hebrew *El*.[2]

Returning to the Accadian *Ni*, when it is found that this character had the meaning of "hearth," "altar," "god," "sacrifice," etc., it is sufficient to demonstrate that the god *Ni* was the heathen divinity of the ancient Accadian race. The cuneiform texts afford us but little information respecting the god *Ni*, for, like all the divine names of antiquity, this was doubtless a personal name, like the Hebrew *Yahveh*, or Jehoveh, and so the Babylonian *Ilu*, the Hebrew *El*, the "Strong One." But it is significant that the term *Ni* is otherwise employed as a personal pronoun, first person singular, "I," "I am." It is obvious, also, that *Ni* had been a primitive name of the Hearth-god, and had been superceded in part in the texts known to us, by other titles more common. The texts not unfrequently allude to the House-God, but not under any personal name, so far as we have noticed. Nor do they afford us any hints as to the particular customs and cultus associated with the Hearth-Divinity; since society had already passed beyond the family and tribal stages, into the political and national. But the peculiar nature of the house-gods of antiquity, and of their cultus, may be learned from the classic nations, especially the Etrusco-Romans. It is now known that the Etrusco-Roman civilization was derived, in great part, from the Valley of the Euphrates. Thus, it is probable that we may find in the Roman cultus of the *Penates* and *Lares*, a reflex of the religious conceptions and customs, centering in the primitive Accadian and Semitic house-gods of the Euphrates country. Dr. Wm. Smith has the following upon the Roman hearth-gods:

"*Penates*, the household gods of the Romans, both those of a private family, and *of the State*, as the *great family of*

1 See Lenormant. Repertory of Accadian Characters, No. 142.

2 See the King's name *Ilu*-bi'h-di, interchanged with Ilu *Yahu*-bi'h-di, when Yahu is preceded by the determinative of divinity *Ilu*, showing that Yahu is a divine name, denoting the same personage as *Il*, Heb. *El*. (Norris Assyr. Dic., p 482.)

the citizens. Hence we have to distinguish between private and public Penates. The name is connected with *penus*, and the images of the gods were kept in the *penetralia*, or the central part of the house. The Lares were included among the Penates; both names, in fact, are often used synonymously. * * * * Since Jupiter and Juno were regarded as the protectors of happiness and peace, in the family, these divinities were worshipped as Penates. Vesta was also reckoned among the Penates; for each hearth, being the symbol of domestic union, had its Vesta." "Most ancient writers believe that the Penates of the State were brought by Æneas from Troy into Italy. * * * At Rome they had a chapel near the central part of the city, in a place called *Sub Velia*. As the public Lares were worshipped in the central part of the city, and at the *public hearth*, so the private Penates had their place at the hearth of every house, and the table was sacred to them. On the hearth a perpetual fire was kept up in their honor, and the table always contained the salt-cellars and the first-lings of fruits for their divinities. Every meal that was taken in the house thus resembled a sacrifice offered to the Penates, beginning with a purification and ending with a libation, which was poured either on the table or upon the hearth. After every absence from the hearth, the Penates were saluted like the living inhabitants of the house; and whoever went abroad prayed to the Penates and Lares for a happy return, and when he came back to his home, he hung up his armor, staff, and the like, by the side of the images" (Class. Dic., Art. *Penates*).

It is observed by another author that: "In general, and as principal tutelary divinities, the Penates bore the name of great gods (*magni dii.*)" Precisely a similar class of deities were worshipped by the Greeks at the fire-side; we have also scattered notices of house-divinities among the Hebrews, and almost all the Asiatic peoples. In fact, it is almost certain that the worship of the Hearth-God was absolutely primitive and universal among all cultured races. Nor were these divinities of an inferior character, generally speaking; for the same personages adored, in the first stages of society, as the hearth-gods, were afterwards, on the formation of national and tribal organizations, transferred from one to the other, to the tribal and then the national hearth or altar, for always, the hearth and altar were the same things. Thus the Hearth-Gods became, when nationalities were formed, the national divinities. Accordingly, Jupiter and Juno, and the Roman Vesta, were at the same time House-Gods and the highest national divinities. But, on the subject of expansion or re-

duplication of the family organizations and worship, into those of the tribe, and finally those of the nation, we cite here Mr. H. S. Maine:

"In most of the Greek States, and in Rome, there long remained the vestiges of an ascending series of groups, out of which the State was at first constituted. The family, house, and tribe of the Romans may be taken as a type of them; and they are so described to us that we can scarcely help conceiving them, as a system of concentric circles which have gradually expanded from the same point. The elemental group is the *family*, connected by common subjection to the highest male ascendant. The aggregation of families forms the *gens* or house. The aggregation of houses makes the tribes; the aggregation of tribes constitutes the commonwealth. Are we at liberty to follow these indications, and to lay down the principle that the commonwealth is a collection of persons united by common descent from the progenitor of an original family? Of this we may at least be certain, that all ancient societies regarded themselves as having proceeded from one original stock, and even labored under an incapacity for comprehending any reason except this for their holding together in political union. The history of political ideas begins, in fact, with the assumption that kinship in blood is the sole possible ground of community in political functions." (Ancient Law, pp. 123, 124).

It rarely happened, however, that all the members of a commonwealth, or of a tribe even, were actual descendants from the same patriarchal head. They were so considered on the principal of adoption only, as Mr. Maine elsewhere states. The significance of these facts, as explaining the notion of adoption, so often referred to religiously in the Scriptures, will be at once apparent. It was through this process of reduplication and expansion of families, into houses, or *gentes*, and these into tribes, and finally of the latter into the commonwealth, that the Hearth-God of the patriarch became at last the National Divinity of the people descending from him. Thus, it is altogether probable, as we shall see, that *Yahveh*, the Hebrew national divinity, was the original hearth-divinity of the Abrahamites. That which has led some to regard the primitive Hearth-Gods as inferior personages was the fact, that the family sacra was kept up, even after the Hearth-God had been transferred to the national hearth or altar, becoming thus the national god.[3] Such was the case with the Roman

3. It is only, for instance, when the fact is known that, usually, the Hearth-Gods were identical with the National, that their true character is understood. It is the not recognizing this fact, that has led to the conclusion above stated, that the House-Gods were inferior to the national. Where the Hearth-Gods were different personages from the tribal and national divinities, it was a pretty sure indication of their later conception and origin.

vinities. The Penates were at the same time deemed the eat gods," such as Jupiter, Juno, Vesta, etc. We pre- here another extract from Dr. Smith, bearing on this nd the character generally of this family cultus:

a, one of the great Roman divinities, identical with *Hestia*, both in name and import. She was the the hearth, and therefore inseparably connected Penates, for Æneas was believed to have brought rnal fire of Vesta from Troy along with the images of Penates; and the prætors, consuls and dictators, before entering upon their official functions, sacrificed not only to the Penates but also to Vesta at Lavinium. In the ancient Roman house, the hearth was the central part, and around it all the inmates daily assembled for their common meal (*cœna*); every meal thus taken was a fresh bond of union and affection among the members of the family, and at the same time an act of worship of Vesta, combined with a sacrifice to her and the Penates. Every dwelling-house, therefore, was, in some sense, a temple of Vesta; but *a public sanctuary* united *all the citizens of the State into one family.*" (Class. Dic., Art. *Vesta.*)

We desire now to call attention to certain facts and singular customs connected with the worship of *Yahveh*, the Hebrew national divinity, and whom we all recognize as the true God. The learned Dr. Cudworth, in reference to the Hebrew cultus, remarks:

"In like manner, I say, the eating of sacrifices, which were God's meat, was a federal rite between God and those that did partake of them, and signified there was a covenant of friendship between him and them; for the better conceiving whereof we must observe that sacrifices, beside the notion of expiation, had the notion of feasts, which God himself did, as it were, feed upon, which I explain thus:

"When God had brought the children of Israel out of Egypt, resolving to manifest himself in a peculiar manner present among them, He thought good to dwell amongst them in a visible and external manner; and therefore, while they were in the wilderness, and sojourned in tents, He would have a tent or tabernacle built, to sojourn with them also." "Now, the tabernacle, or temple, being thus a house for God to dwell in visibly, to make up the notion of a dwelling or habitation complete, there must be all things suitable to a house belonging to it. Hence, in the holy place, there must be a table and candlestick, because this was the ordinary furniture of a room. * * * * The table must have its dishes and spoons and bowls, and covers, belonging to it,

though they were never used; and always be furnished with bread upon it. The candlestick must have its lamps continually burning. Hence also there must be a continual fire kept up in this house of God's upon the altar, as the *focus* of it." "And besides all this, to carry the notion still further, there must be some constant meat and provision brought into this house, which was done in the sacrifices, that were partly consumed by fire upon God's own altar, and partly eaten by the priests, which were God's family, and therefore to be maintained by him. That which was consumed on God's altar was called *God's mess*." [4]

The author goes on to point out all the accessories of the house, the home, even to the salt of the covenant, and the pledges of friendship symbolized in the feast, of which both God and man were supposed to partake. In a word, Dr. Cudworth shows that the Jewish tabernacle, or temple, was regarded as literally *God's House*, where He lived, just as men lived in their houses. The whole idea, as described by Dr. Cudworth, is a remarkable picture of what must have been associated with the original Hearth-Divinity.

But it is plain that this author was not able to give the true origin and reason of these peculiarities in the appointments and services of the Jewish tabernacle and temple. For this we must go back to the patriarchal times, when the Hebrew *Yahveh* was worshipped as the hearth-divinity of the Abrahamic family.

The Hebrew people were organized precisely as the Roman. There was the family, or house; there was the organization answering to the Roman *gens*, between the house and the tribe; then there were the twelve tribes forming ultimately the commonwealth. [5] Moreover, we know that they had their Hearth—or house—Gods, their Penates. [6] Thus, *Yahveh*, the Hearth-God of the Patriarchs, had been transferred from the family altar to that of the *gens*, thence to that of the tribe, and finally to that of the nation, when the Hebrews had become a nationality. A proof that the altar at Jerusalem was regarded as the national hearth, is the name applied to it, by the prophet, *Ari-El*, "the hearth of El," or of God, of *Yahveh* in fact. Yet another proof is the notion of the "House of God," the *Beth-El*, "house of El," a phrase peculiar to the worship of the Hearth-God, who was supposed to

4 Intellectual System, etc., ii. p. 536-539.

5 On this intermediate organization, between the family and the tribes, see Cox Bib. Antiq., p. 102. Thus, the tribe of Gad seven, of Judah five, of these intermediate organizations, between the single family and the tribe. These organizations always accompany the cultus of the Hearth-God.

6 They are called *Teraphim* in the Heb. Scriptures: a term signifying "Sustainers;" that is, "sustainers of the family." (See Fürst Heb. Lex., Sub. vola.) Even after the recognition of *Yahvah* as national divinity, the veneration paid these Teraphim was not absolutely interdicted. (See Burke Notes, Gen. 31, 29).

have his home at the hearth of every family. But it was only when the united families, and then the tribes, had formed a nation, that the same God of the private hearth had his own, separate dwelling, the *temple*; and here we have that other fundamental idea, in the origin of the temple, to which allusion was made in a previous article, on the Pyramidal temple.

It is plain from the nature of the case, that the Hearth-Divinity belonged to the primitive worship of mankind before families had multiplied into tribes and tribes into nationalities.* We are thus taken back to those primeval times, when the germs of human institutions were first planted; when those fundamental conceptions had their birth, which have formed the basis of all the religions and all the civilization known to history. Let us attempt a moment, to realize in mind the actual conditions of those first ages; to transport ourselves, so to speak, to the hearth-stones of primeval humanity.

He who illumes both sun and star, and kindles the flames on creation's hearth-stone, had thus early in the history of our race taken up his abode in human habitations. He who is enthroned in the high heavens, who issues from the gates of morning with beams of light that fall on the world in golden showers, had sought an abiding place with his own rational creatures. But *He* was not a guest beneath the humble roof which he had chosen for his temple, and where men and women first learned to worship, to love, and to obey. They were *His* guests, *His* people, *His* sons and daughters. That was His house, His table, His fireside. The consecrated hearth, whose mystic flame was the symbol of his own existence, was his focus, his altar. It was there that the institutions and civilizations of the ancient world were cradled, and it was He who had forged their iron links and bonds with his own hands. It was from the hot bosom of the domestic hearth, under the watchful care of its presiding Divinity, that those giants leaped forth who were the first founders of religions and of States; and it was the divine artisan, with the chimney-corner for his *smithy*, who welded those bonds of human society, which were destined to unite all the families and kindreds of the earth into one brotherhood.

But it was not as a simple task-master that the Deity thus early selected the family circle for his favorite abiding-place. He knew that, if anywhere on earth, there would be *love* between father and mother, brother and sister. It was his nature

*For proof that the tribal organization was extremely ancient and universal, see the excellent and valuable paper by the editor-in-chief, Rev. Mr. Peet, in the No. for April, 1881, on "The Tribal Condition of the American Races; a clue to the Condition of Society in the Pre-Historic Ages." But the tribal organization universally pre-supposes the gens, and then the house, or private family; for in all primitive society, as shown by Mr. Maine, the family, house or hearth constituted the least unit of society, instead of the individuals as at present. The union of the houses then formed the Gens, and the aggregation of the latter constituted the tribe. Thus it will be seen that the cultus of the Hearth-Divinity was absolutely primitive among men.

to love, and only in the circle of loving hearts could He find a home of his choice. True, the world, without, was beautiful; the heavens were peopled with shining hosts, and the earth, from her mountain peaks to her oceans' depths, was alive with the various forms which he had created. He could dwell on those hights where the thunders and the lightnings have their birth; in those deep watery caverns whose floors are studded with pearls; or beneath the shady oaks and pines, where the zephyrs play and the birds sing. But it was man alone whom He had created in his own image, and whom He loved with a father's affection. It was thus, with the sons and daughters of men that He desired to dwell, and into their habitations that he wished to be received. He would share their lot and destiny, would be their provider, protector, their friend and their God, if they would only love him. From the bright morning when the bridal pair first invoked his presence and blessing upon their hearth, through all the long years of toil and struggle, till the frosts gathered upon their heads, and finally the crimson sea had frozen over in their hearts, He would be with them, and abide with them, and would be their God forever. The first fruits of the harvest, and the first-born of the household should be his; and every feast and joyous festival should be sacred to him, as a pledge of his friendship, as a covenant of salt between him and them!

Such, is the simple picture of the primeval worship of mankind, the reality and truthfulness of which might be substantiated by a multitude of facts, had we the space in which to state them.

We are now prepared, in connection with the previous article on the Pyramidal Temple, to formulate the two fundamental ideas from which the genesis of *The Temple* is to be traced. 1st. As regards the spiritualistic conception of The Temple, independently of its particular form or architecture, it was that of a dwelling for God to live in, the same as men; and this proceeded ultimately from the Hearth-Divinity. The Temple, in a word, was *God's House;* for God was conceived, and correctly too, *to dwell*, *to inhabit*, the same as man. 2nd. As regards the form, the architecture of the Temple, it was primitively that of *a pyramid in stages;* and the fundamental conception of this was that of an artificial reproduction, or an image of the traditional Mount of Paradise, the conceived first abode of man. This Paradisiacal Mount was conceived to rise in vast terraces from the earth, the one retreating upon the other till the top reached the heaven, uniting it with earth as material symbol of the union of God with man. But the reader who has the two articles in mind, will be able to carry out these ideas without any further aid from us.

PALÆOLITHIC—MAN IN AMERICA.

CHAPTER II.—A SUMMARY.

The evidences of man's antiquity in North America are far less conclusive than those which appear to establish his great age in Europe. They are less plentiful, have not been so exhaustively examined and are surrounded by contradictory statements and opinions. It has been suggested that as America is the older continent, man's appearance there might naturally be expected to be previous and introductory to his arrival in Europe. As far as the hypothesis of evolution is concerned, this would scarcely concede so characteristic an assumption of the New World; life has developed faster and advanced at a more rapid rate through its ascending phases to man in the eastern hemisphere, and Darwin has himself suggested that the original type from whom by different lines of growth both the monkey and man descended, probably lived in the warm regions of Africa. On the other hand the doctrine of special creation, using the argument of tradition would be wholly irreconcilable with the thought that his primal advent was here in America. We cannot, indeed, say that man may not have appeared contemporaneously at several points, and so save ourselves the difficulty of explaining either his rapid diffusion, on the theory of his single origin, although such views are at variance with the predominant type of ethnological thinking and writing.

However that may be, the scientific world as yet regards with some distrust the assertion of man's existence in America coeval with if not antecedent to his existence in Europe, not because the veracity of individual discoverers can be questioned, but on account of the comparative rarity of these finds, and the unsatisfactory nature of the geological evidence accompanying them. And yet the impression is unavoidable after a comparison of numerous disconnected papers that their frequent publication is only attributable to the presence of evidence of man's great age in the new world, and that their conclusions point to his contemporaneity with the Mastodon, the Great Elephant, and the glacial snows.

Dr. Abbott, of Trenton, has lately contributed perhaps the most valuable and most carefully sifted evidence of man's age in America, and his work merits pre-eminently cautious study and analysis. Dr. Abbott's explorations were made in the valley of the Delaware, in the *drift* beds of that region, embracing a series of gravel beds intermixed with angular pebbles, surmounted by soils of a sandy nature, through and

on which occurred boulders, which latter, also, were mingled with the inferior gravels. In the east bank of the Delaware where favorable exposures displayed the composition of the surface earths, in a deposit of unknown depth, but perhaps about 40 or 90 feet, he found, at distances varying from 5 to 20 feet, a number of very rude implements which except in material, present a resemblance to the palæolithic implements of the Somme, and only compare less favorably with those primitive objects in the rougher and less attractive surfaces of the stones. This district is deeply bedded with the piles, and reassorted layers of sand gravel and detritus, worn away from the distant highlands, whence an enormous denudation extending over years, and resulting from the intermittent and allied agencies of ice, water, frost, and torrents, has removed strata referable to the whole series of rocks from the Azoic and Primordial up to and through the upper Silurian. Before we detail the elaborate proof Dr. Abbott has arranged to establish the authentic relation of these finds to their inclusive strata, we will briefly inspect the specimens themselves.

The first type is taken from Abbott's preliminary report, and his own words appropriately describe it. It "represents a specimen of these rude implements, which, unlike the so-called 'turtle-back' celts, is distinctly chipped upon both sides, and has but a slight amount of secondary chipping. The cutting edges, however, are comparatively straight." This object was found six feet below the surface in unassorted gravel, and was carefully localized as distinguished in this respect from those reposing in the talus of stones and sand at the foot of the bluff whence it was taken. The second type, also from Abbott, is a "turtle back" celt of compact argillite, somewhat weathered and sculptured over its surface, two and one-half inches wide, and hipped on its edges in such a way as to preclude the idea of its natural origin. It was found three feet in from the face of the bluff in "evidently undisturbed gravel." The third type is a flint spearhead, and unmistakably indicates its artificial construction, modeled with deliberate caution for its rude purpose. It is the only example of this material having been used, and was found at Trenton, N. J., "in a shallow stratum of coarse pebbles, and clearly showed by its surroundings that it had not gotten in its position where found, subsequently to the deposition of the containing layer of pebbles."

These objects have been pronounced by competent judges to be artificial, and though their appearance in some instances is strikingly primitive and awkward, scarcely evincing more care in their formation than frost-riven and transported splin-

ters of rock might display, yet a little consideration of their obvious characteristics would demonstrate their *human* origin. First, they present a general resemblance and may be referred from their similar appearance, to an identical process of manufacture which no collection of fractured pebbles would offer, unless specially selected for such a purpose, and such a collection would be made, if at all, only by a prolonged search over a wide district. Secondly, they are the result of a series of separate blows or chippings, whose aggregate effect is to produce a more or less useful though coarse implement. The split and broken pebbles occurring in these beds or in other and diversified areas, may present one or two such abrasions, but they never show their collective influence. Thirdly, the broader surfaces are modified by less conspicuous facets in such a manner as to make a recurrent form; in other words, design is manifest and that to a degree seldom similated by nature. Fourthly, they have been found in similar positions at infrequent intervals and in connection with pebbles split by the accidents of nature, from which they are distinguished at once. Were they the result of natural vicissitudes we might expect a wider distribution, less uniformity in situation and difficulty in separating them from their accompanying flakes. Fifthly, they are mostly argillite, a stiff, hard clay rock which does not ordinarily exhibit in its fragments concave surfaces of fracture such as are seen in these specimens, unless treated artificially by sudden and properly directed blows.

In drawing any valid conclusions as to their antiquity, the greatest stress—indeed it alone is determinative of the whole matter—is to be laid on their position and the associated stratification. Three questions seem instantly to present themselves. First, have the beds, in which these implements lie, been undisturbed since the day of their deposition? Secondly, were they included in these beds contemporaneously with the latter's formation? Third, when were the beds formed? Could it be proven beyond contradiction or doubt that the implements were laid down in the positions mentioned by Dr. Abbott at the same time with the gravel and sand in which they are found, that the gravel and sand are drift beds and properly assigned to that distant day when a great glacier invaded New Jersey from the North, and that, lastly, these banks of gravel have remained unchanged in position and in composition, at least to the depth indicated by the "finds" of Dr. Abbott, apart from transient and superficial disturbances, then these questions will have been so answered as to leave no escape from the very startling conclusion that man existed during the presence of the continental glacier in North America.

The drift, is that enormously extended and diversified deposit of gravel, clay, sand and boulders which covers the northern states, and is associated with scratched pebbles, polished and striated ledges. It represents the denudation of the continent under the file of a huge glacier, or many separated and confluent ones, which passed down from the north carrying heavy burdens of detritus and pushing masses of promiscuous debris before them, gathering the weathered fragments and soils, which existed previously, into heaps and embankments, to be afterwards spread out in partially assorted beds by the floods and swollen rivers which sprang from the feet of the melting ice cap, or succeeded in the pluvial epoch which ensued on its final retreat to the pole. These accumulations of sand, clay and gravel may be either stratified or unstratified. The glacial epoch properly terminated with the recession of the continental ice plane, and was succeeded by the Champlain epoch when deposits were most rapidly made and were, according to attendant circumstances, more or less stratified. Much of the unstratified drift is properly referred to the glacial epoch, and was mostly formed at the foot of the melting glaciers, and perhaps partially by stranded icebergs and ice-rafts. On the dawn of the Champlain epoch, swollen tides, plunging rapids, and impetuous eddies, seized much of this material and overspread its lower and undisturbed portions with beds of clay sand and gravel, capriciously changing from one to the other, even on the same level, and indicating in the different character of bedding the different movement of the waters from which they settled. In both stratified and unstratified drift, boulders may be expected, and even in later beds, those of the alluvium, which ended the Champlain epoch, boulders dropped down into the waters from melting ice-rafts sinking deeper or not into the forming beds according to their composition. The process of stratifying the older unstratified deposits for the most part ended on the superimposition of the stratified beds, as they in a manner protected them against disturbance, but it did not entirely cease then, and throughout the Quaternary and recent times, floods and deluges from whatever cause may have rearranged them wherever they were exposed.

Of course the chronological sequence is variable or even undetermined, in regard to these stratified and unstratified deposits, often contemporaneous, often successional, and often showing from their unrelated positions no possible reference to each other. Dr. Abbott's beds are certainly drift beds—gravel beds—and the implements found in them have not been introduced through man's agency or otherwise, since

the beds were formed. They cannot be intrusive, being found at depths "varying from 5 to 20 feet below the overlying soil," in thickly packed gravel, and in one instanee under a boulder weighing over 100 pounds and within a foot of the triassic clays. Besides, though the argument has a more effective application elsewhere, these implements have a distinct appearance from that presented by surface implements.

The strength of the argument rests in the assertion that their matrix is unstratified drift. In New Jersey, Prof. Cook says that the unstratified deposits are more frequently the upper, being the collections falling away from the faces and top of the glacier as it melted, and the stratified more frequently the lower, being the comminuted material gathered by the glacier and shoved out beneath the glacier where the surface or transporting waters arranged it in layers. This observation applies best to level moraine districts and during the existence of the glacier. Strong and voluminous floods, ensuing on its disappearance or upon steep hill sides, would reassort out and derange the surface of the moraine, and might lead to the enclosure of a nucleus of unstratified between the stratified deposits. The fact is, unmodified and modified drift can be separated by no hard and fast line, and a formation which has but partially been exposed to rearrangement by water may appear as chaotic as unstratified masses. But between beds composed of successive sheets of gravel, sand and clay in various orders, and overlapping upon wide areas, and between a heterogeneous pile composed of all those constituents in no order, the difference is of course marked. Dr. Abbott's beds are clearly nearer the latter than the former class of deposits, and though wide-spread evidence is found around them, on them and below them, of aqueous action, it seems plain that there were contingent variations taking place through a heap or hill of morainic material, within whose undisturbed portions were found human implements.

However, in the map affixed to the annual report of the State Geologist of New Jersey for 1877, the limits of the terminal moraine are given as extending from Belvedere, on the Delaware, at about latitude 40° 70′, in an easterly direction on about the same line to Dover, in the centre of the State, beyond which, after a deflection northward it runs in a sinuous line south-east to Perth Amboy. Trenton, where Dr. Abbott found his implements, is some 50 miles south of this limit, on a straight line, and some 36 miles from its southern-most extremity at Perth Amboy. It brings his finds then within an area south of the glacier, probably, in the depressed condition of the continent, rolled over by the waves of the At-

lantic, and traversed by rapid currents and muddy discharges bursting from the highlands northward. In all this, much rearrangement resulted, and a large part of the lighter detritus would have been collected in sheets over the submerged district.

Prof. Cook remarks, as quoted by Dr. Abbott himself, "The beds of *stratified* drift, at various places in the valley of the Delaware, south of the line of glacial drift, bear marks of having originated from the action of water. The bowlders and cobble stones are all water-worn and round and are not scratched or streaked. They have all come from places farther north, and have been moved and deposited by powerful currents." It might thus appear that Dr. Abbott's determination of the beds as unmodified drift was incorrect, and that long after the disappearance of the glacier these implements may have been swept out from the mainland and mingled with the moving masses of gravel then in process of reassortment, and searching their way to low depths, have assumed apparent identity with the original deposit. Making this unfavorable assumption, we are enabled to measure the real strength of Dr. Abbott's position by the adequate answer his own investigations furnish. The beds are filled with bowlders, they rest in the ground, on and through the soil above it, and they could only have reached their present positions *through the agency of ice*. These blocks have been carried upon ice cakes, hummocks and bergs and dropped over the submarine floor. They are too large to have been transported by water, and had the beds been strongly agitated they would have sunk to the lowest strata.

They are found as well in the superficial soil with which they have been synchronously deposited, a soil in which palæolithic implements are found, and which was formed towards the close, doubtless, of that extended period which embraces the unmodified drift and the first deposition of finer beds when the grand moraine of the glacier was exposed, and muddy torrents passed out to the open sea.

Of the surface bowlders Dr. Abbott remarks: "One question will certainly be asked of these surface bowlders—may not the material originally surrounding them have been removed by means inadequate to alter their positions, and were they not deposited prior to the accummulation of the soil which partly or wholly covered them? I am convinced that in many instances such is not the case for several reasons.

"Take the bowlders of a given area, and it will be found that there is no regularity whatever in their positions wherever met with. The long axes of their diameters point in all di-

rections. In one instance an irregularly cylindrical bowlder measuring seven feet in length and about nine in circumference at the larger end, rested nearly perpendicularly in the soil, which was three feet in depth below the buried end; while two others, in the same area of about one hundred acres, of nearly the same shape but smaller, were in somewhat similar positions. Had the soil been removed subsequently to their deposition these upright stones must have fallen over and assumed horizontal positions. Examinations of flattened bowlders, also, has shown that there was, in many cases, a considerable depth of soil beneath them, and thus separating them from the underlying gravels. In other instances they have been noted as embedded in soil that overlaid the plastic clays, from which the earlier drift had been removed, or on which it had not, from some cause, accumulated."

The objections urged against the smooth and water-worn condition of the pebbles in the implement beds are answered, if we consider that the land, previously to the advent of the glacier, was strewn along its shores with pebbles, from which the aborigines fashioned their rude arms; and that these associated pebbles, contributed to form heaps and beds, which became mingled with sand and gravel, whose continuous discharge accompanied the pluvial epoch succeeding the glacier's retreat. But in fact, Abbott reports the discovery of one scratched implement and several striated stones, with others finely-polished, as if by the motion of an ice plane across their surface.

The implements in these beds have not been abraded or worn to any extent, since they have remained undisturbed, or where they have undergone attrition, their character, as artificial implements, has entirely disappeared, and as escape in the general turbulence of the waters from this latter accident must have been rare, the comparative scarcity of these rude tools is in a measure explained.

There is collateral evidence collected by Dr. Abbott which compacts his argument with circumstantial proof.

In the unmistakably stratified drift, these implements are not found, or rather only suggestions of them, the modeled character becoming entirely obliterated after their rough friction—forward and backward motion—amongst the heaps. Again, these palæolithic flakes are limited to a vertical horizon, they are not found upon the surface, except in such instances as we have quoted, where the surface soil was itself only a later stage of the same period, or where recent storms have promiscuously mingled both in the same delta, or where exposures of the deep palæolithic beds reach the surface, and receive the rejected or abandoned implements of later races.

It is, therefore, concluded by Dr. Abbott, that in that remote age, when the continental glacier pushed down into the Valley of the Delaware, and shone in frigid splendor through the valleys and over the summits of New Jersey's hills, when a broad sea rolled in over the southern end of that State, an inter-glacial people lived on the exposed islands, shreds and peninsulas of land, pursued the mammals of the sea, the birds and quadrupeds of the mainland, fashioning, in their modest way, the pebbles strewn about the shores or found upon the flotillas of ice that crowded and shifted past them. Numbers of their homely implements were lost in the chase, dropped by accident into the shallow water where they lay undisturbed amid heaps of gravel brought by ice rafts, or buried in sudden avalanches of debris, and sealed beneath bowlders rolled off ice-rafts, or dropped from their loosening hold. If an archipelago of islands existed there, and the wretched natives, passed from one to the other, their implements would frequently fall into the waters, or as that was scarcely likely, the shores of the districts where their prey was found, would retain the lost or forgotten tools, and hence separate pockets or collections of these interesting objects be found.

We have rehearsed at some length this very striking episode in prehistoric explorations, because it appears to us, on the publication of later corroborative evidence, such as more flakes, less ambiguous shapes and unquestionably unmodified drift as a matrix, that Dr. Abbott is fairly warranted in his conclusions, and because the publications and examinations (Profs. Shaler, Pumpelly, Cook and Wadsworth having engaged in some way in the investigation) have been made contemporaneously at a time when this subject is awakening universal attention. Dr. Abbott clearly realizes the importance of obtaining the most unequivocal evidence, and his eager industry may ere long be rewarded with more uncompromising proofs than any so far offered.

Perhaps the most startling of the prehistoric finds which, from time to time surprise and vex preconceived opinion, was that of human remains under Table Mount, Tuolumne Co., California. Here Dr. Snell obtained a human jaw, and, at a depth of 180 feet, P. K. Hubbs, in the same locality, found a portion of a skull, which Mr. C. F. Winslow examined and described, while in its near vicinity, a mastodon's tooth, and a round object of white marble were also exhumed. This was excelled by the digging up of another in a shaft 130 feet deep in Calaveras County, California, after piercing five beds of lava and four beds of gravel. This skull reached the hands of Dr.

Jeffries Wyman, through Prof. Whitney, who obtained it from Dr. Jones, who in turn received it from Mr. Mattison, on whose claim at Bald Mountain the relic was found, a somewhat lengthy and unfortunate series of exchanges. Dr. Wyman's report on this prehistoric head has become famous, and, in its tone and conclusions probably conciliated the opposite feelings which its discussion originated. On the one hand, he says: "The skull presents no signs of having belonged to an inferior race," a statement received with evident satisfaction by one class of thinkers, while his belief that "in so far as it differs in dimensions from the other crania from California, it approaches the Esquimaux," gave the weight of its suggested inference to the views of writers who regard that hyperboreal race as the remnant of a pre-glacial people.

While these finds excited, naturally, immense interest, in many instances it assumed the not unreasonable form of wonder over an ingenious fraud. Prof. Whitney undertook the detailed examination of the cicumstances attending the discovery of the second skull and unreservedly subscribes to its positive authenticity saying: "We have the independent testimony of three witnesses, two of whom were previously known to the writer as men of intelligence and veracity, while, in regard to the third, there is no reason for doubting his truthfulness. Each one of these gentlemen testifies to some points in the chain of circumstantial evidence going to prove the genuineness of the find. No motive for deception on the part of Mr. Mattison can be discussed while the appearance of the skull itself bears strong, though silent testimony to the correctness of the story."

In addition, however, to these almost infallible proofs of man's ancient presence in California, Prof. Whitney reports numerous localities in the *auriferous gravels* of that State, a horizon coincident with that from which the skulls were taken and assigned to the Pliocene period, where stone tools, mortars, plates, pestles and spear and arrow-points were found in some quantity and unmistakable identity. Some twenty-eight localities are enumerated, too great a number to be invariably discarded on the convenient plea of "false finds."

The mammalian remains, as determined by Dr. Leidy, include parts of the mastodon (*M. Americanus*), elephant (*Elephas Americanus*), horse (*Equus Caballus*, *E. Excelsus*, *E. Pacificus*), an extinct lama (*Anchenia Californica*), rhinoceros (*R. hesperius*) and dog (*C. latrans*).

In reviving to the mind, pictures of the experience of this primordial population, a review of the physical transitions undergone by that region at and since their advent, yields an

imaginative interest to the thought of human life amidst remarkable geological phenomena. It seems conceded that these remains have been found in pliocene gravels. The pliocene era, according to Californian geologists, as it opened, found the great valley, through which the Sacramento passes from the north, fed by many tributaries, and its southern extension, where, with a somewhat marked repetition of feature, the San Joaquin streams to the Golden Gate, submerged beneath the waves of an inland sea, whose waters stood some 600 feet upon the flanks of the Sierras. The coast range on the west and the Sierra Nevadas on the east, formed the walls of an immense trough, whose restless waters were corroding and loosening the strata on the uplifted flanks of the mountain barrier, gathering and washing over its tideless floors piles and banks and stratified acres of mud, sand, rocks and pebbles. The land slowly emerged, the waters as gradually withdrew, and, on their retreat, strong and violent streams sprung into existence upon the newly-formed terrains, streaming from distant and radiant points upon the Sierras. Then began the famous river system of California. The axis of these mountains southward is mainly granite, northward mainly schists, slates, with limestone, and serpentine, embracing, for the most part, triassic and jurassic rocks. The disintegration and removal of these softer layers continued through long years, formed deep cañons on the sides of the exposed chains, and emptied over the wide lowland, whence, by continuous recessions the gulf waters disappeared, deep and extended sheets of detritus. Then the strange fauna, whose bones are interred with these beds, moved over the mud flats, through groves and by the entrances of the precipitous gorges. The auriferous pockets of gravel were then formed, whose golden riches have originated the new and striking systems of hydraulic mining.

The channels by which these new rivers were transporting eroded materials from the mountains to the plains were gradually, themselves, choked up, whether by excess of erosion, by diminished grade or lessened surplus of water, or all these causes combined. Their beds became the repositories of the gravels, sands and clays, filling up to the worn edges of their rocky sides formed by the triassic slates, from whose disintegration the gold dirt was obtained. A portentous change ensued. The igneous energies retained beneath the serried peaks of the Sierras broke forth, and currents of lava forced their way down the sides of the mountains, following the lines of lowest level, thus sealing partially beneath basaltic dykes the ancient river beds. Some appeared as wide avenues

sunk in the surface of the earth, and leading to their points of origin, or as black wedges forcing apart their adjacent walls. These form the Table Mountains of to-day, elevated causeways, whose bold and precipitous sides form aerial headlands of picturesque interest. The country in their neighborhood falls away in a varied picture of hills and valleys, leaving these colossal walls, 100 to 150 feet high, in dark relief over the buried courses of once powerful rivers, so vast and extraordinary has been the denudation since their emission.

Other streams spread in thinner and wider sheets over the slopes and lowlands. Volcanic phenomena accompanied these igneous emissions, beds of ashes and scoriæ were formed, fierce expulsions of steam took place, a shattering of many of the lava outflows prepared them for solution and dispersion through the subsequent agency of water. Upon the gradual cessation of these plutonic disturbances, the ever-recurring processes of denudation began their attack upon these new beds, many of which were disintegrated and reassorted.

The comminution and removal of strata were assisted by the ice age which succeeded, and which, though doubtless nearly contemporaneous with Eastern America, presented local peculiarities that separate it from the same era of the Middle and Eastern States. The cold crests of the Sierras, naturally gathered together glaciers within their ravines and depressions whose magnitude increased with the approach and culmination of the continent's cold period, by which their separated streams emerged from their several sources, and pressed together down the flanks, both on the eastern and western sides of the Sierras. Those upon the east moved with an accelerated rate down the steeper slant, and the broad ice tongue on the western side gradually spread out into the intervening lowlands, forcing aside, or indeed excluding, the northern ice-sheet, whose occupancy it already forestalled. Drift gravels were accumulated which received wider distribution by the development of lines of drainage, on the retreat of the glaciers, wherein powerful currents ran, working through and over the wide tracts of debris.

The modern period of rapid rivers followed, with its long-continued ages of persistent and effective erosion. Man, if we adopt Prof. Whitney's conclusions, may have witnessed all of these, "a strange, eventful history," extending back unnumbered centuries to the latest tertiaries, embracing the gathering of the glacial snows, the formation of the auriferous gravels, the outpouring along eruptive centres of basalt streams, and the gradual transformation of California's topography beneath the restless fingers of time and frost and water.

EARLY EUROPEAN PIPES FOUND IN THE UNITED STATES.

BY E. A. BARBER.

Amongst the objects frequently found associated with remains of Indian workmanship on the Atlantic sea-board are copper implements, weapons of metal, and glass beads, which are readily distinguished as articles of European introduction. But there is another class of minor antiquities which are not so easily assigned to their proper source, and which, in fact, have puzzled and often deceived archæologists of considerable experience. These are some of the early clay tobacco-pipes of Great Britain and Holland, belonging to the 17th and 18th centuries. In some parts of the country these objects are known as *Indian* pipes, and examples are to be seen in several of our most noted ethnological museums and in private collections, confidently, but erroneously labeled "*aboriginal.*" The mistake is an excusable one, since, in many instances, it is difficult to determine, by any marked peculiarities, the origin of the specimens.

The early English and Dutch traders imported, for barter with the natives, large quantities of tobacco-pipes, which found a ready sale amongst the latter as an improvement over their own laboriously and clumsily fashioned productions. In some instances the savage owners entirely obliterated all traces of the moulds by rubbing and scraping the surfaces of the pipes with sharp stones; it is not surprising, therefore, that specimens of this kind which had been discolored by the earth, where they had been buried for one or two centuries, should have lost all of their distinguishing characteristics, and on their discovery should be classed with the aboriginal objects which accompanied them.

In some of the old Colonial records are to be found lists of articles traded to the Indians, which frequently included pipes. It is recorded that 2,000 of these were brought into Pennsylvania for the natives, on one occasion. Harrison Wright, Esq., recording secretary of the Historical and Geological Society at Wilkes Barre, Pa., has called my attention to Weems' life of Wm. Penn, in which occur, in the list of goods given in payment for the first conveyance of land to the Indians, the following items: *300 Tobacco-pipes*, 20 Tobacco-tongs and 20 Tobacco-boxes.

On the surface of the artificial shell heaps along the shores of the Chesapeake Bay in Maryland, British pipes are frequently found, where they are believed to be veritable aborig-

inal productions, and are usually termed "*Indian* Pipes." J. D. McGuire, Esq., of Ellicott City, possesses a specimen which has been scraped over the entire surface, the end of the stem having been worn through by the teeth of the smoker. Another example from Anne Arundel Co., presented to me by the same gentleman, illustrates the form of pipe in use in England during the early part of the 18th century. It possesses the flat heel and curved bowl characteristic of the older pipes, though its capacity is considerably greater.

In the Mohawk Valley, in the State of New York, Mr. S. L. Frey, of Palatine Bridge, has discovered a large number of early British pipes, both on the sites of old villages and in Indian graves. These were associated with many implements and trinkets of European workmanship, such as iron axes, hoes and gun barrels, Venetian beads in great variety, thimbles, Jew's Harps (Penn brought one hundred into Pennsylvania), copper ornaments, a crucifix, an old stoneware salt-glazed jug, commonly called Fulhamware, and a leaden seal bearing the date 1630. Besides these articles the graves produced a number of objects of native manufacture including earthen vessels, wampum, bead ornaments, stone implements, and a wrought bone tube in sections, about twenty inches in length. Some of the terra-cotta pipe bowls discovered by Mr. Frey are marked with the initials E. B. enclosed in a circle. Others have the letters W. S. imprinted on the bases, probably the productions of William Smallshawe, a pipe-maker of Bolton, England. An interesting fragment in Mr. Frey's collection shows the heel of a pipe, with the representation of a man with a drawn sword, mounted on a horse, beneath which occur the letters V. O. Two or three specimens, which apparently belong to the last century, are of a different shape and possess no protuberances on the under side of the bowls. Facing the smoker in the back of the bowl are the letters R. T. Pipes of the same form were found by myself in an Indian grave in Chester County, Pa., one of which in addition to these initials, was marked on the right side with the full name of the maker, R. Tipp–et (see 1, fig. 1). Another example, evidently from the same mould, was taken from a grave in Lancaster County, Pa., by Mr. P. C. Hiller. In the collection of the Wilkes Barre Historical Society is another of Tippet's pipes, the mark of which differs in the separation of the syllables (R. Tip–pet). This specimen is figured in the ANTIQUARIAN, Vol. III, No. 4. These examples serve to show how widely pipes of one maker were scattered, at least throughout the States of Pennsylvania and New York. I have not yet been able to ascertain, however, whether Tippet was an

English or an American potter. According to a statement in the *Pennsylvania Magazine of History and Biography* (Vol. IV, No. 2, page 195) one tobacco-pipe maker, at least, made pipes in Philadelphia, as early as the year 1690. The fact that the Wilkes Barre specimen was found in a field with a medal of George II., goes far to prove, however, that it was a British manufacture, and would seem to point to the first quarter of the 18th century as about the time of its production.

From an Indian grave in Lancaster County, Pa., an interesting specimen, figured in my paper on *Fairy Pipes*, in the first number of *Our Continent*, was taken some years ago, which is probably a French production. It represents an Indian's head surmounted by a feather head-dress, and was undoubtedly made for the Indian trade. Two other bowls of analogous form were plowed up in the State of New York, and are also supposed to be French designs of the last century. One of them, in the possession of Edward Beebe, of Baldwinsville, N. Y., represents a man's head, now somewhat defaced. On one side are the figures 176 (the maker's number). The eyes are of black and white enamel, and tufts of hair on either side are also glazed. The second specimen is a spirited head with turban and drapery falling to the neck. That it was intended for Indian trade seems probable from the presence on one side of the stem-socket of an etched quiver and bow, and on the other of a dagger and shield. It is made of fine clay and still retains traces of red paint with which the owner at one time ornamented it.

The most interesting pipe of this character, discovered in the United States, however, is a unique specimen which was found six feet below the surface of the ground, in the State of Missouri, and sent to me by Dr. George J. Engelmann, of St. Louis. It consists of a wooden platform in the form of a duck, with wings of copper riveted into the wood. The base is inlaid with another piece of copper of bird form. This much of the pipe is presumably the handiwork of an Indian artist, but the bowl is formed of the upper portion of an *old English clay pipe* set into the back of the duck. The pipe being of the platform or mound type was complete in itself, and was not smoked through an additional stem, the tail of the duck serving as a mouth-piece. A representation of this curious object is also given in the article on Fairy Pipes referred to above. Mr. Wm. Bragge, of Birmingham, England, who formed the largest collection of pipes in existence, procured two examples of somewhat similar design from the North Pacific coast of America, one of which posseses a brass, and the other an iron bowl set into the bird-shaped base. The

Missouri specimen displays much ingenuity in the utilization of a cast-off bowl, probably obtained in trade from an eastern tribe, and possesses the double interest of a combination of European and native American workmanship.

British pipes have been found in other localities in the United States, though they seldom possess marks, and it is therefore difficult, if not impossible, to assign to them any particular date. In the old Peale collection, now deposited in the Academy of Natural Sciences, in Philadelphia, may be seen another diminutive specimen. The Historical Society of Wilkes Barre possesses four unmarked specimens, in addition to the R. Tippet pipe already alluded to. Rev. W. M. Beauchamp, of Baldwinsville, N. Y., informs me that portions of clay pipe-stems are found in abundance at several points in that state, and Mr. Wm. A. White, of Sag Harbor, in the same State, has a bowl which he found in an Indian grave in that vicinity. Other specimens have been discovered by Mr. Wallace Tooker, of the same place, one of them, plowed up in the same neighborhood, being a characteristic example of the British pipe of the 17th century. Mr. Tooker informs me further that he has found perfect clay pipes on shell heaps and on the sites of aboriginal villages. On one occasion he picked up an entire clay pipe with a diminutive bowl, which he gave to friend, who used it for some time until it was broken. In using the word *perfect*, it is to be supposed that it is applied to the bowl, as the stems of these antiquities were originally upwards of a foot in length, and but three absolutely entire specimens are known to exist, all of them being in the celebrated Bragge collection.

Mr. P. C. Hiller, of Conestoga, Pa., found European pipes of various forms in Lancaster County. One bears the letters E. B. on the base, and another is marked with a human hand (fig. 2), and is probably a production of one Gauntlet, who was a celebrated English potter in the 17th century. His mark was an open hand or glove, hence his wares were called *gauntlet* pipes. E. B. pipes have also been found by Mr. Lott Van De Water in Hempstead, Long Island, one of which was unearthed four feet below the surface, of the soil, while digging a well. Another was marked (fig. 3) with a star, and the stem of a third was decorated with diamond-shaped figures enclosing spear-like ornaments, similar to several which I have in my own collection from Holland, and belonging to the 17th century.

1 2 3

FIG. 1.

When we know that many thousands of these objects were imported at various times, and distributed amongst the Delaware, Iroquois, Seneca, Mohawk, and other Indians of the Atlantic coast, it is not surprising that so many of them have been turned up by the plow or taken from Indian graves. None of the *earliest* forms (of the 16th century) have, so far as I can learn, been found in this country, but examples made in the 17th and 18th centuries are widely distributed. The object of this paper is simply to call attention to the fact that many objects which have hitherto been believed to be Indian relics, are in reality European manufactures of the last two centuries.

THE BRONZE AGE IN GREAT BRITAIN.

THE ANCIENT BRONZE IMPLEMENTS, WEAPONS, AND ORNAMENTS OF GREAT BRITAIN AND IRELAND. BY JOHN EVANS, D. C. L., L.L. D., F. R. S., &c. LONDON, LONGMANS, GREEN & CO. PP. 509. ILLUSTRATED.

BY CHARLES C. JONES, JR., LL. D.

The appearance of a new work from the pen of the accomplished author of *The Coins af the Ancient Britons*, and of *The Ancient Stone Implements, Weapons, and Ornaments of Great Britain*, is most heartily welcomed by all who are even incidentally interested in the study of Archæology, and who are not incurious with regard to the primitive customs of man.

It was pretty generally known in the scientific world that for several years past Dr. Evans had been engaged in an exhaustive study of the Bronze Objects of Great Britain and Ireland, and in such collateral investigations as were deemed requisite for an intelligent comprehension of the manufactures and characteristics of the Bronze Age in Europe. His presentation to the Foreign Archæologists, assembled at Buda-Pest for the International Congress of Prehistoric Archæology and Anthropology in 1876, of his *Petit Album de l'age du Bronze de la Grande Bretange*, awakened in the public mind a genuine interest in his labors, and gave assurance of the extreme value of the important work which was then claiming the devotion of his leisure hours. It was feared, however, by some best acquainted with his busy life, that the many and exacting engagements of the author would postpone the early completion of an undertaking involving such extensive research and so much careful investigation. On all sides was it fully conceded that Dr. Evans' indefatigable industry and scholarly attainments, his valuable collections, the favored access which was always accorded him by public and private museums, his

intimate association with the learned societies, and his extensive acquaintance with those most famous in the department of Archæology, eminently fitted him for the prosecution of this most important labor. The honors, too, which he had won in this, his favorite field, had rendered his name illustrious on both sides the Atlantic, and his former achievements were accepted as a pledge of peculiar merit in whatever contribution he should make to human knowledge, and in further explanation of the secrets pertaining to prehistoric times and primitive peoples.

It is with no ordinary pleasure, therefore, that we greet the appearance of this charming book. This publication is a desideratum in the department of Archæology, and presents fully, accurately, and in most attractive form all that is known of the manufacture and use of Bronze by the ancient peoples once abundant in the region indicated. It does more. By apt illustration, and by intelligent comparison of the differing types, it sums up the discoveries which have been made touching the characteristics of the Bronze age in other and distant localities, and conveys all information on the subject which extensive travel, liberal reading, generous inquiry, and personal explorations could accumulate.

Two years agone, when the thoughts of our distinguished friend were largely occupied with the study of the topics discussed and of the objects figured in the attractive pages of the work now before us, it was our privilege to have enjoyed, for a brief season, the hospitalities of his home, and the happiness of an inspection of many of the rare and beautiful relics, constituting the remarkable collection sheltered within the kindly walls of Nash Mills. Upon turning over the leaves of the volume, therefore, we are renewing an acquaintance most charmingly formed, and looking old friends in the face although the wide waters of the Atlantic intervene.

To those chiefly acquainted with the antiquities of North America where we find simply a stone-age, commencing at a remote period and continuing even unto the present, where there is an entire absence of iron and bronze, and where the presence of copper may be regarded as the intrusion of a malleable stone,—where the propriety of a division of the Stone Age into palæolithic and neolithic epochs appears, to say the least, very questionable,—the existence of a clearly defined Bronze Period, with all its rich expressions of manufacture and intimate associations with the Stone Age on the one hand, and with the Iron Age on the other, is at once novel and engaging.

In an introductory chapter, remarkable for its comprehensiveness and scholarly research, Dr. Evans discusses the use

of Bronze and of other metals among the ancient Jews, in Egypt during the Pharaonic epochs, in Greece during the Homeric age, in Italy, and in other countries. The testimony of the earliest writers is supplemented by the observations of later days, and the mythological traditions of a partially comprehended past are interpreted in the light of recent investigations. Having established the age of Bronze as intermediate between that of Stone and of Iron, having indicated its general characteristics and pointed out its probable appearance, development, and duration among different peoples, our author addresses himself to the main subject of inquiry, which is an examination, classification, and description of the various weapons, implements, and ornaments of Bronze found in the British Isles.

The four succeeding chapters are occupied with a classification and delineation of the several forms of Celts, while in the fifth chapter the methods of hafting them are considered. And here, at the outset, we are saluted with a nicety in classification, with an intelligence in grouping, and with a wealth of illustration most admirable and instructive. The engraver, also, has responded fully to his duty in life-like portrayal of objects symbolizing the manufactures of these primitive peoples.

The origin and application of the term *Celt* [Latin, Celtis, or Celtes, a chisel] having been historically discussed, the Bronze Celts of the United Kingdom are described under the following classification:

I. *Flat Celts*,—probably the earliest form—with faces somewhat convex, and approximating in shape to the polished stone celts of the neolithic period. Of this variety many specimens are delineated with faces both plain and ornamented.

II. *Flanged Celts*, having projecting ledges along the greater part of each side of the faces, produced either by hammering the metal at the sides of the blades, or in the original casting. These are also both plain and decorated. In this connection we are made acquainted with some interesting specimens of rough castings destined to be wrought into the desired form.

III. *Winged Celts*.

IV. *Celts with a stop ridge*.

V. *Palstaves* [spade-staffs], with transverse edges, with loops, with ribs on the blade, with shield-like ornaments, etc., etc.

VI. *Socketed Celts*, plain, with ribs and pellets on the faces, with and without loops, etc.

The modifications of form as exhibited in England, Scotland, and Ireland are accurately noted and comparisons instituted between them and types dominant in other portions of the

globe. So thorough is the analysis, so definite the information, and so generous the illustration, that nothing further can be desired for a full comprehension of all that is now known of this class of objects which played such an important part in the warlike, venatic, and industrial pursuits of these ancient peoples. In chapter VI we are advised of the methods employed in hafting these celts for use, now as axes, again as hatchets, then as adzes, and lastly as chisels and cutting implements.

Then follow, in the order named, an enumeration and description—accompanied in the case of each class of objects with examples and illustrations most abundant and satisfactory —of the various forms of chisels, gouges, hammers, anvils, saws, files, tongs, pincers, awls, drills, prickers, needles, piercers, fish-hooks, sickles, knives, razors, daggers, rapiers, halberds, maces, swords, scabbards, chapes, spear-heads, lance-heads, ferrules for spear-shafts, shields, bucklers, helmets, trumpets, bells, pins, torques, bracelets, rings, ear-rings, and other personal ornaments, clasps, buttons, buckles, vessels, caldrons, and other miscellaneous objects; the whole conveying an impression of a skill and variety in manufacture quite remarkable.

Having thus with illustration most apt, and a discrimination most masterly, classified and described all the known creations of this Bronze Age so rich in its expressions and, in many respects, so admirable in its art and fabrications, Dr. Evans in the twenty-first chapter of this great work (for so it may with propriety be styled), turns to a critical examination of the metal itself—the ancient bronze—of the kinds of moulds employed in giving shape to the mass, and of the processes by which these weapons, tools, ornaments and vessels were produced and prepared for use. The natural sources of supply, both of the tin and copper uniting in the composition, are pointed out, and sundry analyses of Bronze antiquities are given.

Of the precise manner in which the metal was melted but little seems to be known. It would appear, however, that crucibles were employed, made of burnt clay, and provided with handles for moving them. The molten metal was discharged by means of small ladles of earthenware, and the objects were cast in single or double moulds, formed of loam, sand, stone or metal. Occasionally solid moulds occur.

As throwing much light upon this subject the learned author, at pages 442 et seq., describes a hoard which may fairly be regarded as the stock-in-trade of an ancient Bronze-Founder. It is known as the *Harty Hoard*, and the articles found in

association are all carefully preserved in Dr. Evans' collection. In their presence specu'ation ceases, and the operations of the artificer stand revealed. Here are both halves of one of his moulds, and there are five celts and a fragment of another which were cast therein. Here are both halves of another mould of different design, and there lies a celt which was fashioned within it. Behold too, both halves of a gouge-mould, and see this accumulation of celts cast in moulds which have not been recovered. Gouges, pointed tools, a double-edged knife, a single-edged knife, a perforated disc, a ferrule, a curved bracelet-like object, a hammer or anvil, a small hammer, two pieces of rough copper, and a whetstone comprise the stock in trade and the tools of this worker in Bronze of the olden time which have been rescued from oblivion.

After a brief notice of rubbers and whetstones, and an explanation of the way in which Bronze objects were probably ornamented (punches or flint-flakes being sufficiently serviceable for such decoration), Dr. Evans concludes with a most engaging chapter on the chronology and origin of Bronze. Forming a portion of this is a tabulated list of the principal hoards discovered in the United Kingdom, with remarks explanatory of the characteristics of each.

As a general deduction it is suggested that the flat and slightly flanged celts, and the thin knife-daggers may be regarded as among the earliest forms of bronze weapons manufactured in the British Isles. These were followed by the more distinctly flanged celts, the tanged spear-heads, and the thick dagger-blades. At a later period the celts with a stop-ridge and those of the Palstave form came into vogue, and remained in use until the close of the Bronze Age, although they were in large degree supplanted by the socketed celt, which seems to have been evolved from one form of the Palstave. Socketed chisels, gouges, hammers, knives, socketed spear-heads and swords were contemporaries of the socketed celt.

There occurred a gradual transition from the employment of Bronze in the fabrication of cutting tools and weapons of offence, to the use of iron and steel for similar purposes; or, in other words, from a Bronze to an Iron age, prior to the Roman invasion of Britain. As the result of his best thought upon a question environed with no little obscurity, Dr. Evans locates the beginning of the Bronze period in Britain about 1200 or 1400 B. C., and assigns to it a duration of some eight or ten centuries. This suggestion coincides with the general conclusion which has been reached with regard to the use of Bronze in the southern portion of Europe, although by some

the commencement of the Bronze age in Switzerland has been fixed at not less thau 3000 B. C.

After reviewing various theories which have been advanced in regard to the origin of the manufacture of Bronze, and after alluding to the modifying influences, exerted by trade relations obtaining at an early period between nations widely separated, Dr. Evans expresses the opinion that Britain was one of the centres into which a knowledge of the use and fabrication of bronze objects was introduced at a comparatively remote date, and where a special development of the Bronze industry arose, extending over a lengthened period, and modified from time to time by foreign influences.

The following is the picture which our author paints of the principal features of the external condition of the bronze-using population of the British Isles.

Their dwellings were probably of a character near akin to those of the Swiss-Lake population, except that, for the most part, they were located on dry land and not on platforms over the water. In the fabrication of their clothing, skins, woolen cloth, and probably linen were employed. With the art of spinning and weaving they were acquainted. Of domesticated animals they possessed the dog, ox, sheep, goat, pig, and the horse. Among animals hunted by them were the red deer, the roe, the wild boar and the hare. For the chase and for warfare their arrows were tipped with flint. Some stone implements, such as scrapers, remained in use until the end of the period. For obtaining fire a nodule of pyrites and a flint-flake sufficed. The presence of Bronze sickles indicates the cultivation of at least some cereals. Pottery they had of various shapes, some apparently made expressly for sepulchral purposes. A knowledge of the potter's-wheel they did not possess. Ornaments were worn in less profusion than in Switzerland; but the torque for the neck, the bracelet, the ear-ring, the pin for the dress and for the hair were all in use. Brooches seem to have been unknown. Necklaces or gorgets formed of amber and jet, and bone beads were not uncommon, and ornaments of glass and ivory were acquired through foreign commerce. Gold was often used for personal decoration. Accomplished workers in, and carvers of, wood and horn, there were among them artificers, who inlaid wood and amber with minute gold pins almost or quite as skillfully as the French workman of the last century who wrought on tortoise-shell. In casting and hammering in Bronze they attained consummate skill. Their spear-heads and wrought-shields could not be surpassed at the present day. The general equipment of the warrior in the matter of swords, daggers, halberds, spears,

etc., was abundant and effective, while the workman suffered for no lack of tools such as hatchets, chisels, gouges, hammers, pincers, anvils, etc., etc.

Such is a brief outline of the general scope of this admirable work which will be recognized and welcomed as a legitimate brother of the *Ancient Stone Implements, Weapons, and Ornaments of Great Britain.* As a specimen of the printer's art, and of the engraver's skill, this book is all that could be desired. We thank the distinguished author for this noble labor, and salute him upon its happy completion. We congratulate the present generation upon this literary and scientific fruitage so mature and of such rare excellence. We felicitate ourselves upon this admirable contribution to our knowledge of a distinct and interesting stage in the course of human progress.

AUGUSTA, GEORGIA, May 11th, 1881.

THE PREHISTORIC ARCHITECTURE OF AMERICA;

A CLUE TO THE EARLY STAGES OF HISTORIC ARCHITECTURE IN OTHER LANDS.

BY STEPHEN D. PEET.

Read before the Wisconsin Academy of Science and Art, September, 1881.

The prehistoric works of America present one peculiarity, which, so far as known, is not possessed by the works of any other continent, and that is, they exhibit architecture in its lowest stages, and at the same time give us a clue to the development of architecture throughout all its stages. The term "architecture" may, to be sure, when used in connection with these works, need to be modified to some degree; for, as it is generally used, it might be misunderstood when applied to prehistoric works. The term is properly a modern one, and is generally used in connection with modern and historic structures. It is defined as the art or science of building, but, in a more limited and appropriate sense, the art of constructing bridges, houses, and other buildings, for the purpose of civil life. It is divided into three classes—civil, military and naval. It is a question whether the word should be applied at all to prehistoric works. These works are not all of them buildings, nor can they be called forts in the modern acceptation of the term; and certainly the terms used for naval architecture had little place in prehistoric times.

As commonly used, the term is descriptive of finished structures, but the prehistoric monuments of this country are not finished. If they ever existed in such a form that the different parts of them could be ascribed to some completed structure, they are now discovered in a very different state. Many of them are without any trace of buildings. Many of the mound-builders' works, for instance, are not and never were either buildings or parts of buildings. The Pueblos and Cliff Dwellings are some of them in the shape of completed structures, as are also the palaces of Mexico and Central America; but among these are ruins which probably were once buildings, but to which no architectural term can now be applied. They might probably be called architectural ruins, but not structures. Nearly all the prehistoric works of America are found in a fragmentary state, and some of them are so rude as hardly to be called architectural. The various walls, heaps, and mounds of earth, and the various stone walls and heaps which are found throughout the continent, are hardly worthy of the name of structure even. Yet notwithstanding all this, we maintain that many of the prehistoric works of America were architectural, and must be treated as such.

To illustrate: There are certain mound-builders' works which were the foundations of buildings. This is the case with the pyramids which are found in the Gulf States, and probably with the temple platforms found in Ohio. The former were actually occupied at the time of the exploration of Ferdinand de Soto, and thus shown to have been the elevated platforms on which the rude palaces of the native caciques were erected. These we could reconstruct according to the descriptions of history. There are also foundations and ruined walls among the Pueblos and Cliff Dwellings which can be reconstructed in the same way, the surviving races having erected buildings similar to those occupied by their ancestors.

Again, many of the prehistoric works of America can be shown to have been architectural, because if they cannot be reconstructed as buildings, nevertheless they were structures, or parts of structures, which were used for some civil or military purpose. We have just referred to the earth-walls on which Mr. Morgan would reconstruct his communistic houses. These walls have all the characteristics of architectural structures in themselves. They are as worthy of being called architectural as the walls of any modern fort. We do not need to reconstruct them to see that they were designed to surround inclosures. Whatever the purpose of these inclosures—whether used for defending the villages within, or for

keeping prisoners of war, or as places where the dances and games were conducted, or as corrals for game—they were evidently inclosures. We may say also of the rude circles which are found in New York State, and which are probably the remains of ancient stockades, that these are parts of architectural structures. A stockade is but a primitive fort, and though its architecture is rude, it is as much a structure as any modern fort. The earth-walls or circles which are left may not be any part of a building as such, yet, if reconstructed with the stockade, we should call it an architectural work.

Third, we maintain that many of the pre-historic works were architectural, because, though isolated, they together form a system of works which show traces of a certain style of construction. For instance, take many of the isolated emblematic mounds. We maintain that they are as surely architectural as are many modern structures. In an article on the "Military Architecture of the Emblematic Mound-Builders," we have taken the position that the signal stations or sentinel mounds were parts of a great system of defense corresponding to the modern use of the military earthworks. Whether the ordinary tumuli or burial heaps can come under this definition or not, is a question; yet we might erect a department of funereal architecture, and make it plain that there is as much variety and definiteness among these isolated structures as among the more modern, and so we pronounce them architectural works. With these preliminary remarks, then, we proceed to the subject, "The Prehistoric Architecture of America is a Clue to the Early Stages of Historic Architecture in All Lands."

I. In this architecture we find the transition between the prehistoric and historic state. We have acknowledged that the prehistoric works of America are often very fragmentary and rude; yet we maintain that they are, on this account, all the more suggestive.

1. These prehistoric works may be regarded as connecting links between the more primitive forms to which no terms of architecture can be applied, and the more complete and perfect works.

The prehistoric works of Europe have this peculiarity, that the large majority of them are so extremely rude that we can apply to them no architectural term whatever.

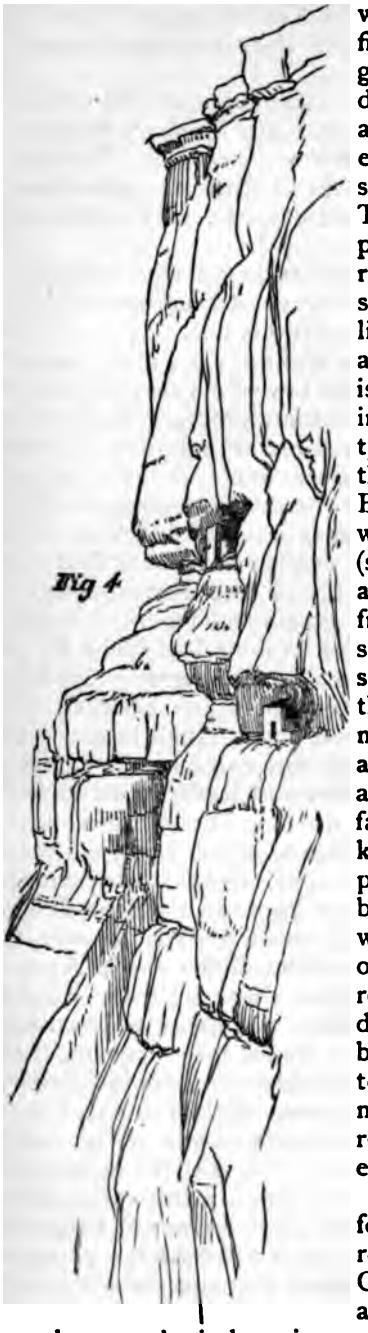
The gravel beds disclose relics of bone or shell and stone, which have some evidence of artistic skill; but we never find among them any such thing as a completed structure. The same is also true of the Kitchen middens and Cave dwellings. The rude stone monuments approach a stage where we may discover in them the remains of structures once complete, yet

they are generally so fragmentary and heterogeneous that we rarely call them architectural works. They are more properly monuments.

The dolmens and cromlechs of England may be called structures, but the menhirs and standing stones of Karnac and other parts of Europe, are not architectural. We may say, then, that the prehistoric works of America form a connecting link between the prehistoric works of Europe and those of historic date.

2. The prehistoric works of America begin where those of Europe leave off. The distinction between them seems to be that one is architectural, while the other is not.

In Europe, as we have said, the highest class alone can be called architectural; in America, the lowest class of works are worthy of this name. History and architecture in Europe begin together, but in America architecture appears to have prevailed throughout the prehistoric age. All the stages which are presented by the prehistoric cultus embraced architecture. Even if we divide the times into the different ages, such as the Stone, Copper, and Bronze, we shall find the works of architecture in each. The Palæolithic age, to be sure, where it is found, is destitute of this element. In this respect it is the same in Europe and in America. The Palæolithic age never contains any architectural work. Society did not reach that height. The correlation is between the rude stone implements and gravel beds, shell-heaps, and caves. But after the Polished-stone age came in, the correlation is between Neolithic implements and Rude Stone Monuments, Lake Dwellings, ete. The dividing line between architectural works and those which are not, is just here, between the Rude-stone and Polished-stone ages. The two continents are not so much unlike as we at first supposed, for the difference really is that the Rude-stone prevailed more extensively in Europe, while the Polished-stone prevailed more in America. We are not denying in this that there are traces of the Palæolithic age in America, but thus far these traces have been so few that we do not take them into account. It should be said, however, that the prehistoric works of America are some of them much more advanced than those of Europe. The existence of arches and columns and pillars, with base and capitol, among the works of the Toltecs in Mexico and Central America, shows this. There are structures, also, among the Cliff-dwellers, which are quite advanced in architectural style and finish. Any one who will take the pains to examine engravings of the palace of Palenquè and Uxmal, will find the former fact illustrated; those that are familiar



with the Government Reports, will find illustrations of the latter. We give herewith a cut, from Dr. Hayden's report, published in 1876, and the reader will notice how extremely llke a modern house some of these Cliff dwellings are. Though there are no columns, or pillars, or arches, to give elaborateness to the details, yet the symmetry of the walls, the exact lines and angles of the windows and doors, the definiteness and finish apparent throughout the whole, impart an air of architectural beauty which is quite equal to many of the houses built at the present day. Even the interior arrangement is worthy of notice. A fire-place (see fig. 6), which is as well made and as complete as many in our frontier houses, shows that a high stage of art had been reached. It should not be supposed, however, that this building, that looks so much like a modern dwelling, was a house built above the surface, and used as a residence for a single family, for such buildings are not known to have existed during the prehistoric age in America. This building is a Cliff dwelling, and we refer to it to show what stage of perfection the Cliff dwellers reached, and that many of these dwellings were connecting links between the prehistoric and historic structures of the two continents. The Cave dwellers of Europe never attained to the art of erecting such a building.

The only prehistoric structure found in Europe which at all resembles it, is the Dolmen or Cromlech, and this was a grave and not a dwelling. There are no doors and windows in any Cromlech.

The communistic element prevailed among the Cliff-dwellers of America. This isolated building was more accidental than systematic, totally unlike the other Cliff dwellings.*

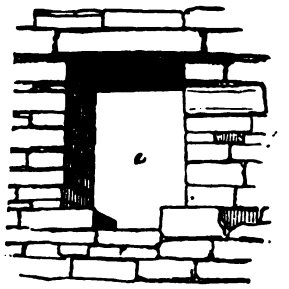


Fig. 2.

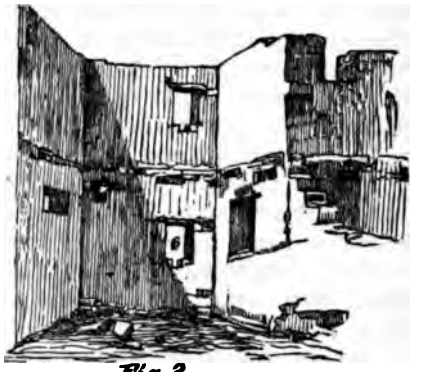


Fig. 3

We give below a cut to show that the Cliff dwellings were built on the communistic plan, and that they were only a connecting link between the communistic houses such as are found among the tribes farther east, and the Pueblo dwellings farther west.

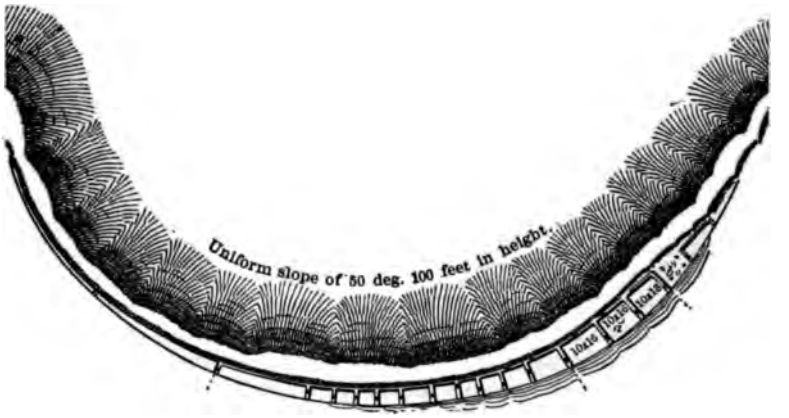
Fig. 6.

The tribal organization was the one which ruled in the erection of houses in America. The prehistoric people here lived not in families as we do, but in clans or tribes. We cannot look at this house, which so much resembles a modern dwelling, and say that it was the residence of a single family, for we look at the different rooms of the other Cliff dwellings and know that they were occupied by many families. We agree with Mr. Morgan in his position that the communistic system was prevalent throughout the whole of prehistoric America. We take, then, these Cliff dwellings as an illustration. They show that the tribal organization and the communistic system probably existed among the Cave-dwellers of Europe. They show also that the earliest stages of architecture in Europe may have been designed to accommodate the gentes, rather than the single family; and we suggest that the opinions which have been expressed about the primitive houses, of even the Aryan races, may need to be modified.

In the first place, many of these are capable of being reconstructed according to architectural laws. The work of reconstruction may indeed be difficult and unsatisfactory, for the ruins are very fragmentary, and the works, as they ap-

*See article on The Military Architecture of the Emblematic Mound-Builders.—AMERICAN ANTIQUARIAN, Vol. III, No. 2.

pear, are very rude. Mr. Morgan maintained that the communistic system prevailed among the Mound Builders, that the mounds were the foundations of buildings, and that these buildings were communistic dwellings. This theory we believe to be untenable. The mounds were not wide enough nor large enough for such purposes. They are too uneven in size and varied in form. The walls and circles which are referred to by the author as probably foundations for communistic houses, are too fragmentary and too crooked, and are not wide enough on top for such a purpose. A continued line of buildings, on one of the circles of Ohio, would have to be erected in a different way from any known structure in the world. The square inclosures and octagons, which are sometimes discovered in that State, we maintain could not have been the sites of such communistic dwellings. Some of the walls surrounding these inclosures are too short to admit of a continued line of buildngs, and others are too long. These walls, with buildings upon them, would form no defense.



They would form much better defenses if the houses were inside the inclosures, and the walls themselves were used as defenses, with gateways filling up the spaces between the fragmentary parts. The complicated and elaborate earthworks give no clue to the architecture of the mound builders' dwellings, so that it is impossible to reconstruct them. Yet we maintain that many of the mound-builders' works were architectural.

II. We turn now to a new point. American architecture is presented to us in an undifferentiated state. Society was in that condition where there were no separate classes. The communistic element was so general that all classes lived in the same manner. The same structures were employed for

all modes of life. Hence, the domestic, the military and the religious structures of America were all connected in one. This is true, at any rate, of the lower stages of society in this country. The uncivilized races had no distinct classes, such as the military, the agricultural, and the servile. Of course, the differentiation would appear more in the civilized states than in the uncivilized, but if there was differentiation in the uncivilized states it was not enough to show itself. When we examine the architecture of the civilized races, such as existed in Central America and Mexico, we find temples in the shape of Teocalli or pyramids; also, palaces, many of them built upon a grand scale, and with elaborate ornamentation; also, houses or dwelling places, the most of them built, however, on the communistic plan; and we find places for games, and perhaps for military display and social gathering. But when we examine the Pueblos of New Mexico, all of these are combined in one, the Estufas, or sweat-houses, being associated with the residences, and the public squares and gardens being surrounded by the many-storied dwellings of the Pueblo.* We find, to be sure, among the Cliff-dwellings, buildings which were probably used for different purposes. For instance, the straight walls built in the niches of the cliffs were probably dwellings; the round towers erected on the summit of the cliff, on a level with the mesa, were probably signal stations or forts† (some have thought them to be designed for religious purposes), and the circles which are found associated with the square chambers, were probably Estufas.

Thus, there was only the beginning of differentiation among these structures. When we examine the works of the Mound-Builders, we find differences also, showing that one kind of structure was used for religious purposes, and another for military. There are many truncated pyramids where were originally erected the palaces of the Caciques. There are, among the Mound-Builders' works, many fortifications, which showed that this people had reached some degree of skill as military engineers. But when we look at the stockades and rude earth-walls of the savage races, we discover nothing of this differentiation in architecture.

We maintain, then, that the primordial germs of the different kinds of architecture are found in America. The germinal elements are, to be sure, so often found associated in the same structure that we find it difficult to tell for what purpose the work was erected. For instance, a fortification which was built upon the summit of the hill at Ft. Ancient, probably contained, within its inclosure, the residences of the people. There is no evidence, as we have said, that these dwellings

*See Ruins at Aztec Spring, on Plate I. †See Figs. 1 and 2, on Plate II.

were built on the walls. The complicated works at Newark were used for such various purposes that we cannot tell whether they were military works, or sacred inclosures, or village sites, or places for catching wild game, or were used for dancing and racing, or all of these combined. The works found at Eufaula, Georgia, have, on the other hand, separate structures, such as the truncated pyramid and walled inclosure, and the conical mound, and, in the light of history we know that each one of these was used for a different purpose.

Generally the development of architecture appears in different localities, so that it is only by the comparison of them that we can discover the different modes of life and different purposes in the works. The reason why we do not better understand the prehistoric works is because we fail to picture out society as it was. The people did not separate into different classes, and put their military men into one place, their religious men into another. We cannot judge them from our modern standpoint. Society was in a gregarious state. The people might, at one place, dwell altogether in a fortification; they might, at another, be following the agricultural life; at another, the hunting habits would predominate. Hence, by traveling over large districts of country, we discover architectural works which were adapted for the different purposes, and thus find a native architecture in its differentiated state. By examining these works in the separate localities, then, we find the different kinds of architecture in its most primitive forms.

III. The ancient architecture of America is presented to us in different stages of development, and so we have a clue to the early stages of historical architecture. The growth of architecture is one of the most interesting subjects, but the difficulty is that the traces of the different stages of progress have been obliterated. No one land furnishes a complete succession of works. The historic age commenced so late that architecture had reached a high state of advancement before history made any record. The connection between the historic and the prehistoric age is broken, so that a long gap intervenes between the two. An impenetrable obscurity hangs over the earlier stages, and we cannot trace the progress from the historic up to the prehistoric. There is no continuous line under any one people. One nation has borrowed from another, or built upon its ruins, and so the line of progress has always been broken. Successive waves of population have swept over every land, destroying the traces of what existed before. Assyria built upon the ruins of Babylonia; Greece borrowed from Troy, and there a new people built

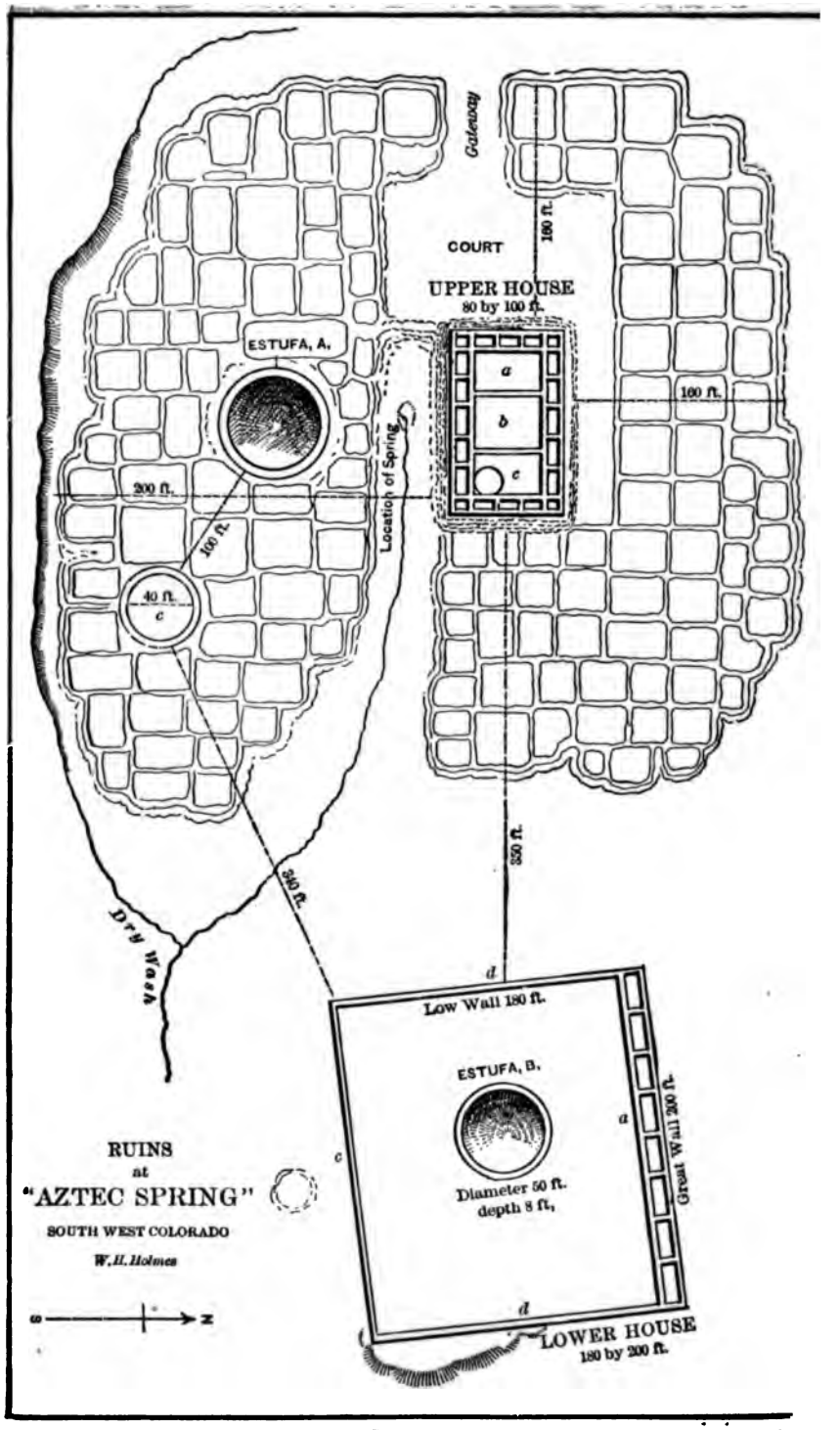

Gateway
COURT
UPPER HOUSE
80 by 100 ft.
180 ft.
100 ft.
ESTUFA, A.
a
b
c
Location of Spring
200 ft.
100 ft.
40 ft.
c
350 ft.
340 ft.
Dry Wash
d
Low Wall 180 ft.
ESTUFA, B.
Diameter 50 ft.
depth 8 ft.
Great Wall 200 ft.
a
c
d
LOWER HOUSE
180 by 200 ft.
RUINS
at
"AZTEC SPRING"
SOUTH WEST COLORADO
W. H. Holmes
S
N

PLATE I.

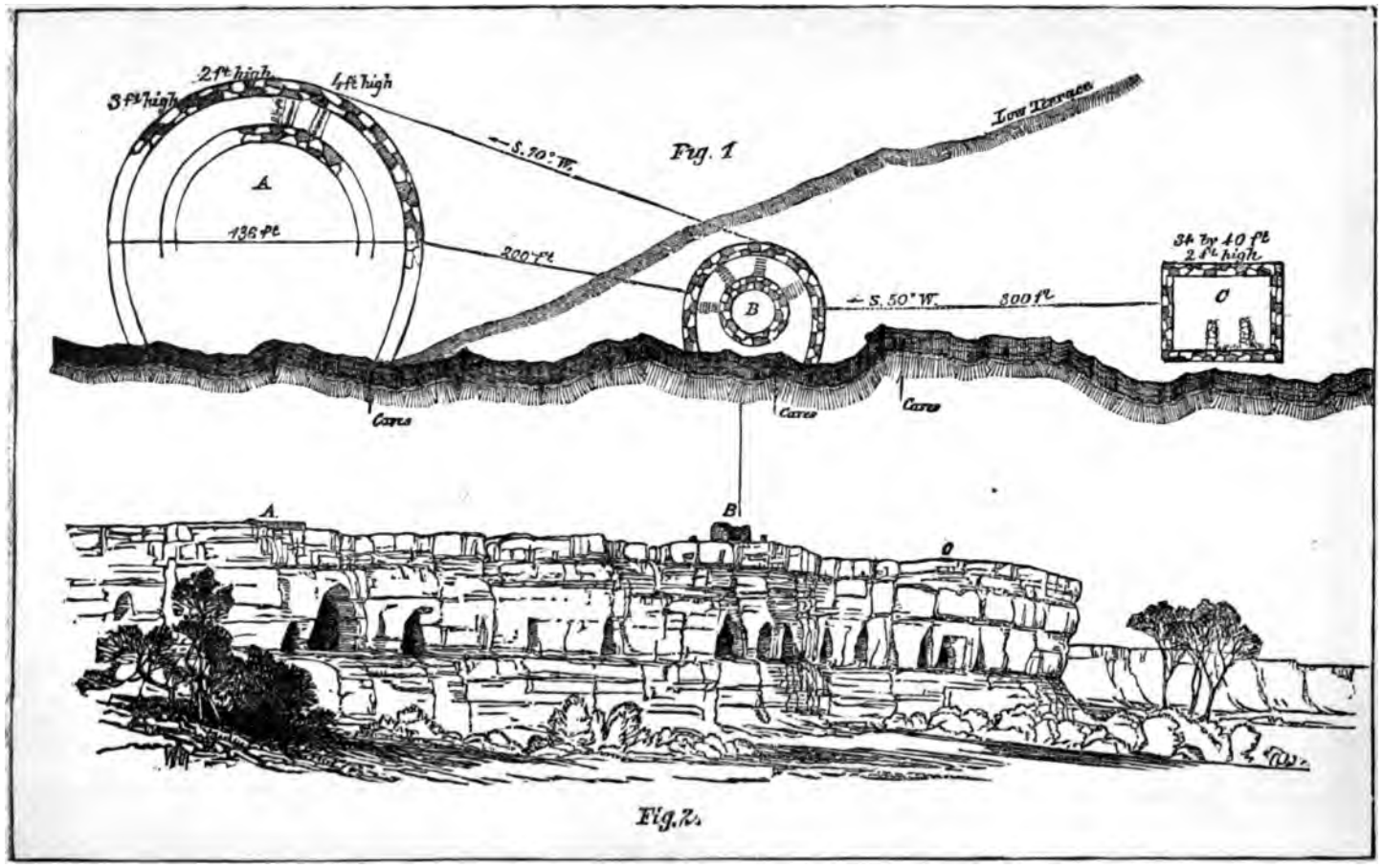

3 ft high
2 ft high
4 ft high
A
136 ft
S. 70° W.
Fig. 1
200 ft
B
S. 50° W.
300 ft
C
Caves
Caves
Caves
A
B
C
Fig. 2.

PLATE II.

upon the ruins of an old city. Rome borrowed from Greece, and a new civilization was built upon the ruins of Rome. Dr. Schliemann digs into the foundations of Troy and finds successive layers of relics, but no continuous line of progress. A rude civilization follows the barbaric splendor of the ancient city. At Mycenæ he discovers perhaps a progressive order, but there are great gaps between each stage. The cyclopean architecture and the ancient gate of Mycenæ are followed by beautiful Greek statuary and the Temple at Olympia. We have not yet found the connecting links between the two. The researches of antiquarians may result in this, and this is one object for which they are laboring.

But that there is a *connected line of progress in the prehistoric works of America*, I think can be shown from many facts. In the first place, there is a marked gradation in the works existing in the different sections of this continent, which most plainly point to this conclusion. This gradation is perceptible in larger districts more than in limited ones. As one travels over the continent from east to west, and notices the works which are found in the different sections through which he passes, he sees a marvelous succession of works, divided, by belts of longitude, each geographical section having a system peculiar to itself. They may be divided into three or four different classes, which vary according to geographical locality, and which are correlated to the physical peculiarities of each region. It would seem that the prehistoric works of this continent were separated from one another by the great mountain ranges, which divide the continent into longitudinal belts, and there is a remarkable correlation between these works and the geographical features of each section. It is observable, however, that the order of progress in the prehistoric works is entirely opposite to that seen in the historic. The map of the prehistoric cultus should be shaded from west to east, but that of the historic from east to west. As the settlement of this country has gone on, men have come upon the prehistoric works, but have found these at higher stages with every step westward. First, the relics of the savage races; second, the mysterious works of the Mound-Builders; third, the marvelous architecture of the Cliff-dwellers and the Pueblos, to which we have referred; and fourth, the magnificent ruins found in New Mexico and Central America.

The architectural works of the two races contrast at each step: The hut of the miner has been placed under the shadow of the stone house of the Cliff-dweller; the cabin of the frontier settler has been erected near the earthworks of the Mound-

Builders; the brick and stone buildings, marble and iron fronts, have been placed where once existed the stockades and villages of the savage tribes, showing, by the contrast, a double line of history and a two-fold architectural development. In finish and elaborateness of details, in massiveness of proportions, and in magnificence and grandeur, the works of Central America may be said to surpass many of the architectural structures of modern days, and resemble the far-famed halls of the Alhambra and the splendor of the Moorish architecture. In the deep interior, scattered over the broad plateau and hid away among the cliffs of the far West, are found, also, works which are marvelous in their situation and strange in their style, but superior in their details. In the Mississippi Valley, the works of the Mound-Builders are comparatively rude in their architectural development, though mysterious in their history and their objects unknown. The reasons for this reversed law of progress may not be apparent, but the fact remains. Was there a prehistoric migration from the Asiatic side? and did the lines follow down from the Behring Straits south and east, and so cover the continent? or did aboriginal life begin on this continent and carry its works across to Asia? or did this same life have its origin on this continent and develop according to its surroundings, man being the creature of his own environment?

In answer to these questions, we have a few thoughts to express. First, in reference to the lines of migration. Judging, at least, from the pre-historic works, we conclude that there were certain courses which the migrating races took, and that, as they became settled, they developed in successive stages; those which settled in the Western regions developing first, and those which migrated farther East being the last, in time, to develop. This is on the supposition that the aborigines migrated from Asia, by Behring's Straits and the Aleutian Islands, and by way of the northwest coast. This supposition does not preclude the idea that civilization may have reached the region about the Gulf of Mexico by way of Polynesia and the Pacific Ocean, direct from Southern Asia. It is observable, however, that the pre-historic works "fan" out from Behring's Straits, following natural lines of migration and communication, until the extremes are reached in the Isthmus on one side, and the Gulf of Mexico on the other. The most advanced works, as we have seen, are found at the Southwest, but the gradation goes on as the lines continue south and east, the rudest being on the lines of east and west latitude.

These lines of migration corresponding so much to the physical peculiarities of the continent, have been marked

alike by the linguistic divisions, and the architectural works of the aboriginal races. There is one point to be considered in this connection, that the architecture did not develop until the races reached a stopping place. Though the languages may sometimes be traced the whole length of the lines, yet the architectural works do not appear until they reach the end of the lines. At least the highest or best works are found where the people have reached a permanent dwelling place. The sedentary tribes along the Gulf of Mexico had better works than the wild tribes which were scattered along the Great Lakes. So, the inhabitants of Arizona and New Mexico reached a higher stage than those of Montana, Idaho, and Washington Territory. The Quiches, Chicimecs, Toltecs and Mayas of the Southwest, reached a higher cultus than the Aztecs, or any of the tribes farther North. We cannot trace their migrations by their architectural works, but can see the progress of these works in their habitat.

Now for the analogy. It is evident that the historic races of Europe and Asia have migrated. Many trace the migrations by means of the language and race affinities. Architecture seems to be a poor criterion by which to judge the migrations. But, taking the supposition that we have just made, we shall find that the historic races have also erected their best structures at the ends of their lines of migration. The best works of the Celtic races are found where they gained permanent residence, viz: France, Germany, and Great Britain. This is true, both of their historic and prehistoric structures, and so of the Pelasgians and Hellenes. The highest development of their art and architecture are at the ends of the lines of their migration. It has been the endeavor of antiquarians, for a long time, to trace these separate races to their original seats. It has been somewhat of a wonder that none of these races left works which should be like monuments along their track by which they could be traced; but the fact is that their development occurred after they reached their permanent abodes. One of the most important discoveries of very recent date, is that of certain works of art in Phrygia, which, it is supposed, will furnish connecting links between the early Greek art and that of the farther East; but, it is maintained that these are very different and much ruder than any of the tokens found in Greece. This analogy between the Western and Eastern continents is worthy of attention.

Second, it is an admitted principle that the law of progress follows the line of least resistance. Whatever the direction the prehistoric races took, wherever the original settlement may have begun, it is probable that the real progress of art

and architecture, and other accompaniments of civilization would take place where the other surroundings were most favorable. A population which depended upon the ease with which a living could be secured, would naturally develop first where the earth was most lavish of his products, and where climate and soil would conspire to bring comfort, and at the same time excite activity. We know that the rich, warm soil and tropical vegetation of Ceutral America favored the growth of population. Here, too, we find the highest development of art and architecture, and probably the first dawn of civilization. We know, too, that the people who by emigration, or by other circumstances, were brought into the great plateau of the far West, were favorably situated, and, we may suppose, entered into an early progress, and developed rapidly into the arts of civilized, or semi-civilized, life. It is the testimony of W. H. Holmes, of the United States Geographical Survey, that, notwithstanding the barrenness of sustenance in this great desert region, along the streams, there are grass-covered meadows, and broad valleys of alluvial bottoms, affording, if properly utilized, a large area of arable land.

IV. A fourth point to which we would call especial attention, at this time, in the analogy which exists between these prehistoric works of America and the early stages of historic architecture, is the correlation which may be found between the structures and their environment.

Mr. Grant Allen has written an article upon the "Growth of Sculpture," which appeared in the *Cornhill Magazine*, in which is brought out this thought: There are three elements in sculpture, as it appears in early historic times; first, the hereditary traits of the people; second, the special physical conditions which surrounded them; and, third, the material which was furnished. The illustration of these points, in connection with the growth of sculpture, is well put by the author. We maintain that the same facts are true of architecture, and an excellent illustration of these may be found among the prehistoric works of this country. The hereditary traits, the physical surroundings, and the materials at hand, had a great influence over the prehistoric races. There is no doubt that the aboriginal races employed the material which was most convenient; yet the fact that the material used is also an index of the social status, proves that this was one of the most important elements which influenced the rise of society, and the growth of architecture. The different modes of life in prehistoric times involved different food, different habits, different styles of living, and different styles of build-

ing; but we have not been accustomed to think that each mode of life had its own building material.

We would refer here to the analogies which exist between the architecture of the earliest nations known to history, and that of the American races. The Pyramids of Egypt and Assyria were located in the same lines of latitude with those of Central America. The luxuriant soil of Nicaragua compares favorably with the rich, sand plains of the Tigris, and the fertile valley of the Nile, the tropical vegetation and the rapid growth of all these regions, being favorable to the development of agriculture and the increase of population. The same kind of barbaric splendor existed in all three localities; the same kind of architecture appears in each; the primitive types are, as we said, the pyramid and the palace. Elevated platforms prevail in Central America, as well as in Nineveh. Striking analogies may be seen, also in the arrangement of the halls, and the external surroundings of the palaces. The temples in Central America resemble, in some respects, the temples in Egypt. But the question is, what styles of building preceded these. Have we any indication as to the architecture which prevailed before these times? We maintain that, in America, we have the answer to these questions. Not that we have the same kind of buildings, or that the same race dwelt here, but the types of the earliest stages of architecture are found here. In the first place, the pyramid, which is the primordial form of all historic structures, is found in its most primitive shape in this country. The pyramidal earth-works, found in the Mississippi Valley, may not have been erected by the same people, which built the pyramids at Tehuantepec, or Coahuila, but they are a primitive form of the same structure. The Pueblos, of Arizona, may not have been built by the same people who erected the palaces of Uxmal and Palenqué, but they are primitive types of the same kind of buildings. The Chunky-yards and places for games, found in Georgia and the Gulf States, are different from the magnificent courts and splendidly-finished pleasure-grounds of the Southwest, yet they are types of the same kind, and were used for the same purpose, though very rude and primitive in their form. If, then, we would ascertain what buildings preceded the historic structures of the East —what kind of temples, and palaces, and tombs prevailed— before the times of history, we may compare these with the prehistoric works of America to find our answer.

Again, we would call attention to the correlation of the architecture, to the material furnished by each locality. The stages of progress exhibited in the architecture of this con-

tinent, may be said to be owing, in part, at least, to the ease with which building material could be secured. The material used, also, would naturally have an influence upon the style of building. We thus judge from the experiences of men in modern times. Any one who has undertaken to build, knows that the material which he selects will have great influence upon his decision as to the styles in which he will build. If this is so, in modern days, when men have so much more power over the elements, to mould them according to their own wishes, he must suppose it to have been much more so in primitive times. We find an illustration of this in the relics of the primitive races. It is well known that the pre-historic relics are divided, according to the material, into the Rude-stone, Polished-stone, Bronze and Iron—each material being a representative of a different stage of cultus. There seemed to have been a correlation between the cultus of the people and the material which they used for their relics. The archæological relics become, on this account, indices of the social condition, or cultus, of the people. Polished-stone implements, for instance, indicate a higher stage of improvement than the Rude-stone; Bronze implements indicate a higher degree than the stone.

It has been found, also, that a correlation exists between the implements and the other articles—the pottery, cloth, or textile fabric, wood and shell ornaments—and other relics, always corresponding to these peculiarities of their implements. There is this difference, however, between relics and architectural works—the material of the relics had less influence on the cultus of the people than that used in their architecture.

The stages of progress may be, and probably are, exhibited in the material employed in their structures. Hence we come to look at materials used in building, as indices of the cultus. For instance, the structures that abound along the Atlantic coast are, as found at the present time, made up of shells, or rude earth-heaps, and if we were to reconstruct them, we should say that wood or bark was the orignal material used for building. The stockades for defense, the dwelling-houses for residence, and the Council-houses for the political gatherings, were probably all made of wood or bark.

We very seldom find stone among the ruins of these works in such shape as to show that it was used for building purposes. It is not probable that adobe was ever used in this locality, as building material. Again, the prehistoric works of the Mississippi Valley are generally found in their present state—made up of earth, with very few remains of

shell and few signs that stone was used in their construction. As to the material which was employed in their architectural structures we have no means of knowing this, though the supposition is that it was wood. Still we maintain that the characteristic material of this region was earth, rather than wood. The great earth-walls, the massive pyramids, and the many inclosures show that whatever the superstructnre was the most prominent works were those made of earth. The buildings seem to have been temporary, or at least to have been made of perishable material, but the walls and earth-works seem to have received much architectural finish. We may then regard earth as the index of the cultus that prevailed in this region.

If, on the other hand, we go into the region where the Clff-dwellings and the Pueblos are, we find that the adobè, or sun-dried brick, and stone, were the materials used for building purposes. We class these two materials together, for it is the opinion of many that these materials were interchangeable, the same people using either, according to convenience. It is the remark of A. F. Bandelier, that there are evidences that a similar mode of life and organization of society existed among the Pueblos of Arizona, New Mexico and Colorado; but that the ease with which Cliff-houses could be built induced the people to build that style of structure, rather than the adobè houses which prevail elsewhere. These materials, then, we regard as indices of the cultus prevalent in this region. As to the fourth class of works, namely, those which are found in Mexico and Central America, we should say that the index material is the carved and sculptured stone.

Thus we have glanced over the different localities and formed a correlation between the stages of progress and the material used. We associate the stockades of the Atlantic coast with savage races, and, judging from the kitchen middens, or shell-heaps, and other indications, we conclude that the people of this coast, were hardly out of the hunter condition. The same is true, also, of the inhabitants of the Northern Pacific coast. We associate the earth-works with an agricultural people, and, finding them in the rich valleys of the Ohio and Mississippi, associated with many agricultural implements, and other similar relic, we conclude that the people occupying this region were in agricultural states. We associate the Pueblos with village life, the very name being suggestive of the fact. Finding these on the high plateaus of Arizona, Colorado and New Mexico, and, judging from the mode of life, common among the surviving races, we conclude that this was the state which prevailed in pre-

historic times. The term city would, perhaps, properly express the mode of life in the other locality mentioned above, for palaces, temples, and all the adornments of art, and advancement of society, peculiar to city life, are found in this region.

The fact, however, that there is such a correlation, between the building material and the modes of life, helps us to determine something of the social status, both of the historic and prehistoric peoples. We know that the first, or oldest works known to history, viz: those found in the Valley of the Tigris, near its mouth, were those which belonged to the primitive, historic race—the first Chaldean empire. These works were built of sun-dried brick, though built in stages, as pyramidal or many-storied temples, and covered with the adornments of a barbaric art, yet they show a very primitive state of cultus. We know, too, that the palaces of Assyria, such as are found in the mound of Kouyunjik, or Nineveh, were built of stone, but elaborated and adorned with all the art of sculpture, and showing a more advanced stage of culture than the preceding empire. We know, too, that the polished granite, or syenite, which was placed in the Pyramid at Ghizeh, was indicative of a high state of power, if not of high culture, and that the wrought and sculptured stone, found in the later Egyptian temples, is also an index of the cultus which prevailed at that time. Taking these conclusions then, and going back from the historic times to the earlier stages, we shall find that the material used in architecture, is an indication of the grade of society existing at the time. The only difficulty here, is that other works followed, and we have the tokens of the decline of society, as well as its rise. It is, then, no evidence that there was not a prehistoric stage in Egypt, Assyria and Chaldea, because we do not find the primitive works there; for the material evidently changed, and the most perishable was the most primitive.

We conclude, then, that the prehistoric works of America are worthy of study, first, because they are connecting links between the prehistoric and historic stages; second, because they show where the first stage of differentiation began; third, because they present a long line of progress; and fourth, because the correlation between them and their surroundings is so marked. In all these respects, they furnish to us clues to the early stages of historic architecture which are very suggestive.

CORRESPONDENCE.

THE "WELCH BUTTERFLY"—IS THE INSCRIPTION UPON IT OLD?

(See Vol, IV., No. 1, of the ANTIQUARIAN.)

To the Editor of the American Antiquarian:

To the archæologist the discovery of new and unique finds is a source of so much pleasure that he is not always careful to scrutinize with sufficient care the evidence of the authenticity of the find. Whenever a discovery has been made public, it becomes a thankless and an unpleasant task to question its authenticity. But these critical questionings should be always welcomed, for a relic which cannot sustain its authenticity in the face of adverse criticisms, is not entitled to acceptance. One peculiar characteristic is common to many alleged remarkable finds when authenticity has been questioned. They have been found in places where much attention had been given to archæological explorations; where the public was generally interested in them; and have been found at a second or third exploration of a previously explored site; that is, under such circumstances as would make it comparatively easy to impose upon the explorers.

This was true of the Newark Holy-stones, undoubtedly spurious, and of the Davenport or Gass tablets, of the authenticity of which there are grave causes of doubt. The Rockford tablet was found by a visitor after the explorers had searched the cut of the mound in vain, the visitor discovering the wondrous tablet at the second stroke of the spade.

The most remarkable of the Wilmington relics was found at a second examination of an explored site, after the attention of the whole neighborhood was called to the matter of wondrous inscribed stones, and all the circumstances were such as to call for the very highest degree of caution on the part of the explorers to guard against imposition. While this is the case, the pamphlet published by Messrs. Welch & Richardson, which is substantially republished in a recent number of the ANTIQUARIAN, is entirely wanting in the special evidence of authenticity that the cautious critic would desire. Who found the "Welch Butterfly" in its bed is not disclosed. What care, if any, was taken to decide whether it was a recent plant or not? What scrutiny, if any, was given to determine whether the engraving upon it was recently made, is not disclosed. These matters deserved the utmost care at the time, and, if properly given, would greatly aid in deciding the authenticity or antiquity of the engraving. Indeed, the authors of the pamphlet, while omitting all mention

of the evidence especially needed, seem to feel that there is something about it which will lead to doubts as to its antiquity, which leads them to express their "chagrin did they (we) for a moment think that any doubt could be entertained as to the genuineness of the articles." And there are peculiarities in the figures upon the "butterfly" which render it well-nigh impossible to conclude that they are old. The dress of the male figure bears no resemblance to the dress of any savage or barbaric people. It is of such a form as is only possible with a people who have carried the arts of weaving cloth, cutting and fitting garments, and of sewing, to a high degree of perfection. It indicates, also, that advance in civilization which has only been recently reached by the most enlightened people, when ornamentation in the dress of man is almost wholly laid aside, and is made completely subordinate to comfort and facility of movement. The first two articles of savage dress are the breech-cloth and the head-dress—the first for protection and the second for ornament. Both are very long retained, and are found everywhere among savage and barbarous people. A modification of the first survives in the petti-coat of the women, and is occasionally seen in the short breeches of the men which a few years ago were generally worn. The dress of this figure on the "butterfly" is modeled after the most perfect modern dress of the most civilized races, when the object of dress is comfort, protection and facility of movement. A modern cap, a short coat buttoning up in front, with well-fitting sleeves, modern pantaloons, with shoes or moccasins upon the feet, with scarcely a trace of ornamentation anywhere, are the characteristics here seen. Can they possibly represent the dress of any prehistoric people?

The articles carried in the hands of this figure also seem to me to represent some modern and mistaken theories as to the form and use of certain implements, rather than actual facts. The delicate, crescent-shaped, highly-polished and perforated objects made of metamorphic slate, are here placed at the end of a spear-handle and at the end of the handle of a stone battle-axe, of a size clearly indicative that it was not for ornament, but for use. Now, if any old mound-builder ever put one of these delicately-wrought stone crescents to such a use as that, he would never repeat the experiment. It would be the most inconvenient termination possible for the handle of his axe, and would be inevitably broken by the first blow given by the implement. The manner in which the spear-head and battle-axe are represented, as bound to their handles by cords or thongs, represents an *impossible* mode. The fastening cord, for instance, is represented as crossing the

handle of the axe at right angles with it, and on the face of the axe. Of course, it could not be put on in this manner. The cord, if used at all, must have crossed the handle and the axe obliquely, or else have been confined to the part of the handle above and below the axe. All these errors might be easily made by one depending upon imagination for the details of his figure. They are scarcely possible for one who can make as spirited and life-like figure as this, and who was drawing implements with which he was familiar. Is not the conclusion a reasonable one that this figure at least is the work of a modern artist?

NOTE—I do not undertake to decide that the Gass tablets are not genuine, but to suggest a doubt merely. I do not, in the least, question the good faith of their finder or of the members of the Davenport Society. My doubts are mainly caused by the modern appearance of many of the characters, and the wonderfully perfect condition of all parts of the inscription, considering the soft and friable material upon which they were found. I have very strong suspicions that if the Davenport Society will make duplicates of these inscriptions on similar slate and bury them a few feet beneath the surface, that they will have become nearly illegible in a few years. The lower part of plate No. 1 is so significant that it would be a great satisfaction to be entirely assured of its genuineness. The upper part indicates an attempt to represent an entirely nondescript style of writing. Picture writing like that on Plate II. compels a resort to curved lines; but as soon as writing becomes alphabetic, the characters are almost wholly composed of straight lines and combinations of straight lines. The primitive modes of writing compel a resort to such characters. But we have, on this tablet, a multitude of figures formed of curved lines, which it would require good care to duplicate with such accuracy that one character would not be liable to be mistaken for another, and, aside from those included within the arcs, arranged without any order. If alphabetical, the characters are of very unnatural and improbable forms, while they give no indication of being symbolical or historical.

M. C. READ.

HUDSON, OHIO.

AN ANCIENT FORTIFICATION IN SONORA, MEXICO.

COMMUNICATED BY F. W. PUTNAM, CURATOR PEABODY MUSEUM, HARVARD UNIVERSITY.

In the month of June, 1881, I visited the northern part of Sonora to inspect several mines, among them the historical placer deposits of Llanos and Cienega, and coming from

there, before reaching Arituava, I noticed what I first considered a very remarkable formation of a mountain, rising detached in a wide plain covered with *mesquites* and other low, thorny trees so characterestic of Sonora. Through the field glasses I observed that this apparent formation was the laborious work of human hands, and consisted of great numbers of parapets or causeways built up against the steep sides of the hill. It is situated about three miles easterly of the *real* Arituava, and about thirty miles south of Altar. The sketch was taken from the stage road between Arituava and Altar, three miles from the former place.

The hill is about half a mile long and, I judge, about eight hundred feet high, and is entirely encircled by these parapets, excepting in places occurring at both ends where the mountain is very steep. Several knolls in the neighborhood were also fortified by either parapets or earthwork.

I was told of several tanks, built of good cement, in convenient nooks about the fortification, for the storage of water. Arrow heads and spear-points of flint are found on the hill, and Señor Francisco Serna informed me that he had picked up several stone hatchets and images cut in stone. One beautiful specimen of polished hatchet, probably made of serpentine, grooved, but not drilled, found at this place, he assures me, is now in the museum in Mexico. Mr. Serna, who is the owner of the *real* Artiuava, informed me further, that the hill upon which he is now constructing a new house, the view of which is so commanding that it gives the house the appearance of a castle, when seen from a distance, is upon all sides encircled by terraces, constructed by cutting away a part and filling in the gentle slope, similar to the embankments of railroads which are constructed on the sides of hills.

When I passed the place, I was exhausted from the hardships of the trip, which was made in the dry season in Sonora, at which time, in this part of Mexico, water becomes as expensive as drugs, and worse to take, and feed for animals is hardly to be had, while the sun pours down upon the exhausted traveler without mercy. My time was also limited, or I should have stopped several days to investigate these very interesting remains.

Mr. Serna stated to me that he has also seen *trincheras* (as such forts are called in Mexico) north of Altar, which, I believe, are mentioned in Bancroft's "Native Races." He gives the locality as fourteen leagues (thirty-six miles) north from Altar, in the neighborhood of Saric. These works are constructed of huge stones in triple rows, well jointed with cement; but, after close questioning, Mr. Serna thought

it might possibly be a natural formation, perhaps a dyke. However, as it encircles a hill, and several circles are situated one above the other, with openings opposite to one another, I am inclined to think they are artificial, as indicated by the exactness of the joint, for instance, and the presence of cement.

LOS ANGELES, July 27, 1881. PAUL SHUMACHER.

RARE VARIETIES OF STONE IMPLEMENTS.

To the Editor of the American Antiquarian:

It seems desirable to publish descriptions of all types of stone tool, especially of such as are uncommon, or unique, or peculiar to certain localities. Comparative study of prehistoric finds will be thus facilitated, and foundations laid for inferences in the future which cannot be, as yet, foreseen. I, therefore, give a brief notice of the last two specimens which have met my eye.

I. A *pestle* or borer, or both combined. Its dimensions are, in length, eighteen and three-fourths inches. It is cylindrical, or a sharp cone. Circumference at the base, six and one-half inches, and only one-half inch less, at ten inches from the base. But at four inches from the apex, the circumference is no more than four and one-half inches. Thence it dwindles to a point not very blunt, and thus, it is the largest stone implement I have noticed. The material is greenstone —a mineral not found *in situ*—nearer than Lake Superior, or some three hundred miles, from Vernon County (Wis.), in which this magnificent specimen was plowed up. It was excellently polished, though there are now many flaws in the surface, where the stone has corroded. It proves either prehistoric commerce in tools, or nomadic habits in the uses of them. Its weight is almost four pounds. (3w. 15¼ oz.)

On careful examination of the instrument of which I have been speaking, an able mineralogist calls it "*augite-syenite*—that is, a mixture of augite, orthoclase, quartz, plagioclase, chlorite, biolite, menaccaricite, and apatite."

II. That variety of celt which most resembles a gouge. Its dimensions are: Length, eight and one-half inches; breadth and thickness each, where greatest, one and one-half inches. The cutting edge, which is one and one-half inches wide, is hollowed on one side by a broad, longitudinal groove running up three inches. The other side shows a convex bevel. The tool, at the other end, tapers to a three-cornered point. The material is green stone, well polished all over. Its weight is seventeen and one-half ounces. It was found in Jefferson

County, Wis., and turned up by the plow. When laid down on its hollow face this instrument, in swell, taper and general proportions, presents the appearance of a fish.

The two articles now described—to the best of my knowledge—are unique. Accordingly, accounts of tools, similar in type, will be very welcome to the writer, whether addressed to him in Madison, Wis., or published in the pages of the AMERICAN ANTIQUARIAN AND ORIENTAL JOURNAL.

MADISON, WIS. J. D. BUTLER.

THE LOCATION OF VINLAND.

To the Editor of the American Antiquarian:

I notice that although most historians locate Vinland, of the Northmen, on the coast of Rhode Island or Massachusetts, Pickering holds it to be Newfoundland. The following considerations may be of service in procuring a clue. Thorwald, in 1002, reached the wintering place in Vinland. The following season, on an island far westward, "met with a wooden kornhjalms" (corn shed?) as Pickering quotes. Now the Indians of New England stored their maize in pits: south of the Carolinas in granaries above ground. Unless the whole habits of the Indians were changed, this island, far to the westward, must have been far south. Again, at "Nop," supposed, by Prof. Rafn, to be in the vicinity of Taunton, Mass., "they found then upon the land self-sown fields of wheat, there, where the ground was low, but vines there where it rose somewhat." Must not this wheat have been *Zizania equatria*, found so abundantly in the tide waters of the Hudson and Delaware? (and, *perhaps*, of the Taunton river?)

SOUTH FRAMINGHAM, MASS. E. C. STURTEVANT, M. D.

A STONE MASK FOUND IN OHIO.

To the Editor of the American Antiquarian:

In regard to the find of the masked face—the photograph I sent you of it is full size—it is of dark sandstone. It was plowed up in the month of September, 1851, in Jackson Township, Coshocton County, Ohio. The facts of this find are well authenticated. It was made by Mr. Davis Lowary. After fully satisfying myself, it fell into my hands from Mr. Lowary, in April, 1876. The horns do not represent strength and position or honor—(they bear no resemblance to the horns represented on the head of Moses)—but bore the useful purpose of supplying holds for the necklace of pearl discs, by

which it was suspended round the neck and on the breast of the priest of the early and remote inhabitants of this country.

This section of Ohio was densely populated with an agricultural people, who at some time carried on an extensive traffic in the quarrying of flint, its manufacture into implements of the chase and warfare, and the barter or exchange of such articles with distant settlements of the same people, who had not the same materials for producing implements. They had their religious worship, for is it not traceable from east to west in the Turanian race from the great mountain plain of Central Asia? Even in China, from the east, do we not find on their gods the same general masked faces? This entire section of Ohio is well marked by that industrious and singular race. Time nor the plow have leveled their earthworks. This section is but about twenty-five miles from the great and curious earthworks of Licking County.

Picart, vol. 4, p. 301: Canon, God of Chinese has seven such faces on pearl, each suspended with such ooooo round trinkets tied together—an ornamented chain—and have we not seen, in Central America, where the civilization of this old race reached its culmination, or having there first developed its full proportions, these out tribes were as wanderers from the parent stock then in Central America? I incline to the view that this race first planted itself and its civilization in Central America, and its people in tribes scattered.]

This animal-human face is No. 571 on the Loan Book, and No. 31,384 (cast) in the museum of the Smithsonian Institute, Washington, D. C. The original is in my posession.

Yours very truly, PETER NEFF.

Gambier, Knox Co., Ohio, Dec. 22, 1881.

A CRUCIAL COPPER.

To the Editor of the American Antiquarian:

An implement of unalloyed copper has recently come into the prehistoric cabinet of the Wisconsin Historical Society,

which is, in some respects, of more interest than any one of the two hundred specimens there.

It is a socket spear-head (4¼ × ¾ inches), the blade beveled like a bayonet, but flatter. Its socket was pierced with a hole for a rivet to pass through and fasten the spear-head to its shaft. In this particular it does not differ from a dozen other spear sockets. It also retains the rivet in its place, and it thus differs from all other known tools of copper except one, which is also in the Madison museum. But while, in that other implement, the rivet is copper, in the last found specimen it is of *iron*.

The material was not at first suspected, and so was not detected till, on rubbing off dust and rust, the color at the head of the rivet was seen to contrast with the socket in which it was fixed. In order to test the metal decisively, I had the spear-head nicely balanced and then brought a magnet near the rivet. The rivet was attracted and equilibrium was destroyed. There seems no room for further doubt.

This unique relic was picked up in the autumn of 1880, by Sanford Marsh, in Waukesha County, Wisconsin, in Township 8, Range 18 East, and near North Lake. It was discovered on a hill that had never been cultivated, and the point was the only portion above the surface of the ground.

This insignificant bit of iron imbedded in the copper, weighs but a few grains, yet may prove the weightiest argument that has yet appeared on a great archæological question. It has always been assumed that no iron was ever utilized by American aborigines. It would seem to follow that the iron rivet proves the tool it helps to make, to be modern, or no more ancient than the coming of whites among the Indians. If we say that some pre-Indian and perished American race knew the use of iron, and fastened copper with it, how shall we account for the preservation of the iron from being eaten up with rust, and that during many a century? Or shall we say that the spear socket at first fitted with a copper rivet—when that had vanished, as so many now in the Wisconsin cabinet have vanished—was lost, and in after ages found again by Indian or white man, and fastened with iron, a material that was before unknown? The tool shows no mark of having been thus tampered with. It is worth much study.

MADISON, WIS. J. D. BUTLER.

SOME RECENT ANTIQUARIAN "FINDS" FROM MEXICO.

It is a great pleasure for the lovers of archæological subjects to meet with a periodical like the AMERICAN ANTIQUARIAN AND ORIENTAL JOURNAL on the tables of our Eastern

libraries—that of the Long Island Historical Society, in the present instance. And it is also a great surprise to find anything so solid and valuable coming from the young metropolis of the Western lakes.

In a late number of this journal, Prof. Gatschet, of Washington, offers some facts and suggestions on one subject, which I have "made a note of," and "improved" to my own benefit. In quoting the word *masks*, from the Creek Dictionary of Bishop Baraga and others, he was probably unaware of its curious affinities. Its meaning is "marsh" or "watery place," and the word itself is one of the most illustrious in the nomenclature of America. Nobody would suppose it to be another shape of the name *Mexico*, given very naturally to the great lacustrine and swampy fortress of the Toltecs and Aztecs. The Spaniards found that the native meaning of the term was "on the water." The name was used in many places. Among the Crees (or Creeks) of Canada, *meskeh* signified a "marshy place." It is also found in the British Isles, holding the Irish and Tuscarora word for water, *isca* or *csk*, and it is pronounced in Lough *Mask*, a lake made rather notable, latterly, by the perplexities of Capt. Boycott.

This, however, is not all that may be said for our American *mask* or *masg*. It will be remembered that its most distinguished site was also called *Anahuec*. This name also belongs to Ireland, where it is written *annoc* (a "lake" or swamp); and it was also found among the Iroquois and other tribes, who pronounced it *aonoc*, to signify the same thing. *Anahuac* touches the Keltic antiquities in twenty other points or phonetics, all presenting the Irish and Tuscarora word *awun* or *avon*, signifying "water."

These curious antiquarian facts concerning Mexico may possibly interest M. Desire Charnay, who is just now unearthing so many relics of old civilization on the same ground. He may also be struck by the other little fact that the ancient "Crom-lech-altar" of Cornwall, named *tecla*, and derived from Phœnicia, and the old Rome of the obelisks, is phonetically represented by the *teocalli* of the Cordilleras. Molina's Aztec vocabulary—recently republished, I perceive—suggests a hundred such correspondences—things that are full of suggestions and carry our fancies back to "the night of time that parted worlds," when the venturous pilots of Gadir, or Coruña, or Galway, or the Clyde, were swept across by the "trades" or other wilder winds of the *Bahr addalom*, bringing their parts of speech along with them. In truth, that "Atlantis," so long known to history, hides as many secrets in our own days as it did in the time of Plato and the priests

of Sais. These secrets are wrapped up in the nomenclatures of our great Eastern seaboards, from Labrador to the "Strait of the Dragon"—as the passage was named before Megalhaens sailed through it; and our antiquarians must address themselves to the work of finding them out. Such "finds" may be as valuable as anything dug up from the ruins of Nineveh, Olympia, Hissarlik, Cyprus or Mexico. W. D.

Rooms of Long Island Hist. Society, Brooklyn, Feb. 22.

MASKS AND ORNAMENTS AMONG THE MOUND-BUILDERS.

To the Editor of the American Antiquarian:

With reference to pottery, it may be stated that perfect vessels are exceedingly rare in Southwestern Ohio. Indeed, in all my mound explorations I have failed, except in one instance, to discover even a fragment, and that exception was a very small "potsherd," but of fine quality. I have numerous specimens from Indian graveyards, but no entire vessel from that source. The few rude masks in my collection, from Missouri, are worthless in establishing ethnic relations, and the same remark will apply with equal force to those of stone. Indeed, I attach very little importance to any of these images, whether of stone or clay, and regard them not as reliable representatives of national peculiarities, but as rude and, in most instances, abortive efforts to represent the human face and form. As a partial confirmation of my position, I refer you to Figs. 1 and 2, the former of limestone, found on the surface one mile west of Centerville (this county); the latter of clay, from a mound in Mexico. You will observe that the features of Fig. 1 are out of all proportion, while a vertical view presents a triangular appearance. The disproportion would have been more apparent if the ears had been placed in their proper position. The front view of both specimens is tolerably true to nature. But I did not succeed to my satisfaction in delineating the profiles.* A flat posterior is characteristic of both specimens.

You refer to †"symbols *woven* into relics!" Should I infer from this that cloth has been discovered, giving evidence of taste and skill thus refined, or do I misapprehend you? A tassel and obscure evidence of a fringe, connected with my mound cloth, presents "the highest style of the art," so far as I am advised. I have a clay pipe from Missouri, embellished with a human face in front, while each side presents a creditable attempt at the delineation of a flower. This simple fact may not be claimed as evidence of floriculture, but it un-

*The drawings were sent to the editor, but are not presented with the article.

†The reference is to symbols woven into cloth from the graves in Peru, and painted on the pottery of the Pueblos.—Ed.

questionably points to an unlooked-for refinement in taste. It is conceded that those ancient potters occasionally indulged in the burlesque, and even obscene, but it is refreshing to know that there were among them at least *some* redeeming traits. I have a drawing which I made from a borrowed stone pipe. On the side of this object a nondescript animal is carved in relief. The head represents the quadrumana, while the body is more nearly allied to the alligator, particularly the tail. In the line of inscriptions, I have nothing of importance; a few objects, bearing notches,—probably marks of numeration,†—and part of a perforated stone, covered with numerous curved lines which cross each other at nearly right angles, producing minute squares, some of which have delicate dots or points. These striæ concentrate in the perforation.

Very respectfully yours,

ALEXANDERSVILLE, O., March 25, 1882. S. H. BINKLEY.

LINGUISTIC NOTES.

EDITED BY ALB. S. GATSCHET, WASHINGTON, D. C.

YAHGAN.—This unknown tongue, spoken at the southern extremity of America, has been made accessible to students by a translation of St. Luke, issued under the following title: "Gospl Luc Ecamanāci. The Gospel of S. Luke, translated into the Yahgan language, London: printed for the British and Foreign Bible Society, Queen Victoria street, 1881." 12°., 120 pages. The name of the author is not stated, but his work leaves the impression of being done carefully and conscientiously. As a true linguist he has endeavored to render every distinct sound of the language by a separate sign, and has not even forgotten to mark the "arrested sound," so common in American languages. If we count the accented vowels and the vowels marked long (ā) as separate sounds, we find that the author has used forty-two distinct characters, eighteen of which differ from those of the Roman alphabet. As a rule, the words are not accented. Our f and z do not occur in this language, but of trills there are two kinds of r alongside of l. The large majority of syllables end in vowels, and gemination of consonants seldom occurs; ch. xv., 7. We regret that the signs used for peculiar sounds of this language are not explained in an appendix. This remark applies as

†Assuming that their records were a series of notches, yet we claim for them the ability of discriminating between five and ten, and the use of terms to express the distinction; for, without this knowledge, their notches would be practically useless.—*Ethnology*.

well, to the Bible translations of many other missionaries, who provide too little for enlightenment to be drawn from their work by the men of science. In translations of the New Testament we seldom find a statement to show, whether they were made from an English version or from the Greek original, and if the latter, which one of the modern critical editions has been used. Indications of this character would save many perplexities to the earnest student of linguistics.

KECHUA.—The gospel of St. John has lately been translated into the Kechua language spoken in various portions of the interior and the West of Perú, under the following title: "Apunchis Yesus-Kiristup Santu Yoancama ehuangeliun, Quichua cayri Ynca siminpi quillkcasca. Buenos Ayres: publicado por la "Sociedad Biblica, Britanica y Estrangera." 8°. 1880., 85 pages. The name of the translator, Rev. J. H. Gybbon-Spilsbury, is given on the back of the title page (contents of the title also added in Spanish). The above title shows clearly, that the author has not availed himself of the new Kechua orthography proposed by a Peruvian, Mr. Pacheco-Zegarra, but follows the old Spanish system of transcribing the language, which is more popular in Perú. In rendering the term God, he uses the old pagan name of Pacha-camac: "*World-Animator*," as others did before him, and for *king* the term Inca, cf. chap. xix., 19.

KICHE DEITIES.—Nothing can advance more thoroughly the study of mythology than a correct interpretation of the deity names. Not all the deities, but a large number of them, have originated from deity names and epithets, which had become archaic and were therefore no longer understood by the people. For the mythology of the Kiche, or Quiche Indians, of Guatemala, Dr. Dan. G. Brinton, has recently commenced investigations, and, on November 4, 1881, read an article on the " Names of the Gods in the Kiche Myths, Central America," before the American Philosophical Society in Philadelphia. (Proceedings, 1881, 8°., 37 pages.) The library of the late lamented explorer, Dr. C. H. Berendt, and several manuscript works difficult of access proved to be most important helps to his inquiries on the deity names occurring in the Popol Vuh, and in other writings treating of Kiche folklore. Brinton treats at first of the several names given to the creator of the world, mentioned in the exordium and on page 20 of the Popol Vuh; then of Hurakan (prototype of the word *hurricane*; in German: *Orkan*) and of the other storm-gods; of the hero-god, Xbalanque, and the underworld, Xibalba (explained by: "the place where the dead disappear"), and others. Follows a discussion of the relationship of some of the divin-

ities in the Popol Vuh to those of Aztec mythology, with the result that, a few infiltrations from Aztec excepted, the Maya theogonies are entirely free from any Nahuatl, or other foreign admixture or influence.

AKAL'MAN.—In the autumn of 1881, Mr. Alphonse Pinart explored several portions of the Sierra de Vera Cruz, Mexico, and visited what remains of the ancient Tepehua tribe in these regions. He met there a populous tribe of several thousands of aborigines who called themselves *Akal'man* and inhabit the town Huehuetla (Azt. "Ancient Place"), in Hidalgo. They are also scattered in smaller numbers through the Tuxpan district of the State of Vera Cruz, in the villages of Tlachichilco and Zontecomatlan. This population presents an aspect entirely new to ethnologists, and it is difficult to form an idea of it without seeing them. Their language seems to differ from all the linguistic families around them, as evinced by the vocabulary and texts obtained by the explorer. Their system of numeration is vigesimal and runs as follows:

1 tam,	7 taxun,
2 thoi,	8 tsaxen,
3 thut,	9 naxatze,
4 thaate,	10 kau,
5 kis,	11 kautam,
6 tchashan,	12 kauthoi,

20 pusham.

From twenty they go on as follows: 30, pushamkau; 40, thoipusham. Although the vigesimal, or ikosadic system of counting is frequent in the Mexican States and Southeast of them, the language of the Akal'man (a name resembling that of the historical Akolmeks) is peculiar, and ought to be thoroughly investigated.

MALBANCHIA.—A few facts additional to this name of the Mississippi (mentioned in *American Antiquarian*, IV., page 76), are as follows: The Chá'hta Indians living around New Orleans call by the above name the Mississippi River, as well as that city, and, for the former, they also say, úkua héna, abbr. kuá-hena: *water-road*. The passage in C. Byington's Grammar, pg. 47, runs as follows: "Bvlbancha is compounded of bvlbaha a^{n}sha, where there is bvlbaha*, unintelligible talking in different languages, as in Babel of old." The Creek Indians call the river: Uyukúfki or "*Muddy Water*," contracted from u-iwa *water*, and yukúfki, *muddy;* and even now the river is popularly called by Americans, the "Big Muddy." The Shetimasha Indians, on Bayou Tèche, La., call it Tchát atinsh, the "*Great River*." The Comanches call it Issa húnub'h

* The (*v*) of this missionary alphabet corresponds here to *a* short.

(húnub'h *river*), the Caddo Indians Báhat-sássin, "*mother of rivers*" (báhat *river*); the Odshibwē, Míssi síbi; the Sauks, Mä'shĕ síbe, "*the large river;*" the Potĕwátmi, kítchĕ síbĕ, "*large river;*" the Sháwanos, Missi sípi wikí, "*the largest river of all;*" the Hurons or Wandóts, Yánda wíshu, "*largest river;*" the Páni Indians, Kitskátitkuts, "*Great Black River,*" from kĭts, *river*, tikáti, *black*.

TAENSA.—A language entirely new to science has recently been presented to scientists by the publishing house of Maisonneuve & Co., in Paris. The language in question was spoken in two dialects on both sides of the Mississippi River, between Natchez and Vicksburg, Miss., by the Taënsa tribes, which figure extensively in the history of the discoveries of the French explorers and colonists during the 18th century. The manuscript of the "*Grammaire et Vocabulaire de la Langue Taënsa*" was prepared for the press by Messrs. J. Parisot and Lucien Adam in a very creditable manner. The language forms a stock for itself, and is remarkable for its extensive power of compounding words by prefixation, and by a variety of reverential pronouns and other forms. Eleven national songs, with French translations and annotations, are incorporated into the volume, and greatly increase the value of the book, which would, even without these, form one of the most valuable additions to Indian linguistics publisned during the last five years. The number of terms embraced in the vocabulary amounts to 900 at least.

KATABA.—A few river names occurring in South Carolina owe their origin to the Katába language, which is still spoken by the few Katába Indians surviving in York County, on Katába River. This river forms one of the tributaries of Santee River, and its name is derived from Kat. sá^{n}ti, só^{n}ti, *to run* (said of water.) Ahau Creek, a western affluent of it, may be rendered by Goose Creek, for áha means *wild goose*. Wateree Creek, another affluent of Katába River, is derived from Kat. waterá^{n}, *to float in the water*. Katába River is called isua, "the river," and from this term was formed Esaws, the tribal name by which Lawson designates the Katába Indians. The Cherokees call a Katába Indian, Atágua, in the plural Anitágua; Nitaguáwe weyä^{n}-i, the Katába River; Nidágua uniwanésté, the Katába language. In the 17th and 18th centuries the Katába tribes were called Usherees, or Ushery, from Kat. isua-hĕré, "*this river,*" or "*the river here.*"

EDITORIAL.

THE LOST JEANNETTE.

We give as a frontispiece a cut representing the U. S. steamer Corwin in the ice. This picture will at once suggest many thoughts concerning the lost Jeannette. Our readers have probably received, before this, all the facts concerning this unfortunate expedition. It is a question, however, whether the advancement of science requires any such sacrifice as has been made.

There are, to be sure, problems which we desire to solve, and it has been the hope that these expeditions would assist in their solution. The problem as to the introduction of life, both vegetable and animal, into the different continents; that concerning the changes of climate on the globe; also, certain points in the glacial theory, and, possibly, the solution of the great astronomical problem concerning the change in the direction of the poles, and the obliquity of the earth's orbit—all have waited upon these expeditions, but have waited in vain. We acknowledge that much material has been gained, and the data for all the sciences have been increased very essentially, and so we may say that these expeditions have not been entirely fruitless. But it would seem that, both for the purpose of science and for commerce, our capitalists were putting their money in the wrong direction. The enquiry is, whether, for these very problems, and especially for those which connect themselves with man and his environment, and the origin and growth of society, and the rise of religion, there are not much better fields than these barren regions of the north. We refer now to those regions which furnish so much in the line of archæology, but which cannot be explored for want of the funds. The Archæological Institute of America, for instance, has sent out appeals for sufficient money to continue explorations in Asia, Greece, and in Mexico. There are also many other regions, close at home, which ought to be explored at once. The Mounds, for instance, in the Mississippi Valley are rapidly perishing, but there are no funds to plot and survey them. It is remarkable that, in the City of New York, the very city from which so many expeditions to the North Pole have started, there is no society devoted to archæology; and such scientific societies as have been established, are crippled for want of means to carry out the objects set before them. Why cannot the men who have the money be induced to bestow that money where it will prove most useful, where investigation will be attended with less sacrifice and suffering, and yet accomplish more results.

THE IMAGINATIVE ELEMENT IN ARCHÆOLOGY.

We are happy to give to our readers with this number, a cut, representing ancient Ephesus restored. We refer to it here to show how much imagination has to do with archæology. The restoration of the Temple of Solomon, Ferguson's restoration of the palaces of Assyria, and this restoration of the city of Ephesus, may be classed together.

There never has been an attempt of the kind which has proven satisfactory. The best that can be said is that some of them are happy guesses. There are, to be sure, certain principles of architecture which may be represented in such a picture, and our eye may become accustomed to the different structures in which they are embodied. The Tyrian, or late Phœnician style may be represented by the First Temple, the Assyrian or Chaldean by the temple at Kouyunjik, and the early Greek or Doric by the Temple at Ephesus, but the restoration of these cities is a very venturesome undertaking. It certainly requires more acquaintance with archæology than we have yet reached, to reconstruct the city of Ephesus. That the circuses or amphitheatres, the courts or forums, the palaces, public buildings and other edifices, not to speak of the artificial harbor, so resembling a modern slip, or the fountains and statuary were in ancient Ephesus, what they are here represented to be, no one will probably maintain. So the imaginary pictures of ancient society, whether of Egypt or Greece, given by fiction, must be accepted with some degree of carefulness. There are many qualifying points, and it requires a profound acquaintance with ancient society to make these descriptions true to life. The great demand is now to eliminate the effects of imagination from the real results of discovery.

Archæology can be made very popular by throwing a halo over the past, but there is as much danger of going astray now as in former years, when we knew less. The hints are more suggestive, but the story is none the less fictitious. It is our object in this journal to give the details of discovery, and not the fanciful pictures of imaginative writers, yet we acknowledge that it is one of the most difficult things to eliminate the real from the imaginary.

This is true, especially, in reference to American archæology. Writers crowd upon us with theories in reference to ancient society, ancient writing, and many other topics, and the result is that a vast amount of crudeness must appear. We do not reject these papers, but suggest to our readers that discrimination must be exercised in the reading. We do not consider ourselves responsible for any opinion which may be

ANCIENT EPHESUS RESTORED.

expressed by our contributors on the various points of archæology, whether it be in connection with inscriptions or relics, or ethnic affinities, or achitectural reconstructions, nor do we ask our readers to accept our own opinions without many qualifications, but we refer here to the imaginative element in archæology as one of the things to be guarded against, or, at least, closely watched.

FRAUDS.

We have received several letters in reference to the "Welch Butterfly," one of which we publish. We are informed by a gentleman who has examined these tablets through a microscope, that the lines and cuttings are very fresh-looking. The descriptions of these tablets when first given, raised doubts in our mind as to their genuineness. We have long known that there were parties in Ohio who were engaged in manufacturing relics and planting them, but we have preferred to put every find upon its own merits, and to leave our readers to decide, without saying anything of this. The opinion was expressed to us, two or three years ago, that the Mormons had planted tablets in various parts of the West, and we have been waiting for developments, so as to identify some particular relic as Mormon work. Thus far, we have found nothing decisive. The tablets discovered show some acquaintance with archæology, and what is remarkable, they seem to keep pace with the progress of discovery, the symbols or characters discovered at one time giving rise to those fabricated later, and so strangely rising to a climacteric evidence. This itself, to our mind, is a token of fraud. The evidence of archæology should be accumulative, but not climacteric. The combination of two or three symbols, which were already new, in a still newer find, gives too rapid progress, and proves too much. We fear that the owners of this relic have been deceived.

MR. CUSHING AND THE ZUNIS.

One of the most interesting things which has occurred in late years, is the performance of the pagan rites of the Zunis, in the midst of the Christian civilization of Boston and vicinity. The planting of a few feathers, and the performance of certain ablutions, and the muttering of a few prayers, may not have proven very impressive, for they probably seemed to be the mere arbitrary fancies of certain savage or barbarous chiefs, but the significance of each act, and the amount of natural and organic growth in religion which was manifest by these rites, makes the event instructive.

Mr. Cushing has taken the best course to become acquainted with the traditions, rites and ceremonies of the aborigines. He was initiated into the tribe of Zunis. He feigned to have accepted their faith, at any rate, did not antagonize it, and has acquired information that will prove very valuable. It is singular that missionaries, both Protestant and Papist, have so long remained ignorant of some of the plainest and most fundamental peculiarities of native society and aboriginal religion, but their zeal to overthrow paganism has prevented them from learning its essential features. It is well that the government and individuals are doing so much at the present time to disclose the organic nature of primitive society, while it continues, for it will be but a few years before the invenrions of men and the advancement of civilization will supplant all this. We would be glad, however, if missionaries and others would make a study of these peculiarities of the natives, their tribal organizations, their aboriginal traditions, their religious symbols and rites, and everything that is purely native. We have urged this, in private, upon all our correspondents, and now urge it in a public way.

Mr. Cushing has given a very suggestive exposition of the religion of the Zunis, in a recent address before the National Academy of Sciences, in Washington. Our readers will find it in the last number of the *Popular Science Monthly*, June, 1882. It is a valuable paper. If requested, we will republish this in our next number, although it is seldom we print anything but original contributions.

RECENT INTELLIGENCE.

CROMAGNON SKULLS FOUND IN BAVARIA.—The caves of Wildscheuer and Wildhaus have been known since 1820. Bones of reindeer, bear, and other animals, have been found with human skeletons. A new find of seven skeletons, a few pieces of reindeer horn, and bones of bears, was made late in December, 1881. Prof. Schaffhausen has examined the skulls, and pronounces them Cromagnon, or, at least, similar to those described as such by Prof. Broca, which are supposed to belong to the period of the reindeer. A description of this "find" is found in the April No. of the "Correspondenz-Blatt."

"IN an anthropological paper, M. Sabatier endeavors to prove, by the different names used by the ancients to designate the peoples of Africa, that there existed a close analogy between Sanskrit, Greek and the Berber dialect. The names of the leading African tribes, he derives either from the occupation they mainly pursued, or from the physical nature of the particular region they inhabited."

A PAPER ON RECENT RESEARCHES IN PHRYGIA was read at a recent meeting of the Royal Asiatic Society, in London, from W. M. Ramsey. The purpose of the paper was to show the relation of the religion of Asia Minor to that of Greeee. It was shown that in carrying to the then barbarous West, the art and religion of the enlightened East, the land-road that led across Asia Minor and

Phrygia was more used than the route traversed by Phœnicians. One stage of their progress westward is seen in these sculptures of Phrygia. The Baachic religion came from Thrace to Greece, from Phrygia to Thrace. The hieroglyphical characters found in Phrygia are supposed to be Hittite.

THE PYRAMID OF MEIDOUM.—M. Maspero is following up the exploration of unopened pyramids. He has found entrance near the summit of the pyramid of Meidoum, which is one of the oldest of the many storied pyramids, and is situated about a day's journey from Cairo. He found a passage which led into the central part of the pyramid, and explored it about forty yards. The lower part was filled with *débris*, but on the side he discovered the names of two travellers who visited the interior during the XXth dynasty, or 1,200 B. C.

EXCAVATIONS IN THE FORUM AT ROME are going on. It is expected that the Forum will be thrown open through its entire length, from the base of the Capitoline to the Arch of Titus.

THE PALESTINE EXPLORATION SOCIETY.—Lieut. Conder has returned from his first survey of Eastern Palestine. A prodigious number of Cromlechs, some interesting Menhirs, and ancient stone circles, were found. These seem to have been grouped about certain centres, which represent the old sacred places of the primitive inhabitants. Special surveys of Heshbon, Amman Emir, and the Castle of Hircanus were made.

"THE BEDSTEAD OF KING OG" has been discovered. Lieut. Conder, of the Palestine Exploration Society, suggests that one of the Cromlechs, which are quite numerous in Eastern Palestine, may have been the so-called "bedstead" of King Og. It is maintained by some that the word, translated bedstead, should be throne, and as these Cromlechs were probably the seats of tribal dominion, it is easy to see how the throne or bedstead could be preserved.

ANOTHER ROCK-CUT PASSAGE has been found near the Pool of Siloam.

A DISCOVERY OF A GRAND HALL, NEAR THE PANTHEON, AT ROME.—A grand hall, exceeding in length the full interior of the Pantheon, and supposed to be the vestibule of the Pantheon itself, or, rather, a connecting hall between the Pantheon and the Baths of Agrippa, has been recently explored. This hall measures 140 ft. in length, 50 ft. in width, adorned with eight splendid fluted columns of Phrygian and Numidian marble. Within this hall is a niche, where is a pedestal 12 ft. wide by 11 ft., large enough for a colossal group of sculpture. It is supposed that within this hall stood the celebrated bronze "Athlete" statue, which Agrippa brought from Greece, and placed in the portico of his warm baths.

ANCIENT BEADS IN AFRICA.—The Aggry and Po-po beads are much prized by the natives of Africa, but they defy all imitation. They are supposed to be ancient Egyptian, though they are not found with the mummies in Egyptian tombs. They sell, in Africa, for more than their weight in gold. Specimens of these beads have been found in Colchester, England. An explanation of this, given by Mr. J. E. Price, is that, when the Romans occupied England, they had African slaves, who wore these beads. The beads are made of a transparent glass, which looks blue in light and yellow in shadow, and a colored pattern is run through the substance. All imitations of them are recognized by the natives.

PROF. MASPERO has gathered the royal mummies and other antiquities found last year, into the Boulak Museum.

MR. HORMUSD RASSAM started for Babylonia March 6, to commence excavations on the site of the ancient Sippera, the Sepharvaim of the Bible.

A TRANSLATION of Numbers xxiv., 17: "There shall come a star out of Jacob and a scepter out of Israel," has been proposed by Mr. Suskind, making the word 'scepter' mean 'comet.' A comet has always been the sign of an approaching judgment. The resemblance of a scepter to a long streaming comet may have been the cause of the same word being used for both.

LAKE DWELLINGS.—Jacob Messikommer, Wetzikon, Switzerland, writes to the Correspondenz-Blatt, that, on account of the lowness of the water, a large number of Lake-dwellers' relics have been found lately. Among these are specimens of pottery-vessels, deer-horn implements, grains, such as barley and wheat, domestic utensils, such as flax-heckles, and the bones of wild and tame animals.

In the same paper Ludwig Leiner mentions also a number of other finds of the same character. This gentleman maintains that there are evidences that the time of the Lake-dwellers extends back to a very early period, even before the time when the river Rhine occupied its present channel.

SOME REMARKABLE FINDS IN PORTUGAL.—Prof. Schaffhausen, of Bonn, writes that some important explorations have been going on under Chev. J. P. da Silva, of Lisbon, near the city of d'Elvas. Five new Dolmens have been discovered in Portugal, and in them, various flint implements, human bones, a hornblende ax, and a barbed bronze lancet. Ten bronze axes have been found, also, at Covillon. These discoveries may throw some light on the theory advanced by Dr. Evans and others, that the bronze relics of England and of Portugal are the tokens of the same race, namely, the ancient Iberians, mentioned by Tacitus as having migrated from Spain through Brittany into England.

THE MAMMOTH IN SIBERIA.—One of the results of the voyage of the Vega, is a further acquaintance with the Mammoth. It appears that in the New Siberian Islands, a large number of discoveries have been made, and it is now the conclusion of savants generally, that this same animal was covered with hair, and was peculiar to the northern climate, but formerly spread over North America and a large portion of Europe. There is this difference, however, that only the scattered bones are found in the latter countries, while in Siberia they are found whole.

PREHISTORIC RECORDS AT BRÜN.—The Report of the Anthropological Society, of Vienna, Vol. XI., Part I., contains an account of a find near Brünn, Austria, of prehistoric relics found in a cave. Among these are fragments of pottery, some of them marked with lines, dots and finger-marks; pieces of bone, stones which were ornamented with figures of plants, and pine leaves or needles, and one little flower. There are also associated with these the bones of reindeer, horses, swine, wolves and hyenas. This find is remarkable in that it throws confusion upon the theory concerning the stone. iron and bronze ages. A relic of iron was found associated with reindeer bones, and a bronze ring with the bones of a horse.

A SALT MINE 2,000 YEARS OLD.—A mine has been found in the mountain near Salzberg, Austria, which gives indications of having been occupied and abandoned at least 2,000 years ago. It contains a large and confused mass of timbers, which were used for support, and a number of miners' implements. The timbers were notched and sharpened, but were subject to an inundation and left in confused heaps. The implements were mainly wooden shovels, axe-handles, etc. Among the relics, also, was a basket made of untanned raw-hide, a piece of cloth woven of coarse wool, the fibre of which is very even and still in good preservation, and a torch, bound together with flax-fibre. The probabilities are that the ancient salt-miners were overtaken by the flooding of the mine, as mummified bodies have been discovered, also. The find seems to have belonged to the pre-Roman times, as the axe-handles were evidently used for bronze axes, specimens of which have been found upon the surface of the mountain. The relics are of a high order, the basket being superior even to some that were used in the early historic times.

GENERAL REVIEW.

The material in this Review, which treats of India and the East, and some of the Book Reviews, are furnished by PROF. J. AVERY, of Bowdoin College.

THE DIFFERENT ERAS.

It is a standing reproach against the people of India that, with all their intellectual fertility in other fields, they have produced no historic literature worthy of the name. The difficulty of tracing the course of their civilization occasioned by this lack of the "historic sense" is still further increased by their customs in recording dates. While the Mohammedans reckon from the flight of the Prophet, and European nations from the birth of Christ, the Hindoos have several eras in use, and it is often well nigh impossible to decide to which of these a given date is to be referred. The most natural event for the founding of an era was the accession of a sovereign, and it appears that before the beginning of the Christian era dates were universally calculated from the years of a current reign. Of the various eras that have been more or less used in India three have had special prominence. The oldest of these is known as the Vikramâditya or Samvat era, and began in 56–7 B. C. This epoch, which occurs in use oftenest in Northern India, and in Brahmanic literature, was probably not established until many centuries after its assumed introduction, since it does not occur in inscriptions before the 9th century, A. D.

The next starting point for reckoning corresponds with the year 78-9 A. D., and is called the Sālivāhana or Saka era. It is thought to have been introduced by the Indo-Scythian King Kanishka, who, next to Asoka, was the great patron of Buddhism. This era occurs most frequently in Southern India and upon Buddhist monuments. The third era, which begins in 319 A. D., is called the Gupta or Vallabhi era, having been founded by the first named dynasty and adopted by their successors, the Vallabhis (or Ballabhis).

To make a nearly exact conversion of the Indian dates into a year of the Christian era it is only necessary to add to or subtract from it the initial dates given above. Thus, Samvat, Saka, or Gupta (Vallabhi) year 200 corresponds with A. D. 144, 278, or 519.

EARLY INTERCOURSE BETWEEN THE HINDOOS AND CHINESE.

In the centuries following the introduction of Buddhism into China, in A. D. 67, visits were frequently interchanged between Hindoos and Chinese—the former fleeing from persecution or impelled by a missionary spirit, the latter seeking to procure copies of the Law or to adore the relics of the Sage. Several of the Chinese pilgrims composed accounts of their travels, which, singularly enough, are our chief sources of information regarding medieval India. The most important of these accounts are those of Fa-Hian (400 A. D.), Sung-Yun (518 A. D.), and Hiouen-Thsang (629–648 A. D.). Besides these well-known pilgrims we have an account of others in a Chinese work entitled *Kiu-fa-ko-sang-chuan*, of which Mr. Beal has furnished a translation in recent numbers of the *Indian Antiquary*. This book was written by I-tsing, and contains short biographies of fifty-six pilgrims who made the journey to India between the years 618 and 907 A. D. They seem to have generally taken the route by Java and Sumatra, and thence up the coast of Aracan, less frequently venturing directly across to Ceylon. A few attempted the difficult journey through the desert of Gobi, and going around Thibet, entered India over the western passes of the snowy range. These memoirs, which are brief and less interesting than those alluded to above, have considerable value in confirming or modifying descriptions of India derived from other sources.

BUDDHISM IN THIBET.

It was long after Buddhism had been carried to Ceylon and China, and been accepted by the rude tribes in the countries north-west of India that it found its way to the inhospitable plateau of Thibet. According to native accounts, which are confirmed by Chinese annals, the first Buddhist king of Thibet ascended the throne in 617 A. D. It is said that he was persuaded to renounce the national religion by the influence of a Chinese wife, who had been educated in the doctrines of Buddha. Like the Chinese emperor, he dispatched messengers to India to procure copies of the Law and invite teachers to visit his country. It seems to have been in this way that the Hindoo alphabet and literature were introduced into Thibet. But Buddhism, though having the advantage of royal favor, did not become the national religion without a severe struggle with the ancient faith, of which we know but little, but which appears to have been a degraded form of nature worship. Buddhism itself had departed from the simple moral code laid down by its founder, and had become a mixture of mysticism and necromancy. Among other things, there had developed the doctrine of the Dhyani, or celestial Buddhas, who were supposed to be the spiritual counterparts of the earthly Buddhas, and whose office it was to watch over the systems which the latter had successively founded. These ideal personages did not themselves visit the earth, but were represented each by an emanation called a Buddhisatwa, who appeared in one human body after another for the good of mankind. The counterpart of Gotama Buddha was Amitabha and his minister on earth was Avalokiteswara. This doctrine is the foundation of the Grand Lama system of Thibet. In the 14th century, when the Law had become greatly corrupted by popular superstition, a reformer, Tsong-Khapa, arose, who was said to be an incarnation of Amitabha. His reforms divided the church into two parties known by peculiarities of dress as Red Caps and Yellow Caps. The former, representing the conservative party, are dominant in Nepal and Bhutan, while the puritan sect is supreme in Thibet. Thsong-Khapa built a monastery near Lhasa and founded the succession of Dalai Lamas. In the next century his spirit entered the person of a new reformer, Gedun-tubpa, who passed as the Buddhisatwa Avalokiteswara. He erected a monastery at Teshu Lumbo in south-western Thibet, and began the succession of Teshu Lamas. Whenever a Lama dies his successor is conveniently found in an infant bearing certain

divine marks on his person. These two Grand Lamas stand practically at the head of the religious and civil order in Thibet, though the country is nominally tributary to China. They hold joint authority, though the Dalai represents rather the political, and the Teshu the religious side of the government. They receive divine honors as superhuman beings, and their wants are abundantly supplied, so far as the poverty of the country permits.

THE ANDAMANS.

The Andamans are a cluster of small islands in the eastern part of the Bay of Bengal, 100 miles south of Point Negrais. They are divided into two groups known as the Great and Little Andamans, the former consisting of four principal islands called North, Middle, and South Andaman and Rutland Island. The Great Andaman group is 156 miles long and 20 miles wide. It is traversed through the centre by a range of mountains of which the highest peak has an elevation of nearly 3,000 feet. The surface is covered with the densest jungle, and the climate is moist and unhealthy.

Excepting a doubtful mention by Ptolemy, the earliest occurrence of the name Andaman is in Arabic writings of the 9th century. They were not generally known to Europeans until near the close of the last century, when the Bengal Government chose them as the site of a penal colony.

The chief interest for scholars in connection with these islands is in the low and intractable race of savages found upon them. The Arab geographers describe these people as "savages who eat men alive; black, with woolly hair; who go naked, and have no boats—if they had, they would devour all who pass near." The early English settlers found that this picture was not wholly an exaggeration, though incorrect in some of its details. For a long time the natives rejected all offers of friendship, hiding in the jungles and killing and plundering whenever an opportunity occurred. Within a few years, however, British agents have succeeded in overcoming the timidity and aversion of some of the tribes, and have given us more exact information about their personal appearance and habits. The latest account is by Mr. M. V. Portman in the Journal of the Royal Asiatic Society for October.

They are described as having a very black skin and small stature, generally less than five feet. Their hair is not woolly but tufted, when they have any, for both sexes shave their heads, either wholly or in patterns. They have no whiskers and seldom a mustache. They tattoo their bodies, and wear as ornaments the skull and bones of deceased friends. The men go entirely naked and the women nearly so. Their dwellings are leaf-huts of the rudest construction, and for food they eat the wild pig, fish, worms, and the natural products of the jungle. Their usual weapons are bows and arrows, which they employ with much skill. They are expert swimmers, and also have boats neatly made. Their social customs are of a very simple sort. When a youth and maiden desire to marry they are seated *vis-a-vis* for a day; and in the evening the bride is put into a hut, and the bridegroom, who in the meantime has fled to the jungle and been brought back with much seeming reluctance, is seated beside her. This concludes the ceremony. When a death occurs, the body is either buried or placed in a tree with the mat and weapons used by the deceased, until the flesh drops off, when the bones are taken down and made into ornaments. In the meantime the relatives go into mourning by smearing their bodies with a thick coating of greyish mud. Another singular custom of these people is to express joy by *crying*. When long-severed friends meet, this expression of delight is sometimes kept up for several days. Little is known regarding their religion, but it seems to be of a very low type, consisting chiefly in the propitiation of evil spirits.

There are within the small compass of these islands six or eight languages which are mutually unintelligible. They are evidently rude in structure but have not been sufficiently studied to determine their affiliations. According to some authorities they are entirely wanting in numerals. Mr. Portman says that the people cannot count above two. There has never been a census of the population, and estimates have ranged from 3,000 to 10,000, the latter being probably nearer the true figure. But they are greatly affected by the insalubrious climate, and also by contact with civilization; so that they seem doomed to speedy extinction. It is thought that few of them live beyond forty years; and the birth-rate is low, three children to a family being the maximum. The race connections of the Andamanese are an unsolved puzzle to scholars. They are usually classed with Negritos, and

seem to approach nearest to the Aetas of the Phillipines, the Samangs of Malacca, the Karons of New Guinea, and possibly the extinct Tasmanians of Australia; but whether they are a pure or mongrel race, and whence and when they came to their present abodes we have no means of knowing.

A SANSKRIT ODE.

A Sanskrit ode, addressed to the Congress of Orientalists recently convened in Berlin, was composed by Rāma Dāsa Sena, the Zemindār of Berhampore. It has been rendered into English prose by Mr. Shyāmaji Krishnavarmā, of Balliol College. It is written in a truly Oriental style, and we quote a couple of stanzas, as a specimen:

"May the Assembly, which, like the embodiment of science, illuminates all learning, and which is called the Congress devoted to Eastern Learning, to be held in Berlin, in Europe, prove beneficial to good men! That assembly is surrounded by creeping plants of the garden of knowledge, blossoming with the pearls of eloquence, full of a past of eminent men, humming sweetly like bees, and laden with the flowers of delight.

"May that gifted and eminent scholar Max Müller, who has subdued the whole world by his innumerable and duly celebrated qualities, and who in his knowledge of the Vedas has left far behind his teachers; may Benfey and Weber, together with Gubernatis and Roth, who have accomplished the task of delighting the world; and may all other distinguished scholars take part in the proceedings of that assembly, where the learned are to be gathered together."

We have already referred to the reprint of selections from the *Calcutta Review*. Twelve monthly parts lie before us, of which make the first two volumes of nearly 800 pages each. They contain 27 papers, belonging to the years 1844-8. These papers are all of marked value and fairly wide range. Naturally, administrative and military topics claim the largest share of attention. Among other subjects we notice: The Astronomy of the Hindus; The Seikhs and their Country; The Algebra of the Hindus; Missionary Labors of Chaplains in Northern India; and Rammohun Roy. These papers bring again fresh to mind some of the most famous administrators, generals and scholars whose names are associated with British rule in India. The rarity of a complete set of this venerable *Review* may well make us grateful to the publishers for putting the cream of it before us in an inexpensive form.

EARLY FRANCISCAN MISSIONS IN THIS COUNTRY.*

It is well-known that the "Jesuit Relations" are the main source of the early history of the interior of this continent. It is also known that the jealousy which existed between the Jesuits and some of the other Orders of the Papal Church, brought confusion into the early records, and to this day, an obscurity rests upon certain points on account of it. This has appeared in the history of LaSalle and his explorations. This obscurity the United States Government has endeavored to remove, by authorizing the publication of the Margry papers. The publication of these papers has proved agreeable to the admirers of LaSalle, but disagreeable to those who do not acknowledge his merits or admire his exploits. There is a secret history of those days which has never been written, and which may never be written. It is possible, however, that by examining the records of the other Orders, besides those of the Jesuits, that much light will be thrown upon this epoch. Mr. Shea is not an admirer of La Salle, but he knows that there is a history which is not contained in the "Jesuit Relations." The Recollects were the missionaries who attended La Salle on his Western explorations. Gabriel, Hennepin, Zenobius, Melithon, were named to attend him and to become chaplains at the posts he might establish. Hennepin ascended the Mississippi and discovered the Falls of St. Anthony; Gabriel fell a victim to the Kickapoos; Zenobius perished by Indian hands in Texas, but Father Douay was spared to chronicle the fate of "unwise" LaSalle. It appears from this article, that the Franciscans had Missions in many parts of the continent. Their history opens with the expedition of Narvaez to Florida, in 1527. The narrative of Cabeza de Vaca, concerning his long wanderings across the continent, aroused the Franciscans, and we find that in 1539, the Friar Mark, from Nice, and Friar Honorats, set out from San Miguel in 1539, and reached Cibola in New Mexico, and there visited the Mexican towns, with their curious houses, and their strange people. The Domin-

*By J. G. Shea, LL. D. *American Catholic Quarterly Review*, January, 1882.

icans labored on the shores of the Chesapeake, and the Jesuits announced the faith from the Rappahannock and Cape Sable, but they soon deserted this field, and continued their labors on the St. Lawrence and along the chain of the great lakes, while the Franciscans kept on with their work, notwithstanding the frequent martyrdom of their missionaries; Florida being the chief field. In 1590, a body of twelve missionaries established themselves here, and in 1612, Florida was formed into a province of the order. They also gained a permanent foot-hold in New Mexico. In 1595, eight Franciscan Missionaries entered this field, and Father Martinez became the founder of the missions in New Mexico. In 1630, the Franciscans report 80,000 as having been baptized. The Pecos were all converted, this author says. The Pecuries were also at last overcome by the patience, humility and unflagging zeal of the Franciscans. The Taos clung to their polygamy, but at last, after an old hag, who as a witch, exercised great influence, had died from a stroke of lightning, they also yielded, and Acoma and Zuni, who had long been under the slavery of the Medicine men, became converts. The truth was preached to the Moquis, and the wandering tribes of the Apaches. The Franciscans reduced the languages of Florida and New Mexico, to rule and system, and were training Indian children to read and write, before the settlers of Virginia and New England had acquired any insight into the languages of the red men in their colonies. Books remain as monuments of the zeal and learning of the early missionaries. The Recollects of Aquitaine assumed, in 1619, the charge of missions on the Accadian coast, but the Franciscan Order also had missions on the sea coast, now claimed by Maine, New Brunswick and Nova Scotia. The Franciscans also began their labor in the Province of Quebec, as early as 1615. The first Mass offered at Quebec, Tadousac, Three Rivers, Sault St. Louis, as well as in Upper Canada, was offered by these Franciscans. They were, however, supplanted in Canada by the Jesuits, and did not gain a foot-hold again there until 1672. The Franciscans had chaplains on Lake Champlain, at Niagara, at Erie, at Ft. Duquesne, now Pittsburg, and at Detroit, and one Father Emmanuel Crespel records in pages of deep interest, his labors in Wisconsin. The Franciscan Missions in Florida were pushed "until the whole of the Apalaches were gathered into the fold," but with the progress of the neighboring English colonies, new dangers came. The people of Carolina led Indian expeditions to attack the villages of the Neophytes, and the devoted Franciscans had to behold the labor of years annihilated. The missions of Upper California were another fruit of the Franciscan labors, the first being that of San Diego, established in 1769, followed by San Carlos, San Antonio, San Gabriel, San Luis Obispo and San Juan; also at San Francisco and Santa Clara. Each mission had its church and buildings. The Indians were collected, weaned from their roving life, and trained to agriculture and the various trades. The number of converts reached 30,000, but in 1832, the Mexican Government dissolved the missions and seized the property. When, after some years, California was acquired by us, the feeble remnants of the once happy mission Indians were ruthlessly swept aside or turned over to "religious fanatics," who, hedged in by government authority, "labored to root out religion from their minds."

BOOK REVIEWS.

The Editor of this magazine desires to secure all recent works on Anthropology, Archæology and Early History, for Review. Publishers will please favor us, and forward books at an early date to the editor's residence, at Clinton, Wisconsin.

HISTORICAL EPOCHS, WITH A SYSTEM OF MNEMONICS TO FACILITATE THE STUDY OF CHRONOLOGY, HISTORY AND BIOGRAPHY, by C. A. Fitz Simon. Taintor Brothers, Merrill & Co., New York, 1882. 70 pps., 16 mo.

THE A. B. C. OF CHRONOLOGY. PSYCHOLOGICAL, MATHEMATICAL AND PHILOSOPHICAL, System of, Dr. Bayne, Winthrop, Maine. 95 pps., 16 mo.

HISTORICAL AND CHRONOLOGICAL ATLAS OF THE UNITED STATES; CHRONOLOGY, GEOGRAPHY, HISTORY. By Lucien H. Smith, Washington, D. C. National Republican Printing and Publishing Company, 1881.

The briefest summaries are given by these three volumes. The first gives us dates, without referring to authorities, the second has a Philosophy at its basis, which we have not space enough to explain, and the third, gives us maps and charts, without note or comment.

The last book is the most valuable of the three. We have before our eyes the maps, with the dates of discovery, of colonization, of wars, of state organizations, territorial organizations, secessions, and present political boundaries of the United States. Three more maps are however needed, to make the set complete. First, an illustration of the Spanish, French and English claims; second, an illustration of the government purchases, and third, a map of the native tribes inhabiting the territory. Another map, also, laying down the track of the explorers, would be desirable. With these additions the book or atlas prepared by Lucien H. Smith, would be a splendid thing. We are grateful for the work, even as it is.

THE LEAGUE OF THE IROQUOIS, AND OTHER LEGENDS, FROM THE INDIAN MUSE. By Benjamin Hathaway. Chicago, S. C. Griggs & Co., 1882. 319 pps.

THE POETICAL WORKS OF LEVI BISHOP. Sixth Edition, with a sketch of the life of the Author. Albany, Weed, Parsons & Co., Printers, 1881. 590 pps.

MENDOTA, THE SPIRIT OF THE LAKE. By Maj. Chas. G. Mayers. Madison, Wis., David Atwood, Printer, 1881. 26 pps.

The attempt has been made in all three of these books, to immortalize in verse, the scenes, events and traditions, which cluster about the various localities of this country, especially as connected with the Aborigines. All attempts of this kind are welcome, for if they fail in a poetical sense to reach immortality themselves, they may have a tendency to perpetuate the memory of the native races. Still a better work would, in our opinion, be accomplished, if the same writers could give to us a clear and distinct statement of the facts and traditions concerning these races, in plain language, so that there could be no mistake about them. Longfellow has made popular the story of Hiawatha, and there is a wonderful charm about his poetry, even if the Iroquois hero, never visited, as he probably never did, the falls of Minnehaha, for much of the story is imaginative, but where persons and divinities or localities and events are to be described, it would seem as if something more definite was desirable. Mr. Griggs has published a beautiful book, and the volume will be undoubtedly sought for as an ornament to the parlor table, by many of the lovers of aboriginal America. Maj. Mayers' work will be attractive to the admirers of the beautiful lakes of Wisconsin, and the splendidly bound volumes of Mr. Bishop's works are probably well known already.

WHAT IS ANTHROPOLOGY? A lecture delivered in the National Museum, Washington, D. C., March 18, 1882, by Otis T. Mason.

This lecture is made up of the classifications of the departments of Anthropology, very similar to that which has been given in the pages of the *Naturalist*. The most valuable part of it is the table which represents the different stages of man, laid down according to Mr. L. H. Morgan's scheme. In it, each stage, such as savagery, lower, middle and upper stages of barbarism, and the characteristics of each stage, such as race, food, clothing, habitation, implements, weapons, industries, beliefs, morals, divinities, social rights, etc., are briefly described. The table is worthy of study, and the lecture is a splendid summary.

A GAZETTEER OF THE STATE OF MAINE, with numerous illustrations. By Geo. J. Varney, Boston. Published by B. B. Russell, 1881. 611 pages.

In the time of the earliest explorers of America, the Atlantic coast was spoken of under the term Norumbaga. This at last however, was confined to the river Penobscot, and now is only found in the name of a hall in Bangor. Maine was for a time called Norumbaga. The state received its present name in 1639, when Sir Ferdinand Gorges secured the charter for the province of "Mayne."

This province has been honored with the publication of a Gazetteer. The review of this book properly comes into the province of the Antiquarian, for the reader will find many things of interest, even from the Antiquarian standpoint. Each town seems to have been thoroughly studied in its history, as well as its geography, and modern advantages. Sketches of different tribes of Indians are found throughout the book. It is a work, which we have no doubt librarians will seek for, as valuable for its local history. It is well illustrated, carefully printed, and nicely bound.

The Indians of Berks County, Pa., being a summary of all the tangible records of the aborigines of Berks County. By D. B. Brunner, A. M., is an octavo volume of 110 pages, profusely illustrated with 176 cuts. E. A. B.

BIBLIOTHECA NICOTIANA. A catalogue of books about Tobacco, together with a catalogue of objects connected with the use of tobacco in all its forms. This work is published by Mr. William Bragge, F. S. A., of Birmingham, England, 1880. It is a quarto of 250 pages and contains the titles of upwards of 400 books bearing upon the subject of tobacco, and ranging in date from 1547 to the present time. The second part is a catalogue of pipes, snuff-boxes, fire-strikers and other objects relating in any manner to the use of tobacco, forming a collection of upwards of six thousand specimens, from every quarter of the globe. Of this interesting book, but two hundred copies were printed, for private distribution.

E. A. B.

THE ANNUAL REPORT OF THE SMITHSONIAN INSTITUTE, for the year 1879, recently issued. Contents: An elaborate paper, entitled, "A Study of the Savage Weapons at the Centennial Exhibition, Philadelphia, 1876," by Edward H. Knight, A. M., LL. D., illustrated by 147 cuts. Other anthropological papers are as follows: "The Preservation of Antiquities and National Monuments in Denmark," a translation from the French; prepared under the direction of Prof. Otis T. Mason. "The French half-breeds of the Northwest," by V. Havard, M. D. "Preliminary Explorations among the Indian Monnds in Southern Florida," by S. T. Walker. "Anthropological Investigations during the year 1879," by Prof. O. T. Mason. "Index to Papers on Anthropology, published by the Smithsonian Institute, 1847 to 1878," by George H. Boehmer, etc. E. A. B.

PUEBLO POTTERY. By Prof. F. W. Putman. From the *American Art Review* for February, 1881. Illustrated by colored plate.

ZUNI AND THE ZUNIANS. By Tilly E. Stevenson. With numerous cuts and plate; Washington, April, 1881. E. A. B.

THE LANDA ALPHABET; A SPANISH FABRICATION. By Philipp J. J. Valentini, Ph. D. From Proceedings of the American Antiquarian Society, Apr. 28, 1880.

THE BOOKS OF THE CHILAN BALAM, THE PROPHETIC AND HISTORIC RECORDS OF THE MAYAS OF YUCATAN. By Dan'l G. Brinton, M. D. Numismatic and Antiquarian Society, Phil'a.

THE MANUSCRIPT TROANO. By Prof. Cyrus Thomas.

The Mayas of Yucatan, are supposed to be the only one of all the native races of America, who ever reached that stage of civilization where a written literature prevailed, and where letters and characters were known. Attention has been called to the fact in the first two of the pamphlets mentioned above, but the last mentioned pamphlet shows it more conclusively since the characters represented in it are supposed to be genuine Maya Hieroglyphics.

The annihilation of their sacred book destroyed many of the records of this nation, and affected the natives keenly. These books related chiefly to the pagan ritual, to heathen traditions, and to astrological superstitions. A few of these remain now in European Libraries, but the most common records, are those which go under the name of "Chilan Balam." These seem to have been a sort

of reproduction of the symbols and characters of the Maya books, made at the time of the Spanish conquest, and placed in the different villages, there being not less than sixteen of these curious records. "Chilan Balam" is a title which in ancient times, designated the priest who announced the will of the Gods, and explained the sacred oracles to men.

These books, written as they were, after the conquest, contained a mixture of history and Christian doctrines taught by the priests, and of prophecies, which are supposed by some, to have been genuine Maya prophecies, uttered before the conquest, and the native chronology and tradition. The contents of these books may be classified under four heads: Astrological and Prophetic; Ancient Chronology and History; Medical Recipes and Directions; Later History and Christian Teachings. The books are valuable for the stamp of the native thought which they contain, but specially for the chronology of the Mayas which they contain. This chronology is supposed to date back as far as the third century, and was divided into thirteen epochs or periods, which are estimated by some as twenty years, and by others as twenty-four years each. Each period was superintended by a chief or king, called Ahan, and the books above mentioned give both the names and portrait, drawn and colored by the rude hand of the native artist. Their year was divided into eighteen months of twenty days each, with five intercalated days. The names of those days are given in three pamphlets, hieroglyphics being also given in the last named, that is, the hieroglyphic signs for the days and for the months. There are eighteen signs for the months, arranged on two pages, one from Landa's book, and the other from Chilan Balam. These, however, have very little resemblances. There are twenty signs for the days, one column from Landa, the second from the Codex Troano, and four from Chilan Balam. Each of these differ, showing that the memory of the writers defective, or that an arbitrary reconstruction appeared in each. It should be said that there are more resemblances to the characters in the Chilan Balam, to the symbols on the solstitial stone found in Mexico, which Dr. Valentine thinks was also a chronological table, and that the figures on Landa's columns have striking resemblances to the hieroglyphics on the tablet of the cross found in the temple of the cross at Palenqué.

The Manuscript Troano was found in the year 1865, at Madrid, by Abbe Brasseur de Bourbourg. The original is written on a strip of Maguey paper, about fourteen feet long and nine feet wide, the surface of which is covered with a white paint or varnish, on wnich the characters are painted in black, red, blue and brown. It is folded fan-like into thirty-five folds, presenting, when the folds are pressed together, the appearance of an ordinary octavo volume. The hieroglyphics and figures cover both sides of the paper, comprising seventy pages, the writing and painting of the figures having been apparently executed after the paper was folded, so that the folding does not interfere with the writing.

The Landa alphabet was discovered, also, by Abbe Brasseur de Bourbourg, at Madrid, in 1863. Landa advanced the idea that the Maya natives had used an alphabet, but instead of letters like ours, employed symbols, each of which had an equivalent in our language.

It would appear from the Codex Troano, which was found in a library in Europe in 1865, and which Dr. Thomas thinks is also a calendar of the same character with the book of Chilan Balam, that the Maya priests were accustomed to consider the number thirteen as a sacred number, for the days of the month. Though named by twenties, names are actually numbered up to thirteen and then numbered over again. The same in the months themselves. It would appear that the priests also had a very complicated system of computation, by which they deceived and mystified the ignorant people. If their computation was as complicated as Prof. Thomas has made it, it certainly would have this effect, for the explanation is certainly mystifying, and it is probable that the original is as blind as the commentary. There are, however, certain questions in connection with these descriptions which are worthy our attention. One is, whether there are any resemblances between these Maya symbols and hieroglyphics, and those which belong to the Toltecs or Aztecs. The resemblances between these and the hieroglyphs found in the ruins of Central America, may yet lead to an interpretation of these ancient symbols; but the question is, whether there was anything common between them and the ancient Toltec symbolism.

Another question also is, whether the system of numbering, which we find among the Mayas, had any prevalence among the mound builders of the Mississippi valley. There are certain markings on the Gest stone and other tablets,

which are supposed to be genuine, certain lines which may have indicated also the number of months or days, and which in connection with the symbols on the face of the stone, may have had a chronological significance. These markings are 25 and 8, 24 and 7, and the figure is probably the grotesque image of an idol construction, something like the so-called groves, a sacred tree of the Babylonians, the symbol of Astarte; but there is no uniformity of numbers or of figures in this tablet or in that of the Berlin tablet (see American Antiquarian, Vol. I, No. 2), nor in the Davenport tablet. There are rude symbols, sometimes found, inscribed on shells (see Short's North American of Antiquity, page 62), which would indicate that the rudiments of a primitive solar symbolism had appeared among the mound builders, but if a Maya or Toltec priest ever dictated a tablet, he failed to give the chronological symbols, which were known in Yucatan. As to the theory that the mound builders' inscriptions were of Hittite origin we have nothing to say, for this would take us too far away from the subject. The chronology of the Mayas might be compared with that of the Egyptians and the ancient Babylonians. Their great cycle composed of the thirteen katuns or epochs, might be compared to the Sohic circle, and their division of months, to the Asiatic enumeration, but it is not probable that any connection would be found, and it is more than likely that the Mayas system had its origin on this continent.

INDIEN IN WORT UND BILD, VON EMIL SCHLAGINTWEIT. Leipzig. 1880-81.

This is a sumptuous, illustrated work devoted to a description of India, somewhat after the style of Appleton's Picturesque Europe. It is published in parts, of which there are forty in all, making two stout folio volumes, 14¾x11 inches in size, and containing about 250 pages of letter-press each. The work is profusely illustrated with wood-cuts in the best style of the art, the first volume (20 parts) containing 56 full-page plates and 153 of smaller size. The first half of the work, which is devoted chiefly to Southern India, has thirteen chapters on: The Land and Products; Bombay; the People and Castes; Rock Temples; the Dekhan; Heiderabad; Madras; the Nilgiris; Christianity in India; Religion of the Hindus; Orissa; Bengal; Behar. The editor belongs to the same family as the famous three brothers, Hermann, Adolf and Robert von Schlagintweit, who were commissioned by Government to travel in India and High Asia in the years 1 54-58, and whose researches have been published in four volumes—the fourth within two years. With these and other materials at his disposal the editor has written a trustworthy popular account of the land and people of India. Even those who are not familiar with German will be able to read much from the illustrations.

THE VICISSITUDES OF ARYAN CIVILIZATION IN INDIA. By *M. M. Kunte.* Bombay: N. W. Ghumre. London: Trübner, pp. 599. 8vo.

Researches into the ancient history of India have been hitherto conducted mainly by European scholars, but the leaven of Western science and energy is beginning to work in the Hindu mind, and it is with peculiar satisfaction that we observe a growing disposition on the part of native scholars to investigate, in a sober and scientific manner, the origin and growth of their own civilization.

The author of the work before us is (or was) Head Master of the Poona High School and editor of a monthly publication on Hindu philosophy. His essay was written for the prize offered in connection with the International Congress of Orientalists held in Florence in 1878, and was adjudged second in merit. It is an attempt to trace, of course in a summary way, the development of Indo-Aryan civilization from the most remote down to modern times.

The first chapter treats of the antecedents of the Indo-Aryans; that is, of their history before they reached India, when they were one with the peoples that afterwards settled Persia and Europe. It is in this period that the author places the origin and, to a considerable degree, development of the religious and social institutions which are observed after their arrival in the Panjāb. The history of this time is constructed chiefly from the Rig-Veda, supplemented by the teachings of comparative philology and mythology, and incidental allusions in the Avesta and the Brāhmanas.

The society of this primitive age, as thus restored, is more mature than scholars have generally represented it, and resembles, in many features, that of the Middle Ages in Europe. Our author holds that when the Aryans reached India they were already in the feudal stage, having passed the savage, pastoral and agricultural stages elsewhere. The second chapter is devoted to the period immediately following the occupation of the Panjāb, generally known as the Vedic age, when

the efforts of the superior race were largely centered in contests with the aboriginal population. We observe thus early the influence of the new physical environment upon the Aryan mind, and the germs of the peculiar social and religious polity so familiar in later ages.

The third chapter brings us to the next stage, when tribes were welded into States, and the Brahmanic hierarchy, with its elaborate ritual, had become the controlling power in society. The fourth chapter introduces us to the Augustan or Achârya period, which saw the rise of philosophical systems and remarkable success in grammatical studies, to say nothing of achievements in other fields of literature.

Next we come to the great protest against the exclusive assumptions of the Brahmans as successfully made by Buddha and his followers, a movement which, as our author thinks, originated among the aboriginal tribes. Buddhism is traced from the pure doctrines of its inception, through the metaphysical period, and down to its corruption by the people and final extinction in India. The last chapter is devoted to Modern India, and includes the revival of Brahmanism, or more strictly, Hinduism, with its mass of superstition, and the latest attempts at reform. We have not space to criticise in detail the author's treatment of this vast field, but can say of the book as a whole that it shows a wide acquaintance with the ancient literature, and presents some matters in a new light which may serve to modify the current opinions of Western scholars. In other points the author's conclusions seem hasty and must be received with caution.

Mr. Kunte has made a real contribution to the history of civilization in his native land, and deserves our hearty thanks.

THE IMPERIAL GAZETTEER OF INDIA. By *W. W. Hunter.* 9 vols. 8vo. London: Trübner & Co., 1881. Price, £3.3s.

The work which bears the above title is one of the most noteworthy publications relating to India which has appeared for many years. It is designed to present, in a condensed form, a complete statistical account of the British Empire in the East. The plan of such a work was projected twelve years since, during which time a great number of workers have gathered material enough to fill 100 volumes, which has been boiled down, so to speak, to this compass. The nine volumes contain together more than 5,000 pages, or five times as many as Thornton's Gazetteer, the best general one available hitherto. In the fourth volume, which is thicker than the others, 515 pages are devoted to the title India. The matter is arranged under twenty-four heads, and embraces physical geography, ethnology, religions, political history, commerce and manufactures, with their various subordinate subdivisions. A general map of India accompanies each volume.

So far as one can judge from a brief examination, the work has been executed with great skill and accuracy. If a closer review should reveal omissions and even mistakes, it would surprise no one who is aware of the vast field covered, and the difficulty of getting precise information about some portions of it. This applies particularly to the independent native States and the aboriginal tribes. The spelling adopted for proper names is a compromise between a scientific method and popular usage. We are disappointed to find the accented syllable nowhere marked.

One cannot read such a work as this without feeling that, in spite all the hard things that have been said about British rule in India, the aims of the Government are just, since the first step of a good ruler is to ascertain the resources and wants of the people he governs.

TYLOR, EDWARD B., ANTHROPOLOGY: AN INTRODUCTION TO THE STUDY OF MAN AND CIVILIZATION. (Profusely Illustrated.) London, McMillan & Co. 1881. 12mo., 448 pages.

In this very useful compendium, the celebrated author traces the origins of the customs, tools, engines, and other objects, which we see improved by our present state of culture, to their savage or barbaric originals.

BANDELIER, A. F., 1. HISTORICAL INTRODUCTION TO STUDIES AMONG THE SEDENTARY INDIANS OF NEW MEXICO. 2. REPORT ON THE RUINS OF THE PUEBLO OF PECOS, N. M. Boston, 1881. 8vo., 135 pages. Illustrated.

Forms the first volume of the "Papers of the Archæological Institute of America," American Series, of Boston, and contains the results of personal investigations.

SORALUCE, D. NICHOLÁS DE, DEFENSA DEL APELLIDO FAMILIAR DE JUAN SEBASTIAN DEL CANO. San Sebastian, 1881. 8vo., 100 pages.

Del Cano is a celebrated Spanish explorer, who navigated with Magelhaëns, and died in the Pacific Ocean, on July 31, 1526.

PROCEEDINGS OF THE 13TH ANNUAL SESSION OF THE AMERICAN PHILOLOGICAL ASSOCIATION, held in Cleveland, O., July, 1881. Cambridge, 1881. 8vo., 44 pages.

MAGNUS, DR. HUGO, UNTERSUCHUNGEN ÜBER DEN FARBENSINN DER NATURVÖLKER. Jena, 1880., 8vo. 50 pages.

A SHORT ANALYTICAL GRAMMAR OF THE ALEUTIAN LANGUAGE. Translated from the Russian by V. HENRY. Paris, 1879.

This is a work done purely in the interest of science. There are few names in the geography of the world less known than that of the islands scattered along the icy seas between Siberia and Alaska, and, perhaps, no people whose history influences, in less degree, the destinies of mankind. Yet, even here, search for truth may reveal crumbs of knowledge, which shall help solve questions of no small interest to science.

Whether the polar regions of our continent have been peopled by immigration from Asia is a question whose solution may be aided by the relation found to exist between the languages of the Eskimos, the Aleutian, and the inhabitants of Siberia. Both history and anthropology may be greatly benefited by this apparently insignificant work.

The translator thinks the work to be of greater value because it was written fifty years ago, when the language was more pure than it is likely to remain under the aggressive influence to which it is exposed since the Anglo-Saxon race has acquired possession of Alaska.

The translator is a linguist and scholar of note, and he pays high compliments to the modesty and ability of the author.

PROCEEDINGS OF THE ANTHROPOLOGICAL SOCIETY OF VIENNA. EDITED BY FRANZ RITTER VON HAUER, CARL LANGIR, M. MUCH, AND OTHERS. Vol. X, Nos. 1-4, with twelve illustrations. Vienna, 1880.

Contents:—1. Report of the proceedings of the Austrian Anthropological and Antiquarian Society, at a meeting held at Laibach, July 28-29, 1879, by M. Much.

2. Review of Alfons Müller's *Emona*, or Archælogical Studies in Carniola.

3. Review of Carl Deschmann and Ferd. von Hochstetter's Prehistoric Settlements and Burial Places in Carniola, by M. Much.

Vol. X, No. 5-7, with two plates. Contents:—1. Farther Methodical Studies in Craniometry and Cephalometry by Prof. Moritz Benedict, of Vienna.

2. The Orpheus-Orfen Legend, among the Rudope-Bulgarians, by Prof. Geitler.

This is an exceedingly interesting article, whose main purpose is to show that the present inhabitants of the Rudope are descendants of the old Thracians, whose poetic traditions and mythology, as well as religious usages, they have preserved in a remarkable and hitherto unsurpassed degree.

It will, no doubt, be a surprise to the reader to learn that the very ancient Orpheus legend is stlll echoed in our day, in the popular songs of a European people.

3. Juda myth among the Balkan Peoples, by Prof. Geitler.

4. Later Ethnological Discoveries on the Balkan Peninsula, by Prof. Geitler.

5. Old stone burial cases in the neighborhood of Teplitz, by Franz Heger.

6. Reviews of several works on archæological subjects.

A PAMPHLET ENTITLED PREHISTORIC FORTIFICATIONS. By H. HANDELMANN. Kiel, December, 1880.

The author gives an account of thirty-five different earthworks found in Denmark, Schleswig-Holstein, and the neighboring lowlands. These burgs or Forts are found in almost all conceivable shapes as simple mounds, quadrangles, triangles, circles, horse-shoe-shaped, etc., and furnish interesting data for the study of prehistoric life in those regions.

THE ORIGIN OF PRIMITIVE SUPERSTITIONS, AND THEIR DEVELOPMENT INTO THE WORSHIP OF SPIRITS, AND THE DOCTRINE OF SPIRITUAL AGENCY AMONG THE ABORIGINES OF AMERICA. By Rushton M. Dorman. J. B. Lippincott & Co., Philadelphia, 1881.

The native traditions of America are very important. These have never been made the subject of study, except as a few authors have gathered the traditions of certain tribes. One of the most valuable works of Henry Schoolcraft is the one entitled "Algic Researches," a book now very scarce. It contains the most complete collection of native traditions hitherto published. The work entitled "Jones' Traditions" is not so valuable, for it partakes very much of the style of the compiler. Mr. R. M. Dorman is the first one who, in late years, has entered this field, and issued a publication embodying the Myths of the American Races, unless we except Mr. D. G. Brinton, who has, indeed, furnished a valuable work. We understand, however, that several gentlemen connected with the Ethnological Bureau, are engaged in collecting the myths and traditions, especially of the living tribes. Mr. Dorman does not pretend to have collected from first sources, but has condensed a vast amount of valuable material from books already published. He says, in his introduction, "Although the New World is the field of research, the rudimentary forms of belief are the same everywhere, being the natural outgrowth of the human mind, everywhere the same in the same state of progress." This may be said to be the key to the author's method of treating the subject. Many have undertaken to show that these myths are to be interpreted in a naturalistic way, each myth being a symbol of some process of nature. Hence the solar symbol has been foisted into mythology everywhere. This is the fault of Mr. John Fisk's book, and of many other works. There is no doubt that the religious element must be recognized as very powerful in human nature, and especially in the lower stages of the development of human thought. The tinge which superstition gives to everything, in the mind of the savage, has hardly been appreciated by writers. There is that in the expression of the dark eye of the Indian, which shows that the supernatural has great power over him. Mr. Dorman sees this, and has brought out the thought clearly. He calls it the Doctrine of Spirits, and occupies one hundred and forty pages in the subject, compiling a vast number of traditions from all sources to illustrate this point. The first form of religion among the American Indians is Fetichism. This fact has not been generally recognized, but which is very important. Fetichism is not confined to Africa, but exists in great force in America. It may be recognized among the works of the Mound Builders, and probably existed in prehistoric times. Animal worship is another form of primitive religion. The worship of animals is closely connected with ancestor worship, and with tribal totems, and deserves a thorough study. Sabianism is also another form. This form of superstition prevailed here, as well as in Scythia and Chaldea. It probably is the system which survived from prehistoric times in Egypt and Babylonia. It existed in Central America, and is the form which prevails in the early stages of civilization everywhere. Priestcraft is known to have existed extensively among the native races, but this is hardly a form of religion. Shamanism, as it exists among the native tribes of the Northwest, has, to be sure, been classified as one of the primitive superstitions, and its rites and ceremonies have been described. But this was only the lowest grade of priestcraft. The Medicine-men of the savage tribes had great power, and we may suppose there was also, among the Mound Builders, a similar class. The Montezuma-worship of the Aztecs may be regarded in the same light, as a higher grade of the same. Sun-worship, or Sabianism, in Mexico, was associated with Montezuma-worship. All the religions of America were aboriginal. Mr. Dorman deserves the thanks of all intelligent people for compiling so much valuable material. Evidently his book will find a demand among scholars. It is a valuable contribution to a very interesting department of literature.

HISTORY OF ANCIENT EGYPT. By Geo. Rawlinson, A. M. In two volumes. Dodd, Mead & Co., New York, 1882.

This work meets a long-felt demand. The history of Egypt has been written by Brunson, and by Wilkinson, but these works are very expensive—beyond the reach of ordinary scholars. Rawlinson's Egypt, in two volumes, is both comprehensive and cheap. The prices are, for Brunson, eighty; for Wilkinson, twenty-five; for Rawlinson, six dollars. This work is the one to buy. The author condenses into it a vast amount of information, and gives in the two volumes nearly

all the facts which would interest an ordinary reader. The specialist may not, to be sure, find very much that is new, but as a popular account, it is unequalled. The author is always successful in giving clear statements, and is graphic in his descriptions. The volumes are abundantly illustrated, and the work differs from several other histories on this account, those prepared by Dr. Birch, Mr. Kendrick and Mr. Samuel Sharpe, being without illustrations. In preparing these illustrations, the author has utilized the materials which have been furnished, at such great expense, by the works of Lepsius, Rosilini, M. Mariette, and by Napoleon's Egypt, works which are beyond the reach of the large majority of readers. These illustrations are of great value, not only in aiding the description of architecture and sculpture, but are absolutely essential in giving an idea of the languages, customs, divinities, arts, and writings of the Egyptians.

YSUNI ΠGOAM, THE SUPREME BEING OF THE KHOI-KHOI. By Theophilus Hahn, Ph. D., Cape Town. Trübner & Co., London, 1881.

This book will be welcome to the student of comparative mythology, partly because it comes to us from so remote a country, and partly because of its merits. The author is the custodian of the Gray Collection in Cape Town. The materials for the book have accumulated for nine years, and have been put together in a treatise of 154 pp. The Khoi-khoi are the Hottentots, who have all the same language, and who have reached the nomadic stage. Their language shows that the intellectual achievements of the Hottentots had reached, in the prehistoric times, a high state of development. They have two kinds of poetry, the sacred and profane. The religion of the Khoi-Khoi has been the subject of study since the Moravian mission was established among them in 1737. It seems to have been poorly understood, however, as the missionaries generally were accustomed to consider it as a kind of devil-worship, and their very opposition tended to suppress rather than reveal what there was to it. Africaner, the celebrated convert of Dr. Moffat, would not reveal this system to his friends. Mr. Hahn has, however, made a study of it. He has collected, in this little work, the traditions and religious customs of the Hottentots, giving, in a single chapter, many original facts. The author, at times, seems to be influenced by the fashionable theory about the solar symbol, and recognizes this in some of the myths, where an ordinary reader would see no trace of it, but the myths and customs are narrated as truthfully as possible, and the authorities for the information given, either in the body of the text, or in notes. The author also thinks that the existence of superstition proves that we are linked in an unbroken chain to primeval man.

TRANSFORMATIONS AND MIGRATIONS OF CERTAIN STATUES IN THE CESNOLA COLLECTION. By Clarence Cook. Goston L. Feuardent, 30 Lafayette Place, New York.

This pamphlet seems to be the continuation of the charge which Mr. Feuardent made, some time ago, against the Cesnola collection, namely, that some of the statues were frauds. Mr. Clarence Cook takes up the charge, with variations. Both of these gentlemen maintain a deliberate belief that the statue of "Aphrodite and Eros" is not only one of the most patched-up of the collection, but that it was no more found at Golgos than were many other of the objects which make up the so-called "discovery" of Mr. di Cesnola. The transformations of this statue, No. 39, according to this catalogue, seem to have been quite numerous. First, with the head, without feet; next, without a head, with feet; next, without head or feet; next, without a head, with a new set of feet. The charges are, that the statuary belonging to the Cesnola collection are largely made up of unrelated fragments, and that few examples can be found that have not been repaired, restored, altered, added to, scraped and painted.

THE QUATRAINS OF OMAR KHAYYÁM. Translated by E. H. Whinfield, M. A. 91 pp., 8vo. Trübner & Co., London, 1882.

Omar Khayyám was born about the fifth century of the Hegira, or 1122 A. D. He was one of the most learned men of his age. He drew up some astronomical tables, but was much addicted to poetry and pleasure. "The manner of his teaching consisted of maxims of universal religion." His poetry, as translated, is decidedly beautiful, and compares well that of our modern poets. As one of the curiosities of literature, we have no doubt that our readers would find this book very pleasant reading. Trübner & Co. have issued it in an attractive form.

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NATIVE RACES OF COLOMBIA, S. A.

BY E. G. BARNEY.*

(Second Paper.)

"BOLIVAR."

This state lies north of Antioquia, and has the Carribean Sea upon its west and northern sides, and the Magdalina river upon the east. The greater part of the state is alluvial—a few hills, the results of the expiring efforts of the Quiridian and Abibian ranges of the Central Andes, are seen along the southern border.

The coast presents a few headlands of two to three hundred feet elevation, and at one point in the interior a respectable mountain of eight hundred feet in height is claimed to exist. The coast-line and islands of this state were visited by Spaniards soon after the third voyage of Columbus, 1498. The bay and part of Cartagena are frequently referred to by that name in writings dated ten years anterior to the time of the first attempt of Ojeda to found the city, and doubtless the unhappy experience of the natives of the entire coast in their encounters with the buccaneers and brigands who came from all parts to rob and enslave them, led to the determined opposition which resulted in the defeat of Ojeda in 1510, and the death of the celebrated Juan de la Cosa, and of all the party on land except Ojeda himself.

It was at the time of this expedition that the Spanish Clerical Council caused the celebrated document to be written which was to be read by all commandants of Spanish forces to the Indians before making war upon them, which was permitted in case of their refusal to change their religion. I believe the English historian, Robertson, gives a synopsis of this document, but I do not think its contents are generally known in the United States of America, and hence I give a

free translation for the benefit of your readers, and to show as well the good sense and intelligence of the Indians of this region, as proven by their answer to the demands of Ojeda:

[DOCUMENT.—LITERAL TRANSLATION.]

"I, Alonzo de Ojeda, servant of the most high and powerful kings of Castile and Arragon, rulers of these barbarous peoples, their messenger and captain, notify you and cause you to know as I best can, that God, our Lord, *One* and *Eternal*, created the heaven and the earth, and one man and one woman, from whom we and you and all mankind throughout the world were and are descendants procreated, and will be all those who come after us. But, for the multitude of generations which from them have proceeded since more than 5000 years that have passed since the world was created, it was necessary that mankind should be separated, some to one part and others to other parts of the world, and to be divided into many kingdoms and provinces, because in one only they could not be sustained and preserved.

"Of all these people, God, our Lord, gave charge to one called St. Peter, that he should be lord and superior of all mankind, to whom all should be obedient, and that he should be the head of all human lineage wherever they might be and live, and under whatever law, sect or belief, and gave to him all the world for his service and jurisdiction; and as He commanded that he should fix his seat in Rome, as the place most appropriate from whence to rule the world, and also promised that he could put his seat in whatever other part of the world, and judge and govern all people, Christians, Moors, Jews, Gentiles, and whatever other sect and belief that there might be. And him we call Pope: that is to say, admirable mayor, father and guardian, because he is father and governor of all mankind. And that all living at that time should take said holy father for their lord, king and superior of the universe, as well as all who should follow after them; should obey him, and those elected after him to fill his place. And thus it has been until now, and will be to the end of all the world.

"One of these Pontiffs, of which we have spoken as lord of the world, made donation of the islands and terra-firma of the Ocean Sea, to those Catholic Kings of Castilla which were at the time Don Ferdinand and Doña Isabella, of glorious memory, and to their successors, our lords, with all that in them was, according to what is contained in certain writings which were made upon this subject, which all may see who wish. Thus that his majesty is king of these islands and continent by virtue of said donation, and as such king and lord, some islands, and nearly all who have been notified, have received

his majesty, and have obeyed and served him, and still serve him as subjects should do, and with good will and without resistance or opposition, and immediately, without delay, as we are informed upon the said subject, obey those religious men which he has sent to inform them farther in our holy faith, and all of them of their own free will, without persuasion or condition, they have become and are Christians, and his majesty has received them joyfully and benignantly, and also has commanded that they shall be treated as others of his subjects and vassals, and you are required and obliged to do the same. To this end, to the utmost of our power, we pray you, and require that you understand well, what we have said, and take it to understand, and to deliberate upon it the time that is reasonable, and to recognize the Church for lord and superior of the universal world, and the great pontiff, called the Pope, in his name, and the name of his majesty in his place, as superior and lord of the islands and continents, by virtue of said donation and consent that these religious fathers should declare to you and preach upon the said questions, and if you so do, you will do well, and that which you ought and are obliged to do. And his majesty, and I in his name, will receive you in all love and charity, and will leave your women and children free, without servitude, for that with them and yourselves you may do freely as you please, as have done nearly all the neighboring islands; and in addition to this, his majesty will give you many privileges and exemptions, and grant you many benefits.

"If you do not do this, or in this cause dilation, or maliciously postpone your decision, you are notified that I, with the aid of God, will make war upon you from all directions, and in whatever manner I can, and will subject you to the yoke of obedience of the Church and his majesty, and will take your women and children as slaves, and as such will sell them in such manner as his majesty may command me, and will take your goods, and do you all the harm and damage possible, as to vassals who do not obey nor will receive their lord, and who resist and defy him. And I protest that the deaths and damages which come of this are of your fault, and not of his majesty nor mine, nor of the gentlemen who are with me."

It might be asked how the natives, barbarians, as they are called, could have understood this long-winded document, intended to convert or cajole them, but it seems from the writings of the Bachelor Enciso, who was with Ojeda, and read the document to the natives near the mouth of the river Tolu, that it was not only comprehended, but most appropriately answered by the barbarians.

These Indians replied to Ojeda, "That they knew very well there was one God, who created all things, but that they did not desire to change their religion nor to dispute about it. That the holy father must have been very generous to give away islands and continents the existence of which he was not aware of at the time. That the king must be very poor indeed to send his subjects so far to rob them of the little they possessed, and very cowardly to threaten people whom he did not know."

The failure of Ojeda postponed the founding of Cartagena until January, 1553, when Pedro de Herédia succeeded, after some hard fighting, in founding the city.

It seems that the country was occupied by numerous tribes, some pure agriculturists, others almost exclusively fishermen. The degree of development does not seem to have been quite equal to that of the natives of Panama, but much greater wealth in gold was in the hands of these natives than in any other part of America, showing that a large and active trade with the interior must have been carried on for many years, as no gold is found in any of the hills or streams of Bolivar.

As in other parts, different customs prevailed with different tribes, some interring the dead in "huacas" or caves cut in the red earth of certain hills, depositing with the body chisha, provisions, jewels of gold, arms, implements, etc.; others burning the dead and retaining the ashes in urns; but nearly all were accustomed to go about nearly or quite naked, and, in the case of many, the women were found fighting in battle side by side with father, husband or brother. One of these women, afterwards captured by Enciso, was said to have killed eight Spaniards at the time of Ojeda's defeat, in 1510.

In a journey made by Herédia with about one hundred soldiers besides officers, he received as the result of presents, exchanges, robberies, thefts, etc., so much gold that after deducting one-fifth for the king, large sums for the hospital in Cartagena, other sums for those who remained to guard the city, the lion's share for himself and officers, each common soldier received 6000 ducats, according to some $15,000 and to others $50,000 of our money. The sum was probably $15,000 to each soldier, but its purchasing power was much more.

On another journey he discovered in a temple a golden porcupine weighing 137½ Spanish pounds, or about 151 pounds avoirdupois. Horrified at such beastly idolatry, he incontinently seized the porcupine and took it with him to Cartagena, where it was converted to uses of Christianity, *I suppose*.

What with robbing the graves of the dead and the wealth of the living, it did not take long to convert the territory into

a dreary waste, from which it has not as yet wholly recovered. With the same soil and climate existing at the time of the conquest, all the civilization and enlightenment of Spain has not, in 350 years, made the country so rich as they found it.

Among the relics of the people inhabiting this section at the time of or anterior to its conquest by Spain, mention is made of a slab or plank of guaiacan, a wood which is said to be indestructible, and which, when dry, is hard as ebony. This was found on the banks of the Tolu (Tow-lóo), which enters the sea south of Cartagena—having been exposed by the river during a flood.

Upon this were engraved with great skill many figures of men, women and animals, representing dances, plays, etc. I am informed that this is still preserved at or near Cartagena, and also that many other relics of much interest have been preserved by various parties in Bolivar, but I cannot vouch for the fact. Doubtless many traditions have been handed down from which interesting data may be drawn.

I have not discovered any traces of the Mound Builders within the boundaries of this state, although parties (not very well informed) have made the assertion that they do exist. This, however, I shall take the liberty of doubting, until I obtain proofs.

The conquerors of the country cared very little for anything that did not bring gold into their pockets, and hence it is only when a matter is incidentally mentioned outside of the one desideratum that the gleaner of the writings of the time can gain any information of value.

The one universal result of making slaves of the natives, whether by exportation to other parts or within their own land, was their rapid extinction. There seemed to be an inborn independence of character about them which caused them to prefer death to slavery. They were in all respects like the Indians of the United States, in color, physique, valor, endurance, etc., but different in some of their habits, such as cultivating the soil instead of hunting, which may have resulted from the necessities of a denser population. The natives of this state to-day are so mixed in blood with Indian, negro and white, that but slight differences in color can be observed. Still, the Indian blood is generally in the ascendant. A few families of pure white blood are scattered here and there in the State, but they constitute too small a body to be noticed among the masses. Even the great Liberatador, Simon Bolivar, is said to have had a strain of Indian blood in his veins. Whether this is true or not, this state has the honor of his nativity, and it is an honor of which its peo-

ple may well be proud, for if he made a mistake in becoming dictator, there can be no question that he, more than any other, deserves the credit of breaking the chain of Spanish tyranny, and of founding the best of the Spanish-Ameriean republics.

THE CUBIT OF THE ANCIENTS.

BY CHAS. WHITTLESEY.

Within very recent times, many books have been published to develop a theory of inspiration in the construction of the great pyramid of Ghizeh. It is claimed that *Philites*, the reputed architect, was directed by a special revelation from heaven; that it was not an Egyptian structure, and that in all its parts there are hidden meanings only recently understood; that it is not a mausoleum, but a monument of supreme knowledge, both in a secular and a religious sense; that the builder has shown an acquaintance with mathematics and astronomy, at a period not less than 2170 years before Christ, which is palpably in advance, not only of the Egyptians, Chaldeans and Arabians, but also of present science. For instance, the problems of squaring the circle, of the period of a revolution of the equinoxes, the distance of the earth from the sun, logarithms, and the value of the hypotheneuse in terms of the sides of a right angle triangle, were then well known. This theory is supposed to be strengthened by the angle of the descending passage with the horizon, which is, according to Col. Vyse, 26° 41′, and Prof. Piazzi Smith, 26° 28′ 16″. It is claimed that about 2170 B. C. the star *Alpha* in the constellation of the *Dragon* was the pole star, and 3°41′ or 42′ from the pole, its lower culmination being tangent to the floor of the passage leading down to the chamber beneath the pyramid. On the west or right hand wall of the descending passage is a vertical line, reputed to be 2,170 inches from its mouth. A new cubit is assumed equal to 25.025 English inches, of which $\frac{1}{25}$ part is a pyramid inch, representing one year, showing the date of the building to be 2,170 B. C.

At or about the time when Alpha Draconis was 3°42′ from the pole, or, according to Prof. Proctor, its movement being away from the pole, it is claimed that the star *Alcyone* of the Pleiades was in the vernal equinox. As we know the precession of the equinoxes, this should have occurred about 2170 B. C. By using the *pyramid cubit* as an unit, and dividing one of its base sides by the number of such cubits, the quotient is reputed to be 365, the number of days in an Egyptian

year, and this idea presumably controlled its dimensions on the ground. For the interior chambers, the galleries and sarcophagus or granite coffer, there is also a diversity of measurements.

If the great pyramid was erected by divine wisdom for a benevolent purpose, why were these purposes so carefully concealed from mankind for so long a period, during which they had discovered, by patient investigation its great secrets in science? Its assumed mystical and prophetic points are nowhere recorded by the Egyptians. Moses and all the Hebrews of his day well knew of the pyramids, but they are not mentioned in the Old Testament. If they, or this one in particular, had any religious significance, why this silence throughout the sacred books? If there is in the chambers of this structure, a compendium of great secular truths, why was its passage sealed up three or four thousand years, with no hints or directions pointing to a place of so much consequence to the world? When the *Caliph Al Momom*, about A. D. 825, made a forced entrance, expecting to find money in the tomb of Cheops, it was by mere accident that he hit upon the interior passages. He found the one ascending to the main chamber, and it was closed by a block of granite, which is there yet. Passing around this obstruction he found the passage filled with large stones, which must have been placed there when the pyramid was being built.

If these chambers were filled with records in stone, for the enlightenment of the race, why this extreme care that they should never see the light. Until quite recently, it was not supposed that this pyramid had any intellectual meaning different from those that are common in the country, and which are admitted to be monuments of the dead. Externally it differed only in size, and the white marble polish of its faces. We know of no artificial structure that is more grand, or that approaches more nearly to the sublime. During hundreds of generations it has stood an object of blank wonder among men, its slopes gleaming from afar in the sunlight, over the Lybian desert, up the valley of the Nile, and across the low country to the Gulf of Suez. When the main chamber was reached, it contained nothing but a granite box or sarcophagus, like those of other pyramids and burial places, except that the lid has not been found. It is a parallelopipedon, never very highly polished, and its corners somewhat injured, so much so that the measurements do not tally. On this account it is of no account as an unit of measures, one of the designs which have been attributed to it, and to the dimensions of the chamber itself, which is also in a bad condition for exact

measurements. There were no hieroglyphic inscriptions or incisions on the coffer, if we except the holes in the margins of the sides, described by *Mr. I. S. Pering*. In a still more secluded spot in one of the closed chambers overhead is the only record, which is the Cartouch of Khufu, or Cheops, made in paint, and attributed to the workmen.

Before deductions of any kind, mathematical, astronomical or prophetic, can be rationally drawn from this wonderful structure, the precise dimensions of its parts must be established. It will be seen below that the precise length of its sides is not yet known. The people of the Nile had no knowledge of the Greek or Latin foot or inch prior to the conquest of Alexander. On the historical and chronological basis, the date of the pyramid is earlier than 2,170 B. C. by about a thousand years, but in all times the *digit*, the *palm* and the *cubit* were measures in common use in Egypt. The English foot or inch could not have entered into pyramid calculations.

I take up, then, a comparison of the different cubits and of their mathematical value. It is full 150 years since *Sir Isaac Newton* investigated the Oriental cubit, and many scientists of reputation have continued the investigation. Its precise length is not yet settled. Perhaps it can never be settled with that precision which characterizes the English yard or the French meter and their subdivisions. *Noah Webster* derived the English word cubit from the Latin *cubitus* or elbow. He regards the Greek for cubit as nearly equivalent to the Latin *cubo*, or angle. Neither of these definitions give the idea of a measure of length. But it is everywhere admitted that the nations of the valley of the Euphrates had a measure or measures, for which this is the term in our translations. There was also with the cubit, and in universal use among the Persians, Chaldeans, Hebrews and Egyptians, lesser units of length above referred to, as the *digit* or breadth of the thumbs, like the French ponce, the *palm* or breadth of the hand equal to four digits, and the *span* or clasp of the thumbs with one of the fingers. The latter has less certainty than the others, but the best authorities regard our knowledge of all these ancient measurements as still incomplete. It is admitted that they are all based on the average length of the human arm, or its parts. *Mr. Ferguson*, of London, who has made ancient architecture the study of a life-time, ventures, cautiously, to give equivalents in English inches:

1st. The digit, or thumb breadth, at 0.7938 inches.

2d. The palm, or hand breadth, at 3.1752 inches.

3d. The span, or clasp (not of equal digits), 5.5257 inches.

4th. Cubit of very different lengths—that of the Hebrews —18.250 inches.

He admits that none of these expressions can be considered accurate in the modern mathematical sense. Subsequent investigations confirm the view of Mr F., and show that there is nothing in ancient measures of the Oriental nations, transmitted to us, which is precise enough to be of value as a metrical standard. Cubits are referred to of thirteen (13) to fourteen (14) inches, which may represent the arm from the elbow to the wrist; but this short cubit does not appear to have been common. *Herodotus* states that a cubit of Egypt was the same as that of Samos. *Mr. Schliemann* believes he has found in the remains of Troy, the ancient cubit of Samos, of sixteen (16) inches, which differs materially from Herodotus. In the Old Testament the word is used without explanation from Noah to the Maccabees, except in I Kings, vi-2d, where it is qualified as the "cubit of a man." It might have been derived from various parts of the arm, from the elbows to the knuckles, or the elbow to the tip of the second finger, about equal to the cubit of Josephus of 17.4725 inches, the cubit of the Nile, about 20.612 inches, or a reputed Persian cubit of about 20.250 inches, and all of them might be within the meaning of the term, "cubit of a man." Even the so-called sacred or pyramid cubit, 25.025 inches, would not vary much from the shoulder to the wrist. Accustomed as we are to strict measures of distance, it appears strange to find so much uncertainty in those of the ancients. It is not strange that different nations should deduce different standards from the human arm, but that different cubits should be in use at the same time among the same people is an anomaly. The prime or least unit adopted by the inhabitants of the Nile and Euphrates, that is the digit, was probably an even part of all cubits. Some of them contain the palm as a multiple, but the reputed span is not. Such anomalies exist in modern weights and measures. If the Hebrews had a sacred cubit, the presumption is very strong that Moses used it in describing the tabernacle, with its ark and altar. Five hundred years later, when the parts of Solomon's temple were fixed, the altar and the ark of Moses were in existence. Its altar is described by cubits, and was made twice as long in all its dimensions as that of the tabernacle. Did David and Solomon adopt a unit differing from that of Moses? Whatever the cubit of Moses may have been, if it was a sacred standard of measures it was easily corrected when the first temple was built, and must have been known to the king, priests and architects. If there were secret reasons for adopting a different unit, under the same name, should not there be some explanation in the records? Two hundred years later,

in the reign of Josiah, the ark of Moses was still in existence. In the invasion of Nebuchadnezzar, not long after, the ark was probably destroyed, with the temple of Solomon and its altar. Was the Hebrew cubit also destroyed? *Col. Wilson*, of the English exploration in Palestine, states that, "Josephus asserts in three places that (400) four hundred cubits are equal to the stadium or furlong, of (600) six hundred Roman feet. There is probably no great certainty about the length of this foot, 11.649 inches and its inch, as given by Mr. Furgeson, than there is of the digit or the palm." The cubit of Josephus, or one and a half Roman feet, would be equal to 17.47425 of our inches. This is a statement made by a Hebrew, while the temple was being rebuilt by Herod the Great. Had the people lost or altered the cubit of their ancestors? Did Moses adopt an Egyptian cubit in the place of that of Abraham and the patriarchs? Such are the interesting questions which arise, and the materials for their solution are scarce. If there were Abrahamic units of measure, the presumption is that they originated in Mesopotamia on the Euphrates. Before his time the Egyptians probably constructed their kilometer, which is yet extant.

COMPARISON OF CUBITS.

	ENGLISH INCHES.
Greek foot	12.135
Roman foot (Fergusson)	11.6495
" " (another authority)	11.664
Cubit of 1½ Roman feet (Josephus)	17.47425
Same, plus one palm	20.6495
Cubit of the Nile (French Commission, 1799)	20.61156
" " (Single measurement, English)	20.573
" " (Prof. Greaves, 1638)	20,604
" " (Mean of ten measurements)	20,626
Cubit of land measure, Persian & Hebrew (Nilkirman)	20.5388
" " (Prof. Piazzi Smith, mean)	20.730
Turin cubit	20.612
Royal cubit (Sir James Henry)	20.727 +
Cubit of the Nile (Rawlinson)	20.635
Common cubit (British ordnance survey)	18.240
" " (Hebrew and Egyptian)	18.26805
Cubit of 1½ Greek feet (Herodotus)	18.2025
Digit (Furgeson)	0.7938
Palm—4 digits	3.1752
Span	5.5257
23 Digits	18.2574
24 Digits—6 palms	19.0515
26 Digits	20.6388

The earliest measurement, A. D. 1638; that of the French, 1799, and the Turin cubit, agree best with each other. Ten English measurements of the kilometer vary from 20.573 to 21 inches, a difference of 0.427 of an inch, which indicate that the cubit marks on it are very obscure. I have not the history and present condition of the wooden cubit sticks, said to be in the museum at Florence, Italy, or their probable antiquity. Possibly the cubit of Turin is derived from them. It is singular that none of the historical cubits, whether common, royal or sacred, are of an even number of palms, or of digits, or of Greek, Roman or English inches. This indicates an error either in the prime or least unit, or in the longer ones, or both; which cannot be reconciled, and which takes away from all of them that certainty which alone gives value to measurements of length.

SIZE OF COFFER OR SARCOPHAGUS.

Length outside	7 feet	6½ inches	=90½ inches		Pering
Breadth "	3 "	3 "	=39 "		
Height "	3 "	5 "	=41 "		
Inside cavity, Length	6 "	6 "	=78 "		
" " Breadth	2 "	2½ "	=26½ "		
" " Height	2 "	10½ "	=34½ "		
Length outside			90 inches		Prof. P. Smith
Breadth "			39 "		
Height "			41 "		

Mr. Pering says: "The sarcophagus is of granite, not particularly well polished. At present (1837) it is chipped and broken at the edges. There are no remains of the lid, which was, however, fitted on in the same manner as those in the other pyramids," thus: "the lid (granite) slid on from behind into the dovetailed grooves, which it exactly fitted. The holes (in the edges) contained two pins, which, when the lid arrived at the proper place, dropped into corresponding holes in the rim." The form of the grooves around the sides (inward bevel) effectually prevented it from being lifted off."

The rubbish covering the lower courses of masonry, renders it very difficult to measure the sides of the base of this pyramid with precision. As it is not practicable to determine the relative weight to be given to the figures of different engineers, I give such results as are within my reach, as of equal value.

MEASUREMENT OF NORTH SIDE.

9163 English inches.	Other measurements in feet.
9162 " "	Birch, 745.
9168 " "	P. Smith, 763.94—
Mean, 9164.333=763.677 ft.	Col. Vyse, 764—

MEAN OF THE FOUR SIDES.

9140, one measurement.
9120, mean of two measurements.
9144, mean of four measurements.
Mean, 9134.6+=761.216+ feet.

Height from base:
5807 inches.
5811 "
5813 "

Height from pavement:
5819 inches.
5822 "

The discrepancy between the north and the mean of all sides, indicates that the base is not an exact square. Between the extremes, there is a difference of 48, and the mean of (29.532) *twenty-nine* and $\frac{7}{160}$ inches. Divided by 365, as representing days in the year, on the basis of a special or pyramidal cubit, or one for each day, each quotient will differ in value from 25.025 inches, and from each other. The differences in the heights are not proportionally as great, being about (6) six inches, but until closer results are obtained, neither the parts directly measured nor their resultants are sufficiently reliable as a basis for astronomical or mathematical deductions.

If there is in this downward passage any astronomical significance it must be connected with latitude and the elevation of the pole. Nothing in astronomy is more simple, and if the builder could not determine that, with reasonable certainty, either their instruments or their knowledge was of little value. The pole star is only a factor in that problem, and before it could be used required precise knowledge of its departure, at a fixed day. If they did intend to fix the latitude and record it here, the angle of the passage should have been equal to the elevation of the pole, which is fixed, and not the movable elevation of the pole star. In case the reported latitude of 29° 57′ is correct, and the reputed distance of Alpha in the Dragon (3° 42′) is right, subtracting it from the latitude would give the elevation of the star at that time at 26° 15′. For the purpose of nebulous symbolical interpretations, the difference between this and 26° 28′ 7″ or 26° 41′, as it is differently reported, may appear trifling, but to astronomers, who respect mathematics, the differences are very material. *Prof. Proctor's* estimate is reputed to be, that the pole star was at 3° 42′ from the pole in B. C. 3340, moving towards it. In 2170 B. C. it was again at the same distance, having passed through an arc of 7° 24′ in 1170 years, and was then

receding. Its motion was at the rate of about twenty-two $\frac{77}{100}$ (22.77) seconds per annum. In order that the descending passage shall show the elevation of this star, the latitude should be about 30° 10′ and the time about 27 years after Alcyone in the Pleiades was in the vernal equinox; or that Prof. Proctor's calculation is 12 to 15 minutes too large.

There was a time when *Alcyone*, of the Pleiades, moving eastward in right ascension, at a rate of a trifle over (50″) fifty seconds in a year, or about a second in a week, passed the meridian of the vernal equinox. An alignment of the pyramid might have been effected by using the pole star and any star at the south which might be on the meridian at the same moment, but this is neither convenient nor necessary. It might have been effected with as much accuracy by the simple mode often used by our surveyors. Two threads, with weights suspended near the meridian, and illuminated where the star culminates, gives a good meridian line, without instruments. If there is proof that the pyramid builders knew the opportune moment when Alcyone and Alpha Draconis were together on the meridian, and the former was in the vernal equinox, and then fixed their foundations, this settles the date of the structure. Is it logical to assume this without proof? This conjunction would last but for a short time, and cannot return for 25.827 years.

CLEVELAND, O., March, 1882.

PALÆOLITHIC MAN IN AMERICA.

By L. P. GRATACAP.

CHAPTER III.—A SUMMARY.

The Mississippi Valley has been the scene of an enormous sedimentation, the central and southern parts of it possibly the seat of early centres of population, and it is not surprising to find considerable, though more or less fragmentary and questionable evidence yielded by its various beds of man's workmanship. The Loess or Bluff beds two a half miles from Natchez, at Bernard's Bayou, yielded to Dr. Dickeson, of that city, a pelvic bone, in conjunction with those of mastodon, megalonyx and mylodan, and it was prematurely concluded that they afforded evidence of the contemporaneity of their original deposition. Lyell, Leidy, and Prof. Forshey consider it nothing else than a recently disturbed bone mingling with

more ancient fossils in some general flood sweeping all together from primarily remote localities and unrelated strata.

At one time Dr. Dowler's announcement of the discovery of human bones below the Cypress Beds which underlie New Orleans, and regarded by Dr. Dowler as buried forests which flourished there some 12,000 years ago, excited general attention, but it has really at present but slight interest. The computations of Capt. Talcott, Humphreys and Abbott have shown how much overestimated has been the thickness and extent of the alluvial deposit at the mouth of the Mississippi, and that the antiquity of the whole formation may not extend beyond 5,000 years, while the buried forests may prove to be, in the words of Dr. Foster, "nothing more than drift-wood brought down by the river in former times, which became embedded in the silts and sediments deposited on what was then the floor of the Gulf."

Many unimportant finds, as those of Dr. Holmes on the Ashley river, South Carolina, of Count Tourtales in Florida, Whittlesey's "hearths" in the Ohio valley, M. Berthoud's human implements on the banks of Crow creek in Wyoming and Colorado, only merit mention.

A much discussed and unquestionably momentous statement made by Dr. Koch to the St. Louis Academy of Science should be repeated here from the nature of the evidence presented, and the intrinsic interest of its suggestive details. Dr. Koch's own words are quoted: "In the year 1839 I discovered and disinterred in Gasconade county, Mo., at a spot in the bottom of the Bourbeuse river, where there was a spring distant about four hundred yards from the bank of the river, bones sufficiently well preserved to enable me to decide positively that they belonged to the Mastodon giganteus. The greater portion of these bones had been more or less burned by fire. The fire had extended but a few feet beyond the space occupied by the animal before its destruction, and there was more than sufficient evidence on the spot that the fire had not been an accidental one, but, on the contrary, that it had been kindled by human agency, and, according to all appearance, with the design of killing the huge creature which had been found mired in the mud and in an entirely helpless condition. All the bones which had not been burned by the fire had kept their original position, standing upright, and apparently quite undisturbed in the clay, whereas those portions which had been extended above the surface had been partially consumed by the fire, and the surface of the clay was covered as far as fire had extended by a layer of wood ashes, mingled with larger or smaller pieces

of charred wood and burnt bones, together with bones belonging to the spine, ribs, and other parts of the body which had been more or less injured by the fire. The layers of ashes, etc., varied in thickness from two to six inches, from which it may be inferred that the fire had been kept up for some length of time. It seemed that the burning of the victim and the hurling of rocks at it had not satisfied the destroyers, for I found also among the ashes, bones and rocks several arrow-heads, a stone spear-head and some stone axes. The layer of ashes, etc., was covered by strata of alluvial deposits, consisting of clay, sand and soil, from eight to nine feet thick, forming the bottom of the Bourbeuse in general.

"It was about one year after this excavation that I found at another place in Benton county, in the bottom of the Pomme-de-Terre river, about ten miles above its junction with the Osage river, several stone arrow-heads mingled with the bones of a nearly entire skeleton, mentioned above as the *Missourium*. One of the arrow-heads lay underneath the thigh-bone of the skeleton, the bone actually resting in contact upon it, so that it could not have been brought thither after the deposit of the bone, a fact which I thought carefully to investigate. The layer of vegetable mould was some five or six feet thick. Above this layer of mould there were six undisturbed layers of clay, sand and gravel, viz.: three of greyish clay and three of pebbly gravel, mixed with coarse sand, in all twenty feet in thickness, and a forest of old trees was standing on the surface soil."

The mere fact of the association of the remains of extinct animals with human relics does not necessarily establish a fabulous antiquity unless accompanied by geological evidence pointing to such a conclusion. The Mastodon may have lingered on to comparatively recent times, and comparatively recent men may have intercepted and destroyed helpless individuals. The beds in the alluvial bottoms of the Bourbeuse and Pomme-de-Terre rivers, as quoted by Dr. Koch, offer no indisputable indications of great age. Dr. Koch's discovery certainly affords grounds for such a presumption, but at the best that alone.

These are the most important facts with regard to a prehistoric man in America analogous to the prehistoric man in Europe in his state of culture and his antiquity. The finds have been desultory, denied and sometimes discarded. No widely prevalent proof has been yet discovered which either demonstrates his existence or establishes beyond peradventure the geological epoch in which he appeared. The con-

servative feeling of writers which asks for incontrovertible and abundant evidence is a valuable safeguard to prevent our too hasty acceptance of theories and "finds," that stimulate the fancy and excite speculation. The skulls beneath Table Mountain (1857 and 1868), Dr. Koch's narrative, attributing to it less weight, and Dr. Abbott's investigations on the Delaware, form the best body of proof which we can show; and while to us these points indicate man's great age in America, the fact has not been set beyond appeal nor beyond the ingenious objections of captious or interested skeptics. Statements so startling must be overwhelmingly substantiated and rest upon a foundation of facts as broad and secure as the superstructure of speculative wonderings is high and peculiar which, upon their acceptance, starts and expands above it. At present that proof is not forthcoming, and may never be, since topographical and geological features on this continent may have prevented the gathering and preservation of cemeteries of bones and implements such as crowd the valleys of the Dordogne, the Vezere and the Somme or strew the floors of the Belgian caves.

We find in Europe the refuse piles of Denmark, which appear to have been collected by man at a later age than that of the unpolished stone age, and perhaps have seen the dawn of that enlightenment which brought copper and iron into use. In America we can point to an age when man formed along the banks and estuaries of rivers and the shores of the ocean great piles of debris—the shell heaps—in which his works, unconsciously lost or deposited, show his contemporaneity with a different topography of the country. The numbers of these shell heaps are very great, and it would be unreasonable to detail the characters of all. They are very similar, and since doubtless made at very different times, evince a very common instinct or habit, either not peculiar to a particular era of progress, or, if so, one whose reign extended over many centuries, only modified by the accidental circumstances of position and prey. They are found about the mouths of the Mississippi, in reefs or ridges, and in many contiguous localities throughout the shores of the enlacing bayous. Near New Orleans shells are quarried out and strewn on roadways, forming an admirable and enduring bed. At Mobile their immense accumulations furnish a substantial foundation to parts of that city, and in Florida the fresh water shell heaps surpass in their proportions all known deposits of that character. They are distributed along the Atlantic coast in New Brunswick, in Virginia, in Maine and New Jersey. The inland waters of the Ohio, Wabash,

White, Tennessee and Yazoo rivers show these mounds scattered along their banks, formed by the valves of Unios and Anodontas, the fresh-water molluscs that inhabit those streams. Along the Pacific coast these kitchen piles are found sometimes enclosing the skulls and bodies of recent Indians, who have occasionally used them for their cemeteries.

These numerous stations, which mark the extinct colonies of people possibly succeeding one another in the possession and use of such exuvial heaps, are of all ages, dating from those most ancient monuments in Florida and Alabama, and embracing comparatively modern instances. In all cases they represent the accumulated debris of innumerable "meals," and are built up of oyster shells, unios, apple shells or pond snails, as the case may be, which have thus been conveniently disposed of—a curious and indisputable evidence of the existence and voracity of their authors.

Our inspection of these remains will be brief, partly from the monotony of the repetition of very similar details in all, and partly from the indifferent nature of the proof adduced as to the antiquity of their builders. As the most interesting in some respects, the best studied and the oldest known, we will speak of the shell heaps of Florida.

The shell heaps of Florida were examined by Prof. Wyman, and his report on their survey and examination is a classic contribution to American archæology. The mounds he visited were on the St. John's, a river in Northern Florida, whose head waters rise in a number of lakes and adjoining swamps, whence the stream flows northward to the Atlantic by an incredibly slight descent. "So little is that portion of the peninsula of Florida, drained by the St. John's, raised above the level of the sea, that were the land depressed 10 or 12 feet below low-water mark, the ocean would reassert its sway over the largest part of it, leaving above water narrow ridges along the coast and low islands inland." Along the flat, pine-clad shores at the mouth of this stream no mounds are seen, but along its higher reaches they occur, where "thick and luxuriant growths of forest trees" commence, made up of oaks, ashes, elms, cedars, maples, willows, gums, hickories, magnolias, cypresses and bays. The mounds are of very various dimensions, are generally on the margins of the river, and if removed from it surrounded by marsh lands which have followed the shoaling water caused by a deflection of the river's channel. Stone implements, ashes and fire-places, pottery, and animal bones, among which those of the deer, turtle and alligator, are found scattered through these heaps, and in one instance parts of a human body were separated

from the lower sandstone, over which a shell heap had been raised since their burial. The age indicated by these fossil bones of man is not necessarily excessive, and both Prof. Wyman and Count Pourtales agree in assigning to this find no extraordinary import. Trees in thick luxuriant groves have grown over the shell heaps, and the wild orange, probably the Seville Orange run wild, introduced by white men, is confined by its own selection to these fertile knolls.

The shell heaps are built up of valves of unios, Ampullarias and Paludinas, all varying in the proportions used in different localities, and frequently one sort composing exclusively a part of the shell heap, to be followed in another section of the same heap by a different shell, and this by a third, "as if," says Wyman, "at certain times each had been used exclusively for food." The paludinas compose the larger part of these mounds, and when we recall the small size of these gasteropods we are astonished with the thought of the many thousands whose cases make up these heaps, and we must conclude that they existed in greater abundance formerly than now, and that even in that case their collection must have occupied a long time. The largest mounds, as those of Old Enterprise, Hintoon Island, Orange Bluff, etc., rise to the height of 20 or 25 feet, and cover in some instances several acres. They rest at times upon a sandstone floor, which has been formed by a lime cement abstracted from the calcareous shells, which themselves are occasionally imbedded and fastened in the sand, forming a solid conglomerate. Large oaks flourish on some, in one case measuring 15, 19 and 27 feet in girth, and intrusive burials made in them likewise afford presumptive proof of considerable age. Some have been swept partly away by overflows, which have strewn their shells along the river bottom, or washed them up in dyke-like rows bounding the stream's course. Prof. Wyman inspected 48 mounds, all of artificial construction, and various in size and shape. He found in all of them evidences of human occupancy since their construction, and further indisputable proofs of their human origin. Implements, pottery, and fire-places, all attest the presence of man throughout the stages of their growth, and one arrow-head firmly imbedded in the sandstone base from which one mound rose establishes, did that conclusion need corroboration, their inception during man's presence there. The stone objects are of the most primitive character, and recall those rude and simple objects which elsewhere indicate man's early and partially redeemed barbarism.

The fragments of pottery scattered through the heaps were numerous, and even show a sort of progress, or phases of

manufacture, as though their authors were reaching new and advanced stages of skill and invention. "The simplest ornaments are the rough tracings on the soft clay with a pointed instrument, a stick or a bone, or the simple impression of the point of one of these or of the apex of the spine of a shell. The traced figures are the rudest, and would naturally be the earliest ornaments, but on some of the vessels the lines are evenly drawn, and at equal distances from each other. The next step in the progress of the art, and by which it was made much less laborious, was the substitution of the stamp for the tracing point. It has essentially but a single pattern, the figure being made by a series of straight grooves crossing each other at right angles, leaving projecting squares, or obliquely, leaving lozenge-shaped projections. It is worthy of remark that ornamented vases were not universal. In some of the mounds they were almost entirely wanting, while a few miles distant the majority of the fragments were ornamented." Vessels evidently fashioned upon the intention of a basket were found, while others suggest their having been made by coils of cylindrical rolls thrown over and against each other until the sides of a vase or bowl were built up.

The material and preparation of the Florida Shell Heap vessels differ from that of other mounds, as those along the coast region of that same State and others found throughout the United States; the clay elsewhere is mingled largely with broken shells and sand, in the Florida specimens almost pure clay is used, seldom showing any admixture of sand, though at times vegetable fibre is present, which produces a cellular and porous structure, which the original makers have in part overcome by the use of an outside film of slip clay. In ornamentation the specimens are markedly inferior to those from other localities, less elaborately adorned, and display only a rude and primitive conception of artistic design. They indicate in this respect an earlier origin than the fictile wares from the coast mounds or those found in later burial-places. Stone implements were found in inconsiderable numbers, though numerous enough to prove the acquaintance of the shell-heap makers with flint chipping, and though but seldom buried deep in the piles, were incontestably coeval with their formation. They consist of rudely-cut celts, stone chisels, knives or scrapers, arrow-heads, chips and fragments, all clearly the works of men's hands. Implements of bone were more frequent, but apparently limited to awls and piercers, an office for which bone, then and since, seems very generally reserved. Implements of shell, as might have been anticipated, were common, though very slightly, if at all,

varied in form, consisting of rectangular bits, ground down to edges on one side, forming an efficient scraper, cleaner, or bone wedge. Perforated shells, possibly used for ornament, are found near the upper surface of the mounds, and drinking cups made from the large univalve, *Busycon perversa*, are similarly found near the surface. These last objects are recent, and may have been known to the Indians who succeeded, at a long remove, the aboriginal inhabitants. Pipes and metals are both absent.

Human bones were found from top to bottom of these heaps—skulls, legs, arms and bodies—and while some were unbroken and entire, the condition of others suggested the unwelcome thought of their having formed a part of a cannibal's repast, a conclusion which some recent examinations by Lieut. Vogdes strengthen. He found large bones, whose marrow might justly form an attractive feature in an aboriginal dinner, opened lengthwise and bearing every evidence of a designed cleavage. Cannibalism was really so common amongst our Indians at the arrival of the white men, that it would scarcely seem surprising to find its antecedents hidden in these early works.

The age of these shell heaps is the most interesting question connected with them, and it may be safely inferred from Wyman's observations that they cannot claim any extraordinary antiquity. In the first place, amongst the many bones of living animals met with, as Bear, Raccoon, Deer, Hare, etc., those belonging to extinct species, as the horse, ox, mastodon, manatee, were also encountered, but in an entirely different condition, so as not to preclude the idea that they were "scooped up from the bottoms of the creeks with the shells taken for food." A mineral deposit had taken place upon and through them, and they were in a measure fossilized, indicating previous exposure before their introduction in the shell heaps, whereas other bones, which may be supposed to have belonged to living individuals at the time of the occupancy of these tumuli, are "exceedingly brittle, adhesive to the tongue, from the loss of their organic matter without this having been replaced by anything to give them solidity." The conglomerate of sand and lime, the latter derived from the shells in the heap, which is found at the base of many, affords some indications of age, but as exceptional conditions might have readily formed this in a comparatively short period, it forms no trustworthy standard. Naturally Prof. Wyman considered the age of trees growing upon them a fair measure of the time elapsed since they were abandoned, and, after giving the following measurements, reaches this conclu-

sion: "It will be seen, from the estimates we have made, that several of the mounds are certainly older than the discovery of America, and all of them than the first explorations of the St. John's by the Spaniards, or, in other words, that the mounds were substantially as complete then as now."

MEASUREMENTS OF LIVE OAKS ON SHELL MOUNDS—WYMAN.

Locality.	*Circumference.* *ft.*	*in.*	*Age.* *Years.*
Silver Springs, Lake George	15	2	360
do, do, ...	19		480
do, do, ...	27		666
Spring Garden Creek.....	18		448
Orange Bluff.....	18		448

Making due allowance for physical changes, as where swamps and new land have formed, separating the shell heaps from the course of the river, and for zoological vicissitudes in the comparative disappearance of ampullarias and paludinas, Prof. Wyman says that for their age "the assumption of a thousand years at least would not be unreasonable."

Shell heaps elsewhere are but slightly connected with the title of this abstract, and have little interest except as the frequently repeated illustrations of a widely distributed and common mode of life.

It has been remarked that the weight evidence has, when presented to a group of men upon a subject on which they already have convictions, is directly proportional to the support it yields to their personal views. The slightest details are magnified into importance if they favor preconceived opinions, and the most stubborn facts bent by an ingenious sophistry into seeming compliance or else are ignored by a discriminating partiality. The question of man's age on the earth is one which, from education and instinct, men regard variously. His apparent antiquity has been brought forward with exultation by some writers as a crucial question by which must be settled some of the claims which theology has to our adherence or respect, and, on the other hand, it has been considered by the most conservative men as an instance where temerity and fancy have combined to really prove nothing, or rather a portion to strengthen the orthodox position. To the French no antiquity seems too great, and they would push man's advent back amid the dawn of mammalian life in the far-distant Miocene, while to Principal Dawson, the best evidence we have from the valley of the Somme of man's immense age seems not incompatible with the assumption of its

formation 2,000 B. C.; so that between these opposite extremes the average man may content himself to remain either perplexed or amused. The whole question has been embarrassed by the prejudices which surround it. An unfortunate traditional feeling, engendered by time-honored interpretations, prevented the general mind from seeing that, these interpretations apart, there is nothing practically improbable or irreligious in assigning to the species a very great age. Why not? Surely if the doctrine of descent from one primal pair is to be preserved, time, and enough of it, is needed to have permitted the divergences which originated numerous races from an original, homogeneous class. So soon as the conditions of man's existence in any one of its many phases were supplied upon the earth, and the chain of antecedent types completed, may we not, judging from the theological symmetry observed throughout Nature, argue that man then stepped upon the scene, crowning creation with his appearance, no matter how many decades, centuries or millenaries may have elapsed since. By all this we mean that it is a question for scientific investigation in the best sense, and should be divorced from all theological bias, sentiment or authority. Bishop Usher's calculations are remarkable for their learning, but they can hardly be commended for their wisdom or probability. On account of the influence which these conclusions had acquired over the thoughts of men before this inquiry was thought of in connection with geological science, the onus probandi has fallen upon those who question them, and it is perhaps a salutary and not altogether unmerited check to their enthusiasm. It would seem that the tables may yet be turned, and the opposite school be asked to show good reason why man should be credited with so short a reign as 6,000 or 7,000 years. On the other hand, scientists must examine this question with the same vigilance they bestow to all others over which the irritations peculiar to polemic themes has not blinded their judgment or palsied their logic. The wide-spread interest in this subject has led to extravagant assumptions and carelessly worded surmises, and a calmer, more judicial temperament only can secure us temperate and trustworthy verdicts.

As an instance where speculation may be corrected by inductive reasoning and critical examination of related facts, we may quote Prof. Boyd Dawkins' recent paper at the Sheffield meeting of the British Association, wherein he combats the French views of man's existence in the Miocene, on the ground of the absence of placental mammals in that era. "In the Eocene age they had not a single species of placental

mammal, nor did they meet with any indications of a living placental genus. No species now found in Europe were found in the Eocene age. It was absolutely impossible to suppose that man was living on the earth in Eocene time, yet there was no reason, because of climate and vegetation, that he should not have been. Then they came to the Miocene age, when they found not merely living families and orders, but living genera. Putting man out of the question, there was not a single well-authenticated case on record in any part of the world of any mammalian species now living on the earth having lived in the Miocene age. The French preserved a flint flake which was found at Thenay, and which they say is of the Miocene age; in fact it was accepted by a great majority of archæologists that man was living in the Miocene age. The French held that flints found, and all of them bearing traces of manufacture, were of the Miocene age and the work of man. It was far less difficult to believe that these flints were the work of some of the higher and extinct forms of monkeys than it was to believe that they were the work of man."

Again, it is often too strenuously insisted that the association of human remains with those of extinct animals proves an extraordinary age. It does not of necessity prove anything of the kind. The extinction within the historic period of so many species shows that the mere absence of an animal from the fauna of a country or that of the world is no certain indication of its disappearance at a very remote day. The Auk has become extinct in Greenland, the Sirenia in Behring's Straits, the Capercailzie in Scotland, struthroid birds in New Zealand, the Lion at Delhi, the Rhinoceros in some parts of India, and certain native species of Hungarian birds, all at comparatively modern dates. Again, if we will consult tradition, a not despised guide in many questions, we find a legend among the North American Indians telling, to be sure somewhat lamely, of a Great Elk, whose description would recall the figure and proportions of the Mastodon. Again, Mr. Prestnich, whose claim to a respectful hearing has been established by a life of critical labor, says, " for these and various other reasons I am confirmed in the opinion I expressed in 1859, that the evidence as it stood seemed to me as much *to necessitate the bringing forward of the great extinct animals toward our own time*, as the carrying back of man in geological time."

On the other hand, to those zealous supporters of man's recent origin, not antedating 5,000 years, the following passage from F. Müller's Allgemeine Ethnography will show, from a historical standpoint, the propriety of assuming a

greater age than that: "The accepted history of the Egyptians goes back four thousand years before Christ, at which time they had already erected a monarchical unit based on a highly developed culture. After allowing the shortest possible time for the Egyptians to have developed their culture from the rude beginnings to that height which is noticed in their monuments, viz., one thousand years, we find the year 5,000 B. C. the latest date for their entry into Africa. Now, before the Egyptians, their relatives, the Berbers, with their collateral branch, the extinct Guanches, the Bedsha, the Somali, the Dankali, the Galla, and other tribes wandered into Africa, and as ethnic movements are customarily slow and successional in nature, we may take one thousand years for the migration period. *Thus at the lowest reckoning* we reach the year 6,000 B. C. from which we can date the movements of the autochthonous races of Africa."

In short, to geological evidence we must solely rely for adequate grounds upon which to form any exact conclusions in this matter, and the best evidence points to man's presence upon the earth in inter and post glacial times, though unfortunately the cause and occurrence of that phenomena are regarded as diversely as the date of the events which its explanation might assist in fixing.

PHONETICS OF THE KÁYOWĒ LANGUAGE.

BY ALBERT S. GATSCHET.

Read before the Cincinnati Meeting of the American Association for the Advancement of Science, August 19, 1881.

In comparing the wording of a text, written or printed in any of the living languages, with the pronunciation of this text by the people speaking that language, we cannot deny that in the majority of instances the written characters convey to us the true pronunciation in a very imperfect manner only. These imperfections are due to several causes, and some of them are not always easy to overcome. The person transcribing a text worded in a strange language may experience a difficulty in catching the true sound, for among many individuals there exists sound-deafness just as well as there is color-blindness in optics. Inaccuracies of phonetic notation may also be due to a desire of restricting oneself to as few letters as possible, to avoid the casting of new types, and to

smooth over phonetic difficulties; finally, to a lack of insight into the phonetic laws of the language. This last is preeminently the case when books printed in Indian languages are concerned; and in these pages I intend to show by the particular instance of the Káyowē language some phonetic laws pervading the speech of a large portion, if not of all the American Indians.

The ethnography of the equestrian and erratic tribe of the Káyowē is not a topic to enlarge upon in this article. Our closer acquaintance with this western tribe, whose ancient seats were in Eastern Colorado, near the topographic centre of the United States, does not date further back than half a century. In historical times they have always been the associates and fellow hunters of the more populous tribe of the Comanches, although they belong to a different linguistic family. The majority of the individuals of both tribes are now settled in the southwestern part of the Indian Territory. The Káyowē call themselves Kó-i, Koi; in the plural: Kó-igu, Gó-igu. A Káyowē man is Kó-i kía, abbreviated Kó-i ki, a Káyowē woman: Kó-i máyi, abbreviated Kó-i ma; the Káyowē language: Kó-i túmkie. The Arápohos call the Káyowē: Nitchíhi. The western tribes use several *gesture-signs* to designate Káyowē Indians; one of them is as follows: "Place the right hand a short distance above the right side of the head, fingers and thumb separated and extended; shake it rapidly from side to side, giving it a slight rotary motion in doing so." This sign means: rattle-brained. (G. Mallery, Collect. of Gesture-Signs, p. 302.)

CONSONANTS.

The sounds composing this language are exhibited to the best advantage by being tabulated systematically, the diphthongs alone being omitted:

	Not aspirated.	Aspirated.	Spirants.	Nasals.	Trills.	Vowels.
Gutturals:	k, g	χ	h, '	ng		e { a, i }
Palatals:			y			
Linguals:	ḵ, ḡ		sh		l	o
Dentals:	t, d		s, z	n, nd, ·dl		
Labials:	p, b	f	w	m, mb		u

In this phonetic series the most conspicuous facts are the prevalence of nasals, the absence of r, v, and of the palatals dsh and tch. The two last mentioned sounds are very frequent in most of the other languages of North America. The palatal series is represented by one consonant only; the guttural and dental series is fully represented, while in the labial series p, b and m are the only frequent consonantic sounds. F is found in some words only, and alternates there with p:

pái or fái *land, earth;* probably it could be rendered just as correctly by v'h, vh. Other sounds not frequently met with are: sh, w; k̲, g̲, the two last being linguo-dentals produced by holding the inverted tip of the tongue against the hard palate and then pronouncing k or g. The aspirates th, dh, and the lingual spirant s̲ are not among the sounds of this language. On the nasalizing process, see below.

Among the spirants we notice the h and the so-called arrested sound (̣'); both of them can be inserted at will between certain sounds of a word to produce some rhetorical effect: piutóg̣'o and pihû'doa *to fly;* p̣'á and pá *moon;* ó-i and ó-ị'h *much;* ṭ'á-i and tá-i, tai *white;* há-apo and há-ạ'hpo *to carry away;* hú-iti and ú-iti *he, this one;* no túi and nọ́'h tui *my home.*

A very peculiar sound met with in Káyowē, in some other languages of the Mississippi plains, as in Pawnee, Wichita, and also in Central California, is of a nasal-dental type and can appropriately be rendered by ·dl. It alternates with a sound pronounced almost like d, t and l, and in the words where this alternation has taken place, I propose to write these latter consonants not as above, but to point them: ·d, ·t, ·l. Thus itá·dli *boy*, may be pronounced also: itá·li, itá·di; kó·dlto *to bite*: kō'·ldo, kó·to (for kó·t-to); hú·dldi *soon:* hú·ddi, hû'·l-ti.

No word begins with ·dl, nor, as far as I have been able to ascertain, with l or w.

Consonants susceptible of geminátion are: s in mû'ssa *six;* g in ónggo *oneself*, or *each other.*

Before we pass over to the vocalic sounds, a remark on palatals may find its place. In the Indo-European languages the palatals dsh and tch have originated from gutturals, in the Polynesian languages from dentals; but there are Indian languages in which dsh and tch (tsh) constantly alternate with ds and ts, these sounds having originated from s or z, which themselves alternate with sh and zh. In Káyowē the sounds s, z and ds, ts occur frequently, but sh, zh are rare and therefore we may suppose that the assibilation of ds, ts into dsh and tch has not yet taken place at all. In this particular the language has remained in an archaic, original status, and we can conveniently compare the fact, that the Upper German dialects have exchanged *swimmên* and *snepfe* for *schwimmen* and *schnepfe* at an epoch not earlier than the thirteenth century of our era.

VOWELS.

The vocalic series, together with the long vowels, is as follows:

a: hádel *since;* á-ome *obtained.*
ā: pā·dl *between;* tsā'no *reached;* ā'li *to chase.*
â, same as ô: impâ'du *they had;* sâ'gum *to watch.*
ä: kiä'nhiup *men;* ä-äto *tree.*
e: tupé-igi *before;* ipate'-i *to trap.*
ē: tsē *horse;* pánsē *seven.*
ĕ, the primitive vowel: kahíĕko *to-morrow;* gúĕt *to paint.*
i: hígo *then;* kí *meat.*
ī: sī'b *rain;* sī'b·da *it rains;* konī'ko *because.*
î, dumb-sounding: î'msa *they placed;* 'htsî·l *to stand.*
o: háko *to suspend;* tóhima *hungry.*
ō: gōkin *ten;* k'ōlato *elm-tree.*
u: kotu *shoulder;* gú-upa *behind.*
ū: kūpkie *agency;* gū'-ū *to hunt.*
û, dumb-sounding: ù'ngta *glad;* kû'·ba *hunted.*

The two softened vowels ö and ü (of German etc.) do not occur. Every vowel can be geminated when rhetorical effect is intended: táki and tá-aki *good, handsome.*

Every diphthong is adulterine, that is, every combination of two different vowels, which are brought into contact or collision, can be pronounced as a monosyllable *and* as a dissyllable: zéiba and zeíba *arrow,* fá-i and faí *land·*

The insertion of the consonantic y before or after i is observed in many terms: ti and tíy *all;* só i, ssó-i, soy, sóyi *to run fast;* pulá-i and puláyi *rabbit;* we notice even ûyû'ngta for u-úngta *glad, satisfied;* and yíe for i-e *two.*

Length of vowel is often the result of a contraction or synizesis. When ó·dltem *head* is pronounced ó·ltem, the o may be lengthened, though not necessarily, into ō'·ltem, gú·dl *buffalo,* into gō·l, gū·l, tsato-ah·á-apo *through,* into tsátoahā'po. By synizesis ko-ibató-ule *butterfly* becomes koibatō'·le, atsá-uti *mother:* atsō'·ti.

A vowel may become long also by becoming emphasized: amuχkiabā'tsin *while he was travelling;* pá-upado and paupā'do *threefold.*

It is a remarkable feature of Káyowē, that the vowels of every word can become nasalized. This nasalization is either the one observed in the French *an, in, on, un,* marked in this article by n superior, or it consists in adding n to the vowel. Thus we can pronounce: no, nu *I, mine:* no', no^n, non, no'-on, nû, nu^n, nun, etc. Kohíko *because:* $ko^nhíko$, konhígo, $ngohí^ngo$, konī'ko. Ndómtu, *house:* (lit. "mud-house"): $ndó^n$-tu, dómtu'h. Pulá-i *rabbit:* $pulá^ni$, $pu^nláni$, puláyi.

Among the consonants, g, b and some of the dentals, as is shown in table of sounds, are also susceptible of nasalization.

ALTERNATION OF SOUNDS.

The unbounded freedom pervading the phonetics of an Indian language can best be studied in the constant permutation or interchangeability of the sounds which are produced by the same vocal organ. Speaking of the languages that came to my notice, I can state that an Indian pronounces almost every word of his tongue in six, ten or twelve different ways. This sufficiently explains and justifies the orthographies, often innumerable in their variety, of geographical and tribal names, as of *Mohegan*, *Seneca*, *Juniata*, *Kennebec*, *Skokomish*, and also accounts for the fact that words and texts are written so differently even by competent investigators, who have made linguistic studies.

A few examples taken from Káyowē, added to the statements made above, will illustrate this curious feature better than any grammatic rules can; it appears from them, that interchange exists, for no apparent cause, between the *gutturals* k, g, gg, χ, ḵ and the spirant h; between the *dentals* t, d, nd, md, and the sounds mentioned in connection with ·dl; between the *labials* p, b, f, mb. Among the *vowels* alternation is observed between a, ä, o, u, and their long sounds; between e, i, ä, and their long sounds; also between the nasalized and non-nasalized, and between the clear and the dumb-sounding vowels.

ú'hki *to travel:* úχki, û'χgi.
dù'nde-i *mouse:* túnteí-, túntei, dú^{n}tei.
ólogi *money:* ólonki, ólo^{n}gi, ólu^{n}ki, ólomki.
ndinda *ours:* ndî'·da, ·dí·da.
o·dl *hair:* ō'l, ó·l, u-ó·l.
ónsû *to start:* hónsu, ánsu, á^{n}sû.
sáwelki *mouth:* só-elki, só-elgi.
ū'm *blood:* ûm, óm, â'm.
oatám *wild cat:* ó-utam, o-ûtäm, ó-atä'm.
mónkon *nose:* mókon, mónko, mó^{n}ggon, mó^{n}ko, móko.
síb'nda *it rains:* séb'da, séb'nda, sī'bmda, sī'b'da.
táki *good:* tá·aki, tó-iki, tó·igi, toiki.

A phonology like this is observed in the majority of American languages and also in most unwritten languages of other parts of the world. The great mistake made by persons who have composed books in Indian tongues was to neglect these phonetic laws and to give to every Indian word a uniform orthography, just as they saw it done in the literary languages. When a standard orthography is allowed to act *during centuries* upon the education of a people, it will no doubt exercise some influence upon its pronunciation. But Indians do not conform themselves in their daily conversation

to the orthography laid down in the religious books printed for them; the Creek Indians, for whom books were printed in a uniform orthography over forty years ago, speak with the same phonetic freedom as before, and constantly permute the related vowels and consonants with each other. It must be borne in mind, that very few of the people who compose books in Indian languages and "straighten out" their mode of transcription, are Indians; if they were, they would observe more closely the immutable laws, which regulate the phonology of their harmonious languages.

Even the grammarians and lexicographers who have been at work on the illiterate languages have taken no notice of this permutability of sounds and other marking characteristics of phonology, or if they have, they did not regard them worth the attention which they really deserve. It did not enter into the views of linguistic purification of many of these authors to enter upon this topic, thinking that the languages of rude nations have to conform, as much as possible, with the standard of European tongues, which are not only of totally different structure, but have been polished and sometimes grammatically impoverished by a literary development of many centuries.

The scientific value of studies made upon the interchangeability of sounds consists in revealing to us the formation of the *dialects of a language* and of many other processes, the knowledge of which will enable us to solve the most intricate problems of etymologic science.

OTHER PHONOLOGIC NOTES.

Final syllables of Káyowē words terminate equally often in consonants as in vowels; syllables which are not final usually terminate in a simple or nasalized vowel.

Of other phonetic peculiarities of Káyowē I mention the shifting of the accent from syllable to syllable for rhetoric reasons, even from one vowel of a diphthong to the other: ó-atäm and o-atä'm *wild cat.*

Since the language has a tendency to monosyllabism, *apheresis* is frequent: pû'mda *spot*, ípû'mda and pûmda *spotted*. *Apocope* is still more frequent: tégi *the whole night*, for té-i giaki.

The total number of sounds is considerable; for if we count in with the short vowels those with the long sound, we find 38, and with the nasalized vowels 43 sounds, just as many as there are in the English language.

THE SISTER AND BROTHER: AN IOWA TRADITION.

BY J. O. DORSEY.

Once upon a time there was a man, whose family consisted of himself, his wife, a daughter about twelve years old, and a son who was about three years younger than the daughter. These four persons dwelt by themselves; there were no other Indians near them. The man used to go away to hunt every morning, and in the evening he brought home the game which he had killed.

One day the man killed his wife, and hung her body up in a tree. Returning home, he told the children to go to a certain tree that was close to his lodge, and there they would find a piece of venison which he had put on a stick to roast. When the children went for the meat, the man took from the lodge what things he desired, and hastened away, continuing his flight till he arrived at a village. When he reached there, he married the daughter of the chief.

In the meantime, the children had gone to the tree, and, sure enough, there was a fire, and by it was a piece of meat, which appeared to be a piece of venison. "Sit down and let us eat," said the girl to her little brother. When she pushed off a piece of the meat from the stick, lo! she heard a human voice. Looking up immediately, she saw her mother's body, lying on a bough of the tree. The cruel father had deceived his children, having tried to make them eat part of their own mother! Then the girl cried out, saying, "Oh! my dear little brother! father killed mother, and this is she above us in the tree. Let us go home." So they ran home as fast as they could go. When they reached the lodge, behold, it was deserted.

The sister having exclaimed, "Oh! my dear little brother! let us go to hunt for father," they searched all around the lodge till they found his trail. "Oh! my dear little brother! here are father's footprints," said the girl. Then they followed the trail.

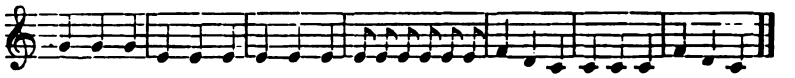
At length, after traveling for some days, they arrived at the village to which the father had fled. An old woman dwelt in a little tent apart from the rest of the people. When she saw the children she said, "Oh! never has any person entered my tent. Why have you come?" And the girl said, "Grandmother, father came to this place, so we have come after him." "Yes, my grand-daughter," said the old woman,

" they say that your father has come, and that he has married the chief's daughter." The old woman went out of the tent, and when she saw a man passing by, she called to him: " O first-born son of the family, tell the chief's son-in-law that his children have come." So the man went to tell the father. The latter told a falsehood, saying, " They were bad, and killed their mother; so I was angry with them, and came to this place to hide from them." Then he addressed his father-in-law, saying, " Ho! grandfather, let us flee from them."

Then the people of the village made boats by the great water. When they finished the boats, the chief's son-in-law said to them, " As soon as night comes, close the eyes of the two children with glue. And when day comes, let us cross the water." Then some of the men took glue, and approached the place where the children were lying. When the children were asleep, the men glued their eyelashes together, and departed. Early the next morning all the villagers went on the hunt, leaving the village without an inhabitant.

By and by the children awoke. " My sister, I am unable to open my eyes," said the boy. " Oh! my dear little brother! I, too, cannot open mine," said the sister. Presently a mouse came running toward them. When the sister heard her coming, she cried out, " Oh! you big hateful thing! Begone! Why are you running toward us ? " And the mouse replied, " Well, now, why do you talk in that manner ? I have come to open your eyes by licking off the glue. Why are you angry with me ? " " Oh! my grandmother, I did not know that such was your intention. Open my brother's eyes first." Then the mouse opened the boy's eyes; and when this was done, she opened the eyes of the girl. Said the boy, " My sister, I am going to see the great water. I am going to see those who went on the hunt." When he reached the shore, there was an old woman sitting on the sand. " Oh! dear little grandson! look beneath that on which I have been sitting." And when the girl had parted the grass for her brother, she said, " Oh! dear little brother! your grandmother has left a pile of provisions for us." Then they had plenty to eat.

And the boy said, " Sister, make me a bow, and bring me some reeds which will answer for arrows." And she brought him some. " Go to the place where the tents were, and search for a feather," said he. And she came back with some feathers, which she put on the arrows. When she had finished the bow, he said, "My sister, I am going to hunt." And he killed a small blue bird, with white spots on the feathers. He did not know the names of any of the animals, birds, etc., so when he drew near the tent, he described the bird in a song :



A free translation of this is as follows :

" Sister mine! Sister mine!
One spotted little thing
I have killed, sister mine, I have killed."

" Oh! my dear little brother! They call that the to-kre'-kre-çe," said the sister. The next day the boy went hunting again. On his return with game, he sang as follows :

"Hin'-yu-nó! Hin'-yu-nó!
Ta'-ku-ré qan'-ye i-yan'
Tc'é-ha-ró, hin'-yu-nó, tc'é-ha-ró!"

"Sister mine! Sister mine!
One large something
I have killed, sister mine, I have killed."

" Oh! my dear little brother! They call that the big bird (wild turkey)," said the girl. When he returned the next day, he sang thus :

"Hin'-yu-nó! Hin'-yu-nó!
Tá-ku-ré-çin'tce çka yiñ'-e i-yan'
Tc'é-ha-ró, hin'-yu-nó, tc'é-ha-ró!

"Sister mine! Sister mine!
Something with a white little tail
I have killed, sister mine, I have killed."

" Oh! my dear little brother! That is called a deer," said the sister. On the following day he said, " My sister, I am going again." On his return he sang as follows :

"Hin'-yu-nó! Hin'-yu-nó!
Tá-ku-ré çé-we qan'-ye i-yan'
Tc'é-ha-ró, hin'-yu-nó, tc'é-ha-ró!"

"Sister mine! Sister mine!
One large black thing
I have killed, sister mine, I have killed."

" Oh! my dear little brother! They call that the black bear," said the girl. When he returned to her the next day, he sang as follows :

"Hin'-yu-nó! Hin'-yu-nó!
Tá-ku-ré hé çé-we qan'-ye i-yan'
Tc'é-ha-ró, hin'-yu-nó, tc'é-ha-ró!"

"Sister mine! Sister mine!
Something with large black horns
I have killed, sister mine, I have killed."

" Oh! my dear little brother! They call that the buffalo," said she. And when the girl had cut the buffalo meat into strips for drying, they had an abundance of food. And when the boy returned the next day, he sang thus :

"Hin'-yu-nó! Hin'-yu-nó!
Tá-ku-ré çin'tce niñ'-e i-yan'
Tc'é-ha-ró, hin'-yu-nó, tc'é-ha-ró!

"Sister mine! Sister mine!
Something without a tail
I have killed, sister mine, I have killed."

" Oh! my dear little brother! That is called an elk," said she.

When her brother went out of the lodge, he spied a man. So he cried out to his sister, " Oh, sister! a man having on a robe with the hair outside is leaning against a tree."

" Oh! my dear little brother! That is your brother-in-law. Go after him," said the sister. When the boy reached the

man, he said to him, "O brother-in-law! let us go to my sister." "Yes," said the man, "I have come to marry your sister." Then he went with him to the lodge, and married the girl. And every day the little boy went hunting with his sister's husband, and as they were good hunters, they never failed to bring home plenty of game, and they always had enough to eat. By and by two men came to the lodge. They belonged to the party of villagers who had formerly lived there. They told of the condition of their people, saying, "The tribe is in a very bad state: we are suffering from hunger, and many of us have died."

The girl cooked for the two men, and gave them as much as they could eat. Then the boy told them to go back to their people, and take his message: "Carry ye the news to the people. Let them come back. But let nothing be given to my father. My grandmother, who was kind to us, can have this side of buffalo meat. Give it to her."

At length all the tribe returned to their former home. And the boy gave out food to all the people except his father.

ANTIQUITIES OF NICARAGUA—ORIGIN OF THE PALENQUE BUILDERS.

A Letter from Dr. Earl Flint to Dr. Engelman.

The discussion which is given in the following paper was called forth by an article which appeared in the *Popular Science Monthly* for November, 1880, by Dr. De Costa, referring to the origin of the Palenque builders, and denying the evidences of Pliocene Man. All that refers to South America I have copied from the writings of José Carlos Manõ.

A long time must elapse before the riddle of man's first advent can be solved. The history of a thousand centuries requires a congress of collators to collect it from the debris of cataclysms occurring during so long an era. Insensible transformations, that geologists allow long ages for their realization, often hide relics of the past occupants of a continent, that are again revealed by the gradual disintegration of some little rivulet, whose ripples wear away, after countless ages, the rock underneath which they are hidden.

We can well remember when the struggle commenced between the old conservative scientists and the modern pre-Adamites, and even now there are many who do not like to leave the old dogma of a European or Asiatic origin for the

first occupants of the two Americas. I cannot deny that Asia has the highest land, and when its depths are explored, they may reveal as many extinct races of animals, as our own territories, but *until then* am not bound to give it the precedence. Abrasions noted by Prof. Powell in Colorado Territory seem to have worn to a depth of 24,000 feet; and being 6,000 feet higher at their base than the present sea level; if these had remained undisturbed, they would have shown a height equal to the highest Himalayas. With us the rise has been gradual, showing a *very long time* to have elapsed in the accomplishment. The Columbia, Missouri and Colorado rivers can be said to originate in the outlets of an ancient lake, where the fossil remains of extinct animals abound—unknown in Asia or Europe. They may yet be found there, when the westward progress crosses the Pacific, and sends geologists to explore its hidden recesses.

Plants and animals have their special climate—man adapts himself to all. From remote times he has been moving about. He overruns a country and disappears; he invades another and exterminates its occupants, and like them is in turn exterminated by later adventurers. All of this mixture of races, and the remnants of their work, are left for his successors to study and ponder over, and from them trace, as near as possible, the rise and progress of each, taking the most prominent as guides to solve the progress of their "rise and fall," and the course of their migrations.

Now, if as a result of these investigations, you can find similar work of one of the dominant races from one end of a continent to another, and this work increasing in excellence as you proceed, no doubt will remain of its source or origin.

Facts of this nature are being accumulated relative to the origin of the ancient races of this country which may upset the hasty conclusions of De Costa, who wishes to give the days and date of their European advent. He says: "The races that rose to wealth and power in Central America did not succeed any rude spear maker." According to this view, the civilization of the original European was born with him; he had no struggle through long ages to reach the top; his hammer and chisel were found ready made, and he had only to grasp them and make his model Venus. He says the Spaniards conquered a people "who had themselves figured in the role of invaders." He does not believe these were descendants of any indigenous race. He speaks of a submerged continent to the west, as a mode employed by some for explanation. Here I agree with him, partly. Why should the so-called Pliocene man of this continent, under similar conditions of climate,

not go on progressing in the scale of civilization, as well as his European neighbor? There is evidence on the west coast of Nicaragua and Costa Rica of a submergence of land, under the Pacific, whether a continent or not, I am not able to decide, but on the strip left at Nicoya jade has been found in abundance. That it comes from the *west* has not been disputed: it is rarely found in the mountains or among the hill tribes. If in former epochs an "equatorial belt" extended across the Pacific, it would explain this and many other enigmas not yet solved. Thus far it seems that the hill tribes did not mingle with those of the plain and coast.

All of the old and new investigators who swarm around Palenque and its neighboring ruins, if they confine themselves to that limited field, will never arrive at the true solution of the origin of its builders. They must traverse the Cordilleras from Mexico to Bolivia, where they will find inscribed on the eternal rocks the rise and progress of a race whose labors culminated in the neighborhood of Palenque and Esquintlar. The workmanship seen on the tablets of the latter are more complicated and better executed than those on the monoliths of New York and London, and had an equal amount of money been expended on American research, more astonishing results would have been reached.

Let us now see what Manõ says. "Starting at Samiapata, latitude 17° south, at an altitude of 12,000 feet, near the apex of the mountain, inscribed on the rock in relievo, is a disc, on which is also sculptured in relief the figure of a jaguar, cougar or oncelot; a little higher up is a similar disc of the same dimensions, a grotesque imitation of the first, and more coarsely and barbarously executed, proceeding from it is a double series of lozenge-shaped feet, delicately and admirably executed; incompatible with the gross inscription of the former, all terminate at a species of throne supported on the four feet of a bird of prey, surrounded by a circular line of seats, all conjoined and formed from the body of the rock, perfectly pencilled, on a species of sandstone, that from exposure has acquired the hardness of granite."

Surrounding this species of platform that forms the top of the mountain, are eight half-spherical holes, about a yard in diameter, communicating one with another by small canals. Similar ones occur in *all* archæological stations to the northward. At the foot of the mountain in front of a level plateau, on the rocky face are excavations, or niches, mostly covered by alluvium. Underneath it, and among the stones forming the habitations, are inscribed tablets representing the *same personages similarly made* as those on the lateral rock, around

niches at Chiriguanes, territorio del Chaco, less elevated, and separating the latter from the former, *all identical* with those on the murals of Palenque.

Here the Indian Hercules, grasping his macana; the kings, with sceptres pointed like the bill of a bird (which M. Brasseur mistook for a Brahman); the head of the Danto (elephant, according to Stephens); the divinities, belted with decapitated heads, ornamented after the style used by the ancient Egyptians (see note [1]); galas of condor heads, extravagant hieroglyphics—all are found there, but all rudely made, and coarsely executed. The likeness of these barbarous scratches on the rocks, compared with the beautiful stuccoed monuments of Palenque, is what one would observe between the poorest military lithographs of Epinal and an engraving of Charlet, or a painting of Horace Vernet.

At Sicca-Sicca, with an altitude of 4,300 metres, in a tunnel-shaped depression, common in the higher Andes, inscribed on the rock, a repetition of the greater part of the images seen at Samiapata occurs, mixed with others in relief, but better made, showing real progress in the art of this primitive people.

Here are also sepulchres, in no way resembling los shulpas ō huacas Inca-secas, that are generally made on the surface, oven-shaped, without mortar or cement of any kind.

Each of these tombs required immense labor for its construction. The admiration of the observer is inexpressible, when, on looking at them, he remembers that the people who completed this immense labor were entirely ignorant of the use of iron.

All of these sepulchres are in form of a square, and face the East. Cut to a slight depth in the rock are various tunnel-shaped excavations on the face of the rock, with a longitude varying from 0.75 cs. to 1m. 25 cs., terminating in a vault where always occurs a limited number of human skeletons, whose skulls indicate two races radically distinct, one a superior race, with a better conformation than one might expect in a legotrix race, the other an inferior race, with an enormous development of the lower jaw, showing one of the lowest grade of human beings. In some of these tombs are found inscribed on detached pieces of trachyte and porphyry figures of the llama, condor, winged snakes, Dantos with a

NOTE 1.—The belted Deities spoken of at Samiapata, have been brought to perfection in the beautiful tablets at Esquintla, admirably figured by Habel in the Smithsonian Contributions to Knowledge, No. 269, where we have a profusion of them with their supplicants, whose gestures are admirably expressed, where the notably distinct hieroglyphic signs of the *supplicants*, from *those* of the Deities, undoubtedly represent occurrences of a nation long since passed away, leaving these sculptures as a record for us to decipher, a task more difficult than those on the Egyptian monoliths, gazed at for seventeen centuries ere their meaning was explained.

development of trunk not unlike the Paloxeterium magnus restored in the Paris museum. There is not found in any of these tombs a single emblem of sun or star, nor any object in gold, nor gems, or any of the precious metals.

The ruins of Tiaguanaco, so often described, are nothing but a faithful reproduction (here sculptured on blocks of stone of enormous dimensions) of the large animals inscribed on the solid rock at Samiapata au Chiriguanes, less the figure of the Caiman, first seen here. In one of the excavations made by M. Berth, I saw an ancient tomb, that is to say, pre-Incan; without surprise and with great satisfaction I again saw the presence of the two races, whose peregrinations should be studied in this part of South America—whose traces are found from the portion of the Chaco Argentina to Cali. The quarter part of the skulls at first sight, presented a superior organization, a sensible resemblance to the ancient Mexican. The horrible skulls of the inferior race, that were enslaved by the other, I again encountered—the narrow, convex forehead, and the beastly development of the lower jaw, that would give a facial angle a little above the simian. In vain M. Berth and myself tried to preserve them, but on exposure they crumbled in pieces. M. Berth took away an inscribed stone, similar to those at Samiapata, representing a King, dressed in a species of Dalmatia, with a sceptre in each hand, tipped with heads of the condor, under whose feet are various supplicants. It requires much attention to recognize this, in a work so barbarously made. In one of the beautiful stuccos of Palenque, reproduced in the work of Brasseur de Bourborg, is a scene absolutely equal, as regards the personages, but incomparably much superior.

All around the borders of Lake Titicaca, are found remnants of a remote civilization. These are distinguished with great facility from the Incas, as they are generally covered; and wherever encountered in other places, aside from the rock, are surrounded on all sides with stones and of slight depth. Exceptions to this are seen at Cah Columbia, where the depth is from 8 to 11 varas, but there no stones are used. In Nicoya Costa-Rica the writer has seen a similar mode of burial, also at Teustepe, and on the coast of Nicaragua, where sides, bottom and top are covered with rock. Pottery and metals and ornaments also occur, and now and then large urns with the entire skeleton in a sitting posture—probably some chief.

Inscriptions on the rock at Vilcocayo (Peru), also occur, the same as those described, but no sepulchres; but in a region lower down at Hachumayo I encountered tombs in natural

excavations of the rock with bones of both races similarly. placed as those at Telimbela, in Equador; also near Diezmo (Peru), the same artificial caves and bones of both races. Near Telimbela, on a small calcareous sierra, filled with natural caves, the immense exodus had converted them into sarcophagi, with an extraordinary pains to conceal them, and had it not been for having rains during the three previous years, they would not have been seen. Not far from this place is an enormous block of dark sienite, artificially flattened on top, sculptured on its lateral faces which show the salient angles (see note 2) left at its fall from the mountain, where it constitutes the primitive formation of Chimborazo, according to Humboldt. This stone is but a repetition of the altars in the major part of the stations of the exodus, followed up from the borders of Bolivia and the Argentine Chaco, but the general form of this resembles greatly the so-called sacrificial stone, figured by M. Nebel in his Antiquities of Mexico.

Unlike those found at the other stations, the 8 holes on its top have no communication, one with the other,—although the number is exactly the same, their disposition is different. Here 7 in a circle surround a central one of much greater capacity. Among the coarse ornamentation surrounding them are seen the same coarse and monstrous imitations of human heads, winged serpents,* birds and animals of indefinable forms. The lateral inscriptions in relief resemble those on the Mexican stone. A warrior whose head is adorned with that of a condor, holds in one hand a species of javelin, and in the other an octave shield (noticed here for the first time), and whose nasal appendage (see note 2) supporting a large ring, is of enormous dimensions, stands on the prostrate form of another warrior, the same as at Samiapata, Chiriquans, Sica-Sica and Tignanaco, in the attitude of a suppliant.

At Ibambuna, altitude of Huaca, is another Necropolis, with sculptures on the surface, and in relief, that continue along the hills, near the top of the heights of Boliche, near Tulcan; another occurs near the frontier of Columbia. From here I could not find any signs of the ant-like emigration until reaching the Cordilleras near Cali.

At my first study here I was submerged in a sea of perplexity, owing to the excavations. Although square, they were not made facing the east, and the terminal caves were much larger after leading through the usual narrow passage, and though not arched with slabs (scarce in this neighbor-

NOTE 2.—The nasal prominence in the rock inscriptions found here, is not often seen in profile. In three drawings, Nos. 108, 124 and 150, from Dead-Man's Island, separated by a channel (that bends into the main island) from Zapatero, it is seen, but without the ring, in all its deformity.

hood) but not alone this fault of the slabs—various other circumstances upset all my ideas about the remote antiquity of these sepultures. In some that had been violated, and in some I saw opened, I encountered gold toads[8] (a religious emblem of Zipas), suns in alloy of copper and gold, needles of copper, and also of pure gold, adornments made of a hard nut, which I have seen in use on the Auracanian plains of the Chaco and Paraguay. Owing to the humidity of the soil, few bones were found in many of the sepulchres, yet a considerable number of skulls preserved in some of them showed a uniform type. Although pyramidal in form, they were still highly superior to those until now found in association in all the former sarcophagi visited, and, as stated above, I was in a sea of doubts and perplexities, but soon had the luck to solve the enigma. In all that region, and the tierras of the Chulpas of Peru, live a class of men called Huaceros, whose profession is to violate these deep sepulchres in search of the gold ornaments found therein. One of these informed me that higher up on the Cordilleras similar ones occurred, but poor and completely disregarded, as they yielded no gold, only images in burnt clay and engraved stones. With no great admiration of this new species of miner, I was thankful for the place he had indicated, as the location of the poor ones was precisely the object sought. At sight of two or three, placed mathematically to the east, opened probably by mistake of some huacero, I was at the point of shouting Eureka, like the ancient discoverer. In these sepulchres I encountered the bones of the two races, with the beastly prolongation of the lower jaw and the distorted tibia of the inferior race, and the well-formed skull of the superior race; also images in clay with the type of nose prominent and similar to all of those found in the sculptured figures of this race, in all the territory traveled, the same that took the attention of M. Brasseur de Bourborg and all ethnologists; still seen in its purity among the Jibarros on the frontier of Bolivia and Brazil, and occasionally among the Burgos of the Argentine Chaco. What had perplexed me was that the pre-Columbian Indians, Jamundis and Pijas, had followed the trait of all the South American Indians to imitate all they see, and copied in the sepultures the ancient structures of their predecessors. Nearly all the Cordilleras half way up are covered with this coarse sculpture, in long stretches, at each station, from the Argentine Chaco to Cali.

Travelers, among them Baron Humboldt, and over all, the erudite Columbian Acosta, speak of similar sepulchres in the central Cordilleras (here in Nicaragua, near the summit), and

I formed my belief, that at one or two degrees south of Cali, the exodus where it leaves the edge of the Pacific, to return to the loved highlands, is divided into two currents, one in a direction to the north of Colombia, or perchance to Venezuela, by Antioquia, engendering the civilization whose remnants were encountered by the Spaniards on entering the territory of New Granada from the sea; the other by el Chaco and Panama Isthmus, founding in Central America and Mexico the civilization culminating in the construction of Palenque, Uxmal, Copan, etc., whose trace and history are blotted from human memory, that may have begun its new birth, with more strength in Mexico and Peru at the time of the conquest.

The grotesque imitations of human heads is very common, and is always seen where a profusion of inscriptions occur in the caves and on the face of the rocks and cliffs. The winged serpent was seen inscribed on a detached block of granite, broken in two and partly buried on the banks of a stream, at San Rafael. The cuttings were deeply furrowed and coarsely made. It has an animal in its mouth, grasped by its head (fig. 42). On Dead-man's Island, animals with trunks also occur, and grotesque forms not easy to define. One of the group has a very long neck (figs. 116, 118, 120). Also on this island are found what I have thought were representations of the octopus, one with seven, the other with nine tentacles. Here the evolutionist may explain the odd number of the tentacles (figs. 136, 147). No. 126 seems to be a grotesque representation of the bird in the act of swallowing a human head, improved in Habel's delineation, where a bearded warrior is suspended from its mouth—head and arms pendent—in his gala dress and head adornments, so noticeable in all the Esquintla tablets. On the same island I saw for the first time lines of stars used in delineations. Near by, on the mountain of Membacho, on a large detached volcanic rock, is another instance, and undoubtedly made by the same people. Here I saw pottery, with various rayed stars, made by indentations on the inner bottom, but it is of a later period. Figures referred to are at the Peabody Museum private numbers. The island was in times past connected with Zapatero. The soil on both was quite deep in places, and on the latter in the woody part are many idols. (Figured by Squiers.) The small island, after being deprived of its wood, has been in places denuded by rain, revealing the inscriptions. Some are nearly obliterated, others, partly covered, were revealed by removing the remaining soil. In places are found the shoe-shaped jars, so abundant on the main island as to give to it its name. On the latter, I found an image of copper and gold, and a bead, also

alloyed, both at the National Museum. Rock inscriptions, *partaking* of the character of those mentioned by Manõ, are seen on the summit of the Cordilleras, and on the mountains about Teutstepe. Many are being obliterated, and only a general idea of what they were can be formed. Among those on the Cordilleras the cross or star spoken of by Manõ has been found in various places well preserved (see figs. 60-66 at Peabody). With a single exception I have found no sepulchres here hewn in the rock. Whether they will occur in other explorations remains to be seen, or whether this neighborhood was only occupied by a branch of the main stock, or the disappearance of them at the upheaval or some cataclysm, we must wait and see.

One *natural* cave in the neighborhood of Teustepe is worthy of note, as it contains a numerous collection of human bones, assorted, and from a few sent to the museum, I think there are two kinds. Skulls placed by themselves were found in the outer cave, or mouth. The inner cave was so ingeniously concealed that I did not see it—filled up with a cartload of ribs—and so narrow as to preclude an idea that it was a passage. Afterwards the guide (thinking that I was in search of treasures) visited it and crawled in, found more skulls, and *each* one was enclosed in a calabash, and a mummified entire skeleton was found, on the bed of the cave. He brought me the skull, and one tibia and humerus of the mummy, also a wooden seat, used at the time of the conquest for a seat and pillow. On the last skulls pieces of brown hair were found. From these circumstances, I think the cave was re-occupied. What called my attention to the antiquity of the skulls found at the mouth was a piece of wrought fossil shell ornament. The outer cave was protected from moisture. The rock is quartz, and no moisture can penetrate the cave.

The golden toad mentioned by Manõ was common in this neighborhood in the mounds opened, and as I had previously advanced the opinion of a southern immigration to this region in explanation of *one* of the different occupations of Nicaragua, this ornament so common in Colombia would go to prove it.

As to the existence of man on the Pacific slope, during the Pliocene epoch, affirmed by Professor Marsh, and the proofs adduced by him, considered as a "little shadowy" by De Costa, I now present a few facts.

Let us look at one or two of the caves, about six miles from here, at San Rafael. One called "San Andres" contains *self-evident* proofs of human labor on its elaborately inscribed roof, made *before* the formation of the sedimentary rock of the neighborhood. The nearly flat roof extends across the

head of a small ravine, the front face from twelve to eighteen inches in thickness, wrought with vertical indentations, about three inches in width, nearly worn away, top covered with turf, with only a light slope to the adjoining, nearly level plain. The roof-facing was worn away by the rain dripping over its edge, and as the rock is of flinty hardness, a very long time would elapse for its destruction. The ends and back of the cave were found resting on four layers of sandstone; the central part had been removed to shelter caves by the father of the present owner; we had to remove part of this in order to enter the cave, as the height was only sufficient to allow us to enter on our hands and knees. In removing the three layers from top, near the north side, we found imprinted on the lower layer tracks which appeared to be those of a species of wolf. The lower layer was about five inches in thickness, resting on a compact drift of coarse sand and stones that lay on the bed-rock. The three upper layers were from four to four and one-half inches thick, and at the ends and back supported the roof. The inscriptions extended into and above them, and parts of three were purposely left in that way, so that subsequent visitors could verify the fact. The seams in the layers of sandstone were easily separated; the three upper ones had no impressions of birds or animals like the bottom layer. [Imprint of animal footprints sent to Peabody museum.]

The next step was to find out when this sandstone was formed. In order to solve this, I explored the neighborhood thoroughly. The hills were in many places denuded of the sedimentary rock on their slopes; others had been cut through, and on the fractured face were found fossil leaves, underneath on the banks beds of fossil shell; the latter also occur on the slopes of denuded hills in superficial beds segregated, becoming more compact as you descend, showing at once that the limestone had been formed from them on the ocean bed. This immense bed of limestone covers a great portion of the district, and crops out in the Toba hills west of Rivas, where its *fissured* ledges show that it was thrown up in some convulsion, probably of the upheaval of the coast range.

When the latter event occurred, an inlet of the sea formed the present lake of Nicaragua, and extended north of it to the base of the mountains near Teustepe. Ometepi, Zapatero and Mombacho, the Rivas plain, and a strip of land from Bocano to San Rafael, were undisturbed. Nicoya, in Costa Rica, was also exempt. West of San Rafael, and also near Cafares, rock inscriptions are seen at low tide, showing a submergence under the Pacific, already noticed.

The hills to the northeast of San Rafael formed the northern barrier of this ocean inlet; here, also, the cave-dweller had left roof inscriptions, with an abundance of shell fish near by, no thought of famine disturbed his labors. These shell fish are still seen in immense beds, overtopping the limestone rock; and among them numerous species, some resembling those of the "Dakota group" figured by Prof. Meeks. Here a species of oyster predominates whose average length is from fifteen to eighteen inches, mostly *in situ* with their contents entire, showing a sudden burial under the sediment of the sea rolled over them in enormous masses, as the higher hills to the east sprang into existence, the same now known as the coast range. Their sudden upheaval shut in the water to the eastward, forming the present lake.

This ocean sediment was forced back against the beach, north east of San Rafael, overtopping the cave dwellers and settling in the inequalities around and above them, where it is still seen. The little rivulet running from the hills to the east, has, after a lapse of ages, worn away the rock down to the old ocean bed and uncovered these records in the rocks to show us the handiwork of our predecessors, who toiled in this cave secure from danger, and without fear of want looked out over the ocean watching the monsters of the deep as they disported around them, delineating them on the roof of their habitation; animals whose fossil bones alone remain to us as a testimony of that remote orb.

Returning to the cave of San-Andres, I found to the eastward a high bluff, at whose base now runs a small stream, bending around the land on which the cave is located, passing the terminus of the shallow ravine, not far from the cave. Now, a sudden upheaval to the north and east of the cave, from out the sea, would cause the retiring waters to pass over and flood the cave and disappear in the Pacific, cutting a channel more or less deep, which at the first inundation of rain would serve as its outlet, reinundate the cave, and leave the sandy deposit, forming the first layer over the debris left by the retiring sea wave. The water naturally following the same channel and deepening it, cutting through the soil in four or five years, would reach the rock, depositing a layer of sand each year. At that time the cave would be exempt from inundation, a solution arrived at on my return. The present bed of the stream has cut its way far below through the rock.

I see no other way to account for the formation of the sandstone in the cave. No other sandstone is found in the neighborhood. The present sedimentary rock, plastic at that time and easily disintegrated, would furnish the material depositing

its heavy particles. I have no doubt of its derivation from this source, when in a plastic state immediately after the upheaval.

In support of its plasticity, impressions of a tiger's tracks in line with those of a man, and an animal of the wolf species are seen, and rising the slope about six leagues above San Rafael, the imprint of the man as he jumped a small ravine in pursuit or pursuing the tiger. Human footprints and those of the tiger can be seen at Piñon, on the nearly flat bed of the Rio Grande, near the border of the stream. The tiger seemed to have turned about a number of times, the prints are sharply defined, the rock is extremely hard, of light slate color. The human footprints are less distinctly marked. One each of the footprints were drawn and forwarded to Prof. Putnam, and a small piece of the rock. The fossil shells and sedimentary rock, with a vertebra of large dimensions (height 7, diameter 12 inches) were sent to Prof. Baird, who laments the want of one to do them justice at the museum, owing to the death of Prof. Meeks.

The cave of Riachuello on one side has an elaborate figure of a caiman. Joining its terminal end is a nearly square inscription, broadest at its base, in whose centre, among other inscriptions, is again seen the figure of a large bird. Over the back and tail of the animal are two groups of five holes, and one single one at the terminal of the tail (or inscriptions where it turns up and back), drilled into the rock. The central hole has a depth of twenty-four inches in each, the four others surrounding it ten inches, the isolated one ten; all are evenly drilled. The rock has a hardness equal to quartz. On the ceiling of the cave appears an isolated bird (we will call it a condor), with extended wings, made up of lines turned at acute angles that preclude the *possibility* of their having been cut with a stone ax. (Fig. 36 at Peabody.)

This, with other fair inscriptions, show that they were made by neighbors of those at San Andres; but here others of a later period are seen, greatly inferior, similar to others in *all* of the neighboring rocky ravines; one with two heads, one at the middle, the other above to the left, with a bird perched to the right, scepter like, on a line from the right side and joining it.

If any similarity in these inscriptions to those of South America, can be verified by subsequent comparison, I do not think any improvement will be noted. Those on Dead-man's island and about Teustepe are most barbarously executed. Those referred to in the Riachuello cave and in the rocky ravine below, were made by *re-occupants*. Those made first

were the finer ones. In searching for the sepulchres of their authors, I have sought in the mounds near them, and in other places, for similar figures on the pottery, and for the shell-fish they used as food. The latter is more certain of the two, for although I have found inscribed pottery (west of Rivas), it seemed to have been buried with other ware, although one shallow, bottomless dish, so different from the rest, must have been buried as a *relic*. One mound on the plain not far from San-Andres, at first view, seemed to explain the matter to a certainty; on its upper surface were innumerable chips of quartz, broken celts, arrow heads, &c., showing that it had been selected as a workshop by a *so-called* Palæolithic people, but what was our surprise on excavating, to find shells in a preserved state, and fine pottery of a *so-called* Neolithic people. Now this was turning the scale on all of our former notions about the old settlers. As the mound could not have turned a somersault, we gave it the scriptural interpretation—"The last shall be first"—for there was *no* connection between the chips above and the shells and ware below. I opened with great care five excavations to verify it. Specimens of both are at the Peabody Museum, P. No. 100 and upward. The hard clayey soil of the original mound, probably of considerable height, mistook for a hill by the last occupants and abandoned, has gradually worn away after a lapse of ages, and brought the labors of the two races in close proximity. The shells in this and the neighboring mounds were too much decayed to verify. Some few of the whorled shells in existence could be made out. Let us retrace our steps. I found on the beach in 1875, a few miles below, shells imbedded in the rock and among the broken cliffs, called by me at the time, after the location "Bocana Group," in which are included those at San Rafael. Also at Costa-Rica, at Cubibra Bay and Nacascola, accompanied by Dr. Bransford, I found numerous fossil "shell heaps," associated with human remains buried in their centre, and surrounded with stones. At that time I asserted to Prof. Baird, my belief of their connection with the "Bocana Group," still I was not able to deny that the sepulchres in the shell heaps *might have* been placed there by subsequent occupants. But one prominent fact looms up here, and that is man's existence here *previous* to these fossil "kitchen middens." Remnants of his handiwork are now lacking to complete the chain of evidence, and we find it in the old mounds on the Rivas Plain, where, at their very base are found pieces of wrought shells; one piece was a section of one of the whorled shells found at Bocana, and near the Riachuelo cave, while a similar one was found with a hole drilled from end to end, in the burial cave of Teustepe at Cucirozna.

The mounds on the Rivas Plain contain fossil bones of small animals, and under a piece of broken pottery found at their base, was covered with nodules, figure shoe shaped, like that near by at Zapotere, but more primitive; the celts similar to those found by Dr. Abbott, but here the top of the mounds were covered in one instance, with fine ware, broken, in no case entire, used only for habitation. This country has been so often re-occupied and so superficially explored, that many facts to complete partial investigations are wanting, and from the meagre collection at the disposal of Prof. Putnam, he wisely withholds from publication. Of the rock inscriptions he has not a tenth part of what occur in Nicaragua. At first he did not seem to give them predominance over other antiquities; while from the first they appeared to me, in connection with the idols, as the only positive proofs, or in other words, the only reliable ones from which to draw deductions of the antiquity, origin, and migrations of primitive man. They cannot be transported nor exchanged like pottery, although I hold this of great importance to prove his handiwork. It is so intermingled here, that it is hard to discriminate the authorship of associated pieces, widely distinct in make. Have seen but two instances where the line of separation was complete. The first, in the mound of San Rafael was the most remarkable, where the order of succession was reversed; my late friend Dr. Berendt urged me to drop the use of the terms Palæolithic and Neolithic, as of no significance. There it seems he was right, and my letter to him at Esquitla notifying my confirmation of his views was on its way when he was entering the portals of death.

Now I have stated but few of the proofs to be found here, among the debris of past ages, of the succession of races; yet they are prominent ones, and can be verified by any one who will take the trouble to look at them. They may be a "little shadowy," but the shade they cast can be seen, "until another cataclysm overwhelms them."

THE ORIGIN OF THE ARCHITECTURAL ORDERS:

COMPARISON BETWEEN THE HISTORIC AND PREHISTORIC WORKS OF THE EASTERN AND WESTERN HEMISPHERES.

BY STEPHEN D. PEET.

The study of the architectural orders is the one which we have set before ourselves in this paper. We propose to follow it in connection with the prehistoric works of America. By analyzing these and tracing them through their different stages of growth, we may discover what are the essential elements in these orders, and so gain many hints as to their origin.

This study has, to be sure, generally been confined to historic countries, and the effort has been always to trace the various architectural forms and styles back to the early historic period, and there to discover the sources from which they sprang. The difficulty has always been, however, that about the time that students imagined that they had reached the beginnings or first stages, the tokens had disappeared, and so they have lost the clue. The prehistoric works of America, however, carry the subject back much farther. They, in fact, fill up that long gap which appears between the historic and prehistoric works, and present such a connected series that there is a complete line of progress from the most primitive condition up to the very beginning of civilization and history.

It has been the great effort of scholars to discover the links which might connect the historic and prehistoric works of Europe and Asia, but the effort has thus far failed. The archæological discoveries made in Greece, Troy, Assyria and Egypt have, indeed, carried the history of architecture very far back toward its sources. So, too, the researches and explorations among the prehistoric works of Europe and Asia have brought up the line of progress, so that the gap between the two has been lessening, and we now find the architectural series found on this continent overlapping that found in the Eastern Hemisphere. Though this series is strictly architectural from its beginnings, yet it may be said to overlap the series of unarchitectural tokens in Europe, for there are structures on this continent quite as primitive as those found among the prehistoric works of Europe. There are, also, on the other hand, specimens of architecture among the prehistoric works here, especially among those found in Central America, which are certainly quite as far advanced as some of those which are discovered in Egypt, Assyria, Greece,

or India. If we take, for-instance, the rude hut of the savage tribes, and compare them with the lake-dwellings of Switzerland, or, if we take the stone cysts which are found among the mounds here, and compare them with the Dolmens and Cromlechs of England and France, we shall find that at least two stages of development overlapped one another. So, too, if we compare the pyramidal and columnar works of Egypt and Assyria, with the similar structures found in Central America and Mexico, we discover at least two stages overlapping one another on that side.

It would be interesting to follow the subject up, and to note the resemblances between the various works, both historic and prehistoric, found in the Eastern Hemisphere, and those found on this continent, and so show how small a gap there is to fill up, but this will appear at a further point in this paper.

It is sufficient to say that the prehistoric works of America confirm the opinions and positions of scholars who have been studying the structures of Europe and Asia, especially as to the growth of architecture from primitive forms and the development of historic from prehistoric stages. We might say, also, that there is a much clearer and more definite picture of the different states of society, which probably prevailed through the later stages of the prehistoric and the earlier stages of the historic periods, given to us by the works which are discovered here, than can possibly be secured by the study of the relics or works found in Europe and Asia. We certainly know but little about the Palæolithic Age in Europe, and if we confine it to the tokens given by the gravel-beds in this country, we know still less. When we come to the Neolithic Age, we discover a series of tokens on this continent, which furnishes a sub-division, so that we may see successive stages of development, which makes the Age much more significant and fertile in results. If, however, we take the study out from the range of archæological relics, and direct it toward the architectural structures, we shall find the successive stages when we cannot find them in the relics as such. By analyzing these different structures and comparing the stages of development with the states of society which we know to have been associated with them, we are able to identify the architecture with the cultus, much more clearly than we can the relics, and so we have, in the architecture, a better representative than we have in the archaeology alone. To illustrate; we know that the rude hut represents the hunter stage; the earthwork represents the agricultural state; the adobé building represents the village life; and the carved and sculptured stone structures represent

the civilized or semi-civilized condition. The architectural structures certainly present to us a much more graphic picture than the implements can do, for the same relics appear throughout all these stages, and are associated with all the grades of society, with but very little variation, while the structures are closely correlated, and in their characteristics vary according to the cultus. In Europe, the material of which the relics are composed becomes significant of the cultus, but in this country it expresses nothing. The Stone Age and Bronze Age are not recognized, for the material of the implements is the same in all parts of the country, and under all grades of cultivation. Stone is the material which is characteristic, for nearly all the implements, whether found among the Mound-builders, Cliff-dwellers or civilized races, are made of stone. Even the copper which was associated with many of the structures was not peculiar to any stage of society, for it was in use as much among the savage tribes as among the mound-builders. Bronze has been found associated with the works of Mexico and Central America, but Bronze on this continent is certainly expressive of a very different condition of society from what it is in Europe, for here it is associated with the sculptured stone edifices and is indicative of civilization, while there it is associated with the Lake dwellings, and is indicative of a stage but little removed from the savage or hunter state.

There is this advantage in taking the architectural structures to represent the stages of cultus, that we get rid of the word "age," and so have no confusion from that source. We do not know which was the first and which last, the rude hut, the earthwork, the stone structure peculiar to the cliff dwellings, or the more elaborate buildings found in Central America. We have all the stages preserved to us, even the structures which were made of the most perishable material being still found, and, in fact, in daily use. Those stages of architecture, which, owing to the perishableness of the material, have, in other countries, been lost, are here preserved in great freshness and definiteness of detail.

There is no doubt, then, that America furnishes unusual advantages for the study of architecture in its primitive stages, and that here we may ascertain, if anywhere, the origin of the architectural styles.

We now turn to a consideration of the styles, as they are discovered in America. The history of architecture involves the study of the different parts or essential elements found in every structure. These elements are common and essential, and the growth of them ultimately constitutes, in reality, the

history. Even the architectural styles and orders may be said to be dependent upon the development of these integral elements, which are so essential to a structure—much more than they are upon the ornamentation, or the mere exercise of the taste. This may be different from the commonly accepted opinion, but I think that it will be seen when we come to analyze the various styles and orders which have appeared during the historic ages. It does not appear so much in the study of the Greek orders, for these seem to have been more matters of taste and ornamentation, and a single architectural element, viz.: the column, appears in all the orders, the difference being found in the different styles of finishing the column. The history of architecture, however, must involve something more than the history of the column and its ornamentation. There were certain systems or styles of architecture which prevailed in Egypt and Assyria before the column came into use. There were also styles of architecture introduced during modern history, in which the column bears a very insignificant and subordinate part, so that, unless we rule out all those structures which were known to the ancient Egyptians and Assyrians, as not being architectural, and unless we take the position that the Gothic style was not an order, but was something different and outside of the history of architecture altogether, we must conclude that there were other elements which entered into the development of architecture beside the column. I know that there are many professed architects who deny that there are any orders except such as come from a variation of the column with its fixed proportions and shapes, but I maintain that if we are to understand architecture in its growth and history, we must look to its integral elements, rather than to its ornamentation. In a technical sense there may be only the three orders which may be supposed to have originated in the different Greek provinces, and which derive their names from them, and that the other orders are only results of the combination of these three. It matters not, however, whether, as architects maintain, there are three or six orders as such, whether we admit the Tuscan and the Roman and the Composite into the list or not, for with the subject of architecture in its technical sense we have nothing to do. It is architecture as a science that we are now studying, and not merely as an art.

We maintain that there are integral elements in architecture, and that the pyramid, the pier and lintel, and the arch have served an important part in the history of architecture, as well as the column. In fact, these have given their char-

acteristics to the different national styles, much more than the column has. We know that the Egyptians had a style of building which was peculiar to themselves, and we know that the pyramid was the structure which was peculiar to Egypt. If we analyze and study the subject, we shall find that the Egyptian style is owing to the pyramidal shape which appears in most of the Egyptian structures. The perpendicular column and the rectilinear wall are, indeed, found in Egypt, but it seems to have been an intruded style, and that which is characteristic is owing more to the pyramidal shape, both of the walls and columns, than to any other feature.

In the Assyrian edifices, on the other hand, we find the pier and lintel to be the essential elements; the peculiar square and angular appearance of all their structures being owing to this, though we find in Assyria traces of both the column and the pyramid. Many of the palaces of Assyria were erected on lofty platforms or stages, and the early Babylonian temples were built in the shape of terraced pyramids, but the pyramid rarely entered into their structures as a type, and did not affect their style. There is no doubt that the Greek column was borrowed from the Egyptian, but the Greeks never used the pyramid, and very rarely used the square pier in their structures. The rounded column was the element which gave its distinction to the Greek style. The Romans borrowed the column from the Greeks, but they passed on from this to the use of the arch in their structures, and the peculiarity of their style was that it was a transition from the column to the arch, the columnar style retrograding, but the arch not being perfected.

The Gothic style was introduced after the Roman, and this is owing altogether to the arch, which appears in its perfect state. Now, if we are to know the history of architecture, and to understand the origin of these different styles, or orders, we shall need to study these essential elements, which we have seen to be embodied in these various structures. The arch, the column, the pier and lintel and the pyramid all need to be studied in their history, and to these particular elements we now call attention, especially because America and her prehistoric works throw much light upon them in their origin and development. The students of architecture have long sought to trace these different forms to their primitive sources, and to show through what different stages they have grown, but the effort has proven unsatisfactory. The tokens have perished. What they seek for, however, in the historic monuments of the East, they may find in the prehistoric monuments of the West.

It is probably well known that all of these forms, the arch, the column, the pier and lintel and the pyramid are found in America. They are found also in their various stages of development, so that if we would trace them to their very beginnings, we must study them on this continent. We speak of the arch here, not that we claim that America presents the arch in its perfection, or that even the principle of the arch is exhibited here, but because the most primitive form of the arch is prevalent, and because the history of its development can be studied on this continent better than elsewhere.


Arch found in South America

It should be said that the arch is found in America in those various stages of development which enable us to carry its history back very much farther than is possible in Eastern countries. Its latest development here presents to us a form resembling strongly the earliest form found in Eastern countries, while its most primitive form here is scarcely more advanced than we find it among the prehistoric works of Europe. One of the earliest specimens of the arch is that found in Mesopotamia, and which probably belonged to the period in which Abraham lived. We refer now to the vaulted grave-chamber which is found in the Tower of Mugheir in Mesopotamia. This tower was erected, certainly, as early as 2230 B. C. There is, however, in the palace of Uxmal, a vaulted room which presents the most striking resemblances to it, the only difference being that the vaulted roof is perfectly smooth, the corners of the stones having been beveled off, while, in the other case, the corners of the stones are left projecting into the room, and the ceiling thus presents projecting angles instead of smooth and solid surface.

These two vaulted chambers are interesting, since they present the arch in the same stage of development, formed in either case by the layers of stone overlapping one another, and so meeting at the top. The difference of time must have been at least 3,000 years. The date of the palace at Uxmal is not known, but it is comparatively modern. It is, however, the best specimen of the form of the arch existing in America.

Perhaps a more primitive form is that found in the Algonquin huts (see p. 310), which are not made of either stone or adobé, but are wooden frame-works, covered with mats or skins.

ARCHED ROOM AT UXMAL.

It is probable, then, if we were to look for the primordial form or germ of the arch, we could go no further back than this, and our conclusion is that the form of the arch must have been derived from some such aboriginal structure, this shape being very common among the rude and primitive stages of society everywhere.

Algonquin Huts. (See page 308.)

This form of the arch is, in fact, scarcely different from the conical buildings, which are supposed to have been erected on the platforms of the Palafittes or Swiss Lake-dwellings, and resembles the rude huts which are found in Africa, and among savage races generally. Now it is remarkable that one of the earliest structures in Greece, namely, the Treasury of Atreus at Mycenæ, presents nearly the same shape, that of a cone, resembling a modern lime-kiln. The same shape, also, is found in the bee-hive huts of Cornwall, England, Wales and Scotland, and the chambered burial mounds which are discovered in Scotland. Thus we have the connecting links between the most primitive form of the arch, up to its more perfectly developed shape, the progress of development reaching a higher point in the Eastern hemisphere, but beginning at an earlier stage in America.

Conical Huts in Scotland.

We turn now to the consideration of the column, and shall endeavor to trace its development from its primitive forms. It should be said that the fancies of Vitruvius concerning the column, and the reason for its adoption into architecture, are not now considered tenable, for it has been traced back through various changes, and is shown to have been derived from a

different source. If the groves were the first temples, there is no evidence that the column represented the trees. If there is a resemblance between the proportions of the different kinds of columns, and those proportions of the human body which constitute the different styles of beauty, the column has been shown by late researches to have been derived from a different source. Dr. F. Reber, who has given a very excellent treatise on the subject of architecture, has shown that it was derived from the pier, and also shown the changes through which the pier passed in reaching the rounded and fluted form of the column. His opinion is that the square pier first had its corners beveled, thus making an octagon, and then beveled again, making a sixteen-sided column; and then that the sides were gouged so as to make the fluted shape, the pedestal and capital being also by degrees changed and developed.

The earliest appearance of the column is supposed to be in the tomb of Beni-Hassan. Here it is found both eight-sided and sixteen-sided, but without any capital except a square block at the top. Perhaps, however, an earlier form may be found in the square piers, which are sometimes found connected with the primitive structures. There are grottoes in Egypt which are said to be the graves of the common people. They were dug out of the rocks in the side of the cliffs, and had narrow entrances high up in the valley, and contained roofs supported by piers. Perhaps a still more primitive form may be recognized in the pilasters or abutments which are sometimes found in the walls of ancient works, one of the earliest specimens of which may be seen in the Tower at Mugheir. The column as seen in America has the form resembling that found in the tomb of Beni-Hassan, with this exception, that it is not fluted. The fluted column is very rare in America, if it exists at all. There is no such ornamentation to the column in America, as we find in either Egypt, Assyria or Greece. That ornamentation of the capital, which constituted the Greek orders, does not appear here at all. In fact, all those stages of development which are seen in historic countries, and in which the Greek architectural orders had their beginning, were not reached here. There was no capital and no base, but it was a simple cylinder, built into the wall, and forming a relief to the bare space or deadness of it, or else occasionally placed in a doorway and used as support for the lintel, but without any architectural features either in its proportions or its ornamentations.

The main ornamentation of the column in America consisted of a series of simple bands, which were carved in relief around its center, or at intervals up and down its length.

There are many specimens of the column in this form, the most notable being those found at Casa Grande, and at Zayi, in Yucatan. Here the round column is seen, not only in the shape of a support to the lintel of a doorway, but in clusters, as parts of the entablature to the façade. It is found, also, ornamented with the raised bands, in a cluster of four, which forms a relief to the wall beside the doorway. The column is also seen in the ruins at Labna, both in the plain and ornamented shape. Here it forms the jambs or sides of the doorway, and also is seen forming an ornamental relief to a corner of the building. The column is seen in the palace at Uxmal, but instead of forming a support to a lintel or doorway, it is used only as a part of the ornamentation of the façade, and as the support of the cornice above it.

The history of the development of the column is here worthy of observation. There are, as we have said, no higher stages of development in America than those just described, but the progress of development in the East began where that in America leaves off. It appears that it was used both for ornamentation and support.

Sir Gardner Wilkinson has shown that there are five or six different styles of ornamenting the column in Egypt, and from this he makes out eight separate Egyptian orders. These are, first, the square pillar, post or stone; second, the polygonal column, plain or fluted; third, the bud capital, the oldest specimen of which is found at Beni-Hassan, being composed of four plants, bound together by a sort of necking of fine bands. In the fourth order the capital is like an inverted bell. The fifth is the palm-tree column; the sixth is called the Isis-headed order; the seventh is called the composite order, the bell, palm and Isis-head being found in combination; the eighth order is called Osiride, from containing statues of the deity Osiris.

The Greek orders, it is well known, were derived from the different ornamentation of the column, the Doric having the convex or rounded capital; the Ionic having the concave or scroll capital, and the Corinthian having the capital ornamented with acanthus leaves. These different styles of ornamentation were, however, not original with the Greeks, and have little to do, as to their origin, with the provinces whose names they bear. The Doric style was evidently borrowed from the Egyptians, and it now appears that the Ionic was borrowed from the Assyrians; while the Corinthian may be supposed to have borrowed the lotus-leaf from the Egyptians and modified it into the acanthus leaf, which is its distinctive feature. It is remarkable that the Greek orders should first appear at so high a stage of development.

There is a great gap between the Greek architecture in the orders are seen, and that which immediately preceded it. The Cyclopean architecture, which belonged to the Pelasgians, contained the column, as is seen by the specimen found in the lion-guarded gateway at Mycenæ,* but here the column is used as a religious symbol, and found in a very different shape, the taper of it being reversed, wider at the top than at the bottom. The column has not been found in Assyria, but certain drawings or sculptured figures on the terraced pyramids at Koyunjik show that both the square pier and the rounded column were common there at a very early date. The ornamentation of the capital in these bas-reliefs is quite similar to that which was afterward found in the Ionic style. There is no doubt that the Greeks borrowed from the Assyrians.

As to the ornamentation of the column in America, however, we should say that it was probably original, having been developed on American soil. There is certainly nothing like it on the Eastern continent.

Mr. Stevens and Mr. Prescott concur in the opinion that though the coincidences are sufficiently strong to authorize a belief that the civilization of Ancient Mexico was in some degree influenced by Eastern Asia, yet the discrepancies are so great as to carry back the communication to a very remote period. It is the opinion, also, of the same gentlemen, that these monuments are not of immemorial antiquity, the work of unknown men, but that they were occupied and probably erected by the Indian tribes in possession of the country at the time of the Spanish conquest; that they are the production of an indigenous school of art, adapted to the natural circumstances of the country, and to the civil and religious polity then prevailing; and that they present but very slight and accidental analogies with the works of any people or country in the Old World.

We might follow up the subject, and show how the pier and lintel and the pyramid had their different stages of development on American soil. There is no question but that these architectural forms, which have had such an influence in giving the peculiarities of style to the architecture of different nations, and which, when embodied in their structures, became essential parts of the architectural orders, may be traced back to a more primitive stage here than anywhere else. We leave the consideration of the forms as such, with the review of the arch and column, leaving the other two for a future time.

We now turn to a third view of the subject, viz.: to a consideration of the mechanical principles which underlie the

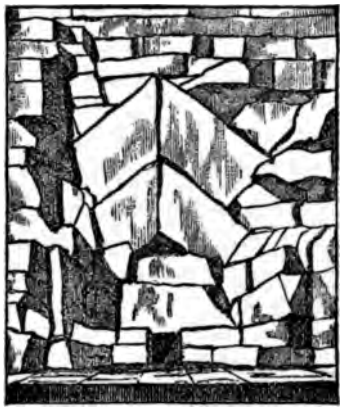
*See cut.

architectural orders. The orders, we have seen, are dependent upon the forms; the Gothic being dependent upon the arch, the Greek orders dependent upon the column, and the Egyptian styles upon the pyramid, but these orders come from the perfected forms, and from certain principles which are embodied in them. The history of the orders, then, is the history of discovery, for the forms of architecture were used long before the principles were discovered. The discovery was the last and best fruit of the form, but it was the beginning of style or order. Invention continued a long time before the orders were introduced, but when the principles contained in the forms were discovered, then the orders made rapid progress.

The four elements which we have seen to be so distinctive, and which have given their characteristics to the architectural styles, embody in themselves certain mechanical principles which make them essential. The student of natural philosophy understands that the mechanical principles are the inclined plane, screw, wheel and axle, lever and fulcrum. It has not been generally known or noticed that these common mechanical principles are at the basis of architecture, and are embodied in the various orders. The inclined plane is embodied in the pyramid, the lever and fulcrum in the lintel and pier, the screw in the column, and the wheel and axle, or pulley, in the arch. The reason why these are not noticed is that they are covered up. They exist in a passive state, and yet they are active. It is said that the arch never sleeps, and so with the pyramid, and the pier and lintel. The weight is the force that would drag down, but the mechanical principle is that which lifts up —one acting against the other, just as gravity, and the vital element or life principle are counteracting one another in the living organism. The law of strains is found here. The arch strains like a rope over a pulley; the lintel and pier like a lever on its fulcrum; the pyramid like the inclined plane; but gravity holds down all the parts, while the mechanical principle holds them up.

Architecture involves these principles as much as machinery does. In one case, however, they are found in a latent or passive state, in the other they are active. The only difference between a machine and a house, is that the force in one is active, in the other it is passive; but the machine and the house contain within themselves the same principles. So the different structures owe their architectural qualities to these latent forces. Take for instance the pyramid, which is the simplest and most primitive of all, and you will discover in it the inclined plane; the stability of the pyramid being owing to the principle. Take, on the other hand, any of those primitive

structures which contain within themselves chambers, such as the ancient tombs and palaces, and you will find in them the principle of the lever and the fulcrum. Take again the columnar buildings, whose beauty so impresses us, and you find the principle of the screw, combined with that of the lever and fulcrum. Take again the lofty, arched buildings of later date, and you find in them the principle of the pulley. Now it is remarkable that these mechanical principles, which are so well known to us, were very long in being discovered, and yet I do not know that it is remarkable, for there are persons to-day who cannot tell the difference between a true arch and a false one. A writer in Johnson's Cyclopedia speaks of the arch as being very common and easily arrived at, and then refers to the Esquimaux ice hut as an illustration. It is plain, however, that he did not recognize this principle in the true arch. The ice hut holds together because the blocks are frozen together, and are large enough so that the force of gravity holds down the ends; but let a heavy weight be applied to the top and one will see that there is no arch there. The arch was the most difficult thing to discover. It was not discovered until very late in history; in fact it is unknown in ancient architecture, and was not introduced until after the time of the Roman Empire.



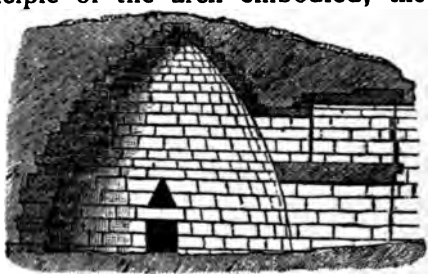
Arched Entrance to the Great Pyramid of Ghizeh.

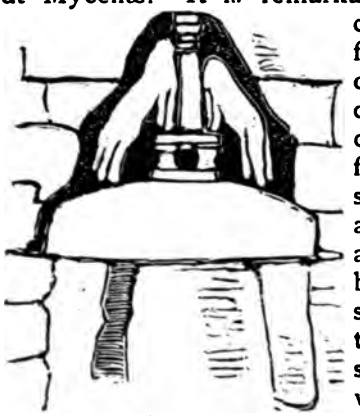
It is interesting to trace the efforts of the ancients to embody these different principles in their architectural structures. There is, for instance, in the pyramid of Cheops, which is the oldest of the pyramids, a chamber, which contains a series of heavy stones, in the form of lintels, one above the other, and at the top of the chamber two massive stones inclining toward one another, thus making a support as a roof for the chamber, on the inside of the pyramid; but the only mechanical principle which is reached is that embodied in the pyramid itself, for we have in the chamber the lintel without the pier, and the arch without the key-stone, and no mechanical principle embodied in them. Something a little nearer to the right conception of the arch, we may discover in some of the Cyclopean structures which are found in Greece. A specimen is found in the wall of Tiryns, near Mycenæ. It is composed of huge

masses of rock, roughly hewn and piled up together, with the interstices at the angles filled up with small stones, but without mortar or cement of any kind. An illustration of this is given herewith. The date of this is not known.

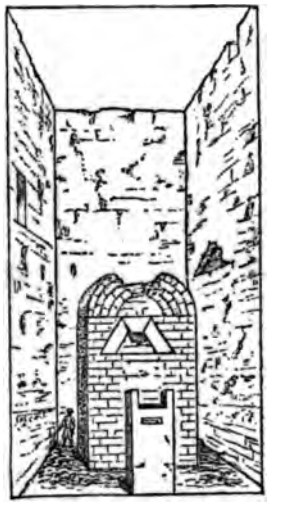

Wall of Tiryns.

Next to this, in the stage of development and in the order of time, the Treasury of Atreus may be mentioned. We have referred to this before. This is the oldest existing structure in Greece, of regular form, and shows how early the Greeks made an attempt at building the arch. In none of these, however, is the principle of the arch embodied, the layers of stone only overlap one another, and so lean over the sides of the arch, but they are not wedged together, nor is there any key-stone. The most remarkable specimen of the arch in an unperfected form, is that found in the lion-guarded gate at Mycenæ. It is remarkable for various particulars. It contains the pier and lintel, which form the sides and top-piece or cap-stone of the gate-way. It contains a column resting on the center of the lintel, and also the form of the arch, the massive stones of the wall overlapping and making a vaulted space around and above the gateway, but the arch is without the key-stone, and the top of it rests upon the column, the column being supported by the lintel. In this way the weight is divided; the strain of the arch falls to the ground on either side, but that immediately above is conveyed by the column to the lintel, and is supported by the piers which form the sides of the gateway. It is a most marvellous attempt to substitute the form for the principle,


Treasury of Atreus.


Lion-Guarded Gateway of Mycenæ.

and to substitute the principle that is in the column and the pier and lintel, for that which should be embodied in the arch. This specimen may have belonged to the period of the Trojan war.


Campbell's Tomb.

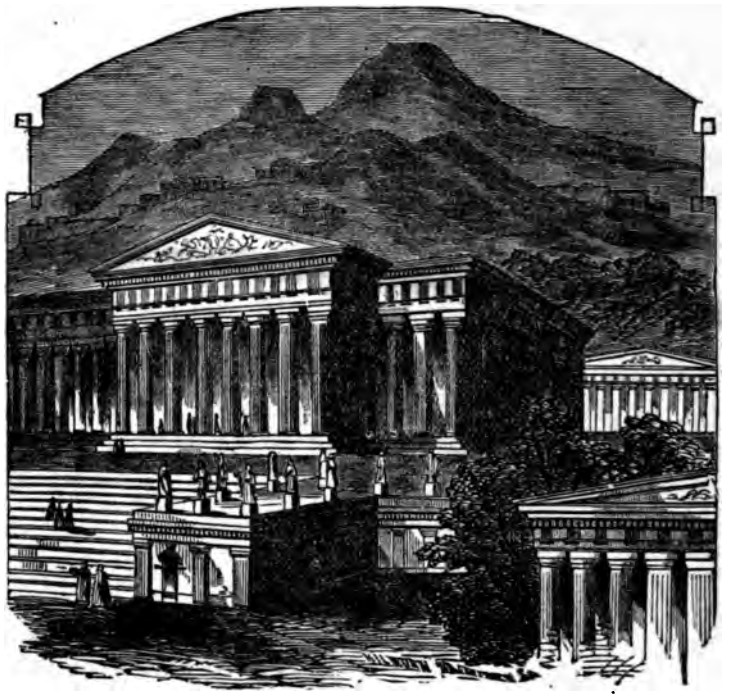
It is unknown whether the Egyptians understood the principle of the arch, or not. Fergusson and others maintain that they did, but that they were averse to using it, the heavy pyramidal being their favorite style. Rawlinson, in his History of Egypt, considers it doubtful. The structure known as Campbell's Tomb, for instance, is built up of good masonry, covered by three stones as struts, over which was a perfectly formed, voussoired arch. The date of this tomb is not known.

One of the earliest specimens of the true arch is probably found in the palace of Nimrud. It consists of an arched covering to a sewer, and probably belongs to the time of Nebuchadnezzar, 625 B. C. It certainly was not earlier than the time of Tiglath Pileser, 900 B. C. It is strange that the Greeks and Egyptians, with all their progress in architecture, never discovered the principle of the true arch. The Romans seem to have possessed it, and embodied it as one of the principal features of their architecture. Much of the extent and magnificence of the architectural works of the Romans is owing to their knowledge and use of it. The Gothic, however, is the style which, of all the orders known to history, most beautifully embodied the arch. It is not known whence this pointed architecture was derived, but it has been supposed that the Arabs, who learned the principle of the arch from the Assyrians, introduced it into Europe, where it was combined with the Roman.


Arched Covering to a Sewer.

Considering the fact of the almost simultaneous introduction of the pointed arch to the various nations of Europe,

immediately after the first crusade, and that it was commonly used in the East before that time, the most satisfactory theory seems to be that it was introduced by the crusaders in the Holy Land, and it was derived by them from the Saracens.



Temple at Ephesus.

The term Gothic has been applied to it, but it is no more Gothic than Celtic. The Goths overran Europe and found the Celtic monuments there, but they left no architecture of their own. It more properly is Christian, for it is the style in which the largest cathedrals have been erected, and is rarely used except for church architecture.

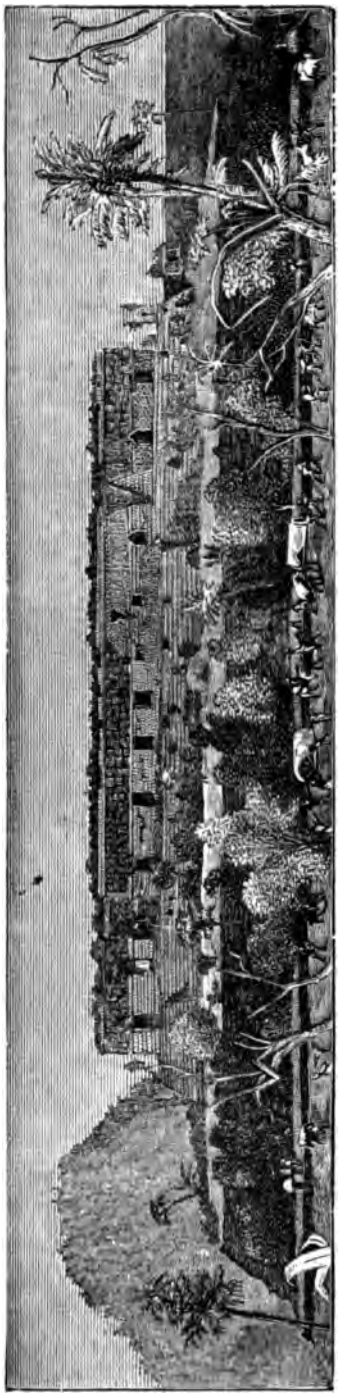
Now, as to the column, and the mechanical principle contained in it, a few words should be said in explanation. The principle embodied in the column is nearly the same as that in the pier and lintel, and so it might be difficult to see that there is any mechanical principle at the basis of the Greek orders. I think, however, that the contrast between any building which has a bare wall surrounding it, and a building erected after the Greek style, with a series of columns adorning it, and supporting the roof which projects beyond the walls, shows the point clearly. A wall may have buttresses or pilasters and so present

the form of the pier on its surface, but the beauty of the Greek style was owing to the fact that the columns were separate from the wall, and actually independent of the building. Now there is this difference in the conception of the columnar style by other nations and that which is peculiar to the Greeks, that the column was often made only a matter of ornament, as a relief to the wall, while the Greeks made it to perform a separate office, or in other words, used it as a real support. The Greek orders, then, did really embody the mechanical principle, as all of them required that the column should be separate from the wall. The progress of development of the Greek architecture also shows this, for at the first appearance the column was placed *distyle in antis*, that is, two columns between two walls, in front of the porch. At every stage of advance, however, the column became more and more independent or separate from the building itself, but became more and more essential as support for the roof. In order to show this point, we give herewith a cut of the ancient temple at Ephesus, restored. This cannot be considered as a specimen of primitive architecture, for it belongs to a most advanced stage, but it illustrates the columnar style, as contrasted with the pyramidal and the arched. It will be noticed that there is a striking resemblance between this temple and that at Olympus.* This is the more remarkable because the temple Olympus is supposed to be one of the earliest known to historic times. It shows, however, how difficult it is to trace the architecture of Greece back to its primordial forms, and how important the study of ancient American architecture becomes on this account.

There are, however, even in this grand historic temple, some analogies to the primitive structures which are found on this continent, and some points which show what features were peculiar to the early stages of architecture. The ascent to the temple by the long flight of steps is not unlike that which is seen in the ancient temples of Mexico and Central America. The prominence of the building among other buildings also shows that sacred structures were, at a very early date, made the object of artistic adornment, and so a clue to the uses of some of the unknown structures of this continent can be gathered.

The history of the column in Egyptian architecture proves the same thing. Here the column is placed on the inside instead of the outside, but the perfection of the Egyptian style is shown by the separation of the columns by the walls, and by the fact that they were made to support the roof. The

*For cut of the Temple of Olympus, see AM. ANTIQUARIAN, Vol. III., No. 4.



earliest appearance of the column in Egypt was in the tomb of Beni-Hassan. The tomb-like character of the Egyptian temples is owing as much to the multiplication of the columns in the interior, as to the erection of the propylæ in front, or to the height of the wall surrounding it.

Now, as to the development of these different features of architecture in America, we discover that while neither the principle of the arch, or the real use of the column was known, yet hat there was much advance towards the true conception of them. There are forms of the arch where the overlapping stones are tilted and smaller stones are wedged in behind them, so that there is really a nearer approach to the voussoir shape than has been discovered anywhere else, except where the true arch has been employed. The arch was oftentimes substituted for the lintel, in ancient American buildings, and from this arose those peculiar shaped corridors which are found in the ruins of Palenquè.

These arches were erected above square piers, and were used both for the support of the cornices and roofs of the corridors, and as ceilings for the chambers within. Many of the terraced pyramids were built in this way, with vaulted chambers inside of them the terraces being supported by the triangular arches, rather than being solid. There was a form of the arch in use in America which is quite peculiar. It is the tre-

foil. This may be seen by examining the cuts of the ruins of Palenquè.* This trefoil form was very ornamental, but did not contain any more strength than the triangular arch, but it illustrates the tendency to adopt the vaulted order in America.

There seems to have been a great mixture of architectural styles in America. Pyramidal temples are numerous, and associated with them, in the same locality, are buildings which embody the peculiarly square and flat style which is the result of the use of the pier and lintel, and, at the same time, other buildings, which present the lofty vaulted chambers and arched corridors, thus giving the three forms and three styles in close connection. We present a cut which illustrates this point to a certain extent, but for a further elucidation of the subject would refer to the cuts which may be found in H. H. Bancroft's work on the Native Races of the Pacific Coast, or to Baldwin's Ancient America. A form of the trefoil arch may be seen in Short's North Americans of Antiquity, as well as illustrations of the triangular arch, and of the banded column.†

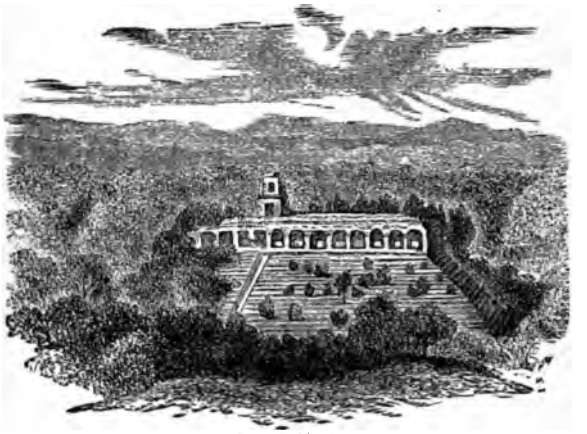
The Governor's House, at Uxmal, stands upon the upper of three platforms, of which the lowest is 575 ft. long, 15 ft. broad and 3 ft. high. The second is 545 ft. long, 250 ft. broad, and 20 ft. high. The third is 360 ft. long, 30 broad and 19 ft. high. The house itself is 322 ft. long, and 20 ft. high. It has eleven door-ways, and contains twenty-two apartments, two of which are 60 ft. long. This house may be supposed to resemble the ancient Assyrian palaces, both in its style and in its situation. The examination of its style may give an idea of the shape which those ancient structures assumed. The triangular arches seen in the façade, and the square door-ways will illustrate both of the principles to which we refer, and the varied styles and forms which prevailed here. When newly constructed, this structure, Mr. Morgan says, must have presented a striking appearance. It is doubtful whether any of the Aryan tribes, when in the middle status of barbarism, have produced houses superior to those in Yucatan.

At times, also, the three styles will be embodied in one building; a pyramid, as may be seen at Palenquè, being at the base a temple built with heavy, square piers and flat door-caps above it, and the arched or vaulted chamber found within. There are, also, other buildings, such as Casa de Monjas, at Uxmal, where the pyramid forms the foundation, a temple, ornamented with columns in its façade,

*See cut of Governor's House at Uxmal, on page 320, and of the Trocalli at Palenque, on page 322.

†See Native Races of the Pacific States, Vol. IV., pp. 214-217, also for arch, see pp 191-207, 208; Short's North Americans of Antiquity, pp. 346-350.

and containing arched or vaulted chambers, is built above the terrace, and a terraced or pyramidal roof forms a superstructure. There are, also, buildings erected in conical form· others presenting a single chamber within a cubical built structure; and others still with square piers arising one above the other, making heavy terraces, but connected by inwardly inclined walls, so as to make heavy, terraced pyramids; and others still presenting the inwardly inclined wall, overtopped by the heavy concave cornice, resembling the Egyptian style.



Casa de Monjas.

Thus we have, in America, all the forms and styles which are found in all the architectural orders, but always lacking the principle. It is strange that architecture should have advanced so far without embodying some one of the principles, and so reaching to the point of established architectural order, but it did not. Perhaps there are resemblances between the American and all the known historical styles, for the vaulted and arched corridors approach toward the Gothic style, while the columnar ornamentation resembles the Greek, and the pyramidal resembles the Egyptian, yet they show the Gothic without the true arch, the Greek without the peripteral column, and the Egyptian without the perfect pyramid.

We close this paper with a brief resumé. The architectural orders, as such, are not found in America, but the fact that architecture begins at so early a stage makes this a favorable field for the study of their origin. There is no connection between the prehistoric works of America, and the historic structures of America and the historic structures of the Eastern Hemisphere, but the architectural forms here discovered show how the orders may have arisen in historic countries. The imperfect condition in which the architecture of America was arrested, illustrates how essential to the orders the mechanical principles are, the discovery of which was not attained in America.

KELTIBERIAN INSCRIPTIONS IN SPAIN.

THE BRONZE PLATE OF LUZAGA.

BY WENTWORTH WEBSTER,
Sare Basses Pyrénées, France.

Among the characters in unknown tongues which still await an interpreter in Europe, some of the most interesting, if not the most important after the Etruscan, are the inscriptions known as the "letras desconocidas," the "unknown characters," or Keltiberian inscriptions of Spain.

These have long attracted the attention of the learned, and many scholars have tried their hands on them, and various have been the schemes of interpretation proposed. It is more than probable that the existence of the language in which they are written was not unknown to classical writers, and that they had access to a multitude of documents in them now unhappily lost to us. Strabo (34 B. C.), treating of the Turdetani (Lib. iii, ch. 25. Vol. I, pp. 115: Didot's edit.) the most important Iberian tribe in Bœtica (Andalusia), speaks of them as using writing, and having manuscripts of laws and poems, for some of which they claimed an antiquity of six thousand years. The other Iberian tribes, he adds, were also acquainted with writing, but used neither the same characters nor the same language. We shall see, afterward, to what extent some of these statements of Strabo have been confirmed by more modern discoveries.

Soon after the revival of learning in the sixteenth century, these inscriptions began to be studied, chiefly by writers (the most distinguished of whom, though later in date, are the Jesuit Fathers, Hervas and Larramendi), who sought to establish the priority of the Basque, or Escuara, among the languages of the Peninsula, and who hoped to find the key to the interpretation of them in that language. To some extent, most of those who have since treated the subject have followed the same lines. Loricha, a Swedish Ambassador at Madrid, tried to explain the legends on the coins merely as mint marks for the use of the workmen, an explanation which, if correct, would not account for the longer inscriptions of Castellon de la Plana, and others. M. de Saulcy, Philips of Vienna, M. Boudart, Heiss, Prof. Sayce of Oxford, are some of the chief writers who have treated of them. The accredited Spanish interpreters of the present day are, however, F. and J. Delgado de la Roda, and Zobel de Zangroniz; the system of the

latter is adopted by the Jesuit father F. Feta, who has successfully endeavored to disentangle the Keltic grammatical forms and elements in some of the Latin inscriptions of Spain.

These unknown letters are found on coins dating both before and after the Christian era. On the walls of various buildings, both anterior to and during the Roman domination, *e. g.*, on the walls of Tarragona, on the stones below the level of the Roman work, and on stones in the theatre of Saguntun, indubitably of Roman construction. Hübner, in the Vol. II. of the Corpus Inscrip. Lat., relating to Spain, gives eight inscriptions as bilingual to Latin and these unknown tongues, two of which, 4318a and 4424a contain Keltiberian characters in conjunction with very common and well-marked Roman words. Longer inscriptions are those on a leaden plate discovered at Castellon de la Plana (Valencia) in 1855; the trilingual stone of Tortosa, described and interpreted by Pdre. F. Feta in the "Museo Español de Antiquidades," Vol. VI., 559–566; another inscription on stone, and the bronze plate found at Luzaga, near Siguenza, which is the occasion of our present article, and of which an excellent fac-simile is given in the "Boletin de la Real Academia de la Historia," Tomo II., c. 1, January, 1882.

The number of coins extant with Keltiberian legends is very considerable. Some two years since nearly 1,800 were found at once at Barcus, near Oloron, Basses Pyrénées; but among these were only five different types. Many of these coins are figured in the great work of Heiss on ancient Spanish coins, and in the work of M. Boudard, and others still inedited are almost daily being engraved in Spanish periodicals, notably in the excellent "Revista de Ciências Históricas," lately founded at Barcelona by Sr. Sanpère y Miguel. But, unfortunately, the number of falsifications almost equals, if it does not exceed, the number of genuine coins. From the multitude of sharp but needy students attending her universities, from the undue weight formerly attached to genealogies, and "*limpieza de sangre*," purity of blood, in all social and official life in Spain, forgeries of documents and coins are of old date there, and the archæologist has constantly to be on his guard against them. The inmates of some monasteries, especially those of Catalonia, were especially skillful in this art.

When we come to examine these unknown characters, it is evident at a glance that they are not of native origin. They have not been evolved directly from any native picture writing, nor are they at all like the hieroglyphic signs sometimes found in America. They have been evidently borrowed and

modified from a far later stage of the art of writing. Prof. Sayce, in Vol. X., New Series of the Transactions of the Royal Society of Literature, has published a comparative table of the Karian, Korkyrean, and Keltiberian alphabets, and at once it is perceived that these must have a common origin, and that they represent the same stage of development in the art of writing. Explanatory alphabets have been formed by Philips, of Vienna, Heiss, Delgado de la Rada, Zobel—in fact, by nearly all writers who have essayed the interpretation of these inscriptions. But, notwithstanding that all the inscriptions belong to the same general class of alphabets, the truth of Strabo's assertion, above quoted, is abundantly proved. The forms are frequently diverse, the characters represent the writing at different epochs, or, at least, of varying ability in the engravers. In some, the workmen appear afraid or unable to make a curved, or circular line; in others, even in this most recent find, a fresh character appears, unknown to former inscriptions. The figures on the coins, too, show the same difference in artistic execution. A few are no mean specimens of numismatic art, especially in a certain freedom of movement given to the horse and horseman which so frequently figure upon them.

But while a certain amount of success has attended what we may call the transcription of the alphabet, with the aid of a few bilingual legends of coins, or coins of places already known by Roman legends, the interpretation of the language still lags behind in a most tantalizing manner. Here and there the name of some tribe or city is given in letters which suggest either a Keltec, or else an Iberian form of speech, perhaps distantly allied to the modern Basque. Here and there in the longer inscriptions a word occurs which also suggests that language, but it utterly fails us in interpreting the remainder, and this seems to be especially marked in this, the latest discovery.

The existence of the bronze tessera of which we now treat was first revealed to the world of letters by Padre F. Feta, in his "Discurso leido ante la Real Academia de la Historia," July 6, 1879. He had been told of it by two ecclesiastics of Siguenza, and at length the bronze itself was handed to him for publication by its owner, Don Juan Maria Morales of Huerta Hernando. From a letter of this latter gentleman it appears that the bronze was originally found at Luzaga, four leagues S. E. of Siguenza, but neither the exact date or spot can now be ascertained. It had been used for a sconce for a lamp, and for a pot lid before it came into the possession of Sr. Morales. A most excellent colored fac-simile, the work of Sr. Kraus, accompanies the present Boleten.

Sr. Zóbel de Zargrónez, who has classified the Keltiberian alphabet into chronological and geographical divisions, states that the plate of Luzaga evidently belongs to the eleventh district, that of Segobriga, and in date to the fourth period, which commences 154 B. C. His transcription is as follows:

aregoratoks karvoh kegei.
kortka lutakei aujs irasiohka.
erga vela tkerseks soh.
veisvi mlaiohonoe.
kegis karikoe kegis.
sdn kortkan elasughon.
karvoh thkes sa kortka.
thivohreijs.

One character, C, which occurs six times in this inscription, is peculiar to it, and is transcribed by Sr. Zobel as "ke." The opening word, "arregorad," occurs on an Iberian coin also found at Luzaga, and in coins struck in the famous Numantia. It is probably a tribal or geographical name. The words transcribed "kortka" and "kegei" occur in other inscriptions; other words seem to suggest the names of the Keltiberian cities, Velia, Lutia, Erga. Up to this point only are we taken in the present article. We await with impatience further aids to its interpetation in a second article by Father Feta. The conclusions he draws at present are: (1) That the plate is authentic. (2) That the writing is Keltiberian, and the idiom should be Keltiberian also.

CORRESPONDENCE.

INDIAN PIPES.

To the Editor of the American Antiquarian:

In the latter part of 1881, an Indian grave was opened at Brewerton, N. Y., in which a skeleton was found, facing the East; not an uncommon position in Onondaga County, and possibly indicating Christian burial. In the grave were brass kettles, remains of a gun, and other things of European manufacture, as well as flint arrow-heads. The most interesting articles, however, were some clay pipes, incorrectly reported at the time as stone, but which I have since examined, figured and described. One is of common, brown earthenware, the bowl being a very spirited panther's head, but with the very uncommon feature of having the head turned to one side.

The stem is ornamented with dots, and the extreme length, in a straight line, from tip to tip, is five and one-fourth inches. Two were made from very red clay, but with a black glaze, or varnish, giving them the appearance of polished stone. The bowls are simple, but with a cord-like ornament encircling them from top to bottom. These are a little larger than the preceding. The fourth is a still larger bird-pipe, of the same material and finish as these last, measuring eight and three-fourths inches, directly from the mouth-piece to the tip of the bird's tail, but some inches more around the curve. The upper part of the bowl is an eagle, finely wrought, with rows of dots below it, around the bowl. The long stem is plain.

In one grave we have thus brought together European articles, unglazed pipes, and those with that varnish, or glaze, which some have thought the work of an earlier period, and, perhaps, of a distinct people.

I have before me two other pipes of clay, which present this glazed appearance. One of these was found near an early historic site in Onondaga County, and the bowl has a fine bear's head facing the smoker. The stem is ornamented throughout with lines and dots. The other is from an earlier site, a few miles from the last, and is the most remarkable clay pipe of which I know, though it has been broken. It is of massive size, and presents the usual curve, but the stem is gone. Four human faces encircle the top of the bowl, and similar grotesque visages are intertwined all the way down to the broken part, and were probably continued for some distance on the stem. Fourteen faces remain, and strikingly suggest Aztec combinations. Detached ornaments, as wolves' heads, etc., also occur, of similar ware. These, with the curious pottery found there, with human faces and figures at the angles of the bowls, have suggested the idea to some that they were made by Southern captives of the Iroquois, but that people does not seem to have been very powerful at so early a day.

A little further east, in Madison County, I found the owl's head pipes, which I have never seen in Onondaga County, but which seem comparatively common further east. The human face is found everywhere, but with striking differences, and, frequently, with a head-dress. Serpent-pipes are also general, and sometimes strangely arranged. One Madison County pipe has a well-shaped human hand reaching over the rim from within. This is of clay. Another, of stone, and somewhat barrel-shaped, has a bowl at each end, and two holes in the sides for the pipe-stems.

Bird-pipes, of clay or stone, occur occasionally in Onondaga County, but the human face has the preference, gener-

ally facing the smoker. The French seem to have brought in a new fashion, that of turning the face away. Two French pipes, found at Brewerton, are on this plan, and some later Onondaga pipes follow this arrangement. A large and fine one of stone, of the historical period, has a majestic and mournful face turned from the smoker. This one has, also, inlaid eyes of hollow bone, and a large projection below the bowl. A large bird-pipe of the same period, and probably made with iron tools, also has the face in the same direction. This one is remarkable for a cock's comb, probably suggested by the fowls which the French brought to Onondaga (taken in 1656), and left there on their retreat, a little later.

The typical mound-builder's pipe, is occasionally found here, and many others which are of interest, but which it is needless to describe. Among those clay pipes, however, which are ornamented with dots and lines, are some beautifully-worked projections, raised around the rim of the bowl. One that I found, with the usual circular mouldings around the base of the bowl, has an expanding square top, finely ornamented on the sides.

I have an Indian pipe, perhaps a hundred years old, which seems unique in form and material. It is made from a very large deer's antler, the prongs having been sawed off, with the exception of the lowest, and the bowl is placed between that and the broad branch. It was handsomely carved, and was a good deal ornamented with red and blue paint, though much of this is gone. The pipe-stem is of wood, and forms the chord of the half-circle. The inside of the bowl is lined with metal, and the pipe was made among the Onondaga Indians.

Although we find many beautiful specimens of the pipe-maker's art among the early Onondagas, it is doubtful whether the pipe-of-peace had, at first, the same significance to them that it had to some other nations. In their early meetings with the French, Dutch, and English, it has no great prominence, and generally seems not to have been used at all. Garangular alludes to it in his speech to De la Barre, in 1684, if that speech is correctly given. The same year the French Governor sent a red calumet to an Onondaga chief, and its meaning seems to have been well understood. At a conference with Frontenac, in 1673, the Iroquois smoked by themselves before commencing business, but there seems to have been no tendering the calumet to the French. Later, its use is prominent, but rather as a foreign custom. The Lake tribes, in 1696, sent a message to the Iroqouis, and with it a calumet of red stone, of great size and beauty. Gov. du Colliers

smoked the calumet of peace with the western Indians, at Montreal, in 1701, and promised to preserve the pipe which the Indians had brought him. In 1709, the Mississaguras gave the Iroquois two large calumets to cover their dead, but no similar act appears on their part thus far.

When the Far Indians came to Albany, in 1723, to confer with the English and Iroquois, they brought a calumet for each, and explained its use, as something to which they might not have been accustomed. "A calumet pipe, amongst our nations is esteemed very valuable, and is the greatest token of peace and friendship we can express. A calumet pipe and tobacco is used when brethren come together to visit one another." To the Six Nations they said: "We have given to all our friends, and to all nations with whom we have entered in covenant, a calumet pipe of peace and friendship, and desire the Six Nations to accept of this calumet as a sincere and solemn token thereof."

After this, certainly, the Iroquois and the pipe of peace, as other nations long had done, and, in 1756, Sir William Johnson presented "the largest pipe in America, made on purpose," to the Six Nations, and said: "Take this pipe to your great council chamber, at Onondaga; let it hang there in view; and should you be wavering in your minds at any time, take and smoke out of it, and think of my advice given with it, and you will recover and think properly."

There are several instances on record where the Catawbas and Cherokees, about the same time, brought the calumet to the New York Indians, and passed it from mouth to mouth. In 1765, the great Pontiac sent his great calumet, with wampum attached, to Sir Wm. Johnson, in token of peace, and a great number of pipes was collected in the West and Southwest, by the Iroquois ambassadors, a few years later.

These facts will account for the ornaments and fragments of red pipe-stone in New York, which probably belong to this period, or a little earlier.

European pipes, however, soon began to take the place of the Indian article. In 1692, tobacco-pipes appear among the English presents to the Indians, and, thenceforth were customary gifts. Some were of wood and tin; others are described as "wampum-pipes;" and others of white clay; yet found on Indian sites along the Mohawk, which were given in such quantities as to supply the general demand.

BALDWINSVILLE, N. Y. W. M. BEAUCHAMP.

BURIAL CUSTOMS IN OREGON.

LETTER FROM A GENTLEMAN WHO TRAVELED THROUGH THAT REGION AT AN EARLY DATE.

To the Editor of the American Antiquarian:

In 1832, I crossed the plains and mountains. Traveled with a party of Missouri fur-traders to the west of the Salt Lake, then, as one of twelve eastern men, we made our way down the Lewis River through the country of the Shoshone Indians, and in six weeks reached the first Hudson Bay trading post at Walla Walla, a country so poor in furs that it was not visited either by them or the American traders. They lived almost entirely on salmon, of which they fed us freely, refusing pay, though we had horses packed not only with trinkets, but knives and hatchets—things to them invaluable, for they were still using stone and bone implements instead of iron.

At Walla Walla we exchanged the saddle for a boat, in which we descended the Columbia to its mouth, and after looking out on the broad Pacific, we returned to Fort Vancouver, having been invited by its governor, as he was called, a Dr. McLauchlin, to pass the winter in his fort, where, though he claimed me as a guest, he consented that I might teach his son and the other half-breed boys of the fort to read. The coming spring, he loaned me seed and farming tools, and I went up the Willamette river to where Salem now is, and tilled some prairie lands and raised some wheat and other crops. But tiring of a hermit life, I gave my crop to the company for a passage in a ship to be sent down the coast. So I visited San Francisco Bay, the Sandwich and Society islands, passed the cape, stopped at Rio, landed at Norfolk, Va., and returned to Troy, N. Y., after an absence of two and a half years. In reference to Indian burials in Oregon, I observed nothing of their disposal of the dead till I reached the neighborhood of the Cascades of the Columbia, where they wrapped the body in robes and placed them side by side as they died, in a shed, where they could be plainly seen, but so inclosed as not to be reached by the wolves.

From Fort Vancouver down the river to its mouth, I noticed that, after wrapping up the body, they placed it, with all the property of the deceased, in and about a canoe, which they placed on the bank of the river in some high and conspicuous place, first so damaging articles as to unfit them for use. Still, with them it was the highest of crimes to rob a grave. But their infants they placed in a box, and this they fixed among the branches of tall trees, and it was said that,

to the north of them, some thus placed bodies of the grown in crotches of trees.

On the Willamette, they buried their dead in the earth. When the grave was dug, they placed slabs on the bottom and sides, and when they had lowered the wrapped body down, placed another over, resting on the side ones, and filled in the earth. One of their burial grounds was near my cabin, where I attended the funeral of a young man and witnessed the whole ceremony. After thus depositing the body and filling the graves, they built a fire on the same, and all the friends sat about it and chanted a mournful dirge for a long time, all as solemn as at a Christian burial. Often after, the mother came and deposited food in the earth at the head of the grave. At a man's grave was stuck up a paddle, at a woman's a camas stick, they being the diggers of that most excellent root. During my journeyings I did not notice any prehistoric remains of man or animals, but much of the cañons and mountains, Mount Head and St. Helen, vast ranges of mountain and extended plains of volcanic rock. *

ARCHÆOLOGICAL DISCUSSIONS IN FRANCE.

To the Editor of the American Antiquarian:

In May of the present year, a "Congrés Scientifique, Archéologique et Historique" was held at Dax, in the department of the Lourdes, France. The initiation of the Congress is mainly due to the exertions of the members, and especially of the president, M. H. du Boucher, of the "Société de Borda," one of the most flourishing of those literary societies of south-western France, which do so much to promote literary and scientific research in these regions. The neighborhood of Dax is interesting on many accounts. Its salt mines, its hot mud and water baths and fountains, its sands and dunes, with the underlying *tuf*, or *alios*, attract the attention of the geologist. In prehistoric archæology it is still more rich. The exhibition connected with the Congress gave full evidence of this in the abundance of objects found in the neighborhood, flints, stone hatchets, pottery, bronze, copper, gold and iron instruments, arms and ornaments. To a more recent period belong the camps and military stations, occupied first by Keltec, or even by anterior races, subsequently utilized by the Romans during their occupation of the country, and after their departure, by the inhabitants as a defense against barbarian inroads, in the period between the downfall of Rome and the middle ages. Roman civilization, as well as its military power, is represented by the walls of Dax, until lately

the finest specimen of Roman fortifications in the whole region, and by the remains of villas and baths, and above all by the Roman roads, and by the coins so frequently found in the neighborhood. The mediæval abbeys, churches and cathedrals are full of interest to the archæologist, but are not distinguished by unusual beauty, either in art or architecture.

Archæology, prehistoric and historic, was decidedly the best represented feature in the Congress, both in the exhibition and in the discussions. In the debate on the existence of man in the Tertiary period, sustained by MM. Cartailhac, Garrigou, Cte. de Chasteigner, and others, the conclusion was identical with that of the Congress of Lisbon, viz.: that the fact is not yet proven. The varied contents of the many tumuli, consisting of quartzite weapons, pottery, bronze, iron, copper and gold instruments and ornaments, and the funeral rites of the populations, were described by Dr. Testul. M. Cartailhac, against the general opinion, doubted whether the quartzite implements were intentionally cut. In discussing the lake-dwellings, M. Vaussenat threw doubt on those said to have been found in the Lac de Lourdes, and from a long personal knowledge of the lake, we are disposed to agree with him. Other lacustrine and marsh constructions, less open to doubt, were signalized on other points, at St. Jean de Lier, and in the Baronies near Baguères de Bigorre. It was, however, shown by examples in the district that carved piles were formerly used simply to indicate a ford. The camps and military works so common in the region were assigned to the successive occupation of many races, from almost prehistoric to early mediæval times, standing, as they do, on the best points of natural defense. Analogous discoveries were announced with regard to ecclesiastical monuments. Under the pavement of the old abbey church at Sorde, and in the park outside, remains of a fine Roman mosaic were found. Fragments of Roman, Merovingian and Carlovingian materials were discovered in churches, generally of from Xth to XIIth centuries. Many other traces of older work still remaining, and of older customs, were brought before the notice of the Congress. To judge of the value of the linguistic contributions on the dialects of the region, we await the publication of the annals of the Congress, and purely physical science does not fall within the department of the AMERICAN ANTIQUARIAN. The promoters of the Congress and exhibition are to be congratulated on their success, and the resnlts are a good example of what may be done in archæology by well-directed local effort.

WENTWORTH WEBSTER.

BASSES PYRÉNÉES.

EDITORIAL.

COINS AND PORTRAITS.—We give as a frontispiece to this number the portrait of the philosopher Epictetus. It is certainly a very remarkable looking face, and the wonder is where the portrait came from. The coins are generally the source of information, but the task is to connect the portraits with the coins. There are portraits which have become so common as to be conventional. They are accepted as correct, and no one knows from whence they came. Occasionally, however, a change will occur; a new portrait of the same person will appear, and then people will begin to inquire as to the authority for the new likeness. Such a change happened recently, in connection with the portrait of Julius Cæsar. Froude's Cæsar contains a portrait which resembles more that of a literary man, a professor in College, than that of the Great Cæsar, as we have generally pictured him, and the question has arisen, "Is the likeness correct?" We have seen a coin, illustrated by a cut in Thalheimer's Ancient History, which would show that this last portrait is the correct one. How did this portrait of Epictetus come to us?

WITCHCRAFT AMONG THE CIVILIZED AND UNCIVILIZED RACES.—The existence of witchcraft superstition among the Aborigines has been known and referred to by missionaries for a long time. In fact it seems to have prevailed in this country as much as in Africa. Recently, a whole family were nearly destroyed, in Alaska, on account of it. The St. Louis *Republican* contains a letter, which has been quoted by the Presbyterian Home Missions, narrating the fact. The writer says that this superstition has prevailed among the Thlinkeets, as long as tradition has any record. J. G. Shea, also, refers to the existence of this superstition, among the Taos, Zuni, Acoma, and Moquis, at the time of the first missions among them in 1622. The superstition seems to have been connected with a high state of religious sensibility, a belief in the supernatural, leading to the imaginary state where social delusions are very strong. The remark of the Zuni chief, while at Salem, is all the more striking from being made on the spot where witchcraft appeared in the early history of our country. "Put them to death," was the sentence he pronounced; a strange echo of the sentiment which prevailed among enlightened Christians.

It is a query in our mind, whether the treatment of captives among the savages, was not connected with some kind of superstition, resembling this one of witchcraft. The treatment of the victims burned at the stake, does not seem to have sprung from any different feeling, whether among the savages of America or the Christians of Europe. What organic connection there can be between a real and true religious conception and these atrocities of superstition, we are not able to show, but doubtless there is something in human nature which is deeply seated and is likely to survive through all time; and shall be one of the last things to be eliminated from Religion. It is strange that witchcraft, which is really a savage or barbaric trait, should survive and appear in history with such force as it has.

PALÆOLITHIC IMPLEMENTS.—*Journal of Victoria Institute* for March, 1882, contains an article by Nicholas Whitely, C. E., in which he announces the discovery of the geological origin of certain so-called Palæolithic implements, these implements coming from a gravel-pit at Broom, in the valley of the Axe, at Axminster, and supposed to be of a rude and heavy type of Palæolithic implements. They come from near the base of the bed, as is the case in the gravel beds in the valley of the Somme, and resemble the implements of the Somme type. Many of these rough tools of chert were found among the ballast on the railway near Exeter. Vast numbers of these drift "tools" have been found in the gravel beds. The implements and the gravel in the bed are similar, show the same kind of fracture, have been subject to the same forces. Chert differs from flint in breaking with a square, splintery fracture, instead of a conchoidal. These fractured pieces show no indications of manipulative skill, but were occasioned by natural causes.

SCHLIEMANN'S LATE DISCOVERIES.—Dr. Schliemann has written several letters to the Anthropological Association of Berlin, the results of late explorations at ancient Troy. His effort has been to classify the relics, and different parts of the ruins, so as to identify them with one or the other of the three cities found on this site. The first city, he thinks, was a mere hamlet ; this was levelled, and on it the second city erected, which was, in turn, burned, and a third, more modern, built in its place The larger part of the relics belong to the second city. A temple or hall was discovered, surrounded by a wall, with pilasters which had re-entrant angles.

CÆSAR'S FORTS.—About a hundred years ago some forts were discovered which were supposed to be similar to those

described by Cæsar. These were found in Scotland, but were similar to others which existed also in France, Thuringia, Bohemia, and other places on the continent. These forts were constructed both of wood and of stone, the wood being placed cross-wise, forming a circular wall, and then the stone being thrown upon this, the stone protecting the wall, and keeping it from being burned. Recently other forts have been discovered near Bingen on the Rhine. The walls of these forts, as discovered, are vitrified, and a supposition is that the enemy, in attacking the forts, set fire to the wood, burned the inhabitants, and left the walls as a vitrified mass. The vitrefaction of the wall would, of course, preserve it, and so we have visible ruins of those very forts which Julius Cæsar attacked and destroyed.

HOLY SMOKE.—Two bronze cysts have recently been discovered in Suabia, which were filled with a certain kind of gum resembling myrrh. This gum, on being burned, gave out a rich perfume, and it is supposed that it was one of those costly gums which kings and princes introduced from the far East.

AT the Cincinnati Industrial Exposition, in 1881, Paul Mohr, Sr., and S. C. Heighway received silver medals for collections of archæological relics.

DECEASED. — During the year past, a large number of archæologists in America have died. Among them, Hon. L. H. Morgan, Rev. E. A. Dalrymple, S. T. D., Prof. S. S. Haldeman, LL.D. Now the name of Wm. S. Vaux is added to the list. Mr. Vaux was a collector of archæological relics, as well as of minerals. He employed a part of his wealth in purchasing rare specimens, and left a small but choice cabinet. Minerals were his specialty, but archæology received more or less attention. He was vice-president of the Numismatic and Antiquarian Society, and of the Academy of Natural Sciences, president of Zoological Society and treasurer of American Anthropolical Association during the existence of that society.

THE sudden death of B. B. Redding, by apoplexy, deprives California of one of its most active and reliable scientific workers. Mr. Redding, at the time of his death, was a Regent of the State University, Trustee of the Academy of Science, member of the Fish Commission, and secretary of the land department of the Central Pacific railroad. He was the organizer of the Horticultural Society, and had been a leader in archæological researches for several years. His death will not only be deplored in California, but throughout the country.

ANIMISM AND SUN-WORSHIP AMONG THE INDIANS.—The word Animism is used to express the primitive form of religion which is found among savage people in all parts of the world. It comes from the belief that everything and every person consists of two parts, a body and a spirit. The beings which fill the Indian universe are not supernatural and do not have the attributes of God, but are more like the spirits which some people think manifest themselves at the present time. These may be the spirits of animals, or ghosts of any kind. Every river and every bend of a river has a spirit. The spirits of falls, cataracts or rapids, are especially dreaded. Drowning is oftentimes ascribed to the work of a spirit." It is probable that sun-worship originated from this, and in the following way: Everything having a body and spirit, the sun is supposed to be a sun-spirit, as well as a sun--form, hence the superstitious regard for it. Thus it is the same in reality with animism and with animal-worship, for the natives do not distinguish such beings as sun and moon from men and other animals. Plants and other objects, winds and storms, rocks and trees, animals and men, sun and moon, all have both a body and soul. The last number of the *Anthropological Journal* contains an article on the subject by E. A. Im. Thurm, which is partly a review of Mr. Dorman's book, but which is also suggestive of the religious ideas prevalent among the Indians of British Guiana. The author says, "The spirit of all rocks are supposed to be capable of harm, and sculptured rocks are especially dreaded.

HUMAN FOOT-PRINTS FOUND IN SOLID ROCK.—The Nevada State's Prison, at Carson, is situated on a sand-stone spur, which runs out from the Pine Nut Mts. into the Carson plains, like a great promontory. The prison quarry has uncapped the spur to a depth of from 30 to 40 feet, and exposed a layer of aranaceous shale. In this shale, and covering a space of about an acre and a half, have been found a large number of tracks, both of animals and birds, and what are supposed, also, to be human foot-prints. Eight great, square impressions, 20 by 22 inches in size, showing a stride of 4½ feet, come out from the super-incumbent rock. These have been supposed to be the tracks of a mastodon, or mammoth. Tracks of a wading bird are also seen along with it. What is more remarkable, however, is that a number of foot-prints, such as a giant man would make, if shod with thick-soled mocasins or sandals, have been found. There are six series of them, the foot-prints numbering from 8 to 17 in each. The size of the sandal is as follows: 19 inches in length, 8 inches broad at the ball, 6 inches at the heel, having a length of stride 2 feet 3

inches. The distance between the feet, or straddle, is 18 inches. Most of them have straight-pointed toes, supposed to distinguish the white man of to-day. In no case is the naked foot distinctly shown. In all the tracks the toes turn outward.

This discovery, with that of the Calaveras skull, will, no doubt, be seized upon as direct proof that man existed in the Tertiary, as early as the Miocene. From these papers it appears that several quite distinct tracks of deer are to be seen, some of which resemble those of a wolf, and abundant tracks of wading birds, which do not differ from those of the same class now living. The rock above the tracks is 15 ft. in height, and gives evidence of having been at one time the shore of a local or isolated lake. Its level is above that of Lake La Hontan, which itself is, as is well known, an ancient basin, now empty, but was, in the Pliocene age, the bed of a great lake or fresh-water sea. These tracks antedate the present river-system of the Sierras, and must be very old. It seems to be uncertain whether the rock belonged to the Quarternary or Tertiary, but it is more uncertain whether they are human foot-prints or not. Papers were read before the California Academy of Science by Dr. Harkness and Mr. Gibbs, both of whom seemed to think that the tracks are doubtless human.

LINGUISTIC NOTES.

EDITED BY ALB. S. GATSCHET, WASHINGTON, D. C.

HIAWATHA was, according to the legend, a chief of high renown among the Onondagas, who, about the middle of the sixteenth century, devised a system of permanent government for the Five Nations, to save them from the continual fratricidal wars in which they were engaged. At first he had to contend against the hostile influence of his fellow-chief, Atotarho, or "The Entangled One," but, by his prudent counsels, he finally succeeded in establishing the confederacy which has made the Iroquois once so great and powerful. The Hiawatha legend lives among the Iroquois people of New York and on the Brantford Reserve, Ontario, at the present day, and is recounted by their story-tellers with a large amount of details, which probably have some historical facts as a solid foundation. The name is variously pronounced, and means "The one who seeks the wampum belt."

The above is an abstract of Mr. Horatio Hale's article read at the Cincinnati meeting of the American Association for the Advancement of Science, August, 1881, entitled "A Lawgiver of the Stone Age," and has been published in full in its "Proceedings." (Salem: 1881. 8vo., pp. 324–341.) The article is equally interesting to historians and ethnologists as to linguists. It shows, among many other things, that Schoolcraft confounded Hiawatha with the Odjibwē deity Manabozho, and imputed to him in his "Hiawatha Legends" all the feats so poetically described in Longfellow's immortal creation.

THE ETHNOLOGY AND LANGUAGES of the Indian tribes on and around the Isthmus of PANAMÁ are not so well known as they ought to be, although some of the oldest discoverers of America speak of them in their descriptions. Commander Lull, U. S. N., gave a vocabulary taken at St. Blas Point and Caledonia Harbor in 1874 (402 words and 24 sentences, in Amer. Philol. Soc'y Transact.) Alphonse L. Pinart travelled along these coasts in 1880–1881, and acquired there a Spanish manuscript written by Father Franco, secretary of the Bishop of Panamá, at the commencement of the nineteenth century: "*Noticia de los Indios Guaymies y de sus constumbres*," followed by a "*Vocabulario castellano, guaymi y norteño*," and another "*vocabulario sabanero y dorasque*." On returning to San Francisco, Mr. Pinart published (1882) these important papers in the original Spanish, to form the fourth volume of his Linguistic Collection (Paris, E. Leroux). The noticia and the vocabularies fill 73 pages in quarto; the latter contain from 800 to 1,200 vocables each, all the four dialects, which are spoken at an inconsiderable distance from each other, belonging to one and the same linguistic family. We give a few words from the Northern (Norteño) dialect: *Cow*, nabi *or* nebimore; *ox*, nebicuguane; *horse*, mozo; *ant*, nagaga; *spider*, iogo; *fox*, mubiali; *tooth*, tu; *cat*, michi; *hog*, madu *or* metu; *horn*, croddu, grotu; *ear*, olo; *tail*, cubara; *grass*, crio *or* comuto; *straw*, mequio; *flower*, cridron; *knife*, nitrachi; *lance*, pucocri; *arrow*, bugó; *bow*, tuguen.

WRIGHT, ALLEN.—*Chahta Leksikon. Choctaw in English Definition, for the Choctaw academies and schools. First edition*—1,000 *copies. St. Louis: Printed by Presbyterian Publishing Company*, 207 *North Eighth Street.* (1880.) 12mo. 311 *pages.*

This is the title of the first dictionary that has ever been published on the harmonious, soft and pliant language of the Chá'hta, a people the majority of whom have been settled in the Indian Territory for the last forty-five years. The words

are put down in the missionary alphabet in use among the tribe for nearly a century. The compound terms and some participles figure as *separate* items, and thus the number of words or items in this dictionary reaches eleven thousand. The author, who lives at Atoka, near Boggy Depot, Choctaw Nation, I. T., is a full-blood Indian, of no common attainments; a theologian, preacher, and formerly governor of his tribe, and also at various times delegate of the Choctaw Indians to the government in Washington for transacting tribal business. The work of a full-blood Indian on his own language, in which he has been teaching and preaching for forty years past, certainly deserves more attention from students and linguists than the ephemeral products of the same kind composed by whites, who are only superficially acquainted with an Indian language. The book can be obtained by remitting $1.50 to the author himself, and will be of great help to any one desirous of acquiring this language. Mr. Allen Wright would deserve double praise if he would publish a second part, containing English words with their corresponding Chá'hta terms.

PLATZMANN, JULIUS.—*Glossar der feuerländischen Sprache.* Leipzig: B. G. Treubner. 1882. 12mo. 56 and 266 pages. With portraits of two Fuegians, and a map of the country.

This volume contains a glossary of the Yahgan-Fuegian gospel of St. Luke, recently spoken of in the AMERICAN ANTIQUARIAN, Vol. IV., No. 3, and is divided in a Fuegian-German and a German-Fuegian part. The author has transcribed the orthography of the anonymous translator into his native German orthography, to render the language more accessible to his countrymen, and carefully states the equivalents used for his transcription. Many vocables are not reduced to their simplest forms, though this would be very desirable, as far as the verbs are concerned Many sentences are quoted with their literal rendering in German, often also in Latin and in Greek. The glossary is preceded by four historical and topographical articles, composed by Dr. Karl Whistling, describing minutely some peculiarities of this southern extremity of America. We trust that Platzmann's book will find many readers among those who take an interest in the linguistics and ethnology of this western hemisphere.

CUBA.—The ancient inhabitants of the greater Antillian islands (Cuba, Hayti, etc.), have disappeared so rapidly under the cruel treatment of the first Spanish conquerors, that our knowledge of their customs, affinities, laws, religion and languages has remained in a fragmentary state. Many recent

authors have attempted to gather all that could be collected upon their antiquities, and it is now certain that they spoke dialects of the great Carib or Galibi stock, which now holds the north coast of South America. Nicolás Fort y Roldán, in his *Cuba indigena*, Madrid, 1881 (200 pages, 12mo), has brought together a large number of Indian local names found in Cuba, and has done his best to explain these (as well as some Indian words in the Cuban-Spanish dialect) ethnologically and linguistically.

MALAGASY.—The editor of the "*Antananarivo Annual*," the learned Rev. R. Baron, missionary of the London Miss. Society, has brought together in his last number (1881, No. 5), a varied selection of articles to illustrate the history, ethnography and linguistics of *Madagaskar*, which, on perusal, prove to be of high interest. This annual is printed in the capital of the island, Antananarivo, and forms octavo numbers of over 100 pages each. Of the contents of No. V. we mention: Two Years among the Sakalava; On the Flora and Fauna of Madagaskar (by Alfr. R. Wallace); Foreign Words in Malagasy; Madagaskar and its Proverbs; The Malagasy "Passives" (a verbal form); Marsden on the Malagasy Language, etc., etc.

RECENT INTELLIGENCE.

THE BEAUTIFULLY EXECUTED stone sculptures of Santa Lucia de Cosamalguapa (a town near the volcano de Fuego in Guatemala), of which we have spoken at various times in this periodical, have at last reached their destination, the Royal Ethnological Museum at Berlin, Germany. When Dr. Adolf Bastian visited Guatemala early in 1876, he paid two visits to the locality where the carved stones were imbedded in the soil among the ruins of an ancient city, securing at the same time his right for the removal of these monuments to the Berlin museum by legal steps with the local authorities. The thickness and weight of the stones necessitated the cutting off of their back part, a work which the explorer Dr. Berendt, superintended on the spot up to his untimely death, April 12, 1878. Subsequently the representative of the German Empire in Guatemala took charge of the removal of these interesting remains, which consist of a porous andesitic lava, and after five years of constant exertions they finally arrived at Stettin in August, 1881, and a few weeks after in the Prussian capital.

Dr. F. Habel, an Austrian explorer, took careful sketches of their outlines in 1862, published and described them in "Contributions of the Smithson. Institution," Vol. XXII., 4to, 1878, in a separate publication of ninety pages and eight Albertype plates. As soon as the sculptures arrived in Berlin, Dr. Bastian published three of the most interesting slabs from photographs, and gave a lucid description of their purport and mythic-historic origin in a folio publication, which has just now reached our office: "*Steinsculpturen aus Guatemala.* Herausgegeben von *A. Bastian*, Director der ethnologischen Abtheilung der Kön. Museen." Berlin, Weidmann, 1882. fol. 30 pages. 3 plates.

Bastian thinks that the ruins of Santa Lucia are the remains of an ancient settlement of the Cholutecans or Chorotegans, who are an offshoot of the Chiapanecs in Chiapas, and are historically known to have emigrated to the southeast. The scenes and acts represented in the slabs are connected with the mysteries or mystic worship once instituted at Huehuetan in Soconusco, and these mysteries were themselves representations of Xibalba's underground world. The rest of the volume is taken up by the publication of correspondence with Dr. Berendt and others, showing the progress of the work of removal.

On page 22 is mentioned another field of ruins, sculptured stones, rests of walls, etc., called the group of San Juan Perdido, distant 1½ leguas from Santa Lucia. Here are found statues of animals, persons, enormous heads, sacrificial vases, which, from the descriptions given by Dr. Berendt, promise to be of great archeological interest to future explorers.

LAKE-DWELLERS' RELICS.—We have received from Jacob Messikommer, an assortment of Lake-dwellers' relics, among which are fleshers, with bone hafts; bone needles, stone celts, hammer-stones, pieces of cloth, a large assortment of seeds, all of which are from recent finds. We propose to distribute them, by way of exchange, with the collectors of this country.

The Swiss papers announce the discovery of the skull of one of the Lake-dwellers. It was found beneath a bed of tufa 15 feet thick. The skull is dolichocephalic.

A BRONZE VESSEL FOUND AT PLUSCARDYN, WALES.—It was found at Urchard Priory. There were also discovered at the spot, large beams of oak, used in the construction of some pit or underground store.

PREHISTORIC POTTERY IN EGYPT.—At a recent meeting of the Berlin Anthropological Society, Dr. Jeger read a paper on the above subject, and a discussion followed, in which Prof. Virchow took part.

ARTHUR'S ROUND TABLE.—The Royal Archæological Institute of Great Britain recently visited Arthur's Round Table and Long Meg and her Daughters, in Penrith, Cumberland. Prof. Stevens, of Copenhagen, made some remarks upon the cup and ring marks found upon the stones, belonging to the circle known by the latter name. He thought they were religious symbols, pointing to the worship of the sun, at a time as early as the Stone Age. The Institute also visited a circle at Mayborough, and a smaller circle close to it, which Mr. Evans declared to be a place of burial.

EGYPTIAN BOOMERANG.—Gen. Pitt Rivers recently read a paper before the Anthropological Institute of London, on the Egyptian Boomerang, and exhibited several specimens.

THE DEVIL'S QUOITS.—In Shrowlfield, in Somerset, two stone pillars known as the Devil's Quoits have ruthlessly been broken up. The name Coet or Dolmen means, in Britain, a grove, or wood. Sometimes it is transferred to the rude stone monuments standing therein. The Rev. H. C. Nutt, of East Harptree, has a very interesting note on the same, in a recent number of the *Antiquary*.

BRITISH MUSEUM.—The Hellenic room, situated between the Elgin room and the Egyptian gallery, has received a new addition for the remains of the mausoleum of Helikarnassus. This mausoleum is one of the finest examples of Ionic architecture in existence. The Hellenic room has long been crowded, notwithstanding the removal of many things to the South Kensington.

EARTH-WORKS IN YORKSHIRE.—Gen. Pitt Rivers has a paper in the last number of the *Journal of the Anthropological Institute*, on earthworks in the Yorkshire Wolds, which he regards as intrenchments erected during the prehistoric times, to defend those who had arrived by sea. The people who erected them were in the early bronze stage, but he could not determine whether they were from Denmark or France. A map is given, and plates showing the stone implements discovered in the excavation.

The same journal contains notes on some excavations made in tumuli near Copiapo, Italy, by J. H. Mudge. Also on some stone implements from British Guiana, by E. F. ImThurm. These stone implements are found in shell mounds, scattered on the surface, or stored up by modern Indians. The writer thinks them to have been Carib implements. One interesting fact is mentioned in this paper: that the Indians of South America spend their leisure hours in fashioning highly ornamental implements which they never use, except, perhaps, ceremonially. They treasure these up, while they take to the fields implements that have cost less labor. The most interesting paper, however, is on the discovery of chert implements in stratified gravel, in the Nile valley, near Thebes, by Maj. Gen. Pitt Rivers. The Egyptians used flint implements in embalming, and for ceremonial purposes. It has been ascertained, too, that the hieroglyphics can be easily worked with flint, for this material, by fracture and use, renews its own edge.

FOLK-LORE.—At the general meeting of the "Folk-Lore Society," held at Lord Beauchamp's house, Karl Blind, who has recently discovered a number of curious Shetlandic tales, referring to the ancient Germanic water-cult, announced in his speech that he has received now from Shetland, some remarkable communications of current folk-tales which shed much light on the vexed question of the race origin of the Pechts, or Picts, whose stone structures are still studding the Northern Islands, as well as Scotland.

THE antiques discovered in 1881 at Dayr-el-Baharee, in the mountains of Thebes, numbered 6,000. They have been catalogued and placed in new halls built for them in the Boolak Museum, at Cairo, and have escaped injury during the recent anarchy.

Last April a black pot containing about 3,000 mediæval coins was dug up in Basel. Most of them bore the mint-mark of the bishop of that city. None of them were later in date than 1272. In that year, Aug. 24, the suburb where they were found was burned and plundered by Rudolf of Hapsburg. The money was probably secreted at that crisis.

IN digging a grave at Westminster Abbey it has been discovered that a Roman villa once stood on the site of its nave. Twelve feet below the level of the present pavement remains of a hypocaust [furnace] etc., were found.

A FRAGMENT has been discovered at Rome of the shield of Achilles, bearing not only the sculptures but a portion of the text of Homer.

A STATUE of Nike [Victory], discovered in 1863, in Samothrace, dashed into 118 fragments, has been reconstructed and just placed on its original pedestal, which was the prow of a galley. It is now one of the finest sculptures in the Parisian Louvre. The movement of the wind-walted robe as the goddess flies down from heaven is in the grandest style.

A GALLERY of modern art has just been opened in Rome, and an annual appropriation of 100,000 francs is to be made for it by the Italian government.

THE drawings in the Louvre now number thirty-seven thousand; the sculptures in the Roman museums, three thousand four hundred and thirty-eight.

M. PAUL BAUDRY, who gained European fame by his frescoes in the Grand Opera House of Paris, has just executed a magnificent ceiling decoration for Vanderbilt. His subject is the Cupid and Psyche myth which Raphael immortalized in the Parnesina at Rome.

A HOARD of Anglo-Saxon coins has been unearthed in Wicklow, Ireland. None of them bear a later date than A. D. 824. They were minted in Kent (Eng.), and are supposed to have fallen into the hands of Danish-Irish who in A. D. 832 ravaged Sheppey.

THE Athenian Parthenon, blown to fragments when used as a powder magazine, is being strangely reconstructed. Long ago a slab of its carved friese was discovered in Modena, and another in France. In 1877 a centaur's head dug up in Athens was found to fit a body on one of the friezes in the British Museum. A Dr. Waldstein has just found a head in the Parisian Louvre to belong on one of the Lapithae cut on the London Elgin Marbles. Pages might be filled with a catalogue of the minor discoveries, each of which helps the resnrrection of the work of Phidias.

THE *Revista Contemporanea* of Madrid, in the number for August 15, has a brief, but somewhat vague, account of a visit to the remains of an ancient city, marked as Brabum on Coello's map of the Province of Bargos, but known in the neighborhood as the Ciudad de Montesclaros. The ruins, which are situated on an elevated plateau, a little to the N. W. of Nuez de Abajo, and not far from the Roman road from Bribiesca to Segisamum, seem to consist of earthworks faced on both sides, and on the top with rough unhewn masonry of small stones without mortar. In the centre of the enclosure is an artificial mound of some 50 metres diameter, and from 6 to 8 metres above the surrounding surface, and on it are the remains of a circle of from 12 to 14 large calcareous stones. The mound is supported at its base by a wall similar to the one described above. The most remarkable seems to be the fact that bones are found in sufficient quantities to be extracted for manufacture and for exportation. Within the walls coins have been found, two of them in gold, but unhappily not one of these is either figured or described in the paper. Many bronze ornaments and instruments, some of very rude, others of more artistic workmanship have been found, as well as some few in iron. The anonymous author suggests that these may be the remains of a fortified camp or outpost of the Keltiberians, afterwards utilized by the Romans to protect the plank of the road above mentioned.

There can hardly be a doubt that we have here the remains of one of the many lost cities of ancient (almost pre-historic) Spain, and which, with the so-called Keltiberian coins and inscriptions in the "letras desconocidas," prove the existence, as Strabo and Diodorus assert, of a civilization anterior to either Carthagenia or Roman, not highly advanced perhaps, but superior to that of any pure Keltic tribe to the North in Gaul, or elsewhere.

GENERAL REVIEW.

NOTES FROM ORIENTAL PERIODICALS.

BY PROF. J. AVERY.

Indian Antiquary (Bombay):--This monthly magazine, which is probably little read in America, is a rich treasury of original researches on the archæology, history, literature, languages, folklore, &c., of India. It is supported by the foremost native and foreign scholars in that country, with occasional contributions from *savants* in Europe. We note a few of the papers which have appeared in the last quarter—April to July. Mr. Edward Thomas describes some Arabic coins recently found in Sind. This province on the lower Indus was invaded by Arabs from the south or Persia in A.D., 712, who succeeded in gaining permanent foothold, but

ultimately disappeared by absorption into the larger Hindu population. The few coins hitherto discovered bearing the stamp of Arab princes are valuable in constructing the obscure history of that period. An important feature of this magazine is the large number of inscriptions of which it publishes fac-similes as well as translations, thus enabling scholars everywhere to form independent judgments of this important source of historic evidence. Mr. J. F. Fleet has contributed more than any one else to this subject, the list of inscriptions presented by him numbering 121, which nearly equals the total issues of the magazine. These records are found upon temples, monuments, and copper plates conveying royal grants, and are our chief reliance for the history of mediæval India. Mrs. F. A. Steel is publishing a collection of folklore which she has gleaned from the mouths of the people in the Panjāb, and Lieut. R. C. Temple describes the custom prevailing among the lower castes in the same province, of adopting high-sounding names; thus, a potter is called Parjāpat "lord of creatures," a groom Bhagat "saint," a tailor Khatifa "caliph." Mr. H. H. Howorth is writing the history of Chinghiz Khan and his ancestors, in which he does not confine himself to political annals, but contributes much information regarding the literary and religious history of the Mongols. The records of Central Asia have hitherto been so sealed to the public in Chinese, Russian, and other languages not generally understood, that Mr. Howorth's labors will be gratefully appreciated. Prof. Forchhammer begins a series of articles on the Indo-Chinese languages, as does Dr. E. Müller also on Simhalese grammar.

Jour. of the Asiat. Soc. of Bengal. Vol L., Part I. Nos. III and IV.--This Part contains two papers. The first is on Relics from Ancient Persia in gold, silver, and copper, by Maj. Gen. A. Cunningham. In the year 1877 a remarkable discovery of gold and silver figures, ornaments, and coins was made near the town of Takht-i-Kuwat on the Oxus river. The dates of the objects, in the opinion of the writer, range from the time of Darius to that of Antiochus the Great and Euthydemus of Bactria. They were found scattered in the sands of the river, and are supposed to have been buried near the stream when Euthydemus was defeated by Antiochus, circa B. C. 212. During more than 2,000 years they have escaped the greed of successive hordes of barbarians until recently brought to light by the wearing away of the river bank. The greater part of the find came into the hands of Gen. Cunningham, who describes the objects minutely, and adds much interesting matter regarding Persian dress, ornaments, and coinage. The second paper is by Babu S. C Dās, deputy inspector of schools at Darjiling, on the religious and political history of Thibet. The part relating to religion describes only that form of belief which preceded the introduction of Buddhism, and survives in some degree to the present time. This is known as the Bon religion. The writer translates for us a chapter from a native work which was written in 1740, and professes to give an authentic history of the primitive faith. This was, so far as we can judge, of the same general type as that prevailing elsewhere among rude peoples. The civil history of Thibet, which the writer also derives from native sources, begins with the date B. C. 416, when, according to tradition, the king who first brought the country under one rule ascended the throne. The independent monarchy continued down to the 13th cent., when the country became a dependency of Mongolia and subsequently of China.

The Calcutta Review.—This periodical always contains an inviting list of papers, but one relating more to India of the present than of the past. In the number for April Mr. H. G. Keene writes a discriminating sketch of some of the illustrious men who adorned the Indian Services in the first half of the present century. Mr. J. C. Ghosh describes that remarkable institution, the Village Community, as it exists in Bengal and Upper India, of which Mr. Elphinstone said that they "are little republics, having nearly everything they can want within themselves, and almost independent of any foreign invasions. They seem to last where nothing else lasts." Lieut. R. C. Temple contributes some popular songs as they are heard in northern India. Rev. J. E. Scott, in a brief paper, gives abundant proof that Indian Missions are not a failūre.

Journal Asiatique. April-June.—Mon. H. Sauvaire concludes a series of papers on Musulman numismatics and metrology. The misfortunes of the Buddhist Arhats are described by Mon. L. Feer. Messieurs J. and H. Derenbourg write on the epigraphy of Yemen. Mon. E. Senart contributes a second paper on the inscriptions of Piyadasi, better known as Asoka, who reigned in India about 250 B. C., and is famous on more than one account. Mon. J. Halevy writes on the inscriptions of Safa.

Jour. of the German Orient. Soc. Vol. XXXVI, Part I.—The principal contents of this issue are: The Arabic dialect of Mosul and Mardin, by A. Socin; The language and customs of the Parsees in Persia, by A. Houtum-Schindler; Armenian notes, by H. Hübschmann; Inscriptions from Edessa, by Ed. Sachan.

Jour. of the Anthrop-Institute (London).—This, though not exclusively an Oriental periodical, usually contains papers of interest to Oriental scholars. In the last number received, for May, we note a brief paper by Dr. E. B. Tyler on the Asiatic Relations of Polynesian Culture, in which the author seeks to prove by a correspondence of arts the early spread of civilization from central and southern Asia to Oceanica. In the same number Mr. M. J. Walhouse writes on Vestiges of Girl Sacrifices, Jar Burial, and Contracted Interments in India and the East. On the west coast of India, from Malabar to the Cape, are found huge earthen mortuary jars usually about five feet in height, four feet in largest girth, and pear-shaped. They are found simply buried in the earth and covered with a flat stone, without the encircling rows of stones or other marks commonly associated with kistvaens and cromlechs. They contain, besides earth, fragments of bones, scraps of iron, and occasionally smaller urns. The natives declare that they hold the remains of sacrificed virgins; that the rajas were accustomed to slay young girls on the borders of their dominions to secure them from invasion. Similar stories are told in other parts of India. Niches in forts are shown where girls are said to have been walled in to render the place impregnable. The use of jars with narrow mouths indicates the practice of cutting up the body before interring it. Mr. G. Bertin discusses the Origin and Primitive Home of the Semites. After criticising the theories that find the earliest seat of the race in Babylonia, Arabia, or elsewhere, the writer seeks to prove that it was in Africa. He holds that the Semites and Hamites had a common ancestry; that they migrated together down the Nile and parted in Egypt, the Semites passing on across the Isthmus of Suez and settling first in Arabia Petræa. The writer supports his theory on the striking agreement which he sees between the Semitic and Hamitic tongues, and on the fact that the Arabic seems to have preserved most fully the characteristics of primitive Semitic speech. In his anxiety to prove the close relationship of the Semitic languages to Egyptian the writer fails to point out the striking coincidences between the latter tongue and the Aryan family. Mr. Bertin's conclusions are widely at variance with those reached by most scholars competent to discuss the subject, and will probably be accepted by few.

BOOK REVIEWS.

FACTS AND FANCIES IN MODERN SCIENCE: Studies of the Relations of Science to Prevalent Speculations and Religious Belief. J. W. Dawson, LL. D., F. R. S., etc. Am. Bap. Pub. Soc'y. Philadelphia.

PICTORIAL COMMENTARY ON THE GOSPEL ACCORDING TO MARK. Edited by Rev. Edwin W. Rice. Am. S. S. Union. Philadelphia.

THE ORDER OF THE SCIENCES. An Essay by Chas. W. Shields, of Princeton College. Chas. Scribner's Sons. New York. 1882.

SCRIPTURE HISTORY: Delineated from Biblical Records and all other accessible sources. Prof. Jas. Strong, S. T. D., Drew Theo. Sem'y. 1878.

SERMONS IN PLYMOUTH CHURCH, BROOKLYN. By Henry Ward Beecher, Sept., 1873–March, 1874. Fords, Howard & Hulbert. 1882.

THE IMPORTANCE OF HISTORIC RESEARCH FOR THE THEOLOGICAL STUDENT OF TODAY. Address by Rev. Hugh MacDonald Scott, at his inauguration as Sweetser and Michigan Professor of Ecclesiastical History in Chicago Theological Seminary. Jameson & Morse. Chicago, 1882.

ANNIVERSARY ADDRESS by Chas. F. Deems, D. D., LL. D. Am. Inst. of Christian Philosophy. New York, 1882.

SELECT NOTES ON THE INTERNATIONAL LESSONS FOR 1882. By Rev. F. N. and M. A. Peloubet. W. A. Wilde & Co. Boston.

THE FINAL PHILOSOPHY. By C. W. Shields, D. D. Scribner, Armstrong & Co. New York, 1877.

A few years ago, Geology furnished the topics for discussion between the religious teachers and scientific students. Now, however, it is Anthropology. The books which are most read, and the magazine articles which attract the most attention, are upon the themes connected with man and his origin. This is a natural result of the progress which has been made in the department of Anthropology. The discoveries which have been made in the East have revolutionized history.

They have confirmed Scripture, however, and so scientists leave these to the theologians. There are, however, discoveries which seem to throw doubt upon the Scripture record, especially as to the recent origin of man, and his creation by direct power of the Almighty. Religious teachers are not, many of them, disposed to surrender their ground as creationists. A few are, like Mr. Beecher, ready to give up the belief, and to accept the Darwinian theory to the full extent. Others accept the evolution theory, without granting the Darwinian doctrine. It is probable that there is a better understanding between religious thinkers and scientists now, than ever before. The difficulty has been that unbelieving scientists have assumed to teach theology, and dogmatic theologians have assumed to teach science. A class of men has arisen, however, who have made a specialty of scientific studies, but who are also reverent, religious men, and a number of books have been written, which, while reliable in their scientific statements, are not antagonistic to the revealed word. Among these, the chief are those by Dr. Dawson, of Montreal. The titles of his works show what range of study has been followed. These are: The Origin of the World, Story of the Earth and Man, Facts and Fancies of Modern Science. In these works, the author takes the orthodox, or, rather, apologetic side, in reference to the antiquity, origin and unity of man, and other similar points. He maintains that man, when regarded merely as an organism, is closely related to the lower animals, yet the physical structure of man so differs from the highest species of the anthropoids, that there is a necessity for many intermediate forms, still unknown, to connect the two species. Heckel admits that there is a wide gap, yet unfilled by any living or fossil creature. The fossil man of Mentone, discovered by Dr. Rivieré, under about 20 feet of accumulated *debris*, has a skull as well-formed as any of modern days; and Prof. Broca says of the Cromagnon skulls, that "they give incontestable evidences of superiority." Huxley says of the Engis and Neanderthal skulls, "they indicate that the first traces of the primordial stock need no longer be sought in the newest Tertiaries, but in an epoch more different from the elephas primogenitus, than that is from us." Thus this noted scientist has put statement against statement, and has thrown the burden of proof upon the opponents of revelation. Another writer, who is, perhaps, less of a scientist and more of a theologian, may here be mentioned, having written two volumes on the conflict between science and religion, one entitled The Final Philosophy, 600 pp., 8vo.; the other, The Order of the Sciences, 102 pp., 12mo. Prof. Shields maintains that a philosophical scheme of the sciences should be based upon facts which support them; should reflect all the distinct classes of facts, should exhibit the facts in all of their actual connections; should embrace their empirical and metaphysical divisions, and should have a general science of all the sciences. The development of this thought is not so plain or clear as it might be, yet the statement commends itself to our judgment.

Another class of writers may also be mentioned, who are doing an important work in the same line. We refer now to those Scripture commentators and writers who have informed themselves in reference to the latest discoveries in archæology, and so illustrate the Scripture by the results of modern research. Among the works which have appeared are the little volumes prepared as commentaries on the International Lessons, by the Rev. E. W. Rice, D. D., Philadelphia, and F. N. Peloubet, of Natick, Mass. There is no doubt that Scripture finds great confirmation from the geography and archæology of the East, but the ethnology which treats of the religious thoughts of the various races, is perhaps more instructive still, and a volume prepared by Prof. Jas. Strong, of Drew Seminary, shows that the general theory of heathen antiquity was that matter is eternal. The Gods were conceived by the ancients as under manifold limitation, and that the great difference between the heathen cosmogonies, and the Mosaic, is that they lacked the conception of an Infinite mind, who could create the world, and rule and redeem the human race.

Modern science may well study the Pagan notions as to local and ethnical divinities, which were the last results of their religious developments, but does not need to give up the idea of a universal Supreme Being. It is said that the thought of the Infinite is absent from the national consciousness of the Chinese. If the progress of the ages has brought up the conception of modern thinkers, so that the Infinite and Eternal are now apprehended by religious people, we certainly do not want to go back to the dead state where the Chinese were, or to the superstitious state of the savage. Some scientists have talked as if they considered all religion as mere superstition, but it is plain that religious thinkers understand themselves as well as these overwise men.

OUTLINES OF THE HISTORY OF RELIGION, to the Spread of the Universal Religions. By Prof. C. P. Tiele, D. D. Trans. by J. Estlin Carpenter, M. A. Jas. R. Osgood & Co. Boston, 1877.

HISTORY OF THE EGYPTIAN RELIGION. By Dr. C. P. Tiele. Trans. by Jas. Ballingal. Houghton, Mifflin & Co. Boston, 1882.

COMPARATIVE RELIGIONS.—The science of comparative religions is rapidly advancing. Several books have appeared lately which are very valuable. Among these are the volumes of Prof. C. P. Tiele, of the University of Leyden, one entitled *Outlines of the History of Religion*, and the other the *History of the Egyptian Religion*. These are very valuable works. Differing from Max Müller, both in the manner of treatment and the thoroughness of investigation, this author has furnished original contributions. The student of religious thought can hardly afford to do without either of these volumes. The view given of the animism which has prevailed so extensively among the uncivilized races, and which the author traces in the later faiths of the Chinese, Hindus, Greeks and Romans, Semites, or others, is worthy of study. There is no doubt that Archaeology is destined to reveal many facts in reference to the development of religious thought, which cannot be ignored. The question is, whether theologians will make themselves familiar with these facts, before they have been wrested from their proper place, as parts of the great structure, of which Christianity is the keystone and summit. Scientists are not so likely to enter this field as scholars of another kind. It is a province belonging more to religious teachers, but religious minds seem averse to enter it. It is one part of the work of this journal to bring up these subjects, and so we present all recent investigations abreast with one another, and we refer to these books as presenting some important religious discussions.

THE ST. CLAIR PAPERS. The Life and Public Services of Arthur St. Clair, with his correspondence and other papers. Two volumes. By Wm. Henry Smith. Robt. Clarke & Co. Cincinnati, 1882.

GEN'L ARTHUR ST. CLAIR.—The St. Clairs figure prominently in history, song and story. Arthur St. Clair was the descendant of a noble family, was born in Scotland in 1734. He entered the military service when twenty-three years of age. He arrived with Amherst in this country, and was assigned to the command of Gen. Wolfe, and took a conspicuous part in the battle of Abraham's Heights. He was married in Boston to Miss Phoebe Bayard, whose mother was a Bowdoin. He removed to the Ligonier Valley, where he had acquired a large tract of land, and thus became a pioneer on the frontiers of Pennsylvania. He became surveyor, Justice of the Court, member of the Governor's Council. The American Revolution found him surrounded by a rising family, in the enjoyment of ease and independence, but he received the commission of Colonel, and entered into the cause of liberty for the United Colonies.

He raised a regiment and repaired to Quebec to join Arnold, just in time to cover the retreat of the army from that place. He was elected Brigadier-General by Congress, and joined Gen. Washington in New Jersey, sharing with him the labors and privations of the memorable winter of 1776-77.

He directed the details of preparation for the memorable retreat with Washington made at Trenton, and was one of his favorite counsellors and most trusted attendants during this period.

He was commissioned as Major-General and located at Ticonderoga, and conducted the retreat from that place. He left the Northern Department by the order of Congress, and went to report at head-quarters, and await an inquiry into his management. Not receiving a court martial he entered actively into the campaign with Washington, and underwent the sufferings and privations of the army at Valley Forge, and amid all the trials remained serene.

After the revolution St. Clair returned to a private life, but found himself ruined financially. He lost £20,000 on one piece of real estate alone. When the North-west Territory was erected, we find Gen. St. Clair and Rev. Dr. Cutler working together for the creation of a wise government, though it is not known what his counsels were. The historian, Wm. Henry Smith, maintains that Dr. Cutler was not the author of the famous Sixth Article in the Constitution of 1787, excluding slavery from the North-west Territory, and that Mr. Dane was, but Arthur St. Clair was appointed the first Governor and improved the earliest opportunity to carry into effect the ordinance. In 1788, military honors met him at Fort Harmer, on the banks of the Muskingum, and he entered upon his duties as Governor over the vast region. If we draw a line from South-eastern Ohio diagonally to Lake Superior, and another from the upper Ohio to the Mississippi,

we shall embrace a territory in which there was at this time, save here and there a Moravian Missionary, not a white inhabitant. Over this vast country the Indian was lord and possessor. There were, however, many complications—the extraordinary claims of different land companies in the valley of the Wabash and Illinois, and of the French settlers at Fort Vincennes. The titles to land had been surrendered by the Wyandottes, Delawares and Shawnees, but the tribes of the interior still held the territory. The great Mohawk chief, Joseph Brant, had been successful in holding councils with tribes to prevent the Americans from encroaching upon the lands west of the Ohio river. The British still held the posts along the chain of lakes, and by pernicious counsel increased the wrath of the Red Man. Gen. St. Clair, however, succeeded in forming two treaties: the first with the Six Nations, who occupied the region north and east of this; the second with the Wyandottes, Delawares, Chippeways, Ottawas, Pottawottamies and Sacs, who were then occupying the region included in what was then known as the North-west Territory. He then visited his family and assisted in the inauguration of Gen. George Washington, as first president of the United States, but returned to the West to resume the work of constructing the government in the wilderness. Washington county then embraced nearly the whole of the state of Ohio, but in 1790, Gov. St. Clair issued a proclamation establishing the county of Hamilton. The Governor, the Secretary and Judges of the then territory were members of the Society of Cincinnati, and the name was given to the city by Gov. St. Clair. The first three counties, Washington, Hamilton and St. Clair, still bear the names of the great Commander-in-Chief, and his distinguished aid and his favorite general, all of them members of the same Society of Cincinnati. Indian troubles having arisen, Gov. St. Clair resumed his functions as Major-General. Ft. Washington was the only garrison, but under the urgent orders of the Secretary of War, to make aggressive measures, Gen. St. Clair proceeded to construct Forts Hamilton and Jefferson, though under the greatest difficulties.

Having accomplished this, he left Fort Jefferson on the 21st of October, and moved through the wilderness toward the Maumee, where another fort was to be erected. It was late in the season, the frosts had cut off the forage, the men were on half rations, the militia were deserting in great numbers, Gen. St. Clair was attacked with a severe sickness, and had left to him only about 1,400 men. In this condition—poorly prepared to receive an attack—his army were surprised by a sudden onset of the savages in the midst of the wilderness. A panic ensued. Gen. St. Clair left his sick quarters on the first fire, and endeavored to reform the lines, but the officers attracted the aim of the savages, and fell on every hand. A retreat followed, but the retreat became a disgraceful flight. Gen. St. Clair, who was at first on foot, at last procured a horse and retreated with the army to Fort Jefferson. The Indians outnumbered the whites. Exasperated by the thought that the white men were trying to deprive them of their lands, and rendered desperate by the desolation of their homes, they fought as they never fought before.

St. Clair owed his defeat to the circumstance, but he probably died in ignorance of the fact that one of the master-spirits, with whom he contended, and by whom he was so signally defeated, was Joseph Brant. Little Turtle was ostensibly the commander of the Indians, but Brant, who had all along pretended peace, was virtually the leader. The matter came before Congress and Gen. St. Clair was exonerated, but he never recovered, in the popular estimation, what he lost by the defeat. He remained as Governor of the North-west Territory until the erection of two or three states, Ohio and Indiana, and until after the death of Washington. He returned to Pennsylvania in 1803, gathered his family about him and died in 1818, at the age of 84.

His correspondence and addresses occupy a large portion of the voluminous, splendidly prepared volumes. He passed through three wars, French and Indian, Revolutionary, and Indian War of 1794. His historian, Wm. Henry Smith, has admirably given the story of his life, and wisely edited the work. The publishers, Robert Clarke & Co., deserve much credit for thus giving to the world the life and letters of the man who figured as conspicuously in the early history of the West.

HUMBOLDT LIBRARY OF SCIENCE. J. E. Fitzgerald & Co., Publishers, 30 LaFayette Place, New York. 15c. per copy, $1.50 per annum, 12 numbers.

GENERAL SCIENCE.—This Library of reprints has now reached its 34th number. It is the cheapest form in which monographs on scientific subjects can be bought. The list embraces Huxley's Man's Place in Nature, Origin of Species and Physical Basis of Life; Spencer's Education, Data of Ethics, Progress; Tyn-

dall's Forms of Water, Electricity; Bain's Mind and Body; Proctor's Light Science, Familiar Essays, Hereditary Traits; Rawlinson's Origin of Nations; Kingsley's "Town Geology;" Bagehot's "Physics and Politics," etc., etc.

These essays are all valuable, and, at the price at which they are offered, should be in everybody's library.

REPORT OF PROGRESS OF GEOLOGICAL AND NATURAL HISTORY SURVEY OF CANADA FOR 1879-80. A. R. C. Selwyn, LL. D., F. R. S., Director.

We are happy to have received the Preliminary Report of the Geological Survey of Canada, as it gives information on some important points, and brings out facts in reference to the region bordering on our own northern boundaries, which are of interest. A recent visit to the Red River of the North convinced us that an outlet for the wheat products of that region by way of Hudson's Bay was as feasible as by the railroad route to Lake Superior, a view which is advocated by Robert Bell, one of the parties who makes a report in this volume. The description of British Columbia, and the wild, mountanous country along the Peace River, by George M. Dawson, is full of romantic interest, for the Yellowstone Park and the Northern Pacific route is an old settled country compared to this.

HISTORY OF THE DISCOVERY OF THE NORTH-WEST, by John Nicolet, in 1634, with a Sketch of his Life. By C. W. Butterfield. Robert Clarke & Co., 1881.

NICOLET AND THE DISCOVERY OF THE NORTH-WEST.—Anything which concerns the early history of the North-West will doubtless have great interest to our readers. A new contribution to it has been made in the shape of a monograph on the early explorations of John Nicolet. It was through the influence of Champlain that he entered upon his work of exploration. Arriving from France in 1616, he made his residence among the Nipissings for nine years. Champlain had been told that there were copper mines on the borders of the fresh-water seas, and had actually seen a piece of copper a foot long, which had been brought from them. This was as early as 1610, and on his map of 1632, there is a copper mine, but instead of being on Lake Superior, it was placed near Green Bay.

The Winnebagoes, called by Champlain "La Nation des Puants," had been heard of by the missionaries, but had not been visited by them. On the 1st of July, 1634, two Jesuits started from Quebec for the Hurons, and John Nicolet for the Winnebagoes. A birch-bark canoe bore him around the lakes and up the bay. He found the Winnebagoes located around the head of Green Bay. This was before the Sacs and Foxes had taken their residence in Wisconsin. The Mascoutins were then, in the opinion of the author, located in the valley of the Fox River of the North. The same nation is mentioned on some of the early maps as the Fire nation, though they are located about the head-waters of Lake Michigan. Nicolet visited the Illinois, located on the prairie about the Illinois River, and was probably the first white man who ever visited this region. Nicolet's discoveries caused great results. He unlocked the door to the far West, where afterwards were seen the fur trader, the voyager, the Jesuit Missionary and the government agent. New France was extended to the Mississippi and beyond. This was fifty years before Marquette.

In 1641, a deputation of Indians occupying the country around a rapid in the midst of the channel through which Lake Snperior empties into Lake Huron, reached the Jesuit Missionaries, inviting them to visit their tribe. The Sault St. Marie was thus made the first point of entrance into the territory now owned by the United States. The credit of being the first explorer and discoverer of the great interior belongs to Nicolet rather than to Marquette.

BUDDHA AND EARLY BUDDHISM. By Arthur Lillie. Illustrated. G. P. Putnam's Sons. New York, 1882.

BUDDHISM.—This book is not a history of Buddhism, but a description of the symbolism which is peculiar to that religion. The symbols of the serpent, and the tree, and the suastika or fire-maker, the elephant, the zodiacal circle, etc., the author thinks were Buddhistic, or at least appropriated by Buddhism. The actual proof that these were used by the Buddhists, and that where they are found furnish actual evidence of the presence of Buddhism, we do not think the author has given. But the book is suggestive and interesting because of the novel method which the author has taken. The presence of Buddhism in America might be recognized in the symbols, if the symbols were proven to be here. The author assumes this, but does not cite the cases. The serpent symbol is, however, reviewed enough in connection with Buddhism for the majority of our readers to

desire to possess the book; while considering that this, like all other works on symbolism, is based too much upon conjecture, yet it is so suggestive that we heartily recommend it, since it is the cheapest work that treats of the subject at all.

THE GYPSIES. By Chas. G. Leland. Houghton, Mifflin & Co. Boston, 1882.

THE GYPSIES.—If we have not a science of curiosities, it is because it lies for the present distributed about among the other sciences and not segregated by ethnology. However, there is already much in literature that is curious. Perhaps no history is more mysterious and obscure, and no race more curious and strange, than the Gypsy. Mr. Leland has been as familiar with these wanderers as any literary man or author, and has woven the story of his adventures into this interesting volume. It is, however, one of the curiosities of literature more than a profound treatise of science. The Gypsies in their social life, and in their character as a people, are portrayed, the brilliant eyes of their young women described, and the strange fascination which some of these children of nature have about them, depicted, but we know little more about the real origin of the race, from the volume, than we did before. The book is readable, full of Gypsy songs and Gypsy stories, and will prove a literary entertainment to any one who will purchase it.

TRUE KEY TO ANCIENT COSMOLOGY. Wm. F. Warren, LL. D., S. T. D. Ginn, Heath & Co. Boston, 1882.

ANCIENT COSMOLOGY.—The true key which is given in this little pamphlet is, that the Pole Star is the true zenith, the heavenly heights about it are the abode of the Supreme Gods, the Northern Hemisphere is the proper home of living men, the Southern, the abode of disembodied spirits, and the region immediately around the South Pole, the "Lowest Hell." Thus "Lofty Olympus," "Inhabited Earth," "Surrounding Ocean Stream," "House of Hades" and "Gloomy Tartarus" are all upon the surface and are geographical. The "Mountain of Meroe" of the ancient Acadians, "Mount Sar" of the ancient Egyptians, "Har Moed" of Babylonia, "Mt. Meru" of the Hindus, "Asgard" of the Northmen, and the "Pearl Mountain" of the Chinese, all correspond, while the "Yggdrasil" of the Norse Mythology, the "Cosmical Fig-tree" of the Vedas, the "Winged Oak" of the Pherecydes, and the "Ko-ji-ki" of Japan, and "Izanagi's Spear," are each one the upright axis around which the earth revolves. The Hesperides was the starry guardian of the circumpolar sky. The great serpent was none other than the constellation Draco.

THE RELIGIONS OF INDIA, by A. Barth. Translated from the French by Rev. J. Wood. 8vo., pp. xxiv., 309. London: Truebner & Co., 1882. There is no lack of books and essays designed to describe the religions of India; and yet, in spite of the abundant literature of the subject, we doubt whether many persons succeed in getting a clear idea of the character of those religions. This obscurity is not wholly due to a faulty method of treatment, but is inherent in the subject itself. Nothing represents so aptly to the mind the infinite ramifications of thought and bewildering varieties of usage in the religions of the Hindus as the Indian jungle with its tangled vegetable growths and teeming animal life. One of the latest, and we believe best, general discussions of the subject is the work named above. The author is a competent scholar, an independent thinker, and a clear writer. His plan does not include every form of religion existing in India, but only those which are included in or closely affiliated with the two great religious systems commonly known as Brahmanism and Buddhism. This excludes the lower types of religion found among the aboriginal tribes, which have never yet been comprehensively treated. The whole course of religious development, as it is observed within these limits, the author divides into five periods, which in chronological succession are: The Vedic Religions, Brahmanism, Buddhism, Jainism, Hinduism. The reader will note that M. Barth speaks of religions in the Vedic period instead of religion as is commonly done. His view is, that the Vedas are wholly the production, and represent the religious worship of a sacerdotal caste, and that there were at the same time forms of popular belief of which we have in the sacred books of the Brahmans no definite account, but of which the modern worship of Vishnu and Sina are lineal descendants. This opinion deserves serious consideration. If it is correct, we shall have to concede that the Vedas do not present a faithful picture of the Aryans of that early age. Probably all Vedic scholars have felt this in some degree, but have been disposed to see less of the priestly hand in the Hymns than our author has done. Doubtless the contrast between this literature and that of the next period has helped to heighten the common impression. The second period brings us to a new phase of development

which is best called Brahmanism, since it represents the complete ascendancy of the Brahmans, with the formation of a sacred language and the invention of a costly and elaborate ritual. In the same period we come upon the first attempts at philosophic speculation, out of which sprang at a later time the greater systems of Hindu philosophy. The third period represents the inevitable revolt against the exclusive pretensions of the hierarchy which developed under the form of Buddhism. The author gives a clear, if brief, account of the rise, rapid spread, and as speedy downfall of this greatest attempt to reform the national religion. Its extinction in India M. Barth regards as due, not so much to persecution—the cause commonly assigned—as to inherent defects, particularly its monastic order by which its life was concentrated in a body of men who lived apart from the common people, and consequently outside the pale of their sympathies. A single chapter is devoted to Jainism, which is closely related to Buddhism. The date of its origin and its historical development are quite obscure. Our author holds that the evidence points conclusively to a later origin than that of Buddhism, an opinion contrary to that of Colebrooke and a few other scholars. The last period, and the one most difficult to describe briefly and in a systematic way, is that of the neo-Brahmanic religions, which are grouped under the comprehensive title of Hinduism. This is the period of sects, the number of which and the variety of whose usages is well nigh countless. Still, it may be said that most of them may be grouped under the worship of Vishnu or Sina and their consorts. Hinduism is, in general, gross idolatry and superstition. Many attempts have been made to reform it but they have uniformly failed. The latest attempt, the Brahmo Somaj, is now being worked out, and we cannot with certainty predict the result. The outlook is not very cheering. After a half century of life its adherents are numbered by hundreds, and the oldest of the three parties into which it is split shows plainly a tendency to fall back into the lap of ancestral belief and practice. In conclusion, we heartily recommend this book as a comprehensive, clear, and authoritative presentation of the religions of India.

BUDDHIST LITERATURE IN CHINA, by Samuel Beal, Professor of Chinese in University College. London: 8vo., pp. xvi, 185. Truebner & Co., 1882. This book contains an abstract of four lectures recently delivered in London by an eminent Chinese scholar who has already done good service in translating Buddhist works from the Chinese. The lectures are founded upon an examination of the Tripitaka, or canonical writings of Buddhism, as they are known in China, a complete set of which was received a few years since at the India office; they have, therefore, the merit of being drawn from original sources. The first lecture is mainly devoted to short biographies of the Buddhist missionaries who, during the first six centuries of the Christian era, were carrying their sacred literature to China, and translating it into the vernacular of that country. These were remarkable men, and we never weary of the recital of their pure lives and self-forgetting zeal. They form a fitting parallel to those other missionaries in the far West who were at the same time preaching a purer faith to the barbarous tribes of Europe. The second lecture begins with a discussion as to the language in which the Buddhist canon was composed. Many eminent scholars have held that there were two versions only in India, that written Pāli in the South and that composed in Sanskrit in the North. Other scholars, our author among them, insist that there were many versions current in the dialects of localities wherever the tradition of the Master's instructions was preserved. Mr. Beal believes that he is supported in this view by the character of the Chinese translations; for different versions of what purports to be the same work show such disagreement in details that it is impossible to believe that they were derived from a common source. Following this discussion are some extracts from the Chinese version of the Vinaya Pitaka illustrative of Buddha's method of teaching; and, lastly, the author gives us the Chinese account of the first two Buddhist Councils. In the third lecture we find a sketch of the life and writings of Asvaghosha, the twelfth Buddhist patriarch, who is supposed to have lived about 78 A.D. His discourses mark a change in Buddhist teaching in the direction of greater spirituality, a change which Mr. Beal believes to be due to some knowledge of Christian doctrine which had thus early made its way to India. The last lecture treats of the points of agreement between Buddhism and other religious systems. Some of the cosmic theories of early Buddhism, such as that of a central mountain upon which the gods reside and from which rivers flow, are repeated among Western peoples, and are, as our author thinks, a survival from the primitive beliefs of the race. There is much in the stories,

doctrines, and usages of later Buddhism to remind us of Christianity as it was in the first centuries, and even of the teachings of our Saviour. The only rational explanation of these coincidences Mr. Beal finds in a supposed contact of the two religions. The question of the kind and degree of intercourse between the East and the West in the early centuries is one of very great interest, but one which still waits a satisfactory answer. The writer's conjectures regarding the early influence of Christian doctrines in the East may prove correct, but in the present state of our knowledge we prefer to withhold a decided opinion. Coincidences between religious systems are sometimes due, not to historic contact, but to the similar operation of a common human nature under like conditions. We are obliged to dismiss this book with this brief notice, but have said enough to indicate its value for all who are interested in the history of religions.

Report of Proceedings of the Numismatic and Antiquarian Society of Philadelphia for 1881. Philadelphia: 1882. 8vo., 39 pp. Contains obituary notices on R. S. Swords, Wm. B. Lawrence (biographical notice in Penn Monthly, June, 1881), T. G. Palfrey, Joseph Sabin, Ferd. Keller, E. A. Vetromile, S. F. Haven, E. A. Dalrymple, S. T. D.

Hommel, Fritz: Die Semiten und ihre Bedeutung für die Kulturgeschichte. Leipzig: 1881. 8vo., 68 pp. Contains the first lecture of a series of scientific readings on Semitic nations delivered in the University of Munich in 1878. With colored maps.

Haupt, Dr. Paul: Der Keilinschriftliche Sintfluthericht, eine Episode des Babylonischen Nimrodepos. Leipzig: 1881, gr. 12, 30 pp. With fac-simile. Contains a new translation of the celebrated cuneiform account of the deluge (discovered by George Smith in 1872), with commentaries and annotations.

Rattermann, H. A.: Die deutsche Sprache in der Amerikanischen Schule. Cincinnati: 1881. 8vo., 20 pp.

VIKING TALES OF THE NORTH, by Rasmus B. Anderson, A. M. 2d edition. Chicago: S. C. Griggs & Co.

SPARKS FROM A GEOLOGIST'S HAMMER, by Alexander Winchell, D. D. 2d edition. Chicago: S. C. Griggs & Co., 1882.

ARTICLES ON ANTHROPOLOGICAL SUBJECTS contributed to the Annual Reports of the Smithsonian Institution from 1863 to 1877, by Charles Rau. Washington: Smithsonian Institution, 1882.

OBSERVATIONS ON CUP-SHAPED AND OTHER LAPIDARIAN SCULPTURES in the Old World and in America, by Chas. Rau. Washington, D. C.: Government Printing Office, 1881.

PUEBLO POTTERY, by F. W. Putnam. From *Am. Art Review*, Feb., 1881.

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THIS number completes Vol. IV. *We shall begin Vol. V., Jan. 1, 1883,* and shall hope to make it larger and better than any preceding. In order to do this, however, it will be necessary to assume more expense, and we therefore take occasion to address our subscribers and patrons.

First. It is very desirable that as a class journal the magazine should have our especial cooperation, both in the way of contribution and correspondence, and in the way of personal solicitation. A large proportion of our subscribers have come to us from the recommendation of friends. This must be so in the future. We hope that each one will endeavor to send at least one more subscription, so that our list may be increased, so as to increase the number of issues.

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We give herewith a list of foreign exchanges. It will be seen that we are prepared to furnish information from a great variety of sources, and we expect other exchanges.

Revue D'Ethnographie, Revue de Linguistique, Société De Géographie, Compte Rendu des Séances, Paris; *Correspondenz-Blatt, der deutschen Gesellschaft für Anthropologie*, etc., Munich; *Bericht der Schleswig-Holsteinischen Museum*, Kiel; *The Antiquary, Journal of Philology, Trübner's Oriental Record, Journals of the Anthropological Institute, Victoria Institute*, and *Society of Biblical Archæology*, London; *Bulletino Commissione Archeologica Comunnale*, Rome; *Materiaux pour L'Histoire, Primitive et Naturelle L'Homme*, Toulouse; *Compte Rendu Congrès des Americanistes*, Brussels; *Chrysanthemum*, Tokio, Japan; *Mittheilungen der Anthropologischen Gesellschaft*, Vienna; *Anales del Museo Nacional de México*, Mexico.

☞ We are making a special effort to introduce the Magazine into libraries, and especially into the libraries of colleges, and will be grateful to the gentlemen to whom we send our circulars, if they will aid us in this effort. List of Libraries already subscribing:

Bodleian Library, Oxford; Boston Public Library, Boston Athenæum; Metropolitan Museum of Art, New York; Grosvenor Library, Buffalo; Case Library, Cleveland; Chicago Public Library; Milwaukee Public Library; Merchants' Library, Sacramento, Cal.; Smithsonian Institution; Congress Library; National Museum of Mexico; the Anthropological Institute of London; Peabody Museum; Cambridge Archæological Institute, Boston; Academy of Science, Philadelphia; Natural History Society, Boston; Bowdoin College; Historical Societies of Maine, New Hampshire, Vermont, Delaware, Georgia, Wisconsin, New York, Oregon, Michigan, Ohio and Rhode Island; the Numismatic Society of Philadelphia; the New England Genealogical Society; State Libraries of Pennsylvania, Ohio, New York, Kansas, and many others.

Subscriptions may be sent to the publishers, in Chicago, or to the Editor, at his residence.

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