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*From Fraser Tribune from the Author.  
April 1884.*

*Pre-Aryan American Man.*

By DANIEL WILSON, LL.D., F.R.S.E., President of University College, Toronto.

(Read May 23, 1883.)

The department of Archaeology which forms one special branch of the work of this Section of the Royal Society is ample enough with all its included subjects to occupy our whole energies; and it is still to a very large extent a virgin field. It may be legitimately held to include anthropology, ethnology, and comparative philology; and with such subjects inviting our study there is an urgent demand for immediate action. While there is time much more is required than has yet been done by Canada to rescue from oblivion the materials for ethnical study, in which our vast domain is so rich. On all hands we see ancient nations passing away. The Crees, the Blackfeet, and other prairie tribes; and still more interesting ones beyond the Rocky Mountains, including the various Flathead Tribes, the Nass, Chimpseyans, Sebassas, Stekini, and the ingenious and in some respects unique Haidas of the Queen Charlotte Islands: are all diminishing in numbers, while some of them are destined to inevitable and speedy extinction. With all of them their inherited languages and customs are undergoing important modifications by their intercourse with the immigrant whites; a large influx of Chinese also threatens a further complication of the ethnological problem; and it should no longer be left to the mere efforts of individuals, carried on without concert, and on no comprehensive or systematic plan, to rescue for future study the invaluable materials of Canadian ethnology. To the native languages especially must the inquirer into some of the curious problems involved in the peopling of this continent look for a true key to the mystery. The Government of Canada can thus far refer with some pride to the treatment of its native tribes; but the enlightened example of that of the United States in relation to the ethnology, no less than to the geology and natural history, of the wide domain embraced within their Federation, is well calculated to stimulate us to emulate them. This Section may possibly be the means of accomplishing something towards so desirable a result; but if it is to be carried out on any adequate scale it must be in concert with the Indian Department; and with the Geological and Natural History Survey of the Dominion.

In the present paper I propose to invite the attention of the Section to some consideration of the condition and relative status of the Aborigines of this continent, north of the Gulf of Mexico, not only as studied by means of the knowledge of the native tribes, acquired since the discovery of America in 1493, but in so far as we can determine their earlier condition with the aid of archaeological evidence. The student of the history of the Canadian and North American nations cannot indeed altogether overlook the undoubted fact that Columbus was not the first of European voyagers within the Christian era to explore and colonize the new world. It is a well established fact that not only did the Northmen settle Greenland in the tenth century; but that before its close they appear to have landed

on the Labrador coast, and effected some brief settlement on more than one point further south. The incidents are full of interest for us, but the names of Bjarni Herjulfson and Lief the son of Eric the Red, are associated with very vague traces of this first authenticated European discovery of the western continent.

The part played by the Scandinavian stock in European history proves their abundant aptitude to have been the organizers of a Northland of their own in the New World. The Northmen lingered behind, in their first home in the Scandinavian peninsula, while other tribes from the Baltic first wasted and then revolutionized the Roman world. But they were nursing a vigorous youth, which ere long, as pagan Dane, and then as Norman, stamped a new character on mediæval Europe. Their presence in the New World rests on indubitable evidence; but the very definiteness of its character in their inhospitable northern retreat helps to destroy all faith in any mere conjectural fancies relative to their settlement on points along the Atlantic seaboard which they are supposed to have visited. So far as Greenland is concerned, they left there indisputable literate records of their colonization of the region to which, in contrast to the Iceland from whence they came, they gave the inapt name it still retains. The runic inscriptions brought to Copenhagen in 1831 not only determine the sites of settlements effected by the companions and successors of Eric, the founder of the first Greenland colony in A.D. 986; but they serve to show the kind of evidence to be looked for, alike to the north and the south of the St. Lawrence, if any traces yet survive of their having not only visited, but attempted to colonize the old Helluland, or Newfoundland, Markland, or Nova Scotia, and Vinland, or New England. Their genuine memorials are not less definite than those left by the Romans in Gaul or Britain; and corresponding traces of them in the assumed Vinland and elsewhere in the United States, have been perseveringly, but vainly, sought for. The Assonet, or Dighton Rock, on the Taunton river, Massachusetts, need not now be reproduced. Its fancied runes have long since been abandoned as a credulous figment. As to the Huiderk inscription, professedly found in 1867, graven on a rock on the river Potomac, it may be noted, in passing, as an ingenious hoax fashioned out of the genuine Greenland inscriptions, reading: HIR HULLIR SYASY FAGRHARDR AIRSTFIRTHINGR IRI A KILDI SYSTE THORG SAMFETHRA HALFTHURIG GLED GOD SAL HENAR. Then follows what its interpreter rendered the date 1051.\*

Runic inscriptions on the New England seaboard, and so far south as the Potomac, would, if genuine, give an entirely novel aspect to our study of Pre-Columbian American history, with all its possibilities of older intercourse with the eastern hemisphere. But it is the same whether we seek for traces of American colonization in the 10th or the 15th century, in so far as all native history is concerned. They equally little suffice to furnish evidence of relationship, in blood, language, arts or customs, between any people of the eastern hemisphere and the native American races. We are indeed tempted from time to time to review indications suggestive of an Asiatic or other old-world source for the American aborigines; and in nearly every system of ethnical classification they are, with good reason, classed as Mongolidae; but if their pedigree is derived from an Asiatic stock, the evidence has yet to be marshalled which shall place on any well-established

\* Washington Union, June, 1867.  
*Idem* Canadian Journal, N.S., vol. xii., p. 140.

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basis the proofs of direct ethnical affinity between them and races of the eastern hemisphere. The ethnological problem is, here as elsewhere, beset by many obscuring elements. Language, at best, yields only remote analogies; and thus far American archaeology, though studied with untiring zeal, has been able to render very partial aid.

It cannot admit of question that the compass of Canadian, and even of American archaeology,—including that of the semi-civilized and lettered races of central and southern America,—is greatly circumscribed in comparison with that of Europe. But the simplicity which results from this has some compensating elements, in its direct adaptation to the study of man, as he appears on this continent unaffected by the artificialities of a forced civilization; and with so little that can lend countenance to any theory of degeneracy from a higher condition of life. In the modern alliance between archaeology and geology; and the novel views which have resulted as to the antiquity of man, the characteristic disclosures of primitive art, alike among ancient and modern races, have given a significance to familiar phases of savage life undreamt of till very recently. The student who has by such means formed a definite conception of primeval art, and realized some idea of the condition and requirements of the savage of Europe's postpliocene era, turns with renewed interest to living races seemingly perpetuating in arts and habits of our own day what gave character to the social life of the prehistoric dawn. This phase of primitive art can still be studied on more than one continent; and in many an island of the Pacific and the Indian ocean; but no where is the apparent reproduction of such initial phases of the history of our race presented in so comprehensive an aspect as on this continent. Here are to be found tribes in no degree superior in arts or habits to the Australian savage: while evidence of ingenious skill and considerable artistic taste occur among nomads exposed to the extreme privations of an Arctic climate, and with no more knowledge of metallurgy than is implied in occasionally turning to account the malleable native copper, by hammering it into the desired shape; or, in their intercourse, with Arctic voyagers and the Hudson's Bay trappers, acquiring by barter some few implements and weapons of European manufacture. The arts of the patient Eskimo, exercised under the stimulus of their constant struggle for existence amid all the hardships of a polar climate, have, indeed, not only suggested comparisons between them and the artistic cave-dwellers of central Europe in its prehistoric dawn; but have been assumed to prove an ethnical affinity, and direct descent, altogether startling when we fully realize the remote antiquity thereby ascribed to the nomads of our own northern frontier, and the unchanging condition ascribed to them through all the intervening ages of geographical and social revolution.

But whatever may be the value ultimately assigned to this Eskimo pedigree: a like phenomenon of unprogressive humanity, perpetuating through countless generations the same rudimentary arts, everywhere meets us here; and seems to me to constitute the really remarkable feature in Canadian and North American archaeology. We find, not only in Canada but throughout the whole region northward from the Gulf of Mexico, diversified illustrations of savage life; but nearly all of them unaffected by traces of contact with earlier civilization. From the Arctic frontiers of our Canadian domain the explorer may travel through widely diversified regions till he reaches the canons of Mexico, and the ruined cities of Central America; and all that he finds of race and art, of language or native tradition, is in striking contrast to the diversities of the European record of manifold successions of races and of arts. Here within the Arctic circle the Eskimo constructs his lodge of snow, and

successfully maintains the battle for life under conditions which determine to a large extent the character of his ingenious arts and manufacture. Immediately to the south are found the nomad tribes of forest and prairie, with their tepees of Buffalo skin, or their birch-bark wigwams and canoes: the wandering hunter-tribes of the great North-west: type of the red Indian of the whole northern continent. The Ohio and Mississippi valleys abound with earthworks and other remains of the vanished race of the Mound-Builders: of old the settled dwellers in fortified towns, agriculturalists, ingenious potters, devoted to the use of tobacco, expending laborious art on their sculptured pipes, and with some exceptionally curious skill in practical geometry; yet, they too, ignorant of almost the very rudiments of metallurgy, and only in the first stage of the organised life of a settled community. The modifying influences of circumstances must be recognized in the migratory or settled habits of different tribes. The Eskimos are of necessity hunters and fishers, yet they are not, strictly speaking, nomads. In summer they live in tents, constantly moving from place to place, as the exigencies of the reindeer-hunting, seal-hunting, or fishing impel them. But they generally winter in the same place for successive generations, and manifest as strong an attachment to their native home as the dwellers in more favoured lands. Their dwelling-houses accommodate from three or four to ten families; and the same tendency to gather in communities under one roof is worthy of notice wherever the wandering tribes settle even temporarily. I have a drawing, made by me in 1866, of a large birch-bark dwelling which stood among a group of ordinary wigwams on the banks of the Kaminitiquia, accommodating several families of a band of Chippaways, who had come from the far west to trade their furs with the Hudson's Bay factor there. The Haidahs, the Chinooks, the Nootkas, the Columbian and other Indian tribes to the west of the Rocky Mountains, all use temporary tents or huts in their frequent summer wanderings; but their permanent dwellings are huge structures sufficient to accommodate many families, and sometimes the whole tribe. They are constructed of logs or split planks, and in some cases—as among the Haidahs of Queen Charlotte Islands,—elaborately decorated with carving and painting.

The gregarious habits thus manifested by many wandering tribes, whenever circumstances admit of their settling down in any permanent home, may be due solely to the economy of labour which experience has taught them in the construction of one common dwelling, instead of the multiplication of single huts or lodges. But far to the southward are the ancient pueblos, the *casas grandes*, the cliff dwellings, of a race not yet extinct: timid, unaggressive, living wholly on the defensive, gathered in large communities like ants or bees; industrious, frugal, and manifesting ingenious skill in their pottery and other useful arts; but, they too, in no greatly advanced stage of civilization. Still farther to the south, we come at length to the seats of an undoubted native American civilization. The comparative isolation of Central America, and the character of its climate and productions, all favoured a more settled life; with, as its genuine results, its architecture, sculpture, metallurgy, hieroglyphics, writing, and all else which gives so striking a character to the remains of the Central American nations. But great as is their contrast with the wild tribes of the continent, the highest phases of native American civilization will not compare with the arts of Egypt, in centuries before Cadmus taught letters to the rude shepherds of Attica; or the wolf still suckled her cubs on the Palatine hill.

If this is a correct reading of American archaeology, its bearings are significant in refer-

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ence to the whole history of American man. In Europe the student of primitive antiquity is habitually required to discriminate between products of ingenious skill belonging to periods and races widely separated alike by time and by essentially diverse stages of progress in art; for not only do its palaeolithic and neolithic periods long precede the oldest written chronicles, but even its Aryan colonization lies beyond any record of historic beginnings. The civilization which had already grown up around the Mediterranean Sea while the classic nations were in their infancy, extended its influences not only to what was strictly regarded as transalpine Europe, but beyond the English Channel and the Baltic, centuries before the Rhine and Danube formed the boundary of the Roman world. Voltaire remarked long ago when treating of the morals and spirit of nations: "It is not in the nature of man to desire that which he does not know." But it is certainly in his nature, at any rate, to desire much that he does not possess; and the cravings of the rudest outlying tribes of ancient Europe must have been stimulated by many desires of which those of the New World were all unconscious, till the advent of Europeans in the fifteenth century brought them into rude contact with a long matured civilization.

The archeology of the American continent is, in this respect, at least, simple. Its student is nowhere exposed to misleading or obscuring elements such as baffle the European explorer from the intermingling of relics of widely diverse eras; or even the succession of arts of the most dissimilar character, such as Dr. Schliemann found on the site of the classic Hittite. The history of America cannot repeat that of Europe. Its great river valleys and vast prairies present a totally different condition of things from that in which the distinctive arts, languages and nationalities of Europe have been matured. The physical geography of the latter has necessarily fostered isolation, and so tended to develop the peculiarities of national character, as well as to protect incipient civilization and immature arts from the constant eruptions of barbarism, such as made the steppes of Asia in older centuries the nurseries of hordes of rude warriors, powerful only for spoliation. The evidence of the isolation of the different nations of Europe in early centuries is unmistakable. Scarcely any feature in the history of the ancient world is more strange to us now than the absence of all direct intercourse between countries separated only by the Alps, or even by the Danube or the Rhine. "The geography of Greek experience as exhibited by Homer, is limited, speaking generally, to the Ægean and its coasts, with the Propontis as its limit in the northeast, with Crete for a southern boundary; and with the addition of the western coast of the peninsula and its islands as far northwards as the Leucadian rock. . . . The key to the great contrast between the outer geography and the facts of nature lies in the belief of Homer that a great sea occupied the space where we know the heart of the European continent to lie."\* To the early Romans the Celtic nations, closely allied though they were to them in race and language, were known only as warlike nomads whose incursions from beyond the Alpine frontier of their little world were perpetuated in the half legendary tales of their own national childhood. To the Greek even of the days of Herodotus no more was known of them than the rumours brought by seamen and traders whose farthest voyage was to the mouth of the Rhone.

It is, indeed, difficult for us now, amid the intimate relations of the modern world, and the interchange of products of the remotest east and west, to realize a condition of

\* Gladstone, *Juventus Mundi*, pp. 474, 479.

things when the world beyond the Alps was a mystery to the Greek historian, and the very existence of the river Rhine was questioned; or when, four centuries later, the nations around the Baltic, which were before long to supplant the masters of the Roman world, were so entirely unknown to them that, as Dr. Arnold remarks, in one of his letters, "The Roman colonies along the Rhine and the Danube looked out on the country beyond those rivers as we look up at the stars, and actually see with our own eyes a world of which we know nothing." Yet such ignorance was not incompatible with indirect intercourse and was so far from excluding the barbarians beyond the Alps or the Baltic from all the fruits of the civilization which grew up around the Mediterranean Sea, that the study of European archaeology has owed its chief impediment to the difficulty of discriminating between arts of diverse eras and races of northern Europe, intermingled with those of its Neolithic and Bronze periods; or of separating them from the true products of Celtic and classic workmanship.

It is altogether different with American archaeology. Were there any traces here of Celtic, Roman, or medieval European art, the whole tendency of the American mind would be to give even an exaggerated value to their influence. Superficial students of the ruins of Mexico and Central America have misinterpreted characteristics pertaining to what may not inaptly be designated instincts common to the human mind in its first efforts at visible expression of its ideas; and have recognized in them fancied analogies with ancient Egyptian art, or with the mythology and astronomical science of the East. Had, indeed, the more advanced nations of the New World borrowed the arts of Egypt, India, or Greece: the great river highways, and the vast unbroken levels of the northern continent presented abundant facilities for their diffusion, with no greater aid than the birch-bark canoe of the northern savage. The copper of Lake Superior was familiar to nations on the banks of the Mississippi, the St. Lawrence, the Hudson, and the Delaware. Nor was the influence of southern civilization wholly inoperative. Reflex traces of the prolific fancy of the Peruvian potter may be detected in the rude ware of the mounds of Georgia and Tennessee; and the conventional art of Yucatan reappears in the ornamentation of the lodges of the Haidahs of Queen Charlotte's Islands, and in the wood and ivory carvings of the Tawatin and other tribes of British Columbia. Already, moreover, the elaborate native devices which give such distinctive character to the ivory and claystone carvings of the Chimpseyan and Clalam Indians, have been largely superseded by reproductions of European ornamentation, or literal representations of houses, shipping, horses, fire-arms, and other objects brought under the notice of the native artist in his intercourse with white men. We are justified, therefore, in assuming that no long-matured civilization could have existed in any part of the American continent without leaving, not only abundant evidence of its presence within its own area, but also many traces of its influence far beyond. Yet it cannot be said of the vanished races of the North American continent that they died and made no sign. Their memorials are abundant, and some of their earthworks and burial mounds are on a gigantic scale. But they perpetuate no evidence of a native civilisation of elder times bearing the slightest analogy to that of Europe through all its historic centuries. The western hemisphere stands a world apart, with languages and customs essentially its own; and with man and his arts embraced within greatly narrower limits of development than in any other quarter of the globe. The evolutionist may, indeed, be tempted by the absence not only of the anthro-

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paid apes, but by all but the lowest families of the *Primates*, to regard man as a recent intruder on the American continent. But in this, as in the archaeologist's deductions, the term "recent" is a relative one. To whatever source American man may be referred, his relations to the old-world races are sufficiently remote to preclude any theory of geographical distribution within the historic period.

It is not, therefore, adequate time that is wanting for the growth of a native American civilization. The only satisfactory evidence of the affiliation of the American races to those of Asia or Europe, or of Africa, must be sought for in their languages. But any trace of this kind, thus far observed, is at best obscure and remote. The resemblance in physical traits points to affinity with the Asiatic Mongol; and the agglutinate characteristics common to many languages of the continent, otherwise essentially dissimilar, is in harmony with this. But Asiatic affinities are only traceable remotely, not demonstrable on any definite line of descent, and all the evidence that language supplies points to a greatly prolonged period of isolation. The number of languages spoken throughout the whole of North and South America has been estimated to considerably exceed twelve hundred; and on the northern continent alone, more than five hundred distinct languages are spoken, which admit of classification among seventy-five ethnical groups: each with essential linguistic distinctions, pointing to its own parent stock. Some of those languages are merely well marked dialects, with fully developed vocabularies. Others have more recently acquired a dialectic character in the breaking up and scattering of dismembered tribes, and present a very limited range of vocabulary, suited to the intellectual requirements of a small tribe, or band of nomads. The prevailing condition of life throughout the whole North American continent was peculiarly favourable to the multiplication of such dialects, and their growth into new languages, owing to the constant breaking up and scattering of tribes, and the frequent adoption into their numbers of the refugees from other fugitive broken tribes, leading to an intermingling of vocabularies and fresh modifications of speech.

But, by whatever means we may seek to account for the great diversity of speech among the communities of the New World, it is manifest that language furnishes no evidence of recent intrusion, or of contact for many generations with Asiatic or other races. On any theory of origin either of race or language, a greatly prolonged period is indispensable to account for the actual condition of things which presents such a tempting field for the study of the ethnologist. Among the various races brought under our notice, the Huron-Iroquois of Canada and the neighbouring States most fitly represent the North American race east of the Rocky Mountains. Their language, subdivided into many dialects, furnishes indications of migrations throughout the greater portion of that area eastward between the Mississippi and the Atlantic seaboard, and its affinities have been sought for beyond the American continent. One experienced philologist, Mr. Horatio Hale, in his "Indian Migrations, as evidenced by language," after remarking that there is nothing in the language of the American Indians to favour the conjecture of an origin from Eastern Asia, thus proceeds:—"But in Western Europe one community is known to exist, speaking a language which in its general structure manifests a near likeness to the Indian tongues. Alone of all the races of the old continent the Basques or Euskarians, of northern Spain and south-western France have a speech of that highly complex and polysynthetic character which distinguishes the American languages." But to this he has to add the



statement that "there is not, indeed, any such positive similarity in words or grammar as would prove a direct affiliation. The likeness is merely in the general cast and mould of speech, but this likeness is so marked as to have awakened much attention." (\*)

Assuming the affinity thus based on a general likeness in cast and mould of speech to be well founded, there need be no surprise at the lack of any positive similarity in word or grammar; for, used only as a test of the intervening time since Basque and Red Indian parted, it points to representatives of a prehistoric race that occupied Europe before the advent of Keltic or other Aryan pioneer, long prior to the historic dawn. And if the intervening centuries between that undetermined date and the close of the fifteenth century, when its course was once more renewed between the Iberian peninsula and the transatlantic continent, sufficed for the evolution of all the successive classic, mediæval and renaissance phases of civilisation in Europe: what was man doing through all those centuries in this New World? A period of time would appear to have transpired ample enough for the development of a native American civilisation; but neither the languages nor the arts of the Indian nations found in occupation of the northern continent reveal traces of it, nor does archaeology disclose to us evidence of any precursors. Whatever their origin may have been, the Red Indians of this continent appear to have remained for unnumbered centuries excluded by ocean barriers from all influence of the historic races. But on this very account an inquiry into their history, in so far as this may be recoverable from archaeological or other evidence, may simplify important ethnical problems, and contribute results of some value in reference to the condition and progress of primeval man elsewhere.

In Europe man can be studied only as he has been moulded by a thousand external influences, and by the intermixture of many dissimilar races. The most recent terms of ethnological classification, the Xanthroï and Melano-chroï are based on the assumed inter-blending of widely dissimilar races in times long anterior to any definite chronology. There was a time, as is assumed, when the sparsely peopled areas of ancient Europe were occupied exclusively by a population, still imperfectly represented by the Finns, the Lapps, and the Basques. Those are supposed to be surviving fragments of a once homogeneous population of Europe in prehistoric centuries. On this the great Aryan migration intruded in successive waves of Celtic, Slavic, Hellenic and Teutonic invaders, not without considerable intermixture of blood, to which is still traced the Melano-chroï of Britain and western Europe. Such is the great ethnical revolution by which it is assumed that that continent was recolonised from the same Asiatic cradleland from whence India and Persia derived their ancient civilized and lettered races.

In the year 1493 began another ethnical revolution by which the Aryan, or Indo-European stock intruded, in ever increasing numbers, on a like aboriginal population of the New World. The disparity between the first Celtic or other Aryan immigrants into Europe, and the aborigines whom they encountered there was probably less than that which separated the first American colonists from the Red Indian savages whom they displaced. In both cases it was the meeting of civilised and cultured races with rude nomads whom they were prone to regard with an aversion or contempt very different from the repellent elements between conquering and subject nations in near equality to each other.

(\*) Indian Migrations, p. 24.

The disparity, the later Anglo-admit of ready elements have most cultured of the sexes it takes place for of extensive is the same result race of half-breed less interesting alone, the des the remnants many of these a century the United States recognized. ember 24th, established a period, are, a form a permanent as among the or where the old Hudson endurance. of the community under favor prairies, and common by mixed race, rude Aryan the territory the status of accordingly chiefly with two distinct the other the pers in the hybrid offspring powers of than one and this is nearly all when refer

The disparity, for example, between the native Briton and the intruding Saxon, or between the later Anglo-Saxon and the intruding Dane or Northman, was sufficiently slight to admit of ready intermixture, ultimately, in spite of their bitter antagonism. But other elements have also to be kept in view. The pioneers of emigration are not, as a rule, the most cultured members of the intruding race; while the disparity in the relative numbers of the sexes inevitably resulting from the conditions under which any extensive migration takes place forms an effective counterpoise to very wide ethnical differences. In every case of extensive immigration, with the excess of males and chiefly of hardy young adventurers, the same result is inevitable. On the American continent it has already produced a numerous race of half-breeds, descendants of white and Indian parentage, apart from that other and not less interesting "coloured race," now numbering upwards of six millions in the United States alone, the descendants of European and African parentage. In the older provinces of Canada, the remnants of the aboriginal Indian tribes have been gathered on suitable reserves; and on many of these, so far are they from hastening to extinction, that during the last quarter of a century the returns of the Indian Department show a steady numerical increase. In the United States, under less favourable circumstances, similar results are beginning to be recognized. In a report on "Indian Civilisation and Education," dated Washington, November 24th, 1877, it is set forth as more and more tending to assume the aspect of an established fact, "that the Indians, instead of being doomed to extinction within a limited period, are, as a rule, not decreasing in numbers; and are, in all probability, destined to form a permanent factor; an enduring element of our population." Wherever the aborigines have been gathered together upon suitable reserves, and trained to industrious habits, as among the Six-Nation Indians, settled on the Grand River, in the Province of Ontario; or where they have mingled on terms of equality with the white settlers, as within the old Hudson's Bay Territory on the Red River, they have after a time showed indications of endurance. It is not a mere intermingling of white and Indian settlers, but the increase of the community by the growth of a half-breed population, and when this takes place under favourable circumstances, as was notably the case so long as the hunter tribes of the prairies, and the trappers of the Hudson's Bay Company shared the great North-West as a common hunting ground, the results are altogether favourable to the endurance of the mixed race. On a nearly similar footing we may conceive of the admixture of the earliest rude Aryans with the Allophylans of Europe, resulting in its Melanochroi. The growth in the territory of the Hudson's Bay Company of a numerous half-breed population, assuming the status of a tribe of farming hunters, distinct alike from the Indians and the Whites, is accordingly a fact of singular interest to the ethnologist. It has been the result of alliances, chiefly with Indian Cree women, by the fur trappers of the region. But these included two distinct elements: the one a Scottish immigration, chiefly from the Orkney Islands; the other that of the French Canadians, who long preceded the English as hunters and trappers in the North-West. The contrasting Scottish and French paternity reveals itself in the hybrid offspring; but in both cases the half-breeds are a large and robust race, with greater powers of endurance than the pure-blood Indian. They have been described to me by more than one trustworthy observer as "superior in every respect, both mentally and physically," and this is confirmed by my own experience. The same opinion has been expressed by nearly all who have paid special attention to the hybrid races of the New World. D'Orbigny, when referring to the general result of this intermingling of races says: "Among the nations

in America the product is always superior to the two types that are mixed." Henry, a traveller of the last century, who spent six years among the North American Indians, notes the confirmatory assurance given to him by a Cristineaux chief, that "the children borne by their women to Europeans were bolder warriors and better hunters than themselves." Finally, of the hardy race of the Arctic Circle Dr. Kane says: "The half-breeds of the coast rival the Esquimaux in their powers of endurance." There is also a fine race in Greenland, half Danes; and Dr. Rae informs me that numerous half-breed Eskimos are to be met with on the Labrador coast. They are taller and more hardy than the pure blooded Eskimos; so that he always gave the preference to them as his guides. The Danish half-breeds are described by Dr. Henry Rink, in his "Tales and Traditions of the Eskimo," as dating back to the earliest times of the colonization of Greenland. The mixed marriages, he says, "have generally been rich in offspring. The children for the most part grow up as complete Greenlanders;" but the distinction between them and the native Eskimo, is unmistakable, although individuals of the hybrid offspring represent the mixture of European and native blood in almost every possible proportion.\* From the conquest of Mexico in 1520, and of Peru in 1534, this admixture of races of the Old and the New World has been going on in varying ratio according to the relative circumstances under which they meet. In Mexico and in the more civilized portions of South America the half-breeds are estimated to constitute fully one-fifth of the whole population, while the so-called "colored people," the descendants of European and African parentage now number not less than fifteen millions throughout the mainland and the Islands of North and South America. †

Throughout the northern, southern, and western States of America, on the Pacific slope, and in Canada, the growth of a mixed race of White and Indian blood has everywhere taken place in the first period of settlement, when the frontier backwoodsman and the hunter were brought into contact with the native tribes. Along the borders of every frontier State a nearly exclusive male population is compelled to accept the services of the Indian women in any attempt at domestic life. The children grow up to share in perfect equality the rude life of their fathers. The new generation presents a mixed race of hardy trappers, mingling the aptitudes of both races in the wild life of the frontier. With the increase of population, and the more settled life of the clearing, the traces of mixed blood are lost sight of; but it is to a large extent only a repetition of what appears to have marked the advent of the Aryan immigrants into Europe. The new, but more civilized race predominated. Literal extermination, no doubt, did its work, and the aborigines to a

\* Among the Western Eskimos, in the vicinity of Alaska, there is evidence of Eskimo and Indian half-breeds, vide *Tales and Traditions*, Dr. Rink, p. 4. In the Southern States there are also traces of admixture of Indian and Negro blood; as among the Cherokees, who held numerous Negro slaves; but neither of these hybrid types is sufficiently numerous to be of enduring significance.

† In 1715 there were 58,000 Negroes in British America; in 1775 they had increased to 501,102. After the war of Independence the increase became more rapid. In 1790 they numbered 757,208; in 1800 they had increased to 833,041; and in 1818 to 1,191,364. At the date of Negro emancipation in 1865, there were, in round numbers, 4,000,000 slaves; in addition to the free coloured population. The immediate results tended for a time to check their progress. Nevertheless the census of 1880 showed the whole coloured population of the United States to number 6,580,793. The data for forming an estimate of the entire coloured population of the continent and islands of N. and S. America are less definite; but I believe the numbers stated in the text to be based on a low estimate. Vide earlier estimates: *Prehistoric Man*, 3rd ed., vol. II, p. 305.

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large extent perished. But no inconsiderable remnant finally disappeared by absorption into the general stock; not without leaving enduring evidence of the process in the Melanochroi, or dark whites—the Iberians, or Black Celts, as they are sometimes styled,—of western Europe; as well as in the allied type, not only of the Mediterranean shores, but of Western Asia and Persia. A process has thus been going on on the American continent for three centuries, which cannot fail to beget new types in the future; even as a like process is seen to have produced them under analogous conditions in ancient Europe.

Viewed in this aspect, the archeology and ethnology of the New World presents in some important respects a startling analogy to pre-Aryan Europe. Assuredly the status of the allophylian races of Europe can scarcely have been inferior to that of some, at least, of the aborigines of America in the sixteenth and seventeenth centuries. Probably the Aryan pioneers were fully equal to its first European immigrants. But if the ethnical characteristics of American man are simple, and the aspect of his social life appears to realize for us a living analogy to that of Europe's Neolithic, if not in some respects to that of its Palaeolithic era, the question of his antiquity acquires a new interest: for it thus becomes apparent that man may remain through countless ages in the wild hunter stage, as unprogressive as any other denizen of the wilderness propagating its species and hunting for its prey. But the whole question of the antiquity of man has undergone a marvellous revolution in very recent years. The literature of modern geology curiously illustrates its progress, from the date of the publication of Dean Buckland's "Reliquiæ Diluvianæ," in 1823, to the final edition of Sir Charles Lyell's "Principles of Geology," in 1872, and the embodiment of his ultimate conclusions on the special question involved in his "Antiquity of Man."

The determination of a Palaeolithic period for Europe, with its rude implements of flint or stone, chipped into shape without the aid of any grinding or polishing process, and belonging to an era when man was associated with animals either extinct or known only throughout the historic period in extreme northern latitudes, has naturally stimulated the research of American archaeologists for corresponding traces on this continent. Nor is the anticipation of the possible recovery of the traces of man's presence in post-glacial, or still earlier epochs in unhistoric areas, limited to either continent. If it be accepted as an established fact that man has existed in Europe for unnumbered ages, during which enormous physical changes have been wrought; upheaval and denudation have revolutionized the face of the continent; the deposition of the whole drift formation has been effected; the river valleys of southern England and the north of France have been excavated, and the British Islands detached from the neighboring continent: it cannot be regarded as improbable that evidence may yet be found of the early presence of man in any region of the globe. Nevertheless some of the elements already referred to tend to mark with a character of their own the investigations alike of the archaeologist and the geologist into the earliest traces of human art in what we have learned habitually to speak of as the New World. In Europe the antiquary, familiar already with ancient historic remains, had passed by a natural transition to the study of ruder examples of primitive art in stone and bronze, as well as to the physical characteristics of races which appeared to have preceded the earliest historic nations. The occupation of the British Islands, for example, successively by Celts, Romans, Anglo-Saxons, Danes and Normans, was so familiar to the popular mind that the problem of a sequence of neolithic, bronze, and the ruder iron implements with their correlated personal ornaments, pottery, etc., was universally solved

by referring them to Celtic, Roman and Scandinavian art. Erroneous as this interpretation of the evidence proves to have been, it had, nevertheless, sufficient accordance with truth to prepare the way for the ultimate reception of more accurate inductions. The fact of the occurrence of successive phases of art, and their indication of a succession of races, were undoubted; and researches directed to the solution of the problem of European archaeology were unhesitatingly followed up through mediæval, classical, Assyrian and Egyptian remains, to the very threshold of that prehistoric dawn which forms the transitional stage between geological and historical epochs. A significant fact, in its bearing on the recent disclosures of the river drift in France and England, is that some of the most characteristic flint implements, such as the large spear-head found along with the remains of a fossil elephant in Gray's Inn Lane, London, and implements of the same type obtained from the drift of the Waveney Valley, in Surrey, underlying similar fossil remains, had been brought under the notice of archaeologists upwards of a century before the idea of the contemporaneous existence of man and the mammals of the Drift found any favour, and were unhesitatingly assigned to a Celtic origin. The first known discovery of any flint implement in the quaternary gravels of Europe stands recorded in the Sloane catalogue of the British Museum as "A British weapon found, with elephant's tooth, opposite to black Mary's, near Grayes Inn Lane."

A just conception of the comprehensiveness even of historical antiquity was long retarded in Europe by an exclusive devotion to classical studies; but the relations of this continent to the Old World are so recent, and all else is so nearly a blank, that for it the fifteenth century is the historic dawn, and every thing dating before the landing of Columbus has been habitually assigned to the same vague antiquity. Hence historical research has been occupied for the most part on very modern remains, and the supreme triumph long aimed at has been to associate the hieroglyphics of Central America, and the architectural monuments of Peru, with those of Egypt. But we have entered on a new era of archaeological and historical enquiry. The palæolithic implements of the French Drift have only been brought to light in our own day; and, though upwards of half a century has elapsed since the researches of Mr. J. MacEnery were rewarded by the discovery of flint implements of the earliest type in the same red loam of the Devonshire limestone caves which embedded bones of the mammoth, tichorhine rhinoceros, cave-bear and other extinct mammals, it is only very recently that the true significance of such disclosures has been recognized.

America was indeed little behind Europe in the earlier stages of cavern research. A cabinet of the British Museum is filled with fossil bones obtained by Dr. Lund and M. Claussen from limestone caverns in Brazil, embedded in a reddish-coloured loam, under a thick stalagmitic flooring, and including, along with remains of genera still inhabiting the American continent, those of extinct monkeys. Human bones were also found in the same caves, but superficially, and seemingly of the present Indian race. But a fresh interest and significance have been given to such researches by the novel aspect of prehistoric archaeology in Europe. The relations now established between the earliest traces of European man and the geological aspects of the great Drift formation, have naturally led to the diligent examination of corresponding deposits of the continent of America, in the hope of recovering similar traces there. Until very recently, however, any supposed examples of American palæolithic art have been isolated and unsatisfactory. A flint knife was

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recovered from a depth of upwards of fourteen feet among the rolled gravel and gold-bearing quartz of the Grinnell Leads, in Kansas Territory, and is now in the Museum of the University of Toronto. Other specimens of flint implements, obtained from the auriferous gravels of California, were shown at the Paris Exposition of 1855. In the geological report of Illinois for 1866 stone axes and flint spear-heads are described, obtained from a bed of local drift near Alton, underlying the loess, and at the same depth as bones of the mastodon. Colonel Charles C. Jones, in his "Antiquities of the Southern Indians," notes the discovery in the Nacoochee Valley, in the State of Georgia, of three flint implements found at a depth of nine feet, among the gravel and boulders of the drift, and describes them as "in material, manner of construction, and appearance, so nearly resembling some of the rough so-called flint hatchets belonging to the Drift type, that they might very readily be mistaken the one for the other." \* Other more or less trustworthy examples of a like kind have been reported from time to time; among which may be noted a large specimen, now in the collection of the Society of Antiquaries of Scotland, said to have been found at Lewiston, in the State of New York, at a great depth, when sinking a well. †

Some of the assumed illustrations of American paleolithic art are of doubtful antiquity. One implement, for example, from the Californian gravel drift, is a polished stone plummet perforated at one end, and not only modern in character, but as a genuine discovery in the gold-bearing gravels, tending to discredit the paleolithic origin assigned to ruder implements found under similar circumstances. But the most startling examples of this class are of minor importance, when compared with reported discoveries of human remains in the Californian drift. In 1857, Dr. C. F. Winslow produced a fragment of a human skull found eighteen feet below the surface in the "pay drift" at Table Mountain, associated with remains of the mastodon and fossil elephant. More recently Professor J. D. Whitney exhibited, at the Chicago meeting of the American Association for the Advancement of Science, a complete human skull, recovered at a depth of one hundred and thirty feet, in the auriferous gravel of Calaveras County, California, underlying five successive beds of lava and volcanic tufa, and vouched for its geological antiquity. The gravel which adhered to the relic found imbedded in it is referred by him to the Pliocene age; and Dr. J. W. Foster remarks of it, in his "Prehistoric Races of the United States:" ‡ "This skull, admitting its authenticity, carries back the advent of man to the Pliocene epoch, and is therefore older than the stone implements of the drift gravel of Abbeville and Amiens, or the relics furnished by the cave-dirt of Belgium and France." In reality, however, the authenticity of the skull as a pliocene relic is not admitted. Like that of Guadaloupe those found by Dr. Lund in the Brazil caves, and other fossil skulls of the American continent, it proved, according to the trustworthy report of Dr. Wyman, to be of the ordinary Indian type; though to some minds that only confirms the genuineness of the discovery. A human skull recovered from the delta of the Mississippi at New Orleans, and estimated by Dr. Dowler—on what, "to avoid all cavil," he claimed to be extremely moderate assumptions,—as not less than 57,000 years old, is grouped with others found by Dr. Lund in one of the Brazil caves, at Logoa Santa, and thus commented on: "Numerous species of animals

\* Antiquities of the Southern Indians, p. 293.

† Prehistoric Man, 3rd Ed., vol. 1, p. 59.

‡ Prehistoric Races, p. 54.

have been blotted from creation since American humanity's first appearance. The form of these crania, moreover, proves that the general type of races inhabiting America at the inconceivably remote era was the same which prevailed at the Columbian discovery; and so the authors of "Types of Mankind" arrive at the conclusion that with such evidence of the native American type having occupied the continent in geological times, before the formation of the Mississippi alluvia, science may spare itself the trouble of looking elsewhere for the origin of the American race. The high authority of Professor Agassiz was adduced at the time in support of this and other equally crude assumptions; but they have ceased to receive the countenance of men of science.

Meanwhile the progress of European discovery has familiarized us with the idea of the rude primeval race of its palaeolithic era, so designated in reference to their characteristic implements recovered from the river drift of France and England, and the sedimentary accumulations of their rock shelters and limestone caves. That flint and stone implements of every variety of form abound in the soil of this continent, has been established by ample proof; and if mere rudeness could be accepted as evidence of antiquity, many of them rival in this respect the rudest implements of the European drift. But it has to be kept in view that the indigenous tribes of America have not even now abandoned the manufacture of implements of obsidian, flint and stone, as well as of bone and ivory. So striking, indeed, is the analogy between the simple arts of the palaeolithic cave-men of southern France, and those still practised by the Eskimo on our own Canadian frontier that Professor Boyd Dawkins has been led from this to find a pedigree for the American aborigines not less ancient than that which Dr. Dowler long ago deduced from his discovery in the delta of the Mississippi. The implements and accumulated débris of the ancient hunters of the Garonne, the contemporaries of the mammoth and other extinct mammals, and of the reindeer, musk-sheep, cave-bear, and other species known only within the historic period in extreme northern latitudes, undoubtedly suggest interesting analogies with the modern Eskimo. Only under similar climatic conditions to those in which they now live, could such accumulations of animal remains as have been found in the caves of the valley of the Vézère be possible in places habitually resorted to by man. But such analogies form a very slender basis on which to found the startling hypothesis that the race of the mammoth and reindeer period in the remote post-pleiocene era of southern France has its living representatives within the Arctic circle of the American continent.

The students of modern archaeology have become familiar with startling disclosures, and the supposed identification of living representatives of the race of the pleistocene river beds or cave deposits is too fascinating a one to be readily abandoned by its originator. Professor Dawkins conceives the men of the river-drift era to have been a race of still older and ruder savages than the palaeolithic cave-men, who were more restricted in their range, and considerably in advance of them in the variety and workmanship of their weapons and implements. The elder ruder race has vanished; but the cave race of that indefinite but vastly remote era of late pliocene, or post-pleiocene Europe, is assumed to live on, within the Arctic frontiers of our own Dominion.

In discussing the plausible hypothesis which thus aims at recovering in the hyperboreans of this continent the race that before the close of Europe's pleistocene age, hunted

\* Types of Mankind, page 351.

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the mammoth, the musk-sheep, and the reindeer in the valleys of the Garonne, Professor Dawkins reviews the manners and habits of the Eskimos as a race of hunters, fishers, and fowlers, accumulating round their dwellings vast refuse heaps similar to those of the ancient cave-men. Both were ignorant of the metallurgic arts, were excluded to a large extent by a like rigorous climate from access to stone or flint, while they habitually turned to account the available material, resulting from the spoils of the chase: bone, ivory, and deer's horn, in the manufacture of all needful tools. The implements and weapons thus common to both do unquestionably prove that their manner of life was in many respects similar; and as Professor Dawkins notes what would scarcely seem surprising in any people familiar with the working in bone, viz: the use at times by the Eskimo of fossil mammoth ivory for the handles of their stone scrapers, he adds: "It is very possible that this habit of the Eskimos may have been handed down from the late pleistocene times." But what strikes him as "the most astonishing bond of union between the cave-men and the Eskimos is the art of representing animals;" and, after noting those familiar to both, along with the correspondence in their weapons, and habits as hunters, he says: "All these points of connection between the cave-men and the Eskimos can, in my opinion, be explained only on the hypothesis that they belong to the same race." \*

As to the ingenious imitative art of the Cro-Magnon cave-dwellers, it is by no means peculiar to them and the modern Eskimos; but, on the contrary, is common to many savage races; though by no modern savage people has a like degree of artistic ability been shown. Professor Dawkins says truly of the cave-man: "He possessed a singular talent for representing the animals he hunted; and his sketches reveal to us that he had a capacity for seeing the beauty and grace of natural form not much inferior to that which is the result of long-continued civilization in ourselves, and very much higher than that of his successors in Europe in the Neolithic age. The hunter who was both artist and sculptor, who reproduced with his imperfect means at one time foliage, at another the quiet repose of a reindeer feeding, has left behind him the proof of a decided advance in culture, such as might be expected to result from the long continuance of man on the earth in the hunter state of civilization." † All this is correct in reference to the art of the Vézère carvers and draftsmen; but it would be gross exaggeration if applied to such conventional art as the Eskimo arrow-straightener which Professor Dawkins figures, with its formal row of reindeer and their grotesque accessories. The same criticism is equally applicable to numerous other specimens of Eskimo art, and to similar Inuit, or western Eskimo representations of hunting scenes, such as those figured by Mr. William H. Dall, in his "Alaska," which he describes as "drawings analogous to those discovered in France in the caves of Dordogne." ‡

The identity, or near resemblance between harpoons, fowling spears, marrow-spoons, and scrapers, of the ancient cave-race of pleistocene France and implements of the modern Eskimos, is full of interest; as is much also of a like kind between savage races of our own day in the most widely severed regions of the globe; but it is a most slender basis on which to found such far-reaching deductions. The old race that lived on the verge of the

\* Early Man in Britain, p. 241.

† Early Man in Britain, p. 244.

‡ Alaska and its resources, p. 237.



great glaciers in southern France gave the preference to bone and ivory over flint or stone, because the climatic conditions under which they lived rendered those most accessible to them; and we see in the familiar types of flint arrow-heads, stone-hammers, and the like primitive tools of savage man, both in ancient and modern times, how naturally the workman, with the same materials and similar necessities, shapes his few and simple weapons and implements into like form. As to the absence of pottery, alike among the ancient cave-dwellers and the modern Eskimos, in which Professor Dawkins finds another element of resemblance, it proves no more than that both had to work under climatic conditions which rendered clay, adequate fuel, and nearly all other appliances of the potter, even less available than flint and stone.

But the caves of the Vézère have furnished examples not only of skulls, but of complete skeletons of an ancient race of cave-dwellers, whether that of the ingenious draughtsmen and reindeer hunters or not; and had those, or the underlying débris, yielded any traces of the Eskimo type of head, there would then be good reason for attaching an exceptional value to any evidence of correspondence in arts and habits. But the cerebral capacity of this Cro-Magnon race amply accords with the artistic skill, and the sense of beauty and grace of natural form, ascribed to the ancient draughtmen; and their well-developed skulls and large bones present, in every respect, the most striking contrast to the stunted Eskimo. The strongly marked physiognomy of the former bears no resemblance to the debased Mongolian type of the latter. No doubt it may be argued with sufficient plausibility that in the slow retreat of the palæolithic race of the valley of the Vézère over submerging continents, since engulfed in the ocean; and in the vast æons of glacial or subglacial changes which have marked their migration to another hemisphere, and their retreat to their latest home on the verge of the pole, any amount of change may have modified the physical characteristics of the race. But if so, the evidence of their pedigree is no longer producible. The Eskimo may indeed be related by descent to the men of the French reindeer period; as we ourselves may be descendants of palæolithic man; but, as Professor Geikie has justly remarked: "When anthropologists produce from some of the caves occupied by the reindeer hunters a cranium resembling that of the living Eskimo, it will be time enough to admit that the latter has descended from the former. But, unfortunately for the view here referred to, none of the skulls hitherto found affords it any support."\* In truth, the plausible fancy that the discoveries of the last twenty years have tended to confirm the identification of the cave-men with the Eskimos, only requires the full appreciation of all that it involves, in order that it shall take its place with that other identification with the red man of the present day of "Dr. Dowler's sub-cypress Indian who dwelt on the site of New Orleans 57,000 years ago."

The received interpretation of the imperfect record which remains to us of the successive eras of geological change with the accompanying modifications of animal life, down to the appearance of man as an inhabitant of this world; and the deciphering of geological chronicles as a coherent disclosure of the past history of the earth: are largely due to Sir Charles Lyell. In 1841, he visited this continent, and then estimated with cautious conservatism some of the evidences adduced for the assumed antiquity of American man. But subsequent observations led him to modify his views; and at length, in 1863, he

\* Prehistoric Europe, p. 550.

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"read his recantation" of earlier opinions; and—so far at least as Europe is concerned,—gave the full weight of his authority to the conclusions relative to the antiquity of man based on the discovery of flint implements associated with bones of extinct mammalia at Abbeville and in the valley of the Thames. The peculiar geological conditions accompanying the earliest evidence of the presence of palæolithic man in Europe proved, when rightly interpreted, to be no less convincing than the long familiar sequence of more recent archaeological indices by which antiquarian speculation has proceeded step by step back towards that prehistoric dawn in which geology and archaeology meet on common ground. The chalk and the overlying river-drift, abounding with flint nodules, left no room for question as to the source of the raw material from which the primitive implements were manufactured. The flint is still abundant as ever, in nodules of a size amply sufficient for furnishing the largest palæolithic implements, in the localities both of France and England where such specimens of primitive art have been recovered by thousands. But there other disclosures tell no less conclusively of many subsequent stages of progress, alike in prehistoric and historic times.

Dr. John Evans, in his "Ancient Stone Implements of Great Britain," purposely begins with the more recent implements, including those of the Australian and other modern savage races; and traces his way backward, "ascending the stream of time," and noting the diverse examples of ingeniously fashioned and polished tools of the neolithic age which preceded that palæolithic class, of vast antiquity and rudest workmanship, which now constitute the earliest known works of man; if they are not, indeed, examples of the first infantile efforts of human skill. But alike in Britain, and on the neighbouring continent, a chronological sequence of implements in stone and metal, with pottery, personal ornaments, and other illustrations of progressive art, supplies the evidence by means of which we are led backward—not without some prolonged interruptions, as we approach the palæolithic age,—from historic to the remotest prehistoric times.

The relative chronology of the European drift may be thus stated: first, and most modern, the superficial deposits of recent centuries with their mediæval traces of Frank and Gaul; and along with those, the tombs, the pottery, and other remains of the Roman period, scarcely perceptibly affected in their geological relations by nearly the whole interval of the Christian era; next, in the alluvium, seemingly embedded by natural accumulation at an average depth of fifteen feet, occur remains of a European stone period, corresponding in many respects to those of the recently discovered pfahlbauten, or pile villages of the Swiss Lakes; and, underlying those accumulations exceeding in their duration the whole historical period, we come at length to the tool-bearing drift, imbedding, along with the fossil remains of many extinct mammals, the implements of palæolithic man, fashioned seemingly when the rivers were only beginning the work of excavating the valleys which give their present contour to the landscapes of France and England.

There, as elsewhere, we recognize progression from the most artless rudeness of tool manufacture, belonging to an epoch when the process of grinding flint or stone to an edge appears to have been unknown; through various stages of the primitive worker in stone, bone, ivory, and the like natural products; and then the discovery and gradual development of the metallurgic arts. Yet at the same time it must not be lost sight of that mere rudeness of workmanship is no evidence of antiquity. Nothing can well be conceived of more artless than some of the stone implements still in use among savage tribes of America.

Moreover, it is to be noted that it is not amid the privations of an arctic winter, with its analogies so suggestive of a condition of life corresponding to that of the men of Europe's paleolithic age; but in southern latitudes, with a climate which furnishes abundant resources for savage man; that the crudest efforts at tool-making now occur. In a report of the United States Geological Survey for 1872, Professor Joseph Leidy furnishes an interesting account of numerous implements, rude as any in the Drift, observed by him while engaged on a survey at the base of the Uintah Mountains in Southern Wyoming. "In some places," he remarks, "the stone implements are so numerous, and at the same time are so rudely constructed, that one is constantly in doubt when to consider them as natural or accidental, and when to view them as artificial." \* But with these others are mingled of fine finish. The Shoshones who haunt the region seem to be incapable of such skill as the latter imply; and express the belief that they were a gift of the Great Spirit to their ancestors. Yet many are fresh in appearance; though others are worn and decomposed on the surface, and may, as Professor Leidy assumes, have lain there for centuries. He also describes a stone scraper, or *teshoo*, as the Shoshones call it, employed by them in the dressing of buffalo skins; but of so simple a character that he says, "had I not observed it in actual use, and had noticed it among the materials of the buttes, or horizontal strata of indurated clays and sandstone, I would have viewed it as an accidental spawl." When illustrating the characteristics of a like class of stone implements and weapons of Great Britain, Dr Evans figures and describes an axe, or war-club, procured from the Indians of Rio Frio, in Texas. Its blade is a piece of trachyte, so rudely chipped that it would scarcely attract attention as of artificial working, but for the club-like haft, evidently chopped into shape with stone tools, into which it is inserted. Nothing ruder has been brought to light in any drift or cave deposit. † Another modern Texas implement, in the Smithsonian collections at Washington, ‡ is a rudely fashioned flint blade, presenting considerable resemblance to a familiar class of oval implements of the river drift.

So far, therefore, as unskilled art and the mere rudeness of workmanship are concerned, it might be assumed that the aborigines of this continent are thus presented to our study in their most primitive stage. They had advanced in no degree beyond the condition of the European savage of the river-drift period, when, at the close of the 15th century, they were brought into contact with modern European culture; and nothing in their rude arts seemed to offer a clue to their origin, or any evidence of progression. For anything that could be learned from their work, they might have entered on the occupation of the northern continent, subsequent to the visits of the Northmen in the tenth century; and, indeed, American archaeologists at present generally favour the opinion that the *Skrættlings*, as the Northmen designated the New England natives whom they encountered, were not Red Indians but Eskimos. But whatever may have been the local distribution of races at that date, geological evidence, which has proved so conclusive in relation to European ethnology, has at length been appealed to by American investigators, with results which seem to establish for this continent also its primeval stone-period, and remote prehistoric dawn.

The "Report of the Peabody Museum of American Archeology and Ethnology" for

\* U. S. Geological Survey, 1872, p. 652.

† Ancient Stone Implements of Great Britain, p. 140.

‡ Vide Prehistoric Man, 3rd Ed., vol. I., p. 180. Fig. 54.

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1877. gave publicity to a communication from Dr. Charles C. Abbott, setting forth the data from which he had been led to assume that man existed on the American continent during the formation of the great glacial deposit which extends from Labrador as far south as Virginia. The scene of his successful research is in the valley of the Delaware, near Trenton, New Jersey. There, in the river-gravel, deposited by the Delaware River in the process of excavating the valley through which its course now lies, Dr. Abbott's diligent search has been rewarded by finding numerous specimens of rudely chipped implements of a peculiar type, to which he has given the name of "turtle-back celts." They are fashioned of a highly indurated argillite, with a conchoidal fracture, and have been recovered at depths varying from five to upwards of twenty feet below the overlying soil, in the undisturbed gravel of the bluff facing the Delaware river, as well as in railway cuttings and other excavations.

Here, to all appearance, intelligent research had at length been rewarded by the discovery of undoubted traces of the American palæolithic man; and Dr. Abbott, not unnaturally, gave free scope to his fancy, as he realized to himself the pre-occupation of the river valley with "the village sites of pre-glacial man." There is a fascination in such disclosures which, especially in the case of the original discoverer, tempts to extreme views; and both in France and England, at the present time, the more eager among the geologists and archaeologists devoted to this enquiry are reluctantly restrained from assuming as a scientific fact the existence of man in southern England and in France under more genial climatic influences, prior to the great ice age which wrought such enormous changes there. The theory which Dr. Abbott formed on the basis of the evidence first presented to him by the disclosures of the Trenton gravel may be thus stated: Towards the close of the great ice age, the locality which has rewarded his search for specimens of palæolithic art marked the termination of the glacier on the Atlantic coast. Here, at the foot of the glacier, a primitive people, in a condition closely analogous to that of the Eskimos of the present day, made their home, and wandered over the open sea in the vicinity, during the accumulation of the deposit from the melting glacier. But this drift gravel was modified by subsequent action. According to Dr. Abbott's conclusions, it was deposited in open water, on the bed of a shallow sea. But the position of the large boulders, and the absence of true clay in the mass, suggest that it has undergone great changes since its original deposition as glacial debris; and if this is to be accounted for by subsequent action of water, the unpolished surfaces of the chipped implements are inconsistent with such a theory of their origin. Huge boulders, of the same character as those which abound in the underlying gravel, occur on the surface; and their presence there was referred to by Dr. Abbott as throwing light upon "the occurrence of rude implements identical with those found in the underlying gravels, inasmuch as the same ice-raft that bore the one, with its accompanying sand and gravel, might well gather up also stray relics of this primitive people, and re-deposit them where they are now found." Accordingly, seeking in fancy to recall this ancient past, he says in his first report: "In times preceding the formation of this gravel bed, now in part facing the Delaware River, there were doubtless localities, once the village sites of pre-glacial man, where these rude stone implements would necessarily be abundant," and he accordingly asks "may not the ice in its onward march, gathering in bulk every loose fragment of rock and particle of soil, have held them loosely together, and, hundreds of miles from their original site, left them in some one

locality such as this; where the river has again brought to light rude implements that characterise an almost primitive people? But, assuming that the various implements fashioned by a strictly pre-glacial people have been totally destroyed by the crushing forces of the glacier, and that the specimens now produced were not brought from a distance, may they not be referred to an early race that, driven southward by the encroaching ice, dwelt at the foot of the glacier, and during their sojourn here these implements were lost?\*

The opinions thus set forth in the first published account of Dr. Abbott's discoveries, have since been considerably modified, in so far as the geological age of the tool-bearing gravel of the Delaware valley is concerned. In his earlier publications, he assumed as no longer questionable, the existence of inter-glacial, if not pre-glacial, man on this continent. In his more matured views, as set forth in his "Primitive Industry," he speaks of "having been seriously misled by the various geological reports that purport to give, in proper sequence, the respective ages of the several strata of clay, gravel, boulders, and sand, through which the river has finally worn its channel to the ocean level;"† so that he has probably ascribed too great an antiquity to the peculiar class of stone implements brought to light in the river-gravels of New Jersey. Dr. Abbott, accordingly, now states as his more matured conclusion, confirmed by the reports of some of the most experienced geological observers, on whose judgment he relies, that the Trenton gravel, in which alone the turtle-back cells have thus far been found, is a post-glacial river deposit, made at a time when the river was larger than at present; and is the most recent of all the formations of the Delaware.‡ Here, however, the term "recent" is employed altogether relatively; and although Dr. Abbott no longer claims in the discovery of the stone implements of the gravel beds near Trenton, New Jersey, evidence of the existence of man on the American continent before the close of the Glacial period, he still refers the Trenton gravel tool-makers to an era which, at the lowest computation precedes by thousands of years the earliest historical glimpses of Assyria, Egypt, or wherever among the most ancient nations of the old world the beginnings of history can be traced.

The disclosures of Dr. Abbott claim a special importance among the fruits of archaeological research on this continent from the fact that they furnish the first well-authenticated results of systematic research based on the scientific analogies of European archaeology. For it is well for us to bear in remembrance that the evidences of the antiquity of man in Europe do not rest on any number of chance disclosures. It is a simple procedure to dig into a Celtic or Saxon barrow, and find there the implements and pottery of its builders. But archaeologists have learned to recognize the paleolithic implements as not less characteristic of certain post-pliocene deposits than the paleontology of the same geological formation. The river-drift and cave deposits are characterized by traces of contemporaneous life, as shown in the examples of primitive art from which they receive the name of the tool-bearing drift or gravel; just as older geological formations have their characteristic animal, and vegetable fossils. The specific character of the tool-bearing gravel of the French drift having been determined, geologists and archaeologists have sought for flint implements in corresponding English strata, as they would seek for the fossils of the same

\* Report of the Peabody Museum, Vol. II, p. 38.

† Primitive Industry, p. 471.

‡ Ibid, p. 542.

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period, and with like success. Paleolithic implements have been recovered in this manner in Suffolk, Bedford, Hartford, Kent, Middlesex, Surrey, and other districts in the south of England. So entirely indeed has the man of the drift passed beyond the province of the archaeologist, that in 1861 Professor Prestwich followed up his *Notes on Further Discoveries of Flint Implements in Beds of Post-Pliocene Gravel and Clay*, with a list of forty-one localities where gravel and clay pits or gravel beds occur, as some of the places in the south of England where he thought flint implements might also by diligent search possibly be found; and subsequent discoveries confirmed his anticipations. It has been by the application of the same principle to the drift and river-valley gravels of this continent that a like success has been achieved. The result of a careful study of this tool-bearing gravel of the Delaware may be thus summarized from recent reports of trustworthy scientific observers: The Trenton gravel is a post-glacial river deposit, made at a time when the river was larger than its present volume. It represents apparently the latest of the surface deposits of the upper Delaware valley. Its actual age, "and the consequent date to which the antiquity of man on the Delaware should be assigned, is a question which geological data alone are sufficient to solve."\* Dr. Abbott, however, while now recognising it as post-glacial, assumes it to be an immediate relic of the close of the glacial epoch; and he accordingly remarks: "The melting of a local glacier in the Catskill Mountains would probably result, at the head waters of the Delaware, in a continued flood of sufficient volume, if supplemented by the action of floating ice, to form the Trenton gravels."† Whilst, therefore, he abandons the earlier idea of glacial, or inter-glacial man, he still recognizes in the implements of the Trenton valley gravel the evidence of a race of men akin to, and probably contemporary with, the river-drift men of Europe's palæolithic era.

American archaeologists have undoubtedly been repeatedly deceived by the misleading traces of comparatively modern remains in deposits of some geological antiquity: as in instances already referred to in the California gravel-beds. There, indeed, ground and polished instruments of stone, including a "plumet" of highly polished syenite, "an exhibition of the lapidary's skill superior to anything yet furnished by the Stone Age of either continent,"‡ appear to be not uncommon, in the same post-pleistocene formation where the fossil remains of the elephant and mastodon abound. Dr. Abbott has not overlooked the danger to which the archaeologist is thus exposed on a continent which, so far as its aborigines are concerned, may be said to be still in its Stone Age. He accordingly remarked in his original report: "The chance occurrence of single specimens of the ordinary forms of Indian relics, at depths somewhat greater than they have usually reached, even in constantly cultivated soils, induced me, several years since, to carefully examine the underlying gravels, to determine if the common surface-found stone implements of Indian origin were ever found therein, except in such manner as might easily be explained, as in the case of deep burials by the uprooting of large trees, whereby an implement lying on the surface, or immediately below it, might fall into the gravel beneath, and subsequently become buried several feet in depth; and lastly, by the action of the water, as where a spring swollen by spring freshets, cuts for itself a new channel, and carrying away a large body of earth, leaves

\* Primitive Industry, p. 547.

† Ibid, p. 545.

‡ Foster's Prehistoric Races, p. 55.

its larger pebbles, and possibly stone implements of late origin, upon the gravel of the new bed of the stream." But after giving every legitimate weight to such probabilities, experience has satisfied him that there is no difficulty in separating chance-buried neolithic or modern implements from the genuine paleolithic celts or hatchets abundantly present in the undisturbed gravel beds, from which they have been taken on their first exposure.

The importance attached to the recovery of the turtle-back implements in undisturbed gravel-beds has received full recognition; and it cannot admit of doubt that repeated discoveries have now been made under circumstances which prove them to have been a constituent part of the gravel, and not intrusive objects. Professor Henry C. Lewis, of the Pennsylvania geological Survey, in discussing the age of the Trenton gravel, remarks:—"At the localities on the Pennsylvania Railroad where extensive exposures of these gravels have been made, the deposit is undoubtedly undisturbed. No implement could have come into this gravel except at a time when the river flowed upon it, and when they might have sunk through the loose and shifting material. All the evidence points to the conclusion that at the time of the Trenton gravel flood, Man, in a rude state, with habits similar to those of the river-drift hunter of Europe, and probably under a climate similar to that of more northern regions, lived upon the banks of the ancient Delaware, and lost his stone implements in the shifting sands and gravel of the bed of that stream."\* Notwithstanding the revolutions that time has wrought, the locality retains sufficient indications of its ancient characteristics to satisfy the experienced eye of its fitness to have been the habitat of a race of primitive hunters and fishers. "It is evident," says Dr. Abbe, "that at just such a locality as Trenton, where the river widens out, traces of man, had he existed during the accumulation of the gravel, would be most likely to occur. This is true not only because there is here the greatest mass of the gravel, and the best opportunities for examining it in section; but the locality would be one most favourable for the existence of man at the time. The higher ground in the immediate vicinity was sufficiently elevated to be free from the encroachments of the ice and water, and the climate, soil, and fauna are all such as to make it possible for man to exist at this time, in this locality." † The remains not only of the American bison, but of the extinct mastodon, occur in this gravel. Professor Cook, the State geologist, in his report for 1878, describes the tusk of a mastodon found under partially stratified gravel at a depth of fourteen feet; and Dr. Abbott states that, within a few yards of this tusk paleolithic implements have been gathered, one at the same, and three at greater depths, from which he assumes the unquestionable presence of man on the Atlantic coast, contemporary with the mastodon and other extinct mammals of the drift.

An inter-glacial age is no longer claimed for the primitive American tool-maker; and though Dr. Abbott still maintains the glacial origin of the Trenton gravel, he no longer deems it necessary to claim for it a greater antiquity than ten thousand years. "It may be, indeed," as Professor Lewis adds, "that as investigations are carried farther, it will result, not so much in proving man of any great antiquity, as in showing how much more recent than usually supposed was the final disappearance of the glacier."‡ The date thus

\* The Antiquity and Origin of the Trenton Gravel, p. 547.

† Primitive Industry, p. 481.

‡ Ibid, p. 551.

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approximately assigned to American palaeolithic man is recent indeed, geologically speaking. But on any assumption of a common pedigree for the modern Eskimos and the Cave-men of Europe's palaeolithic age, it is entirely consistent to place the post-glacial man of America in what may be accepted as an intermediate epoch. But so recent and specific a date as the assigned interval of ten thousand years implies, suggests a very partial appreciation of all the phenomena, including the enormous physical changes, involved; or of the estimated interval which geologists have deduced as separating us from glacial times. "The last glimpse," says Professor Geikie, "we obtain of palaeolithic man is in Southern France, where the reindeer and its alpine and northern congeners were his companions; the first glimpse we get of his Neolithic successor is in Middle Europe, from which the northern fauna and flora had already taken their departure."\* The changes in climate, fauna and flora, implied in the contrast which is seen between the contents revealed to the explorers of the caves inhabited by the palaeolithic hunters, and those of the kitchen middens of Denmark, and the lake dwellings of Switzerland, furnish evidence of a new geological epoch not less definite than the changes which separate the pleiocene and pleistocene into well-defined periods. The phenomena which a study of the geology of Europe's Palaeolithic period reveals, can only be accounted for on the assumption of a vast lapse of time between the advent and the disappearance of palaeolithic man. Between that and the true Neolithic period, another considerable interval of time must have transpired. Sir Charles Lyell, when aiming at some approximate estimate of the age of the glacial period of Europe, names an interval of 800,000 years as that which divides us from its climax of extreme cold. Dr. John Evans, without attempting to gauge the interval by years or centuries, contents himself with an appeal to the imagination of the intelligent observer, as he stands on the edge of a lofty cliff, such as that at Bournemouth, and, taking in at one view the wide expanse of bay between the Needles and the Ballard Down Foreland, he invites him to estimate the immensely remote epoch when what is now that vast bay was dry land, and a range of chalk downs, 600 feet above the present sea, bounded the horizon. Yet, he says, "this must have been the sight that met the eyes of those primeval men who frequented the beaches of that ancient river, which buried their handiworks in gravels that now cap the cliffs, and of the course of which so strange but indubitable a memorial subsists in what has now become the Solent Sea."†

But the fancy of an Eskimo pedigree for Europe's palaeolithic man chimes in with an old idea of the American antiquary that the *Skrallings* referred to in the Eric Saga were Eskimos, as is far from improbable, though the assumption rests on no definite evidence. Dr. Abbott accordingly reproduces the statement of Professor Dawkins, in confirmation of the revived belief. "We are without a clue to the ethnology of the river-drift man, who most probably is as completely extinct at the present time as the woolly rhinoceros or the cave-bear; but the discoveries of the last twenty years have tended to confirm the identification of the cave-man with the Eskimo." Such a fanciful hypothesis once accepted as fact, its application to American ethnology is easy; and so Dr. Abbott proceeds to appeal unhesitatingly to evidence sufficient "to warrant the assertion that the palaeolithic man

\* Prehistoric Europe, p. 380.

† Ancient Stone Implements of Gt. Britain, p. 621.



on the one hand, and the makers of the argillite spearpoints on the other, stand in the relationship of ancestor and descendant; and if the latter, as is probable, is in turn the ancestor of the modern Eskimo, then does it not follow that the River-drift and Cave-man of Europe, supposing the relationship of the latter to the Eskimo to be correct, bear the same close relationship to each other as do the American representatives of these earliest of people? "\*

An appeal to European archaeology can scarcely fail to suggest some very striking contrasts thereby involved. As the thoughtful student dwells on all the phenomena of change and geological revolution which he has to encounter in seeking to assign to the man of the European drift his place in vanished centuries, his mind is lost in amazement at the vista of that long-forgotten past. Yet inadequate as the intermediate steps may appear, there are progressive stages. Amid all the overwhelming sense of the vastness of the period embraced in the changes which he reviews, the mind rests from time to time at well defined stations, in tracking the way backward, through ages of historical antiquity, into the night of time, and so to that dim dawn of mechanical skill and rational industry in which the first tool-makers plied their ingenious arts. But, so far as yet appears, it is wholly otherwise throughout this whole western continent, from the gulf of Mexico, northward to the pole. North America has indeed a copper age of its own very markedly defined; for the shores and islands of Lake Superior are rich in pure native copper, available for industrial resources without even the most rudimentary knowledge of metallurgic arts. But the tools and personal ornaments fashioned out of this more workable material are little, if at all, in advance of the implements of stone; and, with this exception, the primitive industry of North America manifests wondrously slight traces of progression through all the ages now assigned to man's presence on the continent.

The means available for forming some just estimate of the character of native American art are now abundant. In the National Museum at Washington; the Peabody Museum at Cambridge, Mass.; the Peabody Academy at Salem; the Academy of Natural Sciences at Philadelphia; the American Antiquarian Society at Worcester, Mass.; and in various Historical Societies and University Museums throughout the States; the student of American archaeology has the means of obtaining a comprehensive view of the native arts. At the Centennial Exposition of Philadelphia in 1876, the various States vied with one another in producing an adequate representation of the antiquities specially characteristic of their own localities; and numerous valuable reports, of the Smithsonian Institution, the United States Geographical Surveys, the Geological Survey of Canada, and the Geological Surveys of various States, have furnished the required data for determining the prehistoric chronicles of the northern continent.

One of the latest publications of this class is Dr. Abbott's own volume, entitled "Primitive Industry; or illustrations of the handiwork in stone, bone and clay of the native races of the Northern Atlantic seaboard of America." It is a most instructive epitome of North American Archaeology. Notwithstanding the limits set in the title, works in metal as well as in stone are included; and what are the results? Twenty-one out of its twenty-three chapters are devoted to the detailed illustrations of stone and flint axes, celts, hammers, chisels, scrapers, drills, knives, &c. Fish-hooks, fish-spears, awls or bodkins, and

\* Primitive Industry, p. 517.

other implements of bone, pottery, pipes both in stone and clay, and personal ornaments, receive the like detailed illustration; but nearly all are in the rudest stage of rudimentary art. Some advance upon this is seen in the pottery of some Southern States. That of the Mound-builders appears to have shown both more artistic design and better finish. The carving in bone, ivory, and slate-stone of various Western Tribes, as well as of the extinct Mound-builders, was also of a higher character. But taking them at their highest, they cannot compare in practical skill or variety of application with the industrial arts of Europe's Neolithic Age; and we look in vain for any traces of higher progress. For upwards of three and a-half centuries, this continent has been familiar to European explorers and settlers. During some considerable portion of that time, by means of agricultural operations, and all the incidents consequent on urban settlement, its virgin soil has been turned up over ever increasing areas. For thirty years I have myself watched, with the curious interest of one previously familiar with the minute incidents of archaeological research in Britain, the urban excavations, railway cuttings, and others undesignated explorations of Canadian soil. Within the same period, both in Canada and the United States, extensive canal, railway, and road-works have afforded abundant opportunities for research; and a wide-spread interest in American antiquities has tended to confer an even exaggerated importance on every novel discovery. And with what result? Dr. Abbott, in crowning such explorations with his interesting and valuable discovery of the turtle-back celts and other implements of the Delaware gravel, has epitomised the prehistoric record of the Northern continent. The further back we date the presence of man in America, the more marvellous must his unprogressive condition appear. Whatever may be the ampler disclosures relative to the palæolithic or primeval race, it does not seem probable that this northern continent will now yield any antiquities suggestive of an extinct era of native art and civilization. Here we cannot hope to find a buried Hium, or Tadmor in the Wilderness. Everywhere the explorer wanders, and the agriculturist follows, turning up the soil, or digging deeper as he drains and builds; but only to disturb the grave of the savage hunter. The Mound-builders of its great river-valleys have indeed left there their enduring earthworks, wrought at times in regular geometrical configuration on a gigantic scale, strangely suggestive of some overruling and informing mind guiding the hand of the earth-worker; and fashioning his embankments with a skill derived from scientific knowledge. But the colossal mounds and earthworks disclose only implements of bone and flint or stone; with here and there an equally rude tool of hammered native copper. The crudest metallurgy of Europe's copper-age was unknown to their builders. The art of Tubalcain, the primitive worker in brass and iron, had not dawned on the mind of any native artificer. Only the ingeniously carved tobacco pipe, or the better fashioned pottery, gives the slightest hint of even such progress beyond the first infantile stage of the tool-maker as is shown in the artistic carvings of the Cave-men contemporary with the mammoth and the reindeer of post-glacial France.

The civilization of Central and Southern America is a wholly distinct thing; and, as I think, of Asiatic origin; but the attempts to connect it with that of ancient Egypt, suggested mainly by the hieroglyphic sculpturing on their columns and temples, find their confutation the moment we attempt to compare the Egyptian calendar with that either of Mexico or Peru. The vague year of 365 days, and the corrected solar year, with the great Sothic Cycle of 1460 years, so intimately inter-

woven with the religious system and historical chronology of the Egyptians, abundantly prove the correction of the Egyptian Calendar by accumulated experience, at a date long anterior to the resort of the Greek astronomer, Thales, to Egypt. At the close of the fifteenth century, the Aztecs had learned to correct their calendar to solar time; but their cycle was one of only fifty two years. The Peruvians also had their recurrent religious festivals connected with the adjustment of their sacred calendar to solar time; but the geographical position of Peru, with Quito, its holy city, lying immediately under the equator, greatly simplified the process by which they regulated their religious festivals by the solstices and equinoxes; and the facilities which their equatorial position afforded for determining the few indispensable periods in their calendar removed all stimulus to further progress. The religion of the state, moreover, was based on the divine honours paid to the sun; eclipses were regarded with the same superstitions dread as among the rudest savage nations; and the conservatism of an established national creed must have proved peculiarly unfavorable to astronomical science. The impediments to Galileo's observations were trifling compared with those which must have beset the Inca priest who ventured to question the diurnal revolution of the sun round the earth; or to solve the awful mystery of an eclipse by so simple an explanation as the interposition of the moon between the sun and the earth. The Mexican Calendar Stone embodies evidence of greater knowledge; and was believed by Humboldt to indicate unmistakable relations to the ancient science of South-Eastern Asia. It is of more importance here to note the shortness of the Mexican cycle, and the small amount of error in their deviation from true solar time, as compared with the European calendar at the time when the Spaniards first intruded on Montezuma's rule. That the Spaniards were ten days in error, as compared with the Aztec reckoning, only proves the length of time during which error had been accumulating in the reformed Julian calendar of Europe; and so tends to confirm the idea that the civilisation of the Mexicans was of no very great antiquity. The whole evidence supplied by Northern archaeology proves that in so far as that civilisation was of foreign origin, they must have derived it from the South, where alike in Central and in Southern America, diverse races, and a native civilisation replete with elements of progress, have left behind them many enduring memorials of skill and ingenuity. But the extremely slight and very partial traces of its influence on any people of the Northern continent would of its self suffice to awaken doubts as to its long duration. The civilisation of Greece and Rome did indeed exercise no direct influence on transalpine Europe; but long centuries before the Romans crossed the Alps, as the disclosures of the lake villages, the crannoges, the kitchen middens, and the sepulchral mounds of Central and Northern Europe prove, the nations beyond their ken were familiar with weaving, and with the ceramic and metallurgic arts; were far advanced as agriculturists, had domesticated animals, acquired systems of phonetic writing, and learned the value of a currency of the precious metals.

Midway between North America with its unredeemed barbarism, and the southern seats of a native American civilisation, Mexico represents, as I believe, the first contact of the latter with the former. A gleam of light was just beginning to dawn on the horizon of the Northern continent. The long night of its Dark Ages was coming to a close, when the intrusion of the Spaniards abruptly arrested the incipient civilization; and began the displacement of its aborigines and the repetition of the Aryan

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The publication in 1848 of the first volume of the Smithsonian Contributions to knowledge, devoted to the history and explorations of the ancient monuments of the Mississippi valley, gave a wonderful stimulus to archaeological research in the United States. For a time, indeed, much credulous zeal was devoted to the search for buried cities, inscribed records, and a reproduction in more or less modified form, in northern areas, of the civilization of the Aztecs; not unmingled with dreams of Phœnician, Hebrew, Scandinavian, and Welsh remains. The history of some of its spurious productions is not without interest; but its true fruits are seen in numerous works which have since issued from the American press, devoted to an accurate record of local antiquities. So thoroughly has this already been carried out, that it may be now affirmed with little hesitation that, to all appearance, the condition of the Indian tribes to the North of Mexico, as shown in the rude arts of a stone age, scarcely at all affected in its character by their use of the native copper of Lake Superior, represents what prevailed throughout the whole Northern continent in all the centuries—however prolonged,—since the hunters in the Delaware valley fashioned and employed their turtle-back celts.

The condition of the nations of North America at the period of its discovery, at the close of the fifteenth century, may be described as one of unstable equilibrium; and nothing in its archaeological records points to any older period of settled progress. The physical geography of the continent presents in many respects such a contrast to that of Europe, as is seen in the steppes of Northern Asia, though with great navigable rivers, which only needed the appliances of modern civilization to make them for the New World what the Euphrates and the Tigris were to southern Asia in ancient centuries. Those vast tablelands, the great steppes of Mongolia and Independent Tartary, have ever been the haunts of predatory tribes by whom the civilization of southern Asia has been repeatedly overthrown; and from thence came the Huns who ravaged the Roman world in its decline. Europe, on the contrary, nursed its youthful civilization among detached communities of its southern peninsulas on the Mediterranean Sea; and in later ages has repeatedly experienced the advantages of geographical isolation in the valleys of the Alps, in Norway and Denmark, in Portugal, the Netherlands, and the British Islands: where nations protected in their youth from predatory hordes, and sheltered during critical periods of change, have safely passed through their early stages of progress.

All that we know, or can surmise of the nations of North America, presents a total contrast to this. In so far as the mystery of its prehistoric Mound-builders has been solved; we see there a people who had attained to a grade of civilization not greatly dissimilar to that of the village communities of New Mexico and Arizona; and who had settled down in the Ohio valley, not improbably while feudal Europe was still only emerging from mediæval rudeness: if not at an earlier date. The great river-valley was long occupied by populous urban centres of an industrious community. Agriculture, though prosecuted only with the simplest implements, chiefly of wood and stone, must have been practised on an extensive scale. The primitive arts of the potter were improved; the value of the copper abounding in the remote region on the shores of Lake Superior was appreciated; though metallurgy in its practical applications had scarcely entered on its first stage. The nation was in its infancy; but it had

passed beyond the rude hunter state; and was entering on a settled life, with all possibilities of progress in the future: when the fierce nomads of the north—the Iroquois, as later incidents of Indian history suggest;—swept down on the populous valley, and left it a desolate waste. If so, it was but a type of the whole native history of the continent.

From all that can be gleaned, alike from archaeological chronicles, Indian tradition, and the actual facts of history in the seventeenth and eighteenth centuries, the condition of the whole population of the Northern continent has ever been the same. It might not inaptly be compared to an ever recurring spring-tide, followed by frosts that nipped the young germ, and rendered the promised fruitage abortive. Throughout the whole period of French and English colonial history, the influence of one or two savage but warlike tribes is traceable from the St. Lawrence to the gulf of Mexico; and the rival nations were exposed to such constant warfare that it is more than doubtful if the natural increase of population was latterly equal to the waste of war. Almost the sole memorials of vanished nations are the names of some of their mountain ranges and rivers. It is now surmised, not without considerable probability, that the Allighewi, or Tallegwi, to whom the name common to the Alleghany Mountains and River is traced, were the actual Mound-builders;\* and it is also assumed as not improbable that the Natchez, who claimed that in their more prosperous days they had five hundred villages, and their borders stretched to the Ohio, were a remnant of the same ancient race.† If so, the history of their overthrow is not wholly a matter of surmise. The traditions of the Delawares told that the Allighewi, or Alleghans, were a powerful nation reaching to the eastern shores of the Mississippi, where their palisaded towns occupied all the choicest sites in the Ohio valley; but the Wyandots, or Iroquois, including perhaps the Eries, who had established themselves on the head waters of the chief rivers that rise immediately to the south of the great lakes, combined with the Delawares, or Lenapé nation, to crush that ancient people; and the decimated Alleghans were driven down the Mississippi, and dispersed, if not exterminated. Some surviving remnant, such as even a war of extermination spares, may have been absorbed into the conquering nation, after the fashion systematically pursued by the Huron-Iroquois in the 17th and 18th centuries. Nor is this a mere conjecture. Mr. Horatio Hale, recognizing the evident traces in the Cherokee language of a grammar mainly Huron-Iroquois, while the vocabulary is largely recruited from some foreign source: thinks it not improbable that the origin of the Cherokee nation may have been due to a union of the survivors of the old Mound-builder stock with some branch of the conquering race; just as in 1649 a fugitive remnant of the Hurons from Georgian Bay were adopted into the Seneca nation; ‡ and a few years later such of the captive Eries as escaped torture and the stake, were admitted into affiliation with their conquerors. §

The whole region to the east of the Mississippi, from the fifty-second to the thirty-sixth degree of north latitude, appears to have been occupied by the two great Indian stocks, the Algonquin-Lenapé and the Iroquois. But Gallatin, who directed special attention to the determination of the elements of philological affinity between them, recognized to the south of their region the existence of at least three essentially distinct languages of exten-

\* Indian Migrations as evidence of Language. Horatio Hale, p. 21.

† The Mound Builders. W. F. Force, p. 77.

‡ Indian Migrations, p. 22.

§ Relations des Jésuites, 1660, p. 7. Quebec ed.

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sive use: the Catawba, the Cherokee and that which he assumed to include in a common origin, both the Muskogee and the Choctaw.\* But besides those, six well ascertained languages of smaller tribes, including those of the Uchees and the Natchez, appear to demand separate recognition. Their region differs essentially from those over which the Algonquin and Iroquois war-parties ranged at will. It is broken up by broad river channels, and intersected by impenetrable swamps; and has thus afforded refuge for the remnants of conquered tribes, and for the preservation of distinct languages among small bands of refugees.

When the Ohio valley was first explored it was uninhabited; and in the latter part of the seventeenth century the whole region extending from Lake Erie to the Tennessee river was an unpeopled desert. But the Cherokees were in the occupation of their territory when first visited by De Soto in 1540; and they are described by Bertram in 1773, with their great council house, capable of accommodating several hundreds, erected on the summit of one of the large mounds, in their town of Cowe, on the Tanase river, in Florida. But Bertram adds: "This mound on which the rotunda stands, is of a much ancienter date than the building, and perhaps was raised for another purpose. The Cherokees themselves are as ignorant as we are, by what people, or for what purpose, these artificial hills were raised." † It would, indeed, no more occur to those wanderers into the deserted regions of the Mound-builders to inquire into the origin of their mounds, than into that of the Alleghany mountains.

If then it is probable that we thus recover some clue to the identity of the vanished race of the Ohio valley: the very designation of the river is a memorial of their supplanters. The Ohio is an Iroquois name given to the river of the Alleghans by that indomitable race of savage warriors who effectually counteracted the plans of France, under her greatest monarchs, for the settlement of the new world. Their historian, the late Hon. L. H. Morgan, remarks of the Iroquois: "They achieved for themselves a more remarkable civil organisation, and acquired a higher degree of influence, than any other race of Indian lineage except those of Mexico and Peru. In the drama of European colonization, they stood, for nearly two centuries, with an unshaken front, against the devastations of war, the blighting influence of foreign intercourse, and the still more fatal encroachments of a restless and advancing border population. Under their federal system, the Iroquois flourished in independence, and capable of self-protection, long after the New England and Virginia races had surrendered their jurisdictions, and fallen into the condition of dependent nations; and they now stand forth upon the canvas of Indian history, prominent alike for the wisdom of their civil institutions, their sagacity in the administration of the league, and their courage in its defence." ‡ But to characterise the elements of combined action among the Six Nation Indians as wise civil institutions; or to use such terms as league and federal system in the sense in which they are employed by the historian of the Iroquois: is to suggest associations that are illusory. With all the romance attached to the League of the Hodenosaunee, they were to the last mere savages. When the treaty which initiated the great league was entered into by its two oldest members, the Mohawks and the Onondas, the

\* *Archæologia Americana*, vol. ii.

† Bertram's Travels through N. and S. Carolina, Georgia, &c., 1791, p. 367.

‡ The League of the Iroquois, p. 2.

former claimed the name of Kanienga, or "People of the Flint." They were, as they remained to the last, but in their stone period. Their arts were of the rudest character, and their wars had no higher aim than the gratification of an inextinguishable hatred. All that we know of them only serves to illustrate a condition of life such as may have sufficed through countless generations to perpetuate the barbarism which every where reveals itself in the traces of man throughout the northern continent. One nation after another perished in the fury of this race, powerful only to destroy. The Susquehannocks, whose name still clings to the beautiful river on the banks of which they once dwelt, are believed to have been of the same lineage as the Alleghans; but they incurred the wrath of the Iroquois, and perished. At a later date the Delawares provoked a like vengeance; and the remnant of that nation quitted for ever the shores of the river which perpetuates their name. Such in like manner was the fate of the Shawnees, Nanticokes, Unamis, Minsi, and Illinois. All alike were vanquished, reduced to the condition of serfs, or driven out and exterminated.

The tribes that lived to the west of the Mississippi appear to have been for the most part more strictly nomad. The open character of the country, with its vast tracts of prairie, and its herds of buffalo and other game, no doubt helped to encourage a wandering life. The Crees, the Blackfeet, the Sioux, Cheyennes, Comanches, and Apaches are all of this class; and with their interminable feuds and perpetual migrations, rendered all settled life impossible. The Mandans, the most civilised among the tribes of the Northwest, abandoned village after village under the continual attacks of the Sioux, until they disappeared as a nation; and the little handful of survivors found shelter with another tribe.

All this was the work of Indians. The Spaniards, indeed, wasted and destroyed with no less merciless indiscriminateness. Not only nations perished, but a singularly interesting phase of native civilisation was abruptly arrested in Mexico, Central America, and Peru. The intrusion of French, Dutch, and English colonists was, no doubt, fatal to the aborigines whom they supplanted. Nevertheless their record is not one of indiscriminate massacre. The relations of the French, especially, with the tribes with whom they were brought into immediate contact were on the whole, kindly and protective. But, as we recover the history of the native tribes whose lands are now occupied by the representatives of those old colonists, we find the Indians everywhere engaged in the same exterminating warfare; and whether we look at the earlier maps, or attempt to reconstruct the traditional history of older tribes, we learn only the same tale of aimless strife and extinction. When Cartier first explored the St. Lawrence, in 1535, he found large Indian settlements at Quebec and on the Island of Montreal; but on the return of the French, under Champlain, little more than half a century later, there were none left to dispute their settlement. At the later date, and throughout the entire period of French occupation, the country to the south of the St. Lawrence and Lake Ontario was occupied by the Iroquois, or Six Nation Indians, as they were latterly called. Westward of the river Ottawa the whole region was deserted until near the shores of the Georgian Bay; though its early explorers found every where the traces of recent occupation by the Wyandot, or other tribes, who had withdrawn to the shores of Lake Huron, to escape the fury of their implacable foes.

At the period when the Hurons were first brought under the notice of the French Jesuit Missionaries in the seventeenth century, they were established along the Georgian Bay, and around Lake Simcoe; and in so far as the wild virtues of the savage warrior are concerned, they fully equalled the Iroquois by whom they were at length driven out and

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nearly exterminated. When Locke visited Paris, in 1679, the narratives of the Jesuit Fathers had rendered familiar the unflinching endurance of this race under the frightful tortures to which they were subjected by their Iroquois captors; and which they, in turn, not only inflicted on their captive foes, but on one after another of the missionaries whose devoted zeal exposed them to their fury. We now read with interest this reflection noted in his journal, in which he recognizes in these savages the common motives of humanity; the same desire to win credit and reputation, and to avoid shame and disgrace, which animates all men: "This makes the Hurons and other people of Canada with such constancy endure inexpressible torments; this makes merchants in one country and soldiers in another; this puts men upon school divinity in one country and physics and mathematics in another; this cuts out the dresses for the women, and makes the fashions for the men, and makes them endure the inconveniences of all." The great English philosopher manifestly entertained no doubt that the latent elements on which all civilization depends were equally shared by Indian and European. But the Hurons perished—all but a little remnant of Christianized half-breeds now settled on the St. Charles River, below Quebec;—in their very hour of contact with European civilization.

Father Sagard estimated the Huron tribes at the close of their national history, when they had been greatly reduced in numbers, as still between thirty and forty thousand. But besides these there lay between them and the shores of Lake Erie and the Niagara River the Tiontonones and the Attiwandaronks; and to the south of the Great Lake, the Eries; all of the same stock; and all sharers in the same fate. Tradition points to the kindling of the council-fire of peace among the Attiwandaronks before the organization of the Iroquois confederacy. Father Joseph de la Roche d'Allyon, who passed through their country when seeking to discover the course of the Niagara river, speaks of twenty-eight towns and villages under the rule of its chief Sachem; and of their extensive cultivation of maize, beans, and tobacco. They won, moreover, the strange character of being lovers of peace; and were styled by the French the Neuters, from the desire they manifested to maintain a friendly neutrality alike with the Hurons and the Iroquois. Of the Eries we know less. In the French maps of the seventeenth century the very existence of the great lake which perpetuates their name was unknown; but the French fur-traders were aware of a tribe existing to the west of the Iroquois, whose country abounded with the lynx, or wild cat, the fur of which was specially prized; and they designated it "La Nation du Chat." To their artistic skill are ascribed several remains of aboriginal art, among which a pictorial inscription on Cunningham's Island is described as by far the most elaborate work of its class hitherto found on the continent.\* From the partial glimpses thus recovered of both nations, we are tempted to ascribe to them greater aptitude for civilization than the boasted federal league of the Iroquois gave evidence of. But they perished by the violence of kindred nations before either the French or English could establish intercourse with them; and their fate doubtless reveals to us glimpses of history such as must have found frequent repetition in older centuries, throughout the whole North American continent.

The legend of the peace pipe, Longfellow's poetic version of the Red Indian Edda,

\* Schoolcraft. History of the Indians Tribes, vol. ii, p. 78.



founded on traditions of the Iroquois narrated by an Onondaga chief, represents Gitche Manitou, the Master of Life, descending on the crag of the red pipe-stone quarry at the Côteau des Prairies, and calling all the tribes together:

"And they stood there on the meadow  
With their weapons and their war gear,  
Wildly glaring at each other.  
In their faces stern defiance,  
In their hearts the fends of ages,  
The hereditary hatred,  
The ancestral thirst of vengeance."

So far the picture is true to nature; but no dream of a millennial era for the Red-Man, in which all were thenceforth to live together as brothers, can have fashioned itself in the mind of Indian seer. The Sioux, the Crees, and the Blackfeet, are still nursing the same feud of ages, and thirsting for each other's blood; while the thousands of European emigrants crowd in to take possession of their vast uncultivated prairies, destined to become the granaries of the world; and the buffalo, on which they have mainly depended, is rapidly disappearing and will in a very few years be as extinct as the fossil urus or mastodon. The Red-Man of the North-West exhibits no change from his precursors of the fifteenth century; and for aught that appears in him of a capacity for self-development, the forests and prairies of the American continent may have sheltered hunting and warring tribes of Indians, just as they have sheltered and pastured its wild herds of buffaloes, for countless centuries since the continent rose from its ocean bed.

Only by prolonged hereditary feuds, more insatiable, and therefore more destructive in their results, than the ravages of tigers or wolves, is it possible to account for such an unprogressive condition of humanity as the archaeological disclosures of this northern continent seem alone to reveal. Its numerous rivers and lakes, and its boundless forests and prairies, afforded inexhaustible resources for the hunter; and both soil and climate have proved admirably adapted for agriculture. Still more, the great copper region of Lake Superior provided advantages such as have existed in no other country of the known world for developing the first stages of metallurgic art on which civilization so largely depends. Whether brought with them from Asia, or discovered for themselves, the grand secret of the mastery of the ores by fire was already familiar to Peruvian metallurgists, and not unknown to those of Mexico. Unalloyed copper, such as that which abounds in the igneous rocks of the Keweenaw peninsula on Lake Superior, is extremely difficult to cast; and the addition of a small percentage of tin not only produces the useful bronze alloy, but renders the copper more readily fusible. This all-important secret of science the metallurgists of Peru had brought with them, it may be from Asia, or had discovered for themselves, and turned largely to practical account. The pictured chronicles of the Mexicans throw an interesting light on the value they attached to the products of this novel art. It appears from some of their paintings that the tribute due by certain provinces was paid in wedges of copper. The forms of these, as well as of chisels and other tools of bronze, are simple, and indicate no great ingenuity in adapting the moulded metal to the artificer's, or the combatant's requirements. The methods of hafting the axe-blade appear to have been of nearly the same rude description as are in use by modern savages in fitting the handle to a hatchet of flint or stone; and the whole characteristics of their metallurgy are suggestive of a recently acquired or borrowed art.

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Such knowledge, partial as it was, must have been derived from the south. Everywhere to the northward we look in vain for anything more than the mere hammered native copper, untouched by fire. Dr. J. W. Foster does indeed quote Mr. Perkins, who himself possesses sixty copper implements, including knives, spear-heads, chisels, and objects of anomalous form, as having arrived at the conclusion "that, by reason of certain markings, it was evident that the Mound-builders possessed the art of smelting copper,"\* but the illustrations produced in proof of it scarcely bear out the opinion. The same idea has been repeatedly advanced; but the contents of the Mounds amply prove that if such a knowledge had dawned on their builders, it was turned to no practical account. Mr. Charles Rau in his "Ancient aboriginal trade in North America," says "although the fire on the hearths or altars now inclosed by the sacrificial Mounds was sometimes sufficiently strong to melt the deposited copper articles, it does [not] seem that this proceeding induced the ancient inhabitants to avail themselves of fire in working copper; they persisted in the tedious practise of hammering. Yet one copper axe, evidently cast, and resembling those taken from the Mounds of Ohio, has been ploughed up near Auburn, in Cayuga in the State of New York. This specimen, which bears no trace of use, may date from the earlier times of European colonization. It certainly would be wrong to place much stress on such an isolated case."† The well known volume of Messrs. Squire and Davis furnishes illustrations of copper and other metallic relics from the Mounds of Ohio.‡ Mr. J. T. Short engraves a variety of similar relics from Wisconsin, where they appear to have been found in unusual abundance.§ In the Annual Report of the Historical Society of Wisconsin for 1878, the copper implements in their collection are stated to number one hundred and ninety implements classified as spear or dirk-heads, knives, chisels, axes, angurs, gads, and drills; in addition to beads, tubes, and other personal ornaments made out of thin sheets of hammered copper. Dr. J. W. Foster has furnished illustrations of the various types, from the valuable collection of Mr. Perkins.|| Colonel Charles C. Jones engraves a specimen of the rarely found copper implements of Georgia;¶ and Dr. Abbott shows the prevailing forms of the same class of relics found along the whole northern Atlantic seaboard.\*\* All tell the same tale of rudest manipulation by a people ignorant of the working of metals with the use of fire.

And yet the native copper was ready to hand, in a form, and in quantity unknown elsewhere. No such supplies of the pure metal invited the industry of the first Asiatic or European metallurgists. The Cassiterides yielded in abundance the ores of copper and tin; but these had to be smelted, and worked with all the accumulated results of tentative skill, before they yielded the copper or more useful bronze. By whom, or where this first knowledge was mastered is unknown; the tendency is still to look to Asia, to the first home of the Aryans, or perhaps to Phœnicia, for the birth of this early art. Yet if the

\* Prehistoric Races of the United States, p. 259.

† Smithsonian Report, 1872, p. 353. The important word *not* supplied here, it is obvious from the context, is absent by a mere typographical error.

‡ Ancient Monuments of the Mississippi Valley, vol. i, pp. 196-207.

§ The North Americans of Antiquity, p. 95.

|| Prehistoric Races of the United States, pp. 251-259.

¶ Antiquities of the Southern Indians, p. 225.

\*\* Primitive Industry, pp. 411-422.

ancient American missed it, it was not for want of opportunity. Examples, as has been noted, of the accidental fusion of copper, by the sacrificial fires of the Mound-builders, repeatedly occur in the mounds of the Ohio valley. But no gifted native alchemist was prompt to read the lesson, and turn it to practical account.

Asia and Europe appear to have passed by a natural transition, step by step, from their rudest stages of lithic art, to polished stone, and then to implements of metal. Some of the steps were doubtless very slow. Worsaae believes that the use of bronze prevailed in Denmark "five or six hundred years before the birth of Christ."\* In Egypt it undoubtedly was known at a greatly earlier date. I still incline to my early formed opinion, that gold was the first metal worked. Found in nuggets, it could scarcely fail to attract attention. It was easy to fashion into shape; and some of the small, highly polished stone hammers seem fitter for this than any other work.† The abundant gold ornaments of the new world at the time of the discovery of Mexico and Peru accord with this idea. The like attraction of the bright native copper, is proved by its employment among the southern Indians for personal ornaments; and in this way the economic use of the metals may have been first suggested.

From the working of gold nuggets, or of virgin copper, with the hammer, to the smelting of the ores, was no trilling step; but that knowledge once gained, the threshold of civilization and true progress had been reached. The history of the grand achievement is embodied in the earliest myths both of the old and the new world. Tubal-Cain, Dædalus, Hephaestus, Vulcan, Vælund, Galant, the Luno of the Celtic Fingal, and Wayland, the Saxon smith-god, are but legendary variations of the first worker by whom the gift of metallurgy was communicated to man; and so too the new world has its Quetzalcoatl, or Vælund of the Aztecs, the divine instructor of their ancestors in the use of the metals. But whatever be the date of this wise instructor, no share of the knowledge communicated by him to that favoured race appears to have ever penetrated northward of the Mexican gulf.

It is vain to urge such dubious evidence as the fancied traces of a mould-ridge, or the solitary example of a casting of uncertain age, in proof of a knowledge of the furnace and the crucible among any North American tribe. Everywhere in Europe the soil yields not only its buried relics of gold, copper and bronze, but also stone and bronze moulds in which implements and personal ornaments were cast. When the ingenious systematizing of Danish archaeologists had familiarized the students of antiquity with the idea of a succession of stone, bronze, and iron periods, in the history of Europe, the question naturally followed whether metallurgy did not begin, there, as elsewhere, in the easy working of virgin copper. Dr. Latham accordingly remarked, in his "Ethnology of the British Islands," on the supposition that no unalloyed copper relics had been found in Britain: "Stone and bone first; then bronze, or copper and tin combined; but no copper alone. I cannot get over this hiatus; cannot imagine a metallurgic industry beginning with the use of alloys." It was a mistake, however, to assume that no copper relics had ever been found. At first it had been taken for granted that all such implements were of the familiar alloy. But so soon as the importance of the distinction was recognized, examples of pure copper were forthcoming. So early as 1822, Sir David Brewster described a large axe of

\* *Primeval Antiquities*, p. 135.

† *Prehistoric Annals of Scotland*, first ed., 1851, p. 214., second ed., vol. 1, p. 331.

peculiar shape, of a depth of two feet. The Scottish Mr. Wilde states, on examination, that the cells, are of iron, and formed tools.

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peculiar shape, and formed of copper, which was found in the hard black till-clay at a depth of twenty feet under Ratho Bog, near Edinburgh. This is no solitary example. The Scottish Museum of Antiquities has other implements of pure copper; and Sir William Wilde states in reference to the collections of the Royal Irish Academy, "upon careful examination, it has been found that thirty of the rudest, and apparently the very oldest celts, are of red, almost unalloyed copper;" as is also the case with some other rudely formed tools in the same collection.

It was a temporary advantage, doubtless, but a real loss, to the Indian miners of Lake Superior that they found the native copper there ready to hand, a pure ductile metal, probably regarded by them as only a variety of stone which—unlike its rocky matrix,—they could bend, or hammer into shape, without fracture. Its value as such was widely appreciated. The copper tools, every where retaining the specks, or larger crystals of silver, characteristic of the Lake Superior veins, tell of the diffusion of the metal from that single source throughout all the vast regions watered by the Mississippi and its tributaries, and eastward by lake and river to the gulf of the St. Lawrence and the mouth of the Hudson.

There was a time when this traffic must have been systematically carried on; when the ancient miners of Lake Superior worked its rich coppers veins with industrious zeal; and when, probably as part of the same aggressive energy, the valley of the Ohio was filling with a settled population; its great earthworks were in process of construction, and a native race entered on a course that gave promise of social progress. But, from whatever cause, the work of the old miners was abruptly terminated; \* the race of the Mounds vanished from the scenes of their ingenious toil; and rudest barbarism resumed its sway over the whole northern continent. The same Aryan race that, before the dawn of history; before the Sanskrit-speaking people of India, or the Zends of Persia, entered on their southern homes; spoke in its own cradle-land, on the high plateau of Central Asia, the mother tongue of Sanskrit, Greek, Celtic, and German, at length broke up, and went forth on its long wanderings. It crossed the old continent, and in successive detachments, wave after wave, of Celts, Romans, Greeks, Slaves, and Teutons, broke in upon the barbarism of prehistoric Europe; displaced the older races, Allophylian, Neolithic, Iberian, Finnic, or by whatever other name we may find it convenient to designate them; but not without a certain amount of intermingling of the old blood with that of the intruders. The sparsely settled continent gradually filled up. Forests were cleared, swamps drained, rivers confined by artificial banks and levées to their channels; and there grew up in their new home the Celtic, Classic, Slavic, and Teutonic tongues, with all the richly varied culture and civilization which they represent. Agriculture, the special characteristic of the whole Aryan race, flourished. They brought with them the cereals from their ancestral home; and, with plenty, the favoured race multiplied, till at length it has grown straitened within the bounds of the continent which it had made its own.

With the close of the 15th century one great cycle, that of Europe's mediæval era, came to an end; and then we trace the first beginnings of that fresh scattering of the Aryan clan, and its new western movement across the Ocean. It seems to me in a very striking manner once more to repeat itself under our own eyes, as we look abroad on the millions crowding in from Europe, hewing down the forests, filling up the waste prairies, and dis-

\* Prehistoric Man, 3rd ed. vol. i, pp. 203-228.

placing the rude aborigines ; but here also not without some interblending of the races ; though the two types, Aryan and barbarian, meet under all the repellent influences of high civilization and the lowest barbarism. In our Canadian North-West alone, the young province of Manitoba has begun its political existence with a population of between 10,000 and 12,000 half-breeds ; in part at least, a hardy race of hunters and farmers : the representatives of what is as certainly destined to constitute an element in the new phases which the Aryan race already begins to assume, under the diverse conditions of this continent, as that curious trace of Europe's pre-Aryan people which attracted the observant attention of Tacitus among the ancient Britons ; and which we are learning to recognize with a new significance, as the Melanchroi ; the representatives of the old Half-breed of Europe's prehistoric dawn.

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