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*Some Physical Characteristics of Native Tribes of Canada.*

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ADDRESS

BY

DANIEL WILSON, LL. D., F. R. S. E.,

VICE PRESIDENT, SECTION H.

BEFORE THE

SECTION OF ANTHROPOLOGY,

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE,

AT MONTREAL, CANADA,

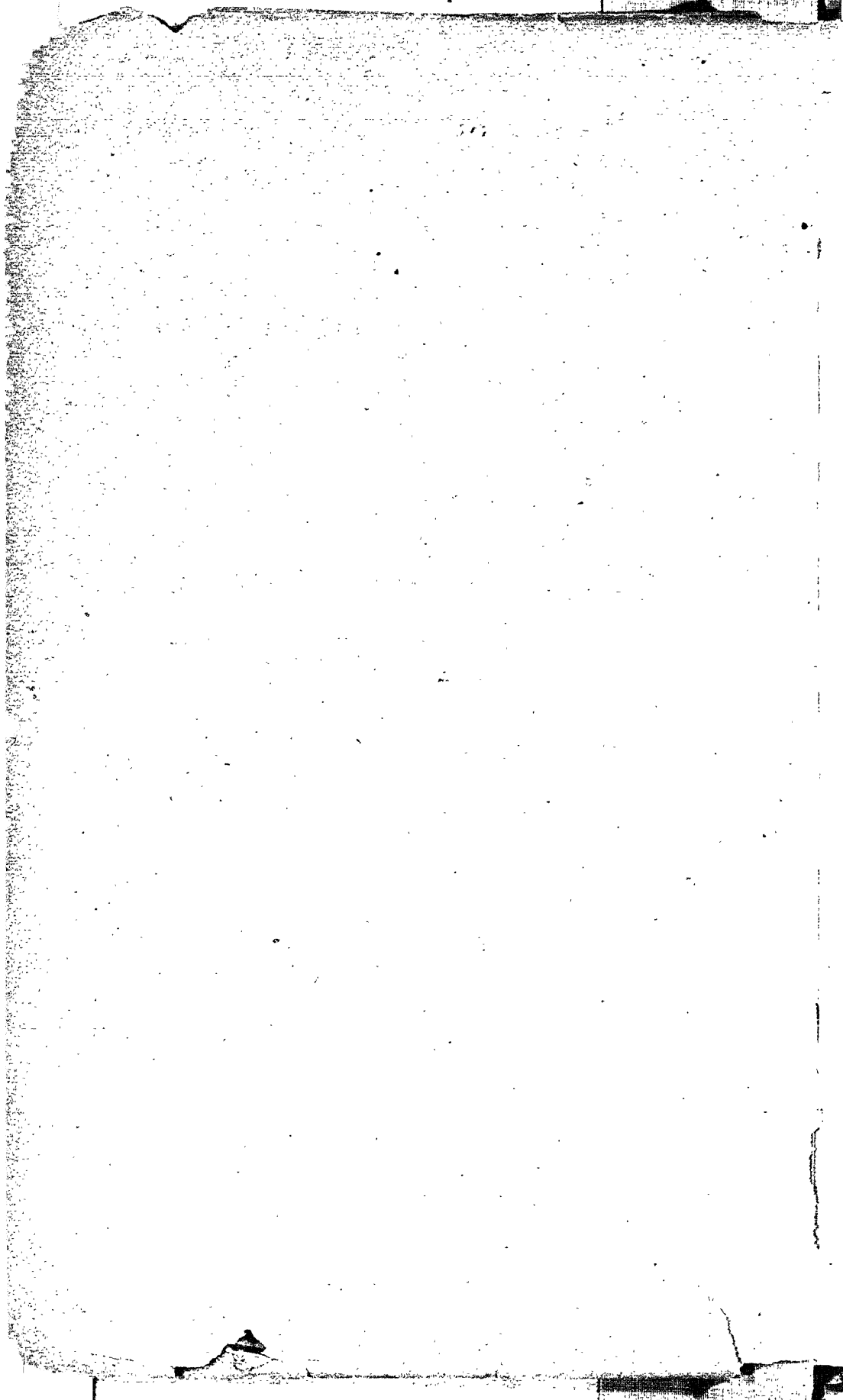
AUGUST, 1882.

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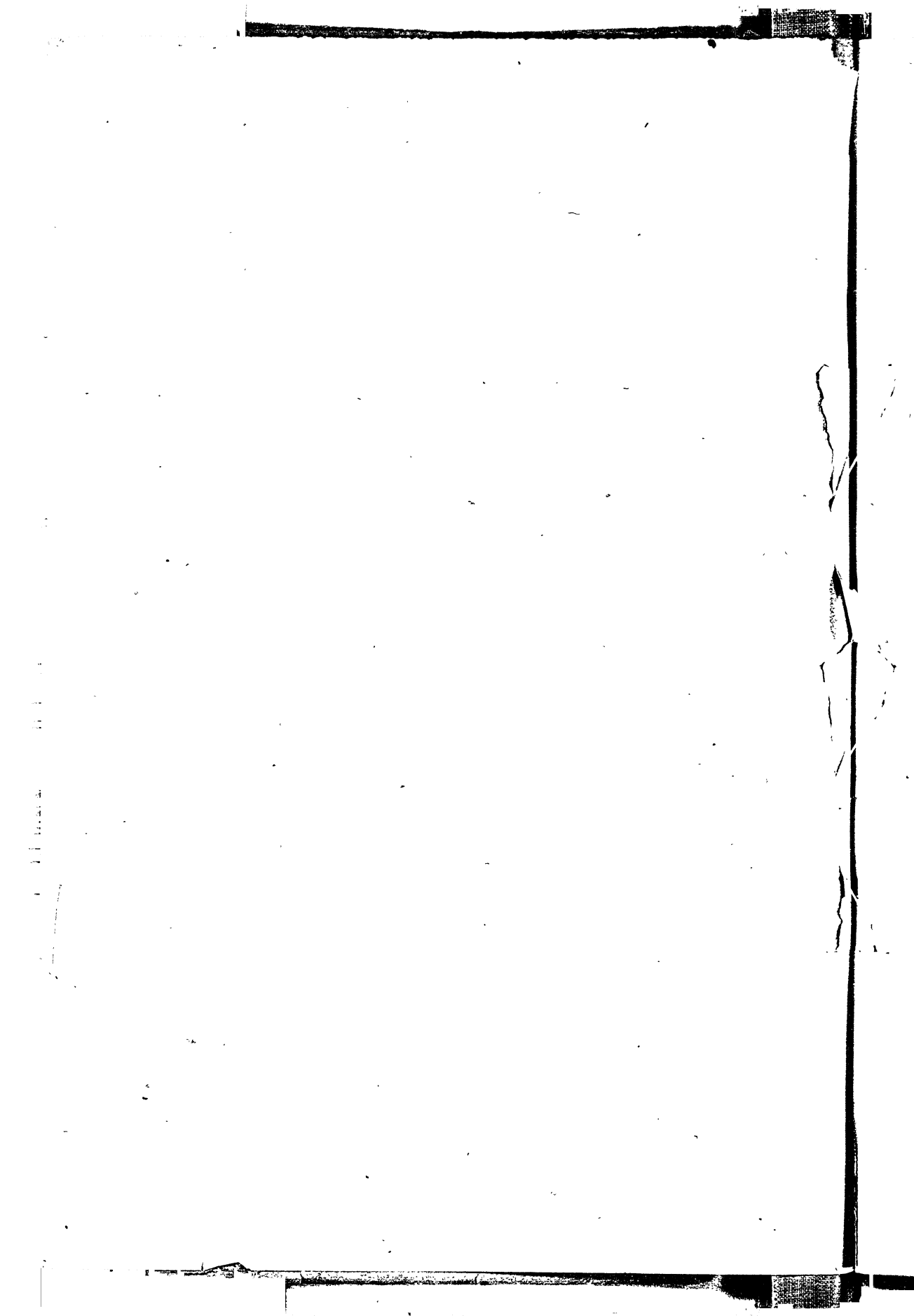
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SOME PHYSICAL CHARACTERISTICS OF NATIVE  
TRIBES OF CANADA.

IN welcoming the Anthropological Section of the AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE to its meeting here on Canadian soil, it will not, I trust, appear unsuitable to the occasion, if I invite attention to some of the physical characteristics which distinguish certain native races of the Dominion; and especially to the significance of certain typical head-forms, and their bearing on our special researches in reference to the origin, distribution, and classification of races.

In so doing, it is important to keep in view the prevalence throughout the American continent of various artificial modifications of skull-forms. This strange custom is probably at the present time carried on more systematically among the different tribes of Flathead Indians of British Columbia, than in any other region; though abundant evidence exists to show its prevalence both in past and present times among many tribes and nations in very different stages of progress, alike in North and South America. It has, indeed, attracted more general attention than most other characteristic practices of the American aborigines, owing to its prevalence alike among the most barbarous and the most civilized races. To all appearance the Peruvians and Mexicans had devel-

oped independent phases of progress in arts, science, and social policy, without any knowledge of each other. Nevertheless, we trace the singular practice of moulding the human head into abnormal forms, alike among the civilized races of Peru, the ancient lettered architects of Central America and Mexico, and among barbarous tribes both to the east and west of the Rocky Mountains. The earthworks of the Mississippi Valley Mound-builders have been found to cover artificially flattened crania; and the student of American native civilization, as he turns from pondering over the bas-reliefs and hieroglyphics on the sculptured slabs of Palenque and Uxmal, is startled to find that the cranial forms and strange physiognomical contour of the architectural race of Central America are reproduced among some of the most barbarous living tribes of Oregon and British Columbia. But, now that the study of craniology has been carried out by many intelligent observers, the fact is becoming familiar to us that artificial cranial deformation is no peculiarity of the American continent, either in ancient or modern times. The compressed crania of the Asiatic Macrocephali attracted the attention of Hippocrates five centuries before the Christian era; and Blumenbach, the foremost of European craniologists, figured in the first fasciculus of his "Decades Craniorum," in 1790, an imperfect compressed skull, received by him from Russia, with the information that it was probably that of a Tartar. This he unhesitatingly designated an Asiatic Macrocephalus. The conclusion thus arrived at has been sustained by subsequent discoveries; and as attention is more widely directed to the general subject the results are found to have a special value for the American ethnologist.

It seems probable that the name of Macrocephali, like that of our own Flatheads, did not properly belong to any single tribe, or even distinct race of ancient Asia; but had its origin in the effort, by artificial means, to produce the patrician head-form, primarily characteristic of some dominant, or conquering race. Among the Chinooks and other Flathead tribes of this continent, and also, as I believe, among the ancient builder-races of Yucatan and Peru, certain head-forms were recognized as an attribute of the ruling cast. Within the Flathead area of British Columbia the compressed and distorted skull is even now the symbol of aristocracy; and adopted captives, or slaves, are precluded from giving the prized deformity to their offspring. Hippocrates refers in



his "De Aere, Aquis, et Locis," to the Macrocephali as a people among whom "those are thought the most noble who have the longest heads." Skulls of this type have been recovered in recent years from ancient graves in the Crimean Bosphorus, and the valley of the Don. Still more illustrative of the effort at superinducing a novel dolichocephalic form among races of brachycephalic type, are the examples of compressed Hun or Avar skulls found from time to time on the line of march of the great Hunish invasions of Europe in the fifth and sixth centuries. One of the first examples of such mediæval compressed crania which attracted special attention in Europe was a skull found, in the year 1820, at Fuersbrunn, near Grafenegg, in Austria. Count August von Breuner, the proprietor of the soil, acquired possession of the interesting relic, and at once ascribed it to the Avarian Huns, who occupied that region from the middle of the sixth until the eighth century. Of this compressed Avar skull, Retzius gave a description in the proceedings of the Royal Academy of Sciences of Stockholm, in 1844; and showed that the skull, which had been regarded as remarkable for its great elongation, was in reality a true brachycephalic skull, such as the Mongol affinities of the Avars would suggest, but that by artificial compression it had been elongated, vertically, or rather obliquely. An additional interest is conferred on this European example of artificial cranial deformation by the fact that scientific observers were persuaded for a time to regard it, not as European, but as an intrusive American example; brought thither soon after the discovery of this continent. The well known traveller Dr. Tschudi communicated to Müller's "Archiv für Anatomie" a memoir, in which he instituted a comparison between this Grafenegg skull and the compressed crania of ancient Peruvian cemeteries, whence he arrived at the conclusion that scientific men had been deceived in ascribing to any Asiatic or European source a skull which must have been originally derived from Peru. In confirmation of this, he recalled the fact that, widely as Austria and Peru are now severed, in the sixteenth century the Emperor Charles V embraced both within his dominions. He accordingly conceived it no improbable conjecture that the compressed skull was brought to Europe, as an object of curiosity; and being afterwards thrown aside, it was mistakenly assumed to pertain to native sepulture when recovered at Fuersbrunn in the present century.

More recent discoveries of artificially compressed crania on European sites, have removed all doubts of their native, or intrusive Asiatic origin. It thus appears that the barbarous practice is neither recent, nor peculiar to the New World. Neither to America nor to Europe do those examples of mediæval and ancient compressed crania really belong, but seemingly to the nomad Mongols and Ugrians of the steppes of Northern Asia, in the vast wilds of which we lose them as they spread away eastward toward the Okhotsk Sea and the Aleutian Islands. We are thus guided by unmistakable indications backward, as it seems, on this ancient trail, down the valley of the Danube, and beyond the Caspian and the Ural Mountains, to a region outside the farthest limits assigned by Hippocrates, Strabo, Pliny, or Mela, to the Asiatic Macrocephali; and recover traces of the strange practice of the American Flatheads far to the northeast of the Altai chain, in the valleys that skirt the Yablonoi mountains, as they trend eastward towards the Okhotsk Sea. It may indeed be an American practice which Asia borrowed, for the affinities of race between the tribes of the islands and Asiatic mainland immediately to the west of Behring strait point to a migration to Asia from America. Such, however, is limited and exceptional. On evidence which embraces the ethnical characteristics of a very wide Asiatic area, the Mongolian classification of the American Indian is confirmed by many significant points of resemblance in form, color, texture of hair, and peculiar customs and traits of character, which fail us when we turn either to the Asiatic Aleutians, the Namollos, and other allied tribes of the older continent, or to the true Eskimo. The striking resemblance noted by Humboldt as existing between the American race and the Mongols of Asia, received independent confirmation from Dr. Charles Pickering, as the result of his extensive observation of the races of both continents, in his capacity of ethnologist to the American Exploring Expedition. Such affinities are still further confirmed, as we recover the traces of the singular practice of cranial deformation extending in ancient and mediæval times eastward from the Euxine and beyond the Altai mountains. To those little-known areas of northern Asia the ethnologist and the archæologist have yet to turn in quest of the footprints of one of the immigrant routes to the new world. There it is, in the vast unknown regions of Asiatic Russia, that we may hope to recover evidence confirmatory of at least one source of the Asiatic relations of the American race.

It is now a recognized fact that the artificial head-forms characteristic of diverse tribes of North and South America vary greatly, from the extreme depressed forehead and laterally compressed skulls of races that rivalled the ancient Macrocephali in their estimation that "the most noble are those who have the longest heads," to some among the Cowlitz or Chinook tribes of British Columbia, whose heads are compressed into a flattened disk. The two artificial extremes find their analogues in the distinct ethnical divisions of dolichocephalic and brachycephalic head-forms among well-known northern tribes. The predominant natural form, characteristic of the more southern tribes of North America, appears to have been brachycephalic, or, as it is sometimes called, globular. But along the regions of the great lakes, in the valley of the St. Lawrence, and northward throughout the whole Eskimo area, the dolichocephalic head-form prevails. The native races of the Dominion, and especially the earliest known aborigines of Upper and Lower Canada, including the province in which you are now met, appear to have been all of the same dolichocephalic type; and so to have formed a class markedly distinct from the short, or globular headed races of the south, whose head-form was long regarded as typical of the whole American race. Of the Indians of Hochelaga, first met by Cartier, in 1535, we are able to judge from crania recovered from their cemeteries. The palisaded Indian town of Hochelaga occupied, in the sixteenth century, the site where we are now assembled; and in the museum of McGill College may be seen examples of the crania, as well as specimens of the flint implements and pottery dug up on its site. Its traces revealed nothing suggestive of any other rudiments of civilization than have long been familiar to the American student of primitive arts in the abundant remains of Indian settlements throughout the area of the eastern States, and on the sites of the Iroquois Confederacy in the State of New York. Their earthenware pots and bowls of various sizes were decorated with rude yet tasteful incised patterns; and the handles were further ingeniously modelled at times into human and animal forms. Tobacco pipes also, both of stone and earthenware, here as elsewhere, were special objects of artistic ornamentation. Stone and flint implements, bone needles and bodkins, also abounded; but of metal only very rare traces of the cold-wrought copper tool gave any indication of even the first rudiments of metallurgic art. In truth, Canada has no such evidences, even of

an incipient native civilization, as the remarkable earthworks which abound in the great river valleys to the south of Lake Erie. To all appearance, through unnumbered centuries, the tide of human life has ebbed and flowed, to the north of these great lakes, and in the valley of the St. Lawrence, as unprogressively as on the great steppes of Asia, among the Bedouin tribes of the Arabian peninsula, or around the tropical lakes of equatorial Africa. Such footprints as the wanderers have left on the sands of time tell us no more than the ripples on the sea beach, and are indeed still more evanescent. Nevertheless, in all their distinctive characteristics, the tribes of our Canadian forests and prairies present much in common with those by whom the whole area of this northern continent, southward to the Gulf of Mexico, appears to have been occupied when first brought under the notice of European explorers.

It is indeed a noticeable fact in reference to the entire population of this western hemisphere, throughout areas so widely differing in climate and physical geography as are embraced within the region extending from the arctic circle to Terra del Fuego, that the ethnical diversities are slight when compared with those which pertain to what, historically speaking, are the older continents. It seems to force on us the conclusion that, however remotely we may trace our way back into unrecorded centuries, ere we reach the time when man made his first appearance here, so far as the multiplication of diverse racial varieties afford any evidence, it is recent when compared with the peopling of the ancient world. To this indeed one important exception has been suggested in the assumption of a direct affinity between the hyperborean tribes of this continent and the men of Europe's palæolithic era; and I shall accordingly refer to it in its bearings on the general conclusions to which we are thus led.

Great, however, as is the superficial resemblance which seems to pervade the diverse tribes of the American continent, some of the underlying differences were noted from the first. Columbus, with an eye quick to discern all that was peculiar in the novel scenes on which he was the first to gaze, failed not to note the marked distinction between the fair complexion of the Guanches, who were brought under his notice on his first voyage, and the reddish-olive of the ferocious Caribs. Apart from this purely physical distinction, these Guanches attracted his attention by their gentle manners and inoffensive habits. From them he learned

of the Caribs, as a fierce, warlike people occupying the neighbouring islands and the mainland, of whom they lived in constant dread; and who subsequently became familiar to the Spaniards as a ferocious, crafty, and revengeful race, delighting in cannibalism. Hence we perceive that from the first both physical and moral differences, of a sufficiently marked character, were observed among native tribes of the New World: Nor indeed did Humboldt, or even Morton, entirely overlook the existence of considerable varieties in color and complexion, from nearly white to a dark brown; though they were led, from different causes, to underestimate the extent of diversity prevailing among the widely scattered nations of North and South America.

But while it is deserving of notice that the aborigines of Canada do differ in certain physical characteristics from those especially of the more southern states of North America, it is undoubtedly true that an approximate correspondence in ethnical characteristics is common to many tribes both of North and South America. It is not, therefore, to be wondered at that the idea of their constituting one native stock distinct from all the races of the Old World, and agreeing in the possession of physical characteristics peculiar to themselves, should have been accepted for a time as indisputable. The vague generalizations of travellers, and the current forms of popular belief, however, gradually acquired consistency as an accepted canon of ethnical science; until, in the final embodiment of Dr. Morton's matured opinions, he affirmed the American race to be essentially separate and peculiar, and with no obvious links, such as he could discern, between them and the people of the old world, but a race distinct from all others.

The geographical facilities for intermixture among the very diverse races of Asia, Africa, and Europe, account for many intermediate and transitional races; but this increases rather than diminishes the difficulty of referring to any satisfactory source, such primary types of extreme diversity as the Negro, Berber, Mongol, Malay, Arab, and Saxon. Here, on the contrary, so far as now appears, approximate types were hemmed in between the Atlantic and the Pacific; and in so far as they intermingled, the tendency necessarily was to diminish, if not to efface, any strongly marked distinctions; just as, in prehistoric centuries, the blending of the aboriginal savage with intruding races is assumed to have begot-

ten the Melanocroi and the Xanthocroi of Europe's ethnological classification.

Here, undoubtedly, as well as in Europe and Asia, extreme diversities have been modified; but from the first these differences must have extended over a narrower range on the American continent than that which finds such curious illustration in the ancient sculpture and paintings of the Nile valley. The baso-relievs of Yucatan, the terra cottas of Mexico, and the pottery of Peru, furnish analogous evidence of considerable diversity of type among the prehistoric, as well as the historic and civilized races of the New World. Nevertheless, after the fullest recognition of all that such evidence indicates, the fact remains that great as is the divergence of the Eskimo from the Mexican, or the Peruvian from the Patagonian, the difference becomes almost insignificant in comparison with that which distinguishes the Aryan Hindu from the Andaman Islander, the Arab from the Chinese, or the insular Malay from the Negritto. Yet all of those pertain to a continent which is only separated from our own by Behring Strait. So noticeable indeed is the prevailing correspondence in ethnical characteristics among the various races of this continent, that the elements of diversity were long overlooked, even by acute scientific observers. Malte Brun affirmed as the result of a long course of observation, "that the Americans, whatever their origin may be, constitute at the present day a race essentially different from the rest of mankind." A more notable authority, possessed alike of rare capacity for accurate discrimination, and of opportunity for extended personal observation,—the distinguished scientific traveller, Humboldt,—remarked in the preface to his "Researches:" "The nations of America, except those which border the polar circle, form a single race, characterized by the formation of the skull, the color of the skin, the extreme thinness of the beard, and the straight glossy hair."

Until very recent years this was accepted as no less indisputable than any axiom of Euclid. American ethnologists were agreed as to the predominance of one ethnical type throughout the whole western hemisphere; while those of Europe, with rarer opportunities for personal observation, were predisposed by all the narratives of early voyagers to accept the conclusion that the man of the New World was a well-defined variety, if not a distinct species, of the genus *Homo*. Prichard, Lawrence, Wiseman,

Knox, Morton, Agassiz, Squier, Gliddon, Nott, and Meigs, might each be quoted in confirmation of this opinion, and especially of the prevailing uniformity of certain strongly-marked cranial characteristics. Agassiz, for example, affirmed in very explicit language: "with the exception of the Arctic Esquimaux, there is only one single race of men extending over the whole range of North and South America, but dividing into innumerable tribes; whilst, in the Old World, there are a great many well-defined and easily distinguished races, which are circumscribed within comparatively much narrower boundaries." Morton, again, viewing the subject in the light of his own special evidence, designated a markedly brachycephalic skull, with flattened occiput, recovered from one of the mounds in the Scioto Valley, "an aboriginal American head," and added: "this is, perhaps, the most admirably formed head of the American race hitherto discovered. It possesses the national characteristics in perfection." Accordingly, after indicating these in detail, he affirms: "it is the perfect type of Indian conformation, to which the skulls of all the tribes from Cape Horn to Canada more or less approximate."

Among what may be designated typical Canadian skulls, those of the Hurons of the region lying around the Georgian Bay have a special value. They represent, as we believe, a native race which, under various names, extended from the Lower St. Lawrence westward to Lake St. Clair, the *Ouane-doté*: including the Petuns, Neuters, Hurons, Eries, and other Wyandot tribes, of the same stock as the Iroquois; but to whose implacable enmity their extermination was ultimately due. The native population first met with by Cartier and the French explorers of 1535, is believed to have been of the same Wyandot stock; but before the return of the French under Champlain, in 1603, they had been exterminated, or driven westward to the later country of the Hurons, on the Georgian Bay. There they were first visited by Champlain in 1615, and subsequently by the French Jesuit missionaries who, in 1639, found them occupying thirty-two palisaded villages. Brébœuf reckoned their number in 1635 at thirty thousand, and they are estimated, in the "Relation" of 1660 at thirty-five thousand. Already, at that early date, the whole country westward from the Ottawa to the Huron country around Lake Simcoe, had been depopulated, and reduced to a desert, by the wrath of the Iroquois. Charlevoix assigns the year 1655 as that of the destruction of

the Attiwendaronks, or Neuters, who occupied the fertile Niagara peninsula between Lake Erie and Lake Ontario; and the Eries, whose name is perpetuated in the great lake on whose shore they dwelt, had already been exterminated by the violence of the same kindred race, before the French explorers had even ascertained the existence of the lake which bears their name. In the earlier French maps an imaginary river extends uninterruptedly from Lake Huron to Lake Ontario.

Minute information has been preserved of the Hurons in their later home, derived chiefly from the "Relations" of the Jesuit Fathers, communicated to the Provincial of the Order at Paris, from 1611 to 1672. We thence learn accurate details of their great "Feast of the Dead" celebrated at intervals of ten or twelve years, when the remains of their scattered dead were gathered from old scaffolded biers, or remote graves, and deposited with grand ceremonial and mourning in the general cemetery of the tribe. In the vicinity of the sites of their palisaded villages extensive ossuaries have repeatedly been found; and there are now preserved, in the museum of Laval University at Quebec, upwards of eighty skulls recovered from the Huron cemeteries of St. Ignace, St. Joachim, St. Mary, St. Michael, and others of the Huron villages, so designated by the French Missionaries who visited them in the seventeenth century, and labored for the conversion of the Indians there. Other examples are preserved in the museum of Toronto University; and I may add that Dr. Taché, by whom the most extensive researches were carried on, presented ten Huron skulls to the London Anthropological Society; and I have since forwarded specimens to Dr. De Quatrefages for the museum of the Jardin des Plantes at Paris.

A special value attaches to the skulls recovered from those Huron ossuaries, from the fact that the race was exterminated, or driven out of the country, by their Iroquois foes, in 1649: and hence the crania recovered from their old cemeteries may be relied upon as giving a fair illustration of the physical characteristics of the race. The descendants of a small band of Huron refugees, rescued from the general massacre, and brought by the French missionaries to Quebec, still survive at the Huron village of Lorette, on the St. Charles River; but they have long since lost the pure traits of full-blood Indians, and are chiefly interesting to the ethnologist now from the evidence they give of the



survival alike of native intellectual and physical traits, after an interval of well nigh two centuries and a half passed in intimate intercourse, and latterly frequent intermarriage with the French habitans.

The Huron skull is strongly marked as of the dolichocephalic type. The careful measurements of thirty-nine male skulls yield a mean longitudinal diameter of 7.39 to a parietal diameter of 5.50; and of eighteen female skulls, a longitudinal diameter of 7.07 to a parietal diameter of 5.22. One essential characteristic, therefore, that of great relative length, is unmistakable. I specially refer to this now, because we possess, in the collection of the Canadian Institute at Toronto, a skull recovered from one of the Huron ossuaries near Lake Simcoe which differs essentially from this Huron type. It is a short skull,—shorter even than that from the Scioto mound,—of the same, so-called, globular type, measuring only 6.00 in longitudinal, and 6.40 in parietal, diameter. Reverting, therefore, to Dr. Morton's ascription to the Scioto mound skull of national characteristics, which constitute it "the perfect type of Indian conformation, to which the skulls of all the tribes from Cape Horn to Canada more or less approximate," this northern example, if it stood alone, would seem to confirm his assumption. But it is a wholly exceptional case; so distinct from the true Huron type that, after a careful study of one hundred and twenty-six crania from ossuaries of the Huron country, including considerable deviations from what may be regarded as the normal type, I have not found one other example approximating to it. It differs little less essentially from the race-form of the people whose grave its owner shared than that of a Chinese from the normal skull of the pure Anglo-American; and may be assumed as that of an Indian belonging to some far southern tribe, whom the chances of Indian warfare had made a captive, or an adopted member, of the Huron tribe in whose cemetery he found his final resting-place.

Such indications of physical diversity, among the nations so widely scattered throughout the New World, accord with philological and other evidence. Not by one, but by diverse routes have the fathers of the American nations found their way thither: some by Behring Strait and the Aleutian Islands; others by more southern routes across the broad Pacific, aided by winds and currents, and passing onward from island to island of the great archipelago; others, as we know, by Iceland and Greenland, across

the northern Atlantic; and others again—as philological evidence seems to indicate,—along the same route as that which Columbus successfully pursued in 1492. But to the primary migrations we know not how remote a date to assign, in order to allow of the interblending of intruding races, and the development of the native American “Red Man” with all his distinctive traits of individuality. For, while it is important to note the elements of diversity, it is nevertheless true that the New World does differ from the Old in the narrow range of such variations of race-type through all extremes of climate from arctic to temperate, tropical, and antarctic. The European traveller who surveys his own continent from the northern habitat of the Fins and Lapps, and the corresponding Asiatic hyperboreans, and then traverses the eastern hemisphere to the Cape or to the Indian Ocean, comes in contact with all intermediate varieties between the two extremes of the white and black races; and recognizes in western Europe the Melanocroi who seem to be the resultant of their inter-blending in prehistoric times. But in America we seem to see no more than a result analogous to the latter; and this as the product of more nearly allied primitive stocks, the largely preponderating element of which has been derived from the Mongol area of eastern Asia. Philological evidence, on the other hand, no less clearly indicates the remoteness of the migrations by which this first colonization of the New World was effected; it may be, indeed, that they pertain to periods when the physical geography of both continents, and of the intermediate archipelago, afforded facilities for migration altogether wanting within historic times.

But such ideas of a derivative origin of the American aborigines are of very modern growth, and are only now displacing long accredited beliefs. That the man of this New World must prove a being essentially different from any known race of Europe, Africa, or Asia, was an opinion which assumed ever stronger confirmation, as the idea of Columbus that he had landed on the eastern Continent faded away from the minds of his successors. The Indians of his new-found world were no natives of Cipango, or the valley of the Indus; and the literature of the fifteenth and sixteenth centuries abounds with evidence that it was much easier to persuade the men of that age that Calibans and monstrous Anthropophagi peopled the strange regions beyond the Atlantic, than that these were inhabited by human beings like themselves.

Even Columbus, it has to be remembered, in searching for evidence to confirm his own scientific demonstration that the world was a sphere, and so, that the eastern continent could be reached by a western route, attached special value to indications of the existence of a transatlantic continent, derived from the fact that the bodies of two dead men had been cast ashore on the island of Flores, differing essentially in features and physical characteristics from any known race. When, at length, the great discoverer set foot on the islands first visited by him, the peculiarities which marked the gentle and friendly race of Guanahanè were noted with curious minuteness; and their "tawny or copper hue," their straight, coarse, black hair, strange features, and well-developed forms, were all recorded as objects of interest. On his return, the little caravel of Columbus was freighted not only with gold and other coveted products of the New World, but with nine of its natives, brought from the Islands of San Salvador and Hispaniola, eight of whom survived to gaze on the strange civilization of Spain, and to be themselves objects of scarcely less astonishment than if they had come from another planet. Such was the earliest knowledge acquired by the Old World of the type of humanity generically designated as the Red Indian; and the attention which its peculiarities excited when thus displayed in their fresh novelty has not yet exhausted itself, after an interval now little short of four centuries.

Of all known races of the New World, the Eskimo alone presented, at first, a seemingly marked diversity from the other aborigines; though the grounds on which such a conclusion was based are traceable far more to Arctic conditions of life, than to any ethnical peculiarities definitely assigned to them.

This is apparent from the terms employed by the historian Robertson, who, writing in 1777, says: "The Esquimaux are manifestly a race of men distinct from all the nations of the American continent, in language, in disposition, and in habits of life. But among all the other inhabitants of America there is such a striking similitude in the form of their bodies, and the qualities of their minds, that, notwithstanding the diversities occasioned by the influence of climate, or unequal progress of improvement, we must pronounce them to be descended from one source."

The idea thus definitely set forth by the Scottish historian of the last century was placed on what seemed to be a strictly scientific basis by the author of the "Crania Americana." Dr. Morton's dili-

gence in the accumulation of evidence merits our highest gratitude. But he had unfortunately set out with the idea of one nearly uniform race peculiar to the New World; and with all the evidence before him which has since sufficed to convince others of the prevalence of great diversity of head-forms among American races, he persisted to the close in maintaining the physical unity of the Red Race from the arctic circle to Cape Horn.

Of the three propositions with which Dr. Morton sums up the results borne out, as he conceives, by all the evidence advanced in his "*Crania Americana*," one is, "That the American nations, excepting the polar tribes, are of one race and one species, but of two great families, which resemble each other in physical, but differ in intellectual character." Any difficulty arising from physical or other differences, he sought to overcome by the application of the hypothesis that "these races originated in *nations*, and not in a single pair; thus forming proximate but not identical species." Subsequent to his death his collection of crania was acquired by the Academy of Natural Sciences of Philadelphia, and thereafter supplemented in its most important branches by many valuable additions. This greatly augmented collection was classified anew and catalogued by the late Dr. J. Aitken Meigs; and after having thus had all the evidence which it presents brought in systematic order under his own notice, he contributed to Gliddon's "*Indigenous Races of Men*," a paper entitled "*Cranial characteristics of the Races of Men*," in which he thus reiterated the Mortonian dogma: "Through *Crania Americana*, it has long been known to the scientific world that a remarkable sameness of osteological character pervades all the American tribes from Hudson's Bay to Terra del Fuego. It is equally well known that the researches of Humboldt and Gallatin have demonstrated a conformity not less remarkable in the language and artistic tendencies of these numerous and widely-scattered aborigines."

The artificial transformations of the Indian head were at first a source of difficulty in any systematic classification of head-forms; and the views of Dr. Morton underwent considerable modification on some points relating to the influence of this custom in perpetuating certain types of head; but he finally reverted to the original idea of one predominant cranial type to which all the races of the American continent more or less nearly approximated.

The evidence which the mediæval European examples of cranial

deformation supply suggests the origin of this barbarous practice in an aim at conformity with the natural head-form of a patrician or conquering race. Dr. Fitzinger, who has carefully investigated the whole subject of the discovery of macrocephalic skulls in ancient Austrian sepulchral deposits, after tracing the evidence supplied by the allusions of classic writers, mentions an interesting independent illustration of the subject. A medal, struck apparently to commemorate the destruction of the town of Aquileia, by Attila the Hun, in the year 452, came under his notice. On one side is represented the ruined city, and on the other the bust of the Hunish leader in profile, with the same form of head as that shown in the supposed Avar skulls found in the valley of the Danube. One of this type obtained by M. Hippolyte Gosse, from an ancient cemetery in Savoy, presents the favorite Hun or Avar form when viewed in profile, with the singular vertical elongation which appears to have constituted an ideal type of masculine beauty among the Asiatic followers of Attila, as among the Natchez, the Peruvians, and other nations of the New World. It was found at Villy, near Reigner, and has been engraved by Retzius, from a drawing furnished to him by the discoverer.

Thierry, in his "Attila," refers to the artificial means resorted to by his followers in order to give a Mongolian physiognomy to their children. The Hunish leader welcomed every able bodied recruit to his standard, and was in reality as much a leader of Goths as of Huns; though the black Huns from the dreary Siberian steppes constituted the aristocracy of his wild followers, whose Mongolian physiognomy formed the ideal of ethnic beauty. At this the Gothic mother accordingly aimed, by bandaging the nose, compressing the cheek bones, and giving an artificial form to the cranium of her infant. Such practices, however, when once brought into general use, continue long after the reason for their adoption has ceased. It need not therefore greatly surprise us to learn that the practice of distorting the skull in infancy still prevails in some districts of France. Among the examples of such cranial malformation engraved by Dr. Foville, in his work on the "Anatomy of the Nervous System," there is one which might take its place alongside of some of the most exaggerated specimens brought from Peruvian cemeteries.

But however the Gothic mother might labor to make the natural development of her infant's head conform to the Mongolian model,

the traces of the originally dolichocephalic type could not be wholly eradicated. This is seen on comparing examples in any large collection of American Indian skulls. In the compressed and distorted Peruvian crania, traces of two distinct types appear to me still uneradicated. The same is noticeable in the sculptures of Central America, as in the Palenque bas-reliefs where deities and chiefs treading kneeling figures underfoot, present the long, sloping forehead in a line with the straight nose, with other features of the strange profile peculiar to the old race; while the subject race is hook-nosed, with high foreheads, and heads seemingly uncompressed. If the idea is well-founded, which thus traces the origin of this barbarous practice to the efforts of an inferior, or subject race to approximate in outward appearance to the privileged class, its very occurrence points to the existence, at some previous time of races essentially diverse in physical character. And if we assume their relative positions to have been akin to that of the conquering Hun and the enslaved Frank or German, the motive to such a practice is sufficiently obvious. Were it possible for the colored population of Canada and the United States, at the present day, by any analogous process to assimilate their offspring to the Anglo-Saxon type, how irresistible would the motive be to its use.

Such ideas, however, found no favor with the author of the "Crania Americana;" and in some of the conclusions finally adopted by him he has been sustained by authorities of just weight in science. In the latest record of his matured views, as set forth in a posthumous paper contributed to Schoolcraft's "History of the Indian Tribes," he remarks: "I at first found it difficult to conceive that the original rounded skull of the Indian could be changed into this fantastic form; and was led to suppose that the latter was an artificial elongation of a head remarkable for its length and narrowness. I even supposed that the long-headed Peruvians were a more ancient people than the Inca tribes, and distinguished from them by their cranial configuration. In this opinion I was mistaken. Abundant means of observation and comparison have since convinced me that all these variously formed heads were originally of the same rounded shape."

In that same final contribution to his favorite science, Dr. Morton's matured views on the whole subject of the cranial type of the American continent—based on the additional evidence accumulated by him, in the interval of twelve years which elapsed

between the publication of the "Crania Americana" and his death,— are thus defined: "The Indian skull is of a decidedly rounded form. The occipital portion is flattened in the upward direction, and the transverse diameter, as measured between the parietal bones, is remarkably wide, and *often exceeds the longitudinal line.*"

It is curious to observe in this latter statement the evidence of a careful and most conscientious observer allowing all the proofs of varying physical type which his own indefatigable industry had accumulated, to be subordinated to this foregone conclusion. Here Dr. Morton must have had in view his theoretical type, rather than the results of his own careful observations, for even if he accepted as evidence the artificially abbreviated and flattened skulls, his "Crania Americana" furnishes only one exceptional example, from a mound on the Alabama river (Pl. LIV), of which he says: "It is flattened on the occiput and os frontis in such a manner as to give the whole head a sugar-loaf or conical form, whence also its great lateral diameter and its narrowness from back to front." The idea had, in fact, received nearly universal acceptance that the European immigrants of the fifteenth and subsequent centuries intruded upon races of wholly distinct origin from themselves, and were displacing the true American autocthonous, with whom they had nothing in common.

When Prior Fernando de Talavera of Salamanca summoned a meeting in the Convent of San Estebán, in the year 1487, to take into consideration the proposition of Columbus that the earth was not a plane, but a sphere; and that, by sailing in a western course, land, which he assumed must be the most eastern coast of Asia, would be reached: the assembled philosophers and theologians gravely pronounced the idea of the earth's spherical form heterodox, and a belief in antipodes incompatible with the historical traditions of our faith; since to assert that there were inhabited lands on the opposite side of the globe, would be to maintain that there were nations not descended from Adam, it being impossible for them to have passed the intervening ocean!

We smile at the orthodox philosophers and theologians of the fifteenth century, who, with the help of St. Jerome and St. Augustine, proved this western hemisphere of ours to be an impossibility; yet it is curious to detect the same old prejudices unconsciously influencing the minds of some of the acutest men of science in very recent years. What else was it, if not this "im-

possibility for them to have passed the intervening ocean," or in other words, to have sprung from the same stock, which led one of our own most valued associates, the late Professor Agassiz—a scientific observer of rare sagacity and experience, and one who regarded the entire question of American ethnology from a point of view peculiarly his own,—to adopt the conclusions of Dr. Morton, in spite of the palpable inconsistency of the evidence which he was so well qualified to estimate at its true worth? In his "Sketch of the Natural Provinces of the Animal World, and their relation to the different Types of Man," while appealing to the results arrived at by Dr. Morton, in reference to the imagined unity of the whole American aborigines as "a single race," he reaffirms the homogeneous characteristics and ethnic insulation of the American Indian on entirely novel grounds. After defining the evidence on which his general conclusion is based, that the boundaries within which the different natural combinations of animals are circumscribed on the surface of the earth coincide with the natural range of distinct types of man, he proceeds to show that America, including both its northern and southern continent, differs essentially from Europe and Asia, or Africa, in being characterized throughout by a much greater uniformity in all its natural productions, than comparison enables us to trace in the Old World. He then adds: "With these facts before us, we may expect that there should be no great diversity among the tribes of man inhabiting this continent; and indeed the most extensive investigation of their peculiarities has led Dr. Morton to consider them as constituting but a single race, from the confines of the Esquimaux down to the southernmost extremity of the continent. But, at the same time, it should be remembered that, in accordance with the zoological character of the whole realm, this race is divided into an infinite number of small tribes, presenting more or less difference one from another."

It is interesting thus to recall the matured opinions of this leader of scientific thought among ourselves in very recent years, and review them now in the light of the great revolution since wrought in the entire compass of ethnical and biological science. The author of the "Indigenous Races of Men" scornfully assailed "the Monogenists' idea" of a unity of race, and summed up the practical results which to him appeared to be settled beyond farther cavil, with this fancied demonstration: "It has been shown, 1st, that in America, humatile men and humatile monkeys occupy the



same palæontological zones. 2nd, That whilst all such remains of man are exclusively of the American Indian type, the monkeys called *Hapale*, *Cebus*, *Callithrix*, etc., are equally 'terræ geniti' of this continent. . . . Finally, that *permanence of type*, as well for humanity as for simiadæ, is firmly established in both genera, from the hour in which we are living, back to a vastly remote, if not incalculable, era of unrecorded time." To the evolutionist of our own day, the very result of such reasoning is to lead to ideas of unity of origin vastly more comprehensive than that which, within a period so very recent, was thus rejected as wholly incompatible with deductions from much industriously accumulated evidence.

It is curious, indeed, to endeavor now to realize to ourselves what distinct idea was present in the mind of Agassiz when he apportioned his essentially diverse types of man to their specific "natural provinces;" or what Dr. Morton conceived in his own mind when, after affirming one of the three propositions which he believed himself to have established, to be "that the American nations, excepting the polar tribes, are of one race and one species, but of two great families, which resemble each other in physical, but differ in intellectual character:" he fancied that any difficulty, arising from such physical diversities as it was impossible for even him entirely to ignore, could be removed by advancing the hypothesis, that "these races originated in *nations*, and not in a single pair; thus forming proximate but not identical species." The only thing which is at all clear is the assumption of what may be called a gregarious creation: the summoning into existence, by some unknown process, or creative fiat, of an entire race, or nation, at the first peopling of this New World with its own specific aborigines, "essentially different from the rest of mankind."

But Malte Brun and Robertson, Humboldt, Morton, Meigs, Gliddon and Agassiz, all concur in excepting the polar tribes, or Eskimo, from the assumed American race peculiar to this continent. Latham says of the Eskimo: "physically he is a Mongol and Asiatic; philologically he is American, at least in respect to the principles upon which his speech is constructed." But whencesoever we may derive them, they too are ancient and widely scattered occupants of the strange inhospitable region appropriated to themselves. One branch of them, the Labrador Eskimo, borders on our own Eastern settlements on the St. Lawrence: beyond these are the East and the West Greenlanders, including the natives of

the Danish trading settlements. To the north of them are the Eskimo of the west coast, north of Melville Bay, styled, by Sir John Ross, the "Arctic Highlanders." But their extreme northern limits have yet to be determined. The most advanced arctic explorers have either come in contact with the natives, or found traces of their habitation; and their habits and indifference to the extremest rigor of the climate, justify the assumption that only the absence of game will restrict the limits of their habitat. They occupy the whole coast regions of Behring Strait; and extend beyond that to the islands and neighboring continent, westward even to the shores of northeastern Siberia. The collection formed by Professor Nordenskeold in his Vega expedition — part of which was exhibited at Edinburgh during the present year,— includes an interesting series of implements used by the Chukches of Siberia and the Asiatic Eskimo in fishing and hunting. They employ the same kind of harpoon for hunting the walrus; use a long spear of nearly the same fashion, generally furnished now with an iron head, for hunting the bear; while their arrows are still pointed with walrus ivory. Such traces alike of community of arts and of race, within the arctic circle of the Asiatic and American continents, and even extending to Europe, show that, whatever may have been the ancient lines of migration, the overflow in later centuries across Behring Strait has been from the American continent westward into the Old World.

This widely scattered race, though corresponding in ethnical character, is broken up, by the exigencies of their rigorous climate into small tribes and isolated bands, dispersed for the most part over a coast line extending from Labrador to Behring Strait upward of 5,000 miles, and migrating with the animals on which they depend for subsistence. They are hunters and fishers. The deer, the polar bear, the wild goose, swan, and other birds that resort to arctic breeding grounds, are alike objects of the chase; but they primarily depend on seals and cetaceous animals, the blubber of which furnishes food calculated to beget the animal heat which enables them to brave the severity of an arctic climate. *Eskimantzik* appears to be an Abenaki term signifying "eaters of raw flesh;" and as such indicates the surprise with which even the Indian nomads of New England viewed the strange habits of the hyperborean hunters with whom they were occasionally brought into contact. The Eskimo, however, is neither ignor-

ant of the use of fire, so indispensable to him in his rigorous climate ; nor is he an exception to the fitting definition of man as "the Cooking Animal;" though in his peculiar condition of exposure to an arctic winter, raw blubber is at once a necessity and a luxury.

In one respect, as already indicated, the Eskimo occupy a peculiar position on this continent. They are the only race common to the Old and the New World ; and, if we accept the conclusion arrived at by the author of "Early Man in Britain," they constituted an Old World race to all appearance before this New World had come into existence. The cave men of Europe's palæolithic era, the contemporaries of the mammoth, and other long-extinct mammals of central Europe, have naturally excited an unwonted interest, as their arts and their remains have been brought to light in recent years. A people of lowest type, as illustrated by the famous Neanderthal skull, that of the Forbes quarry near Gibraltar, and of the Gourdon grotto, with some imperfect traces of others, all classed under the common term of "The Canstadt race," is now assumed to represent the earliest, if not indeed the primæval man of ancient Europe. So far as rudest flint implements afford any evidence of his condition, we might class him with the Bosjesman, the Australian, or the Patagonian of our own day. The evidence, however, in proof of the existence of this Canstadt savage race of palæolithic Europe, rests as yet on insufficient grounds. Curiously, indeed, Professor De Quatrefages has drawn attention to the fact that not only are heads of the Neanderthal type to be met with in modern Europe, in some examples pertaining to men of exceptional intelligence ; but the skull of Saint Mansuy, Bishop of Toul, of the fourth century, surpasses the Neanderthal cranium in some of its most simian features ; and that of the sagacious and politic hero of Scottish independence, Robert the Bruce, "is a reproduction of the Canstadt type."

But however uncertain our conclusions may as yet be relative to this assumed primæval European type, there is no doubt as to the Cro-magnon race of the reindeer period of southern France. Examples have, indeed, by no means been confined to that area. The Enghis skull was found, with other human remains, embedded in a breccia along with teeth of the fossil mammoth, rhinoceros, horse, and reindeer, in a cavern on the left bank of the Meuse ; and the Mentone cave, to the south of the Alps, disclosed an undisturbed sepulchre of the same ancient hunter race. But a

special interest attaches to the remains brought to light in 1858, in the rock shelter of Cro-magnon, in the valley of the Vésère. Three men, a woman and a child, had all been buried in the cave. From their remains it is seen that the race was unusually tall, and bore equally little resemblance to the Neanderthal or "Canstadt" type, or to the modern Eskimo. The best preserved skulls—those of an old man and a woman,—are finely proportioned, with large, high foreheads, and great cerebral capacity. M. Broca stated that of the man to be fully 1590 cubic centimetres, or 96.99 cubic inches; and Dr. Pruner-Bey says of two of the male skulls and that of the female, they "have a cranial capacity much superior to the average of the present day." It may remind us of Mr. Alfred Russel Wallace's remark that "natural selection could only have endowed savage man with a brain a little superior to that of an ape, whereas he actually possesses one very little inferior to that of a philosopher."

Whatever differences of opinion affect the determination of the probable age of the Cro-magnon race, they unquestionably pertain to a period so remote that the very earliest historical traces of man in southern France scarcely seem to bring us any nearer to the period which they represent. Their physical characteristics have, therefore, a special significance. The skulls are dolichocephalic, with the frontal bone high and well arched, a graceful fronto-occipital curve, and well-balanced symmetrical proportion throughout. The profile of the old man indicates an expressive contour, the face long, the nose very prominent, and the frontal sinuses but slightly developed for a male. The full face presents a well-proportioned oval, with pointed chin. The one feature detracting from its otherwise attractive expression would seem to have been the unique character of the long and narrow eyes, as indicated by the unusual form of the orbits. At the same time it is to be noted that this well proportioned head bears ample evidence of the exposed life of the wild hunter. The features are rugged, as of one subject, through a long life, to all the hardships of a rigorous climate; and numerous strongly marked impressions of muscular insertions accord with the conditions of savage life.

This is the type of an altogether remarkable prehistoric people, the artistic race of the palæolithic era, to whose skill we owe the contemporary etchings and carvings of the mammoth, the fossil-horse, the reindeer, and other mammals of that strangely remote

era, when the conditions of life in southern France most nearly resembled those of Rupert's Land or Labrador at the present day. Some of their artistic efforts embrace vegetable as well as animal life; and in their graphic outlines, there is a freedom of handling, an eye for perspective, and even what may truly be called an inventive skill, altogether remarkable in a people ignorant of metallurgy, and living in the condition of rudest hunter life.

Such are the characteristics of the cave men recovered from the rock-shelter of Cro-magnon, in the valley of the Vésère, lying above the long accumulated debris which proved the palæolithic era of its occupants. These ancient hunters of the Garonne and the Pyrenees, the contemporaries of the mammoth and other extinct mammals, and of the grizzly bear, musk-sheep, reindeer, and other species now existing only in extreme northern latitudes, had occupied the cave throughout a prolonged period. The charcoal deposits prove the kindling of their fires through long series of years; with recurring intervals of considerable duration. Intermingled with, and overlying, the beds of charcoal, are flint implements, broken bones, and the like debris of a savage hunter's dwelling: in this respect presenting considerable resemblance to the site of an Eskimo settlement. Those accumulations went on until the cave was filled up so nearly to the roof that the hunter could no longer even crawl into it for shelter; and then it was devoted to its final use as a place of sepulture. Had the human remains recovered under such circumstances been characterized by extreme development of the superciliary ridges, a low, narrow, retreating forehead, and other brutish characteristics assigned to the "Canstadt race," there would probably have been no questioning the assumption that in them we have the type of the earlier Palæolithic occupants of the cave: the artistic hunters, to whose skill we owe the spirited life-sketch of the mammoth found in the neighboring La-Madelaine Cave, engraved on a plate of mammoth ivory. But the hypothesis adopted by Professor Boyd Dawkins that the clew to the ethnology of the palæolithic race of the Caves is recovered by the identification of the ancient tool-makers with the Eskimo, could only be maintained by assigning the human remains to a later age than the underlying debris. He accordingly rejects the opinion, so consistent with the general evidence which has satisfied M. M. Lartet, Hamy, De Quatrefages, and other equally qualified judges, that in the old man of Cro-magnon we

have the type of the palæolithic race contemporary with the mammoth: the artistic sculptors and draftsmen of that remote European era.

In discussing the fascinating idea which would recover, in the hyperboreans of our own northern frontiers, the men of the same migratory race that, before the close of the pleistocene age, followed the musk-sheep and the reindeer into their northern haunts, Professor Dawkins reviews the manners and habits of the Eskimo, a race of hunters, fishers, and fowlers, accumulating round their dwellings vast refuse heaps similar to those of the cave-men of ancient Europe. The implements and weapons of both do indeed prove that their manner of life was the same; and as he notes 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."

The hypothesis is a bold one which would thus assign to the rude arctic hunters of this continent a pedigree and lineage compared with which that of the Pharaohs is but of yesterday. To the geologist who fully realizes all that is implied in the slow retreat of the palæolithic race of the valley of the Vésère over submerging continents since engulfed in the Atlantic, and through changing glacial and sub-glacial ages, to their latest home on the verge of the pole, the time may suffice for any amount of change in the physical characteristics of the race. But if these have vanished how is the lineal descendant of the palæolithic cave-men to be identified? Not by mere imitative art; for that is common to many widely dissimilar races of the American continent. 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 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 Cro-magnon carvers and engravers, and seems in full accordance with the fine heads and great cerebral development of the ancient race; 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 our associate Mr. William H. Dall, in his "Alaska," which he describes as "drawings analogous to those discovered in France in the caves of Dordogne."

The imitative faculty and artistic skill of the old Mound-builder race are very familiar to us; and have furnished valuable evidence of a knowledge by them of a tropical fauna, including animals of the southern continent, suggestive of the probable direction of their own migrations, and their consequent affinity to southern races. Within our own Canadian Dominion the arts of the Queen Charlotte islanders are no less worthy of note. Their curiously conventional style is shown alike in their idols, or manitous, elaborately carved in black argillaceous stone, and in the corresponding decorations of their lodges. In front of each Haida dwelling stands an ornamented column formed in many cases of the trunk of a tree large enough to admit of the doorway being cut through its substance. This column, or obelisk, is carved throughout its whole length in their peculiar conventional style of ornamentation, suggestive at times of affinities to Peruvian sculpture; or, again, of borrowed art of possible Japanese origin. But already the imitative faculty of the Haida artist leads him to revert to European models; his traditional patterns and devices will speedily be among the lost arts of this continent, and the race itself, it is to be feared, is doomed to speedy extinction. All the more urgent is it that no time shall be lost in the accumulation of every available fact, and illustrative specimen of their curious art. Already a valuable contribution to this has been furnished in

Dr. George M. Dawson's "Report on the Queen Charlotte Islands," published as one of the Reports of the Geological Survey of Canada.

The Tawatin Indians on the Fraser River work with no less ingenious skill, and in a like style of combined imitative and conventional art, suggestive at times of curious analogies to some of the finished sculptures of Yucatan. Some of their ivory carvings are executed with a minute delicacy of workmanship such as no Eskimo carver could surpass; but with the same kind of conventional ornamentation as is in use by the Haida artists, strongly suggestive of inherited modes of thought, and traces of intercourse or relationship with the ancient civilized races of Central America.

There is thus no need to assume for the imitative arts of the New World a European source in the remote dawn of pleistocene times. Nor is the identity discernible between certain harpoons and other implements of the ancient hunters of Central Europe and those of the arctic Americans of our own day much more demonstrative of derived arts or community of race. Within the comparatively narrow range of needful weapons or implements, the correspondence notable between some of those of the palæolithic cave-men and of the Eskimo amounts to little more than what is seen in flint arrowheads, stone hammers, and the more common primitive tools of all kinds, executed under nearly similar conditions of life. "The absence of pottery" proves little more than the absence of tropical vegetation; for both were nearly equally impossible under the conditions of climate. The preference for bone and ivory as the materials for their arts is equally due to climatic conditions which render rock and flint generally inaccessible throughout the greater part of the year. The points of agreement are, in truth, little more than are to be anticipated among savage tribes living under similar conditions of climate.

If, however, the skulls of the Cro-magnon cave-men resembled those of the Eskimo, or the underlying debris revealed any traces of crania of the Eskimo type, there would then be good reason for giving consideration to the bearing of any supplementary evidence depending on correspondence in arts, usages and habits. But neither the Cro-magnon cave, nor any other of the caverns of the district, otherwise so rich in archæological and palæontological traces, have yielded the needful evidence. The contrast between the large, well developed Cro-magnon race and the stunted,



almost dwarfish Eskimo at once attracts attention. But much greater difference in stature would find ready solution in the privations of an arctic habitat prolonged through unnumbered ages. The notable fact, however, is the absolute contrast in every respect. The Eskimo physiognomy is of a poor Mongolian type. The nose is flat, and the cheek bones are very prominent; the tendency in the skull is towards an acrocephalic form, narrow and long, with the parietal bones frequently meeting at an angle at the sagittal suture. The one possible point of resemblance that could be suggested with any acceptance would be the eye, which in the Eskimo seems often narrow and oblique. This, however, may be apparent only, traceable to the habits of a people one-half of whose year is an unbroken midnight; and who grope in the darkness of their obscurely lighted snowhuts. Certain it is that the long, narrow orbits of the Cro-magnon skulls are not represented in the modern crania.

Sufficiently extensive opportunities of studying the Eskimo cranium have come within my reach to afford me some fair means of forming an idea of the predominant type. In 1862, through the kind services of the late Dr. J. Aitken Meigs, I enjoyed the advantage of carefully examining a series of one hundred and twenty-five skulls, obtained by Dr. Hayes during his Arctic explorations, and making drawings of some of the most marked examples. I have also examined and taken careful measurements of other examples including Western Eskimo, Inuit, and Tschukchi crania, in the collections at Washington. With the resulting impressions in mind, it is impossible to look on casts of the large and finely developed Cro-magnon skulls now in my possession without being struck with the extreme contrast between them and the Eskimo crania. No wonder that they prove a stumbling block to evolutionists, who look for something of a totally opposite character in the Troglodytes of the palæolithic, or pleistocene age. M. M. Lartet, Hamy, De Quatrefages, the editors of the *Reliquiæ Aquitanicæ*, and other equally competent authorities, have had no difficulty in accepting the evidence that the reindeer hunters of the Vésère lay there intombed in the cave which had so long been a shelter to men of the same race. Had the Neanderthal skull been found under similar circumstances, no doubt, founded on its lower cerebral capacity, would have interfered to prevent its recognition as the type of the artist race to which we owe the life-picture of the mammoth. But Professor Dawkins not only notes that the human

remains were deposited in an abandoned palæolithic cave, when it had been nearly filled up with the accumulated debris of successive occupants; but he assigns the remains to the later Neolithic age, notwithstanding the absence of any accompanying relics of the art of the polished stone period.

But I have already exceeded the reasonable limits of an address to this Section of Anthropology, and must leave unnoticed various further points in reference to the aborigines of the Dominion, illustrative alike of the physical characteristics of our native Canadian tribes, and of some special points of significance in relation to their arts. One deduction, however, may be worthy of future consideration. If it be a fact borne out by much independent evidence, that from the extremest northern range of the arctic Eskimo, southward to the Great Lakes, and beyond this, especially to the east of the Alleghany Mountains, amid considerable diversity of ethnical characteristics, the dolichocephalic type of head prevailed; whereas among more southern tribes, such as the Osages, Otoes, Missouris, Dacotas, Cherokees, Seminoles, Creeks, and many others, including the Florida Indians, the short, rounded, or brachycephalic head appears to have been universal: this seems to point to a convergence of two distinct ethnical lines of migration from opposite centres. In this, as I believe, the evidence thus derived from physical characteristics confirms what is indicated by wholly independent evidence of language, traditional customs, and native arts.

Gaylord