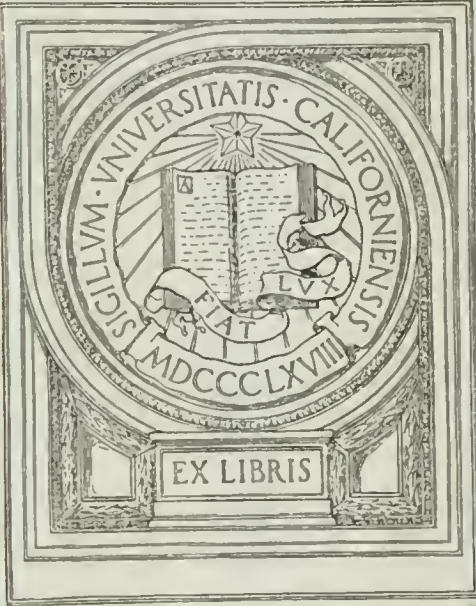


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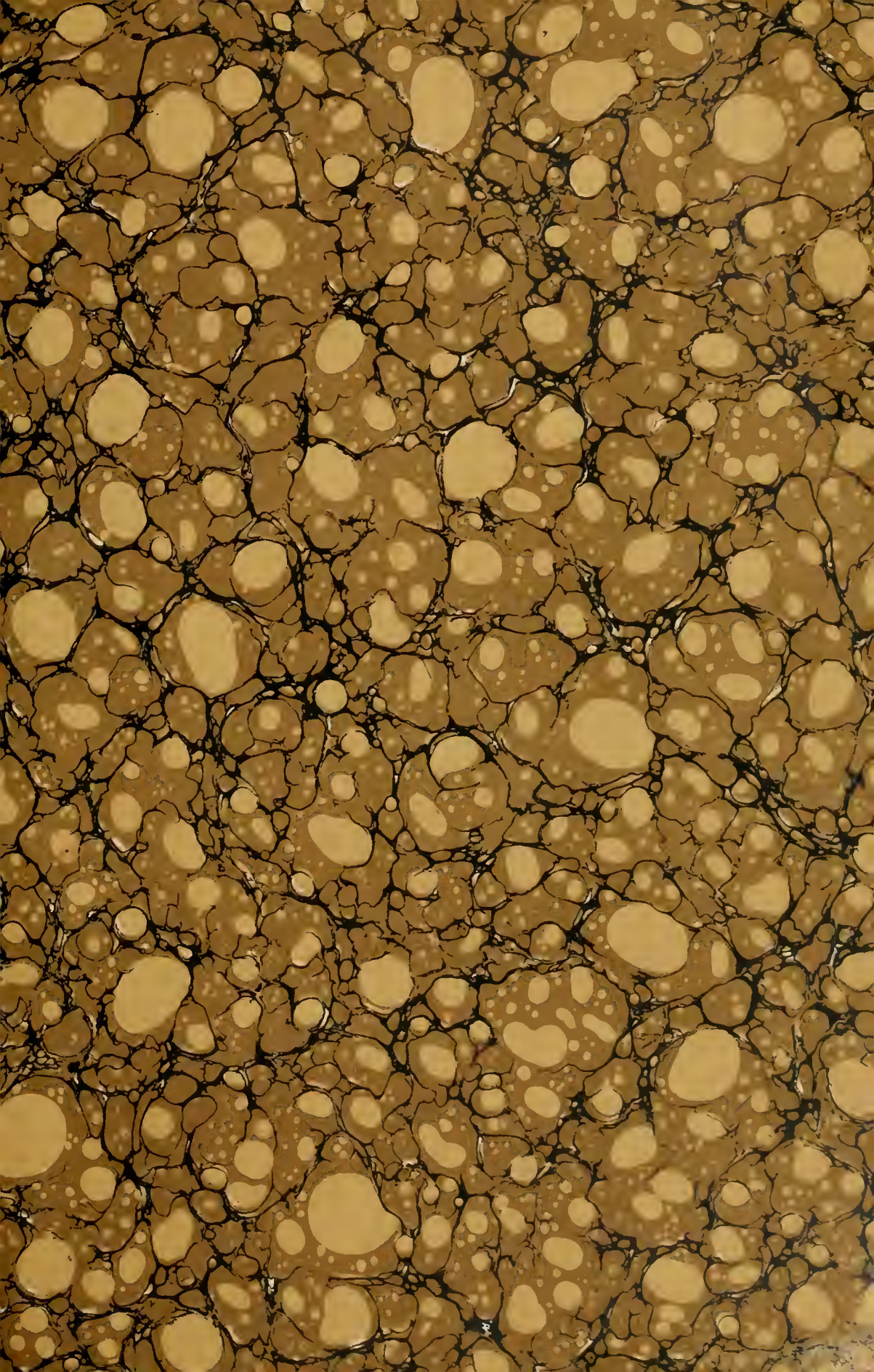
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RIDPATH'S  
HISTORY OF THE WORLD

BEING AN ACCOUNT OF THE ETHNIC ORIGIN, PRIMITIVE ESTATE,  
EARLY MIGRATIONS, SOCIAL CONDITIONS AND PRESENT  
PROMISE OF THE PRINCIPAL FAMILIES OF MEN

TOGETHER WITH A PRELIMINARY INQUIRY ON THE TIME, PLACE AND MANNER OF THE BEGINNING

COMPRISING

THE EVOLUTION OF MANKIND  
AND  
THE STORY OF ALL RACES

---

COMPLETE IN FOUR VOLUMES

---

BY JOHN CLARK RIDPATH, LL. D.

AUTHOR OF A "CYCLOPÆDIA OF UNIVERSAL HISTORY," ETC.

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VOLUME I

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PROFUSELY ILLUSTRATED WITH COLORED PLATES, RACE MAPS AND CHARTS,  
TYPE PICTURES, SKETCHES AND DIAGRAMS

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## GENERAL PREFACE.

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THE motives, as well as the materials, of a literary work are derived from many sources. The reasons which the mind of the writer may give to itself for its activity and persistence in a certain labor are complex in the extreme, and often difficult to discover. The real origin of a book is lost in the obscurity of the unconscious' or half-conscious provinces of the intellect and the will. Now that the present work has been completed and is ready for delivery to the public, I search for its genesis with the hope of making the reasons of its existence clear, and with the desire to furnish a measure of justification for the enterprise.

Through a period of more than a quadrennium I have been steadily engaged with the composition of these volumes, the plan of which suggested itself to my mind, though dimly, fully a score of years before it began to be executed. In youth, and while engaged in giving historical instruction in an institution of the higher learning, I discovered in myself a deep and lasting interest in all matters relating to the origin and development of the different races of mankind. The disposition to learn as much as possible about ethnic facts asserted and reasserted itself in the greater part of my studies. Like other inherent traits, this continued to clamor for recognition and exercise until it finally obtained the command of the faculties in a campaign of special

study, the results of which are declared in the following pages.

It is possible that the enterprise which has culminated in the composition of these volumes would never have been undertaken had it not been for the preparation by the author of another work intimately connected in its subject-matter with the present treatise. That other work was a *Cyclopædia of Universal History*, published in 1885. The theme was such as to suggest, and at length demand, another, which is here developed as the complement of the first. All historical composition is calculated to bring to the attention of the writer subjects and trains of thought which he would doubtless have overlooked in other fields of inquiry. My own experience in this particular may possess a general, as well as a personal, interest.

While engaged in the preparation of the work referred to, I was led to reflect much and attentively upon the true nature of history and historical composition. That which had existed obscurely in the understanding hitherto became at length more distinct, and I began to discern certain features of the subject which, if I mistake not, have escaped general observation. The principal of these was a clear recognition of what I will call *the objective nature* of the great fact which goes by the name of History. More and more I came to see that history, as it has been understood and written by men, is in the nature of a *product* or *result* of human activities. If we open the pages of any standard historical work and begin to follow the

narrative, we shall find it to be an account of the objectivities resulting from the action of the wills and purposes of men. It will be found to be a delineation of the *things done by mankind*, of the achievements of the human race, of the institutions founded, the resources gathered, the campaigns made, the cities builded, the governments created, the methods employed, and indeed all the visible *results and products* of the agency and purposes of men in their associated life. The more the inquirer studies formal history the more he will discover its resultant and objective character.

The fact that general history is of the character here described entered strongly into my convictions. I came to perceive that the work in which I was engaged was of the kind outlined above. It dealt, as it were, with the *residue* of man's activities on the earth. It considered results. It delineated events. It followed the evolution of institutions and described the tangibilities of human action and achievement. Ever and anon, however, the inquiry arose as to the *agency* by which all this was effected. The question of the peoples and races by whose genius and spirit all the visible facts of human history are produced haunted the inquiry more and more, to the extent even of disturbing my studies and confusing my materials.

At first the suggestion of the importance of the *actors* in the human drama, as distinguished from the *acts*, came dimly and obscurely to view. Afterwards it became distinct, persistent, and imperative. I found myself stationed between the objective phenomena and the subjective agencies of human story. Glancing in one direction, I might see the vast panorama of events, the architectural remains, the monuments of passing ages, the relics of human activity, the

institutional forms of society, the governments and nationalities that have paraded with so much pomp on our vast stage of action, and in the other direction I saw the races of mankind themselves. The difference between the one class of facts and the other grew as distinct as that which discriminates a statue from the sculptor, a written scroll from its writer, a city from its builders.

Already before reaching a clear notion of this double view of human history I had unconsciously, or half-consciously, adopted the method of incorporating with such historical narrative as I had produced certain ethnic features. It had seemed to me of importance that references be made to the race character and affinities of the various peoples, to their resources, environing conditions, and manner of life, as well as to the results and products of their activity. I was still following this plan of composition when the *Cyclopædia of Universal History* was prepared.

Whoever has given attention to the method of that work may discover in the same the evidences of that double view of the subject to which I have just referred. Especially in those parts relating to the great nations of antiquity did the author depart, by a considerable stage, from the prevailing manner of history, and incorporate a measure of ethnic materials with the general theme. With the progress of the work and the expansion of the subject such materials were crowded out; but the conviction settled on the writer's mind that the whole story of man-life should be written anew from the standpoint of ethnography, and that if this were faithfully done the result might surpass in interest and value any possible account of those objective facts and phenomena which have gone by the name of **history**.

Out of this the suggestion arose with me and became fixed as a purpose to turn squarely about in the inquiry and take another view of the history of mankind; that is, a view of *the human race itself*. It seemed to suffice that that kind of narrative which relates to the deeds, institutions, governments, and tangible activities of mankind had fulfilled itself by repetition and multiplicity. Something else seemed to be demanded—something which should deal, not with the temple of humanity, but with the architect; not with the dead facts and residue of the activities of men on the earth, but with the agents by whose genius and purpose all this has been effected; not with nationalities and powers, institutions, achievements, wars and treaties, senates, revolutions, but with that living power whereby all this has been accomplished—with humanity itself.

Out of these conditions and antecedents the present history of the GREAT RACES OF MANKIND has arisen. In the preparation of the work the author has reversed his position in the human landscape. He has ceased to look at the accomplishments of the human race, save as those accomplishments serve to illustrate the character of the producing force, and has turned to the race itself. He has thus aimed to produce *an ethnic history of mankind*, dealing not with the facts and achievements, but with the substance of man-life itself.

It is believed that the more the reader attentively considers the nature of the subject the more clearly will he discern the essential verity of this distinction between ethnic history and the history of facts and events. An apprehension on his part of this difference is necessary to his interest in these volumes and to his understanding of what they contain. The work, as the title implies,

is an account of the ethnic origin, the primitive condition, the early migrations, the historical development, and the present state and prospects of the principle families of men, together with a preliminary inquiry on the time, the place, and the manner of the beginning of man-life on the earth. It is in no respect a narrative of the deeds and accomplishments of mankind; for that would be a repetition of the author's previous essays in historical literature; the present work is an account, not of events and institutions, but of the human race itself.

A second motive for the production of such a work may be mentioned. This is the existence in our times of a widespread interest in everything relating to ethnological subjects. There has never been a time in the past when men have been so much concerned to know themselves and the sources from which they have proceeded. This curiosity is a part of the scientific spirit of the age. The mind of man is no longer satisfied with vague, traditional, and imaginary views respecting the race to which he belongs and the manner of its evolution. The profound intellectual unrest which so strongly characterizes the closing years of our century, includes as one of its leading features a curiosity to know as much as possible about the origin, development, and vicissitudes of the various races of mankind. The mind has wearied somewhat with the contemplation of those palpable facts and events which have hitherto constituted the subject-matter of history. It turns in quest of a truer knowledge of the profound and vital phenomena discussed in ethnic history; the human race is substituted as a theme in place of what the race has accomplished.

The existence of this deep interest in

the races of men as a subject of inquiry has not been answered as yet with any adequate literature. Hitherto the topics of ethnology have been handled in a narrow and scholastic way quite remote from public concern. Our books on the races of mankind have been for the most part small and fragmentary treatises embracing the results of particular studies in this field of investigation or in that. More recently the attempt has been made to present the subject from a broader and more comprehensive point of view. In this departure German ethnographers and historians have led the way. A like treatment of the subject has appeared in the literatures of other peoples. We are now at the beginning of a vast and varied scholarship devoted to an exposition of the human family, and of the various parts into which our race has differentiated.

A few words may properly be added respecting the illustrative parts of this treatise. It has been the author's aim and purpose to make the illustrations in all particulars conform to the subject-matter of the work. Special pains have been taken to secure a perfect harmony between the text and the pictorial embellishments. The colored plates and charts have been drawn for the better elucidation of those parts which seem most to require the use of the eye as an auxiliary to the understanding. Ethnic history is especially rich in the suggestions which it offers for illustration. It seems to call loudly for drawings and type-pictures and charts, to the end of a clearer and more vivid apprehension of the subject under consideration. In the work of gathering and preparing much more than two thousand illustrations

with which the following pages are adorned the author has had the cordial coöperation and support of the Publishers, to whose liberality and good judgment he is profoundly indebted.

We here heartily join in the intellectual movement peculiar to our age, and contribute our humble part to the explication of one of the greatest themes of modern inquiry. The author, in this day of the deliverance of his work to the public, does not flatter himself that he has greatly enlarged the boundaries of human knowledge, but claims rather to have cleared somewhat the horizon in this part and in that, to have visited in thought and reflection some unfrequented parts of the temple of humanity, and to have aided in his limited sphere to put the house in order for his successors.

It has been my hope and ambition in the present work to cover, however imperfectly, the whole field of the inquiry, and to mark the limits of current knowledge respecting the races of mankind as the same are known to us at the close of our splendid century. How far short of a perfect accomplishment the writer has come, how many and serious are the imperfections of his work, he is painfully aware; but he presumes, as hitherto, upon the good will and favor of the public, to whom he now delivers the results of his latest study in the spirit and with the trust of one who, proud of his age and country, would fain contribute something to the intellectual resources, progress, and happiness of that great and glorious people with whom he is allied in race descent and destiny.

J. C. R.

GREENCASTLE, 1893.

# GREAT RACES

OF

# MANKIND

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VOLUME I

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BOOK II—Manner of the Beginning

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## Part First.

### PRELIMINARY INQUIRIES.

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## GENERAL INTRODUCTION.



**M**ANKIND is not an event, but a producing force. The history of the human race, therefore, differs essentially from the history of events. The one is

the story of man-life as such, and the other an account of the results and products of that life under the dominion of instinct and reason. The first relates to our race as a living entity, and the

Subjective and objective phases of human history.

second to the works which men have accomplished.

The one looks constantly to the agent out of whose activities all events have arisen, and the other to the events themselves. The first may be called the subjective, and the other the objective phase of human story. These distinctions are fundamental to an understanding of the inquiry upon which we are here to enter.

In considering the subjects proper to Ethnic History, the reader will not have

The objective phase depicts the evolution of events.

proceeded far before he will discover that they differ

*toto cælo* from the themes of general history. The latter begins with the movements and results of organized society. It relates to the circumstances of national life. It takes into consideration the connections of state with state, kingdom with kingdom, power with power, and the phenomena resulting from internal development and foreign contact. It seizes the visible aspects of human affairs, and deals with them as the products of the wills and purposes of peoples. It dwells upon the works of man associated, the conse-

quences of his exertion, the tangibilities of his civil and political life, and in particular the national features of his communities and governments. It is an account of the evolution of institutions, the fruits of those institutions, the manner in which those fruits are gathered and consumed, and the successions and cycles through which all organic forms produced by the desires and ambitions of mankind pass in the course of their fulfilment.

It is not meant that general history is limited to the consideration of the public life of mankind. The limitation relates to the objectivity of the facts and events

General history deals with the objectivities of society.

which constitute the subject-matter and determine the character of such history. Certain it is that the greater part of the historical writings of the world have been devoted to public affairs. They have dealt with peoples as a whole, with their organized activities, with their forms of government and methods of administration, with aspects and displays of power well calculated to fix the attention and interest of the inquirer. General history has been made to deal with organizations as a fact, with civil and military affairs, with those movements and institutions which, on the one hand, conduce to the power of nations, or, on the other hand, sap and destroy them, and with all the ostensible agencies of peace and war.

Recent history, however, has not contented itself with this cycle of discussion. On the contrary, it has descended from the story of affairs to the story of the people, taking into consideration the

manners, customs, social institutions, commerce, and intellectual progress of the various nations. Nevertheless, the narrative has still continued to deal with objectivities, with products, and results. This has been as true of our so-called histories of the people as it is true of the older histories which deal exclusively with public affairs to the neglect of the common lot. The difference between the old and the new narrative has been the difference between a public history—an account of public affairs—and a social and domestic history—an account of the private, domestic, and social affairs and institutions of the given people. The change from the old to the new has not been really a change of method, but only of subject-matter. It has not reversed the point of view, turning the attention of the inquirer from the products of man's agency to the man himself, but has been content with the substitution of a new class of facts for those formerly in vogue with historians.

From all this ethnic history departs as if by a whole horizon. The story of the human race—the true story—has not to do with the *results* of human activity on the earth, but rather with the race itself. The *race*, and not the *event*, is the subject-matter of the inquiry. The attention is fixed not on the products of human will and activity, but on mankind as such.

The river in its course from the highlands to the sea may accomplish wonders. It traverses valleys and shapes them. It tries one course through the hills, and then another. It builds up embankments. It creates a world of sand and pebbles. It distributes its shells and other relics of life in this part and in

that. It creates a landscape. It dictates the distribution of forests. It leaves the evidences of its work in every part of its course. The ledge of rocks is worn away, and the alluvium of one region is deposited in another. The river even divides into channels. It eddies into bayous and lakes. It rushes through narrow gorges, fills canals, and springs over water wheels. It bears ships and divides countries in its course. It becomes an artery of commerce. Cities are built here and there in situations determined by its windings; nations gather on its banks.

The evidences of this river-life, the works which it effects, the traces of its passage, may be said in one sense to constitute a history of the river; but the essential river has not yet been touched. What of the river itself? We speak not of the work which it accomplishes in its passage through the lands, but of the river as an independent entity. How great is it? From what sources has it been gathered? By what alchemy and transformation of sun and wind has it been beaten up from tropical seas, blown away in clouds, and poured down in mist or rain or snow on mountain crest, highland, and hillside of the far interior? What are its other fountains? Deep out of mother earth they come in many and widely separated regions. They burst from under ledges of stone. They pour from dark chasms in the mountains. They bubble as springs of living water from a thousand obscure spots at hill-foot, in limestone crevice, by great tree roots, in the solitary forest, through humble wells dug deep by crawfishes in banks of clay.

From such fountains the river gathers its volume. Its waters are blent into one. It pours along, gathering and increasing. It is an entity. It may well seem

The new method considers private life, but is still objective.

Ethnic history describes the essentials of race-life.

The river an analogue of general and ethnic history.

alive. It moves and roars and rushes. Its volume is measurable, but becomes immeasurable with increase. Its color is of this tint. Its water has this quality or that. Its manner is placid, smiling, gentle, or angry, turbulent, stormy. It sleeps or wakes. It rejoices with sunshine or calm, moans with the pressure of shadow and tempest, becomes furious, and springs with madness through narrowing gorges and over horrid precipices. It yields to the rigor of winter, and bursts with the renewal of spring. All this is *the river itself*. All this has respect to the substance and life of the great fact, and not to its results and reactions.

The analogue of the river is the human race. That, too, is a stream flowing from an invisible fountain. That also has had its sources in the highlands of the past, and that also has gathered and rolled down with increasing volume into the plains of the present. Like the river, the human race possesses a life of its own. It is an entity dividing into many entities. It spreads far and covers the earth with its floods. It leaves on all shores and continents the signs of its presence and activities. It builds up and demolishes. It changes its course according to the exigencies of the physical barriers that are set against its progress. It breaks through and traverses vast regions. It modifies the whole globe, and determines both its material and its immaterial aspects. It becomes the one really important fact on the earth. It is to be considered not so much in the effects and changes which it has produced among its environing conditions as in its own essential life.

There thus arises out of the nature of the things considered a marked difference between ethnic and general history.

The one gives an account of the races of mankind in their essential nature, powers, capacities, or, in a word, an account of themselves. The other presents a narrative of the facts and deeds of which men have been the authors; the works which they have accomplished; the institutions which they have created; the visible effects of their stay and activity on the earth; the monuments they have builded; the kingdoms and empires which they have devised; the governments they have formed; the wars they have fought; the treaties they have made; the activities they have exerted in peace.

With these and the like facts of human agency ethnic history is only incidentally concerned. The ethnic historian does indeed regard all facts and circumstances of the life of man; but he views them only as illustrations of the nature and purposes of the race. By him the very globe is regarded as the scene of race emergence, division, migration, and development; as the environing continent of our species; the ground of its activities. His attention is fixed on the evolution of mankind, on its characteristics and its methods of life.

In the following treatise the attempt is made to display the history of mankind considered as a race of intelligent beings, multiplying, dividing, migrating, developing, conquering, and possessing the earth. The race is viewed in itself. It is everywhere considered as a living entity, acting unconsciously under its own laws, and fulfilling a mission of which only the higher members of the species have been able to catch occasional glimpses.—It is the object of this Introduction to set forth with as

Essentials of difference in the two kinds of history.

The ethnic historian uses events as indices of race-life.

In this work mankind is considered as an entity.

Aspect of our race in its character and motion.

much conciseness and brevity as possible the general course of the inquiry, and to lead the mind of the reader up to a comprehension of the plan of the work as a whole.

A History of the Races of Mankind must needs include a number of subordinate topics of the greatest interest to all who are in any measure concerned with the destiny of their species. One of the first of such questions is that which considers the *time*, the *place*, and the *manner* of the beginning of man-life on the earth. Certain it is that men at some time in the past made their appearance on this habitable globe. Certain it is also that at some place, or places, such beginning was made. Equally certain is it that the coming of man was in some manner. It was by method. The beginning was not chaotic, but orderly. The inquiry, therefore, turns first of all to the questions here presented. At what time did the human race begin to be? In what place, or places, did it make its appearance? In what manner, by what agencies, immediate or mediate, was the introduction of such a fact as man-life on the globe effected? These inquiries are fundamental to any rational history of the human family. The attempt is made in the inquiry preliminary to the present work to consider them in their proper place as an introductory study to the whole.

After deciding, with such approximations to certainty as we may be able to reach, the time, place, and manner of the beginning, our next inquiry will naturally have respect to the *primitive condition of mankind*. The estate of the human race on the outskirts of that impenetrable darkness and barbarism out of which it arose must be considered in

First topics the time, place, and manner of the beginning.

dinate topics of the greatest interest to all who are in any measure concerned

the best lights which tradition and science are able to hold aloft. The primeval condition of the tribes and peoples which we are able to discover on their emergence from unconsciousness and savagery is of itself the subject-matter of one of the most interesting themes in the whole natural history of life. It involves the gathering up of the fragmentary details and the reconstruction—as if in outline—of a condition which had not the instinct and capability of recording itself. The study involves the gathering of materials from almost every department of human knowledge, and a sifting and comparison of the data to the end of obtaining an adequate notion of the estate of our race while it still journeyed dimly and doubtfully through obscure ages, far below the horizon of all authentic annals.

In the course of such an inquiry, we shall be brought into contact with a condition of the world and with aspects of animate existence which we know only by the aid of retrospective science. We shall discover the first men in a deplorable estate, fighting desperately with the huge monsters of brake and river bank and wilderness, struggling to maintain a merely animal life in dark and houseless forests, along wild seashores, and in dripping caverns. We shall note the rude implements and tackle whereby the barbarian life would better its chances in the hard struggle for existence. Out of these traces of the aboriginal life of man we shall attempt to deduce his conditions and prospects in the first discoverable ages of his career on the earth. It is necessary that such a foundation be laid in order to understand the development of the human family, its progress into the higher life, and its final emergence into civilization and fame.

Means of determining the aboriginal state of man.

Primitive estate of mankind demands consideration.

the beginning, our next inquiry will naturally have respect to the *primitive*

The next special subject in the logical development of our theme is that of *the migrations and distributions*

Distribution of the races an important theme.

whereby the human species has been dispersed

throughout the habitable globe. It is evident that in some manner and at some time the different divisions of our race have made their way in this direction and that, by movements more or less orderly, into the parts of the world which they occupy as the seats of their localized development. To these movements we give the general name of distribution. The fact so called constitutes one of the principal features of a certain stage in the human evolution. As primitive tribes multiply and develop, there comes a time when the passion for migration seizes them. The spirit of removal prevails, and they depart from their native seats. In some instances the removal is phenomenal; that is, it is apparent as a distinct phase of tribal life. In other cases the movement is so slow and gradual as to be undiscoverable except after the lapse of time.

In either event, however, the migration has the same practical result. It carries tribes and peoples into regions hitherto unoccupied by them. It throws them upon other tribes and peoples who

General view of the nature of migration.

are in the way of their advance, or, possibly, into unoccupied regions of the

earth. This gives to the early inhabitants of our globe what may be called a *rolling motion*. Generally the movement seems to be instinctive. In some instances the motive is apparent, as the desire of conquest, war, the possession of better countries, escape from enemies, acquisition of unearned resources and advantages.

This migratory motion of tribes and peoples, whereby our globe, at one time

an uninhabited sphere, has become populated with intelligent beings, is one of the great facts in ethnic history. As such it will occupy a considerable section of the present work. With the fact of migration general history is not greatly concerned; for that takes note, not of the ultimate forces and processes by which the present order has been established, but rather of the phenomena which humanity displays after it reaches the stage of conscious nationality. To ethnic history, however, the migratory movements of the human race are of great and fundamental importance.

Another essential topic in ethnic history is that which considers the *classification of the races and their arrangement into a whole*

Classification of races essential; criteria for classifying.

according to manifest and established principles. It is clear that all men, all varieties of men in all parts of the world and in all ages, have had some scientific relation as the dispersed parts of a common fact. That the human race is coherent to its utmost extreme is evident. A belief in such wholeness and consistency is demanded by the established uniformity of nature and by all that we know respecting the other orders of being and the general scheme of the world.

We shall find in this part of the inquiry that at the present stage of our knowledge some uncertainty still exists relative to the best principle of division for classifying the different races of mankind. Some authors have proposed to classify and arrange the parts of the human family by one criterion, and others by another. Nearly all of the physical and mental characteristics of men have been taken as the foundation of a classification of the races; but few of these characteristics have been found to be sufficiently constant to furnish an in-

variable and scientific principle of division.

In the present work the color of the human body has been taken as the most invariable criterion of race character, and on that fundamental fact, assisted by other physical traits and by intellectual peculiarities of development, particularly by the great fact of language, the classification has been made. This has been done on the hypothesis of the general unity of mankind and the derivation of all the races from some common source localized in time and place. The character and method of classification chosen as the basis of the present treatise on the races of mankind will sufficiently appear in the chapter devoted to that topic.

Having thus by preliminary inquiry investigated as well as we may the time, place, and manner of the beginning of man-life on the earth; having noted the primitive condition of mankind, and constructed a scheme of distribution and classification by which the various races may be viewed as a single fact with subordinate parts in proper relation to the whole; having described the migratory spread of the different tribes and peoples from the earliest movement of the race to its latest dispersion in the world, we shall next advance to the consideration of *the races themselves*. This theme will constitute the body of our work. In this we must discuss the characteristics, special features, and peculiar activities of the various divisions of mankind, assigning to each its proper place in the general scheme.

In entering upon this principal part of the treatise we shall, from the nature of the case, follow the already established classification, taking up the different races one by one until all have been

considered. We shall begin with that which is clearly the most important division of mankind; that is, THE RUDDY, or WHITE, RACES. We shall see, first of all, the great *Aryan family* parting from its central locality in Western Asia into its Eastern, or Asiatic, and its Western, or European, stem. These we shall endeavor to follow, considering in turn the ancient and modern Iranic races, and afterwards the Indic Aryans, from the time of their establishment in the Indus valley to their modern developments in the powerful races of Hindustan. Then in order we shall follow the Western division of the Indo-European family, noting its emergence in the Hellenic, the Italian, the Celtic, and the Teutonic races. This department of the work will bring us into contact with the great classical nations of the ancient world. Since it includes essentially all the peoples of Europe, we shall here find those races in whom history has the most abiding interest. We must needs dwell long with the great Greeks, the Romans, the Celts, the Germans, and their descendent races in Europe and the West.

The important Aryan family, however, is by no means coëxtensive with the White, or Ruddy, races of mankind. Of these the next general division is the *Semitic family*, second only in fame to the Indo-Europeans. We shall in proper order take up the ancient Semites and follow them from their earliest ethnic life in the valley of the Euphrates, through the great Aramaic and Hebraic developments, down to the modern Arabic evolution in Southwestern Asia. Afterwards the *Hamites*, of still narrower activities and race dispersion, will be considered, thus completing the cycle of the Ruddy division of mankind.

Color of the body taken as the fundamental characteristic.

Ethnic history begins with Aryan family as most important.

Semites and Hamites also belong to the Ruddy races.



Following this, we shall next find THE BROWN RACES, and pursue them from their ancient to their most recent phases of development. The inquiry will in this case carry us from the region of Beluchistan throughout Eastern Asia to the islands of the Pacific, to the three Americas, and indeed to the ends of the earth. In the course of this part of the inquiry we shall find our principal subject-matter in the great peoples of the Orient. There, in the Chinese group, we shall see massed under a single form of life about one fourth of the present inhabitants of the globe. To these must be added the Japanese, the nomadic races of Northern Asia, the Polynesian Mongoloids, and all of the American aborigines. The extent and variety of these materials will of necessity demand much space, and detain the reader with a multitude of important particulars relative to the present character of so large a division of mankind.

Still pursuing the general classification of races, we shall come at last to THE BLACK DIVISION of the human family. This, though the least important, is nevertheless of much interest as completing the general scheme, and as furnishing a large numerical fraction of the population of the globe. Our course of study will here lead us through the vast belt of Equatorial Africa; thence into the southern parts of that continent; thence eastward in the course of the Pelagian Blacks as far as Australia, New Guinea, Fiji, and the Philippines. The excursion is thus world-wide in its sweep—omitting from consideration no country or important island of the earth.

It still remains to be inquired what *the true materials* are which must constitute the body of an ethnic history. This

question has respect to all of the essential elements of the human evolution. But what are these elements? By what agencies and through what phases of life and action do the races of men pass in their progress from the unconscious estate of primitive barbarism to the conscious estate of the civilized life? These agencies and elements of the development of mankind we have attempted to discover and to set forth in the following pages. We shall find that the first great fact to be considered with respect to the development of any given division of mankind, or indeed of the race as a whole, is *the means of subsistence*. This takes into consideration the environment, and in particular the food-supply, of the given people. It views those elements of the natural world of which man avails himself in order to live and flourish, and which react so powerfully upon his faculties and frame. We shall not, therefore, neglect to notice the material basis of the race-life of the various peoples, and to make comparison of the resources of one race with those of another.

The next fact or element in ethnic history is, in general, *the relation of the sexes* and the institutions founded thereon. There must in the nature of the case be a method of union everywhere and under all conditions for the perpetuation of the species. The importance of this fact has been greatly overlooked or blinked by historians, even by those who have essayed somewhat the ethnic problems ever suggesting themselves to the mind. The fact and the manner of marriage are of great and primary importance in determining the character and institutions of every race that has flourished or that still flourishes on the earth. On the sexual union and the

Brown races to be considered as next in importance.

True materials of race history; means of subsistence.

The Blacks are last in the ethnic scheme.

Relation and union of the sexes next in importance.

manner of it is founded the family, and out of the family spring a great number of social forms, involving most intimately and radically the whole character, tendency, aspiration, and development of the given race. It will be a part of our purpose in the present work not to neglect the adequate discussion of the methods of the sexual union adopted by the different races, and to show the place of marriage and the institutions based upon it in human progress.

Following close after this division of the subject, we come to *language* as an element of ethnic history. Man has a material and an immaterial part. The immaterial part has for its function thought, and thought has for its organ speech. Man is a speaking animal. No other characteristic of his nature is more universal or prevailing. Speech is the invariable index of the intellectual and moral condition of the human kind. Language has varied according to race, showing most plainly the wide range of aptitudes and intellectual powers possessed by the different races. Speech has differentiated just as mankind has separated into divisions and local developments. The fact of language thus lies close to the general scheme of human dispersion. The one illustrates the other, and the other exemplifies the first. We shall, therefore, in this treatise on the races of mankind have much to say on the linguistic developments and phenomena of each.

From language we advance to *arts and technology*. Man is the being that has the power of conceiving and executing workmanship. We speak not of the fine arts in particular, but of the industrial and commercial arts. To these even the barbarian begins to turn his atten-

tion. All accomplishment in this direction arises out of that semi-ideal faculty which enables the possessor to adopt means to ends. It is from this source that man derives his disposition to work in the metals, in wood, in stone, and in that large class of materials that are used in the production of fabrics. Ethnic history considers mankind in such activities as are requisite to the industrial pursuits. It regards the human being as a maker—a maker of houses first, and of all things afterwards. It considers him as a builder of structures, a miner, a metallurgist, a planter, a weaver, a tanner of skins, a fashioner of weapons and implements, an engraver of gems. At length ethnic history views man as he emerges into the domain of the higher arts. Here he becomes truly ideal. Here he adorns as well as constructs. Here by the use of color and form he gives outline and substance to the things perceived in vision and dream.

It should here be noted that the art products of mankind, whether industrial or ideal, may be viewed from two points of observation. The first considers them in themselves as things of importance without respect to the instincts and genius that produced them. The other view considers them as illustrative of the desires and ambitions of the makers. In this sense they cast a strong light on the character and dispositions of the peoples and races by whom they have been produced. It is this consideration that gives them value in ethnic history. They show *what kind of being* it is whose ingenuity and industry are capable of effecting such results. It is for this reason that ethnic history, as well as the general history of nations, takes into account the arts and industries whereby life is so greatly bettered and amplified.

Important place of language in ethnic history.

Arts may be considered in themselves or as indicative of man.

Practical and fine arts an index of race character.

General history regards architecture, metallurgy, all manner of construction and fabrication, as facts in themselves useful and important, contributing to the strength of nations; but a true study of the human race regards all art products as but an evidence and illustration of the character, the skill and purpose of those by whom they were designed.

In like manner *government and laws* are human institutions that may be considered in themselves. As such they are objective products of the genius of man. But they are also illustrations of the character, sentiment, hope, and ambitions of the race. The existence of government and laws among all the peoples of the world is of itself sufficient proof that such facts are native to the instincts, desires, and capabilities of mankind. It is because they are so that the ethnic historian, as well as his competitor, devotes his thought and space to the consideration of the governmental and constitutional aspects of human society. The story of the races of mankind could by no means be complete without introducing therein careful accounts of the laws and organized governments which the various peoples have adopted. But it must be borne in mind that such consideration of civil and legal institutions is given because they illustrate the genius and political skill of mankind.

Still another topic to be considered as a part of the revelation of race character is *religion*. The religious instinct is found to have been deeply implanted in nearly or quite all the peoples of the world. This was true in the dawn and morning of history, and it is still true at the high noon of nationality, power, and greatness. Here, again, we do not consider religion and religious institutions

Governments and laws also exemplify human genius.

Religion in like manner shows the character of peoples.

as objective entities bearing their interest in themselves, but as facts tending to illustrate the totality of human nature. In ethnic history religion, whether it presents itself in the form of gross superstition or as a more enlightened concept of the supernal powers, or in the shape of institutions having for their object the systematic and visible administration of rites and the teaching of the doctrines of a given faith, must needs occupy a considerable space, inasmuch as it illustrates some of the most universal and constant features of man-life on the earth. In the present treatise care is taken, in the consideration of every division of mankind, to note its religious instincts and practices, as well as to delineate those institutions which are founded on the universal sentiment of religion among the various peoples.

Finally, we shall consider what may be called *the proper ethnic characteristics* of the human race. These relate to those specialized and distinguishing traits in the physical, mental, and moral constitution of mankind, whereby one people is discriminated from another. We have seen how it is that bodily features, such as color, peculiarities of anatomical structure, the hair of the head, the facial angle, the cranial capacity, and many other visible facts in man-life, have been taken as a basis in classifying the human species into kindreds, peoples, and races. The identity of feature is thus used as the principle by which the classification is determined. Like distinguishing features or traits appear in the mind and in personal activities. Another class of similar facts may be found in the deeper spiritual parts of human nature. Upon all of these the ethnic historian will dwell with interest, as they are of the essence of the inquiry.

Ethnic traits proper distinguish race from race.

It is in this order that a history of the races of mankind may be best constructed. In the present work such order has been followed throughout, with only slight deviations in this part or in that, as the same have seemed to be demanded by the nature of the subject-matter. While absolute uniformity in all parts of the treatise has not been desired or sought after, the general plan has been faithfully pursued as the same is outlined in this introduction.

From the various topics herein presented—arising out of the nature of the subject and constituting the body of our study—the following synopsis of the whole may be deduced:

Book I.—A Preliminary Inquiry into the Time and Place of the Beginning of Man-life on the Earth.

Book II.—An account of the Manner and Conditions of the Appearance of Mankind.

Book III.—An account of the Primitive Estate of the Human Race.

Book IV.—An account of the Early Migrations and Dispersions of the Different Divisions of Mankind over the Earth.

Book V.—An account of the Iranian Division of the Human Family.

Book VI.—An account of the Aryan Races of India.

Book VII.—An account of the Western Aryans, including the Races of Asia Minor and the Greeks.

Book VIII.—An account of the Primitive Italicans and the Romans.

Book IX.—An account of the Latin Races.

Book X.—An account of the Celtic Races.

Book XI.—An account of the Teutonic Races.

Book XII.—An account of the Norse, or Scandinavian, Races.

Book XIII.—An account of the Slavic Races.

Book XIV.—An account of the Aramaean Semites.

Book XV.—An account of the Hebrew Race.

Book XVI.—An account of the Canaanites and Syrians.

Book XVII.—An account of the Arabs.

Book XVIII.—An account of the Hamitic Races.

Book XIX.—An account of the Malayo-Mongoloids, beginning with the Thibetans and Burmese.

Book XX.—An account of the Indo-Chinese Races.

Book XXI.—An account of the Malays Proper.

Book XXII.—An account of the Asiatic Mongoloids, beginning with the Chinese.

Book XXIII.—An account of the Japanese.

Book XXIV.—An account of the Mongols Proper.

Book XXV.—An account of the Northern Asiatic Races.

Book XXVI.—An account of the Polynesian Mongoloids, in their two divisions of Sawaiors and Tarapons.

Book XXVII.—An account of the American Mongoloids, beginning with the Northern Aborigines.

Book XXVIII.—An account of the Central and South American Races.

Book XXIX.—An account of the Black Races, beginning with the African Nigritians.

Book XXX.—An account of the Australians and Papuans.

In this order the themes of the following volumes will be presented

Summary of sub-  
divisions of the  
present work.

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PRINCIPAL TYPES OF MANKIND. (After Huxley)

I. **Bushman:** 1. Bushman (drawn by *Fritsch*). 2. Woman of Namaqua (drawn by *Falke*, from a photograph).

II. **Negritian:** 3. Woman of the Loango (drawn by *Falkenstein*). 4. Man of the Darfur (drawn by *Hagenbeck*, from a photograph).

III. **Negrito:** 5. Man of New Hebrides (drawn by *Collett*). 6. Woman of Tasmania (drawn by *Livingstone*, from a photograph).

IV. **Haricava:** 7. Italian Woman (after a drawing from life). 8. Italian Man (after a drawing from life).

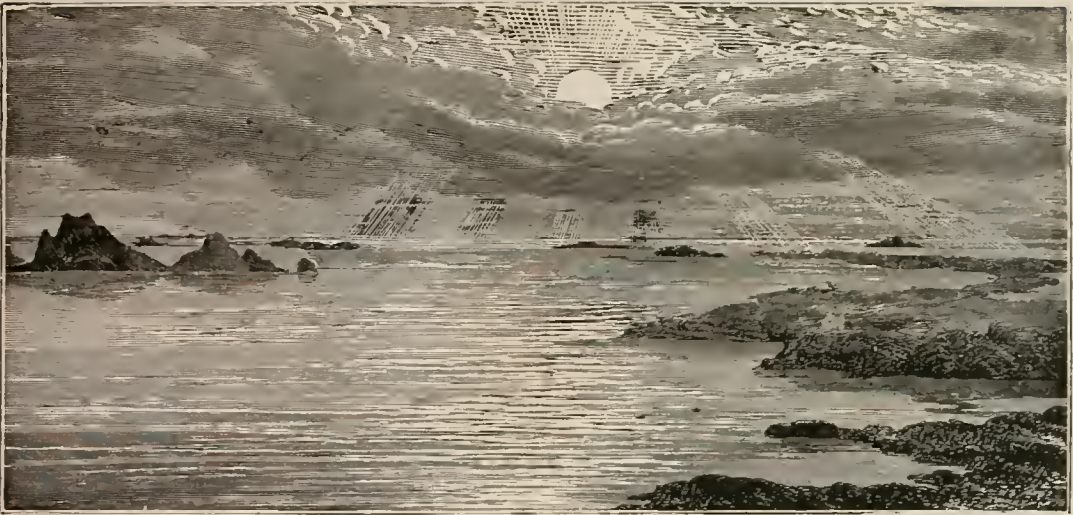
V. **Australian:** 9. Man of Southwest Australia (drawn by *Belton*, from a photograph). 10. Nubian Woman (drawn by *Hagenbeck*, from a photograph).

VI. **Scandinavian:** 11. Swedish Woman (from *Peoples of Russia*). 12. Great Russian (from *Peoples of Russia*).

VII. **Polynesian:** 13. Girl of the Tonga Islands (drawn by *Godette*). 14. Dyak of Borneo (drawn by *Darmann*).

VIII. **North American:** 15. Tatars-Mongol (drawn by *Precheratsky*). 16. Kalka-Mongol (drawn by *Precheratsky*). 17. Chinese (after a portrait, Museum of Ethnography, Berlin). 18. Yakut Woman of the Cheta (drawn by *Malden*). 19. North American Indian (from a photograph). 20. South American Indian Woman (drawn by *Reber*).

IX. **Esquimaux:** 21. Eskimo Woman (from *Peoples of Russia*). 22. Esquimaux of Greenland (drawn by *Hagenbeck*, from a photograph).



## Part First.

# PRELIMINARY INQUIRIES.

## BOOK I.—TIME AND PLACE OF THE BEGINNING.

### CHAPTER I.—SOURCES OF INFORMATION.



IN entering upon the history of mankind, considered as a race, certain questions fundamental to the subject naturally suggest themselves to the inquirer. They obtrude upon his attention. If neglected or put aside they recur from time to time, as if to arrest the narrative, until fitting answers are given. They haunt the mind and shadow the scholar's study. They flutter about the poet's dream, and cross on rapid wing the philosopher's landscape. They fly abroad, and come unbidden into the thoughts of the great people. Even in the most practical of all ages and the least speculative of all

nations these questions are heard and repeated in many accents and by many tongues. He, indeed, is of dull apprehension and little curious to know the cogitations and dreams of his fellow-men who has not discerned their anxiety to find a solid basis of fact and reason in what may be called the principia of human history.

The principal of the questions to which we here refer are three in number:

1. At what Time in the past—exact or approximate—did the human race begin its career on the earth?

2. In what Place—that is, in what region or regions of the earth—did mankind first appear?

3. The three fundamental questions of historical inquiry.

3. What was the Method—the manner, the process, or processes—by which man came into conscious being on our planet, rising into rationality, asserting his sway as the principal inhabitant of the earth, and discovering in himself the ability to consider his own thoughts and actions as a study in natural history?

These questions, we repeat, may not

exhibit in his feeble intellectual activities at least the premonitions of curiosity about the genesis of his tribe—the origin of his kindred and himself. As for him whose thought and imagination under the inspiring influences of the civilized life have taken wing across all floods and continents, how keenly, how eagerly does he in his flight glance eagle-wise to



LANDSCAPE OF THE PLIOCENE PERIOD.—SHOWING ENVIRONMENT AT THE TIME OF MAN'S APPEARANCE.—Drawn by Riou.

be easily put aside. It is in the very nature of man to inquire diligently and persistently into the time, the place, and the circumstances of his own origin. The disposition to search all the fields of knowledge in quest of light on these inquiries is as universal as the human race. In some the impulse is stronger; in others, weaker; but in all it exists. It might be difficult to find in any quarter of the earth a barbarian so low in the scale of mental development as not to

Eagerness of man to ascertain the facts of his origin.

right and left in the hope of discovering the true beginning and fountain of things!

In what spirit, then, should these great and vital questions be approached? Certainly in the spirit of humanity. The honest inquirer must recognize from the first hour of his research the nature and limitations of his own powers and the uncertainty of all the sources of information from which he must draw his materials. Honesty, also, and freedom

True spirit in which such an inquiry should be approached.

from prejudice must be his. Sincerity of purpose must guide him on the way. Singleness of aim must light his course. Fidelity must steady his thought and hand. Simple love of changeless truth must be his inspiration. His great object and passion must be to enlarge somewhat, if he may, for the benefit of his fellow-men the existing treasure of human knowledge; to widen and clear the landscape toward which so many earnest eyes are directed. Not, indeed, to establish some foregone conclusion; not to verify some little prejudice; not to shore up some tottering fiction which the ignorance of men has reared—is the aim and end of the questioner, the real student, the faithful delineator of the concepts and judgments which he has formed of the truth. Not, on the other hand, is it part or purpose of his work to assail, to destroy, to obliterate the existing forms of knowledge and belief, or to disturb with wanton hand any of the oldtime concepts which the mind of his ancestors has evolved as the best expression of its hopes and fears. But rather must the true inquirer hold all things in equal and steady balance. With dispassionate purpose he must consider and weigh every existing fact—every form of human thought and belief, every tangible institution and practice of mankind.

But in what attitude does man stand with respect to the time and place of the beginning? What is his condition of mind relative to the problem of the method and circumstances whereby mankind began to be on the earth. Perhaps the best of all analogies bearing on these great questions are drawn from the individual life and experience, from the recollection which each member of the race has of his own origin and of the

Individual life furnishes a clue for investigating the race-life.

conditions under which his existence was begun. This is a consideration which has been astonishingly neglected. The experiences of the individual man with respect to himself are so obvious that he has failed to note their significance with respect to the larger problems of his tribe and race. If we take our stand, as it were, inside of ourself, and look backward along the lines which we have traversed from our individual beginning in the world, we shall find those lines converging in the distance, first into youth; then still more narrowly into childhood; and finally to a point in infancy.

As we look steadily, patiently, in the direction from which we have come, we see that the nearer landscape of our life is flooded in every part by the broad light of consciousness. Further down the converging lines the light is less abundant, the objects less distinct. Here and there already in the second decade of our life memory begins to fail; the clue is lost, and we discover many patches of obscurity, many parts in which the light rests only on the rim of the hills or on one side of the forest. The valleys and depths and remoter fields fade into twilight, indistinctness, and thick mist. Further on, and near the beginning of the first decade, only a few luminous points are discoverable. The father's face, the brother's pudgy hand, the mother's blessed bosom are still seen; but beyond that the obscurity is complete. We know, indeed, from testimony *aliunde* that we had an existence beyond the point to which the utmost stretch of memory can reach. We also know from observing the infancy of others that our own state for the first two years or more of our being was one of utter unconsciousness. It

What may be discovered in the backward look.

was a state of mere potentiality and growth. No genius, not even the powerful soul of Plato or Shakespeare or Goethe, has been able by the backward look to pierce the impenetrable shadows of his own infancy; to know by experience what manner of creature he was at the beginning; to declare by direct knowledge through what stages and moods of evolution and tentative flight his own infant spirit first raised the wing and sought to journey through the boundless air.

But, as we have said, we are able to discover much of interest with respect

Methods of knowing the history of the unconscious epoch.

to the epoch of unconsciousness in the beginning of our own individual lives.

We were *observed* in that stage of our existence by our parents and kinsfolk. The nurse was busy with her eyes and her garrulous tongue. Tradition was rife in the family and neighborhood relative to ourselves. The first motions of intelligence were noted by those who were keenly anxious for our welfare and promise. Tales were told about us, having their origin in truth and their ornaments in loving fiction. Presently, with the dawn of consciousness, this nursery history of our lives was recited in our hearing, and we imbibed it as the true narrative of our previous career—but by no means sufficiently wonderful to meet the demands of fancy. Therefore must we ourselves expand and exaggerate the story. We became interested in our past, and carefully stored the vivid memory of childhood with the poetic and half-fanciful stories of our former state. Thus around the life of every youth are thrown the traditions and legends of his own unconscious existence in infancy; and these forms of half-knowledge he is constrained in after years to accept and to use as the best

attainable evidences of his progress by growth and evolution through the first epoch of his being.

From all this we are able to draw some useful analogies with respect to the infancy of the kindred to which we belong, the people of which we are

Useful analogies; the individual an epitome of race.

the individual parts, and finally the race of mankind within which we are included. It is only in recent times that these analogies have come to be regarded at their true valuation. More and more it has come to be accepted as true that the individual is the epitome of the species to which he belongs. More and more the reasonableness of that hypothesis has become apparent which places the life of the race in analogy with the life of the individual. More and more we have been able to detect in the various stages of our individual lives the likeness and miniature forms of the corresponding stages in the history of the human race. Some of the ablest and most satisfactory expositions of the great fact called civilization—of its origin, its materials, its conditions, its growth, and tendencies toward maturity—have been produced by the process of comparisons instituted between the life of the individual, the life of the species, and the history of the race to which he belongs.<sup>1</sup> With these facts, however, we are not at the present immediately concerned.

If, then, the human race may be looked upon as an individual entity or being, having an unconscious infancy, a half-conscious childhood, a wholly conscious but erratic and visionary youth, and a rational and reflective maturity,

Sources of light and information for the present inquiry.

<sup>1</sup> Draper's *Intellectual Development of Europe* is the finest of the treatises in this department of modern inquiry.

what facts or circumstances, what conditions of knowledge may be said to exist from which evidence and information may be drawn concerning the earliest stages of human existence—that unconscious and infantile condition beyond the reach of all ethnic memory—beyond the horizon of light and vision? Are there any sources of thought and reflection, sufficiently matured to take the name of knowledge, from which, as if by a mirror, light and intelligence may be thrown into that remote region below the dawn of our race-consciousness?

Fortunately—most fortunately—such sources of knowledge do actually exist. Most of them have been discovered in comparatively recent times. Several fields of investigation have opened their

treasures to the human mind, and with every stage of the exploration new and valuable evidence has been gained relative to the great questions which we

have placed at the head of this chapter. A whole group of sciences, growing ever more luminous with each additional



ORIGIN OF MANKIND—WHEN AND WHERE?  
 Drawn by Emile Bayard.

discovery, have yielded their results, from which ever-improving generalizations may be drawn regarding the primitive stages through which the race of

man has come into its present state. The principal of these sciences are as follows: Astronomy, Geology, Archæology, Palæontology, Anthropology, Ethnology, Ethnography, Tradition, and History—the last named including the poems, the dim chronicles, and misshapen annals in which the records of the Ancient World are mostly contained—and finally Chronology proper.

Cycle of sciences that may be made to testify.

Astronomy, Geology, Archæology, Palæontology, Anthropology, Ethnology, Ethnography, Tradition, and History—the last named including the poems, the dim chronicles, and misshapen annals in which the records of the Ancient World are mostly contained—and finally Chronology proper.

edge which considers the distribution, motions, and characteristics of the heavenly bodies. It has for its first and immediate subject the solar system, of which our own earth constitutes one of the minor members. Dating from the days of Galileo and Copernicus, the science has passed through several stages of development, the last of which, known in the language of our times as the New

Astronomy contributes important data for history of life.



BEGINNING OF THE CONSCIOUS LIFE ON THE EARTH.—Drawn by Riou.

At first view it may be difficult to perceive in what way the sciences here referred to can give any satisfactory evidence relative to the origin and primitive life of our race. But a more careful consideration of the subject will at once discover the bearing of the same, each and several, upon the great questions before us.

1. *Astronomy*.—By this science we understand that branch of human knowl-

Astronomy, has concerned itself particularly with the ultimate constitution and philosophy of our own solar group, and, indeed, of the whole sidereal heavens.

One of the branches of this great theme has been a specific inquiry into what may be called the Order of Creation. The subject embraces, in the half-poetical language which it has adopted, such topics as the birth, the youth, the

Order of vital creation determinable from world history.



maturity, the old age, and the death of worlds. The stages through which planets—all planets—pass in their evolution from a primordial condition into worldhood have been determined with such an approximation to certainty as to furnish a clear concept of planet history. The inquiry has entered still more profoundly into the subject, showing that world-growth is correlated in all of its stages with certain possibilities of life. More precisely it has been shown and determined that the great fact called life is related with a certain stage or stages of planet growth, and that the former does not and can not exist except under the conditions which are present at those stages of world development.

This signifies in exact language that the infancy of a planet can not bear life. Many of the conditions then present are utterly incompatible with the existence of vital phenomena in any form. It is doubtless true that every planet passes through a series of primary evolutions, tending ever to worldhood proper, before *any* forms of life can exist therein. At a later stage certain forms of vital existence appear, and still further on higher orders, until at length animated existence, properly so called, is seen in the new world, inhabiting its surface, teeming in the waters, or traversing the air. We are thus introduced in planet history to what may be called the Epoch of Life.

In the latter part of this epoch intelligences such as ourselves, a race like mankind, may appear and find the means of continuity. For a period of variable but great duration this high form of animated being, intelligent, conscious, rational, becomes the principal inhabitant of the planet under consideration. Speculative astronomy does not hesitate

to go beyond the limits of this period, and to point out the old age of worldhood, the disappearance of life from the planet, and, in a word, the death of the exhausted sphere. In so far as investigation, the principles of right reason, deductions warranted from existing data, and conclusions reached by scientific methods may go toward determining the past and present condition of our own planet with respect to the Epoch of Life,—to that extent is the science of astronomy available as one of the sources of information relative to the age of the human race, the date of the infancy of man, the time of the beginning.

2. *Geology*.—Close after this astronomical view of world-life and man-life comes the science of geology, with its vast treasures of information and suggestion. Geology takes up the investigation of planet life where astronomy leaves off. The latter deals with worlds in their relation to each other, and incidentally with world constitution. The former investigates the history of our own earth in particular. The object of this field of inquiry is to trace the progress and development of our planet from the date of its separation from the primordial mass of matter through all its stages of evolution down to its present condition. Such a field of inquiry involves the consideration of the physical bases of all forms of earth-life. It is out of geological relations and conditions that all vital phenomena arise. Given a thorough establishment of geological knowledge—a complete determination of the succession of events in our world history—and the true place of vital phenomena therein can be determined with approximate certainty.

The successive stages in the history of our planet are correlated in every part

The Epoch of Life is adjusted to certain stages of worldhood.

Geology indicates the order and place of vital phenomena.

with the successive stages in the history of life. The position of our own race in the general scheme is determinable by a careful observation of the succession of facts and events in the physical order of the planet. The earth has received the markings and the vestigia of all the orders of life, each in its turn, and has fortunately preserved, as if for the wisdom of after ages, very intelligible fragments of testimony respecting the time and circumstances at which each new order of living beings began to exist, and the successive stages through which the same passed in its differentiation, growth, distribution, and maturity.

3. *Archæology*.—Just as geology lies back upon astronomy for its foundation, taking up the history of life where the latter leaves off, so archæology rests in turn on geology. Whatever evidences of the existence and sequence of vital phenomena have been left in the astronomical and geological records of the universe have been in the nature of tracks, traces, impressions, which, while they are sufficiently distinct and unmistakable in character, are not in the nature of remains left behind by the living beings that have inhabited the earth. They are thus considered by the two sciences referred to as the testimony of the former presence of things unseen. Besides such markings and indentations, so to speak, which the creatures endowed with life have left in the organic structure of nature, there are many direct remains of the living beings that have flourished in the different epochs of world history.

Our own race has done its part in this respect. The earth is full of *reliquæ humanæ*. This is to say that the race of man has left its débris behind in

every part of the world where human beings have existed. It has been in the nature of the ingenious and highly intellectual beings of whom we are ourselves the living exemplification, from whom we are descended, with whose methods of life we are so intimately acquainted by experience and observation, to handle the materials of nature, to modify them, to adapt them to various uses, and then, with death or removal, to cast them aside. Human relics are thus scattered far and wide on the surface and under the surface of the earth. Many of them are of imperishable materials. They survive, not only for years and for centuries, but for immeasurable eons of time. Nor is it possible that the existing race of men should be mistaken as to the origin and character of this large detritus of the human race. It bears in all its parts the marks of an unmistakable intelligence which divides the relics of man from the remains of all other creatures.

Within the present century the scientific consideration of the *reliquæ humanæ* has been undertaken. That vast and important domain of knowledge called archæology is the result. In its application it is partly prehistoric and partly historic; that is, one branch of the inquiry reaches far back into the geological history of our planet, covering the period anterior to the first expressions of human consciousness in the form of traditions or written records. The other branch relates to the conscious period of our existence as a race; that is, to the epoch which has been covered more or less perfectly by those annals and monuments which men have invented as the means of expressing and preserving the story of themselves.

The earth preserves the vestigia of vital phenomena.

the general scheme is determinable by a careful observation of the succession

Reliquæ humanæ; nature of the relics of man-life.

Place of archæology, and its subject-matter.

taking up the history of life where the latter leaves off, so archæology rests in

Historic and prehistoric applications of archæology.

In its methods and principles, the science of archæology confines itself strictly to the works of man. These are considered with respect to their geological surroundings. The scheme of geology being understood, the relics of the human race are estimated by their juxtaposition and character. The flora and fauna of past ages, the order of

The science considers the ordo of facts in the history of life.

have been exercised. It thus happens that archæology furnishes to the inquirer much valuable and almost direct evidence as to the time when mankind, as a race, began upon the earth.

4. *Palæontology*.—Closely related with archæology is the next branch of inquiry, palæontology, which treats of the structure, affinities, classification, and distribution of the prehistoric plants and ani-



A



B



C



D

ARCHÆOLOGICAL EVIDENCES OF MAN'S EXISTENCE.

A, megalithic covered structure ; B, stone circle—horizontal and vertical views ; C, mound with stone entrances ; D, megalithic ruins of causeway.

which has been already geologically determined, holding the remains of man's work and workmanship in a matrix, furnish therefore an ordo which can not well be misapprehended. The bottom principle of the science is that there is a definite correlation between all the arts in the various periods of human development and the world history in which and on which those arts

imals which have existed on the earth. These are classified and arranged according to the natural order in which they have succeeded one another as species of living organisms. The relations between plant-life and animal life are established, and the dependencies of animate upon inanimate forms of existence scientifically determined. Not only the surface

Scope and limitations of palæontology.

of the earth, but the crust of the earth to a considerable depth has been explored in the investigation; so that palæontology, like archæology, of which it is properly a branch, may be said to rest firmly on a geological basis. In its after developments it yields the two sciences of botany and zoölogy, each of which has its roots and historical antecedents in the prehistoric and extinct flora and fauna of the earth. At many points palæontological research touches the existence and conditions of man in the geological and archæological ages. It considers him, indeed, as the culmination of the animal races whose antiquity is in the rocks and whose present activities are displayed on the dry land and in the waters of our globe. The science thus furnishes another of the collateral and contemporaneous evidences of the primitive state of man, and incidentally of the epoch at which our race appeared on the earth.

5. *Anthropology*.—Still a fifth science has recently been developed which in some of its subject-matter touches the great question of the antiquity of man. This is anthropology. The nature and limitations of this important branch of inquiry have scarcely yet been clearly defined. It considers the race of man as a fact in natural history. It looks at the race, first of all, from the physical, or material, point of view. It considers the form and structure, the adaptations and relations of the beings called men, as though they were a genus of animals. Anatomy and physiology thus become subordinate branches of a higher anthropological study. But the new science also brings into view the intellectual and moral nature of mankind. It considers the evolution of mind and all of those important facts and principles

which in their scientific expression go by the name of psychology.

The inquiry also extends backwards along the lines of human development, and becomes historical in its character. It investigates the various stages through which the race of man has passed. It follows the clue in the direction from which that race has emerged until it enters the domain of archæology, and with that science divides the prehistoric relics of mankind. The line of division is made on the principle that the remains of what man has *done* shall fall to archæology, and the remains of what man *was* to anthropology. The two sciences are thus allied, the one rising out of the other in the same manner in which archæological investigation springs from a geological basis.

It has long been known that the remains of men have survived from the prehistoric ages. Such remains are, for the most part, osseous in character.

It will be seen at a glance that such relics are strongly discriminated in their nature from those which consist of the fragments of man's workmanship, as, for instance, his implements, utensils, apparel, etc. While it is true that, for practical purposes, the skull or other part of a prehistoric human being and the hatchet of stone or bronze which the prehistoric man was wont to wield in his battles for existence may be considered together as common evidences of his existence, and, in a certain degree, of the time at which he flourished, yet the two relics, as will be seen at a glance, belong really to wide apart branches of investigation. The one is a part of the organic structure of the man of the archæological period, and the other is a part of what may be called his civilization.

And divides with archæology the relics of mankind.

Two classes of remains of man's presence and activity.

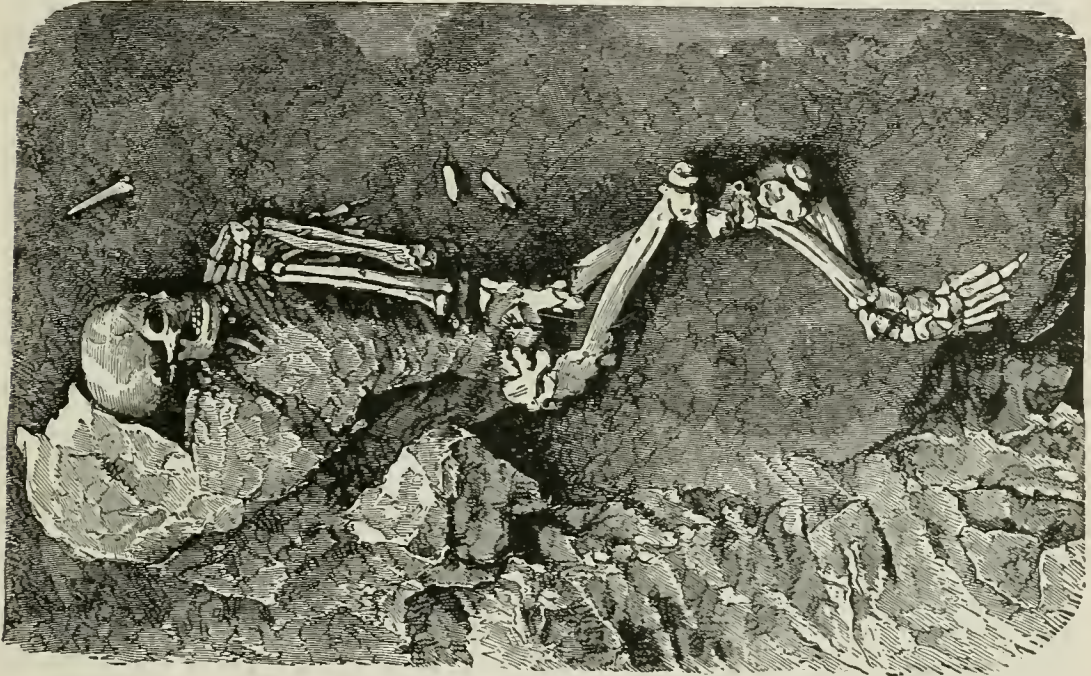
Anthropology makes man himself its subject-matter.

The significance of the one is anthropological, while the other is a part of the subject-matter of that prehistoric history called archæology. It will be seen in the following pages to what extent anthropology, the study of man as man, has thrown light upon the date of his origin—the time of his appearance on the earth.

6. *Ethnology*.—Springing out of the last-named department of investigation, and constituting in some sense a sub-

of men. It deals with the physical conditions under which mankind have existed; the stages of culture through which they have passed; the various aspects of social life which have presented themselves in different ages; and with the universal laws of progress in accordance with which our species has moved forward from the most primitive to the most recent stage of the human evolution.

Beginning with the most rudimentary arts which were invented and practiced



REMAINS OF PREHISTORIC MAN.

dinate division thereof, next follows ethnology. This includes a specific department of study, the subject-matter of which is the different tribes, kindreds, and races of men that have inhabited the earth, considered in their relations, affinities, derivation, descent, and general characteristics. Ethnology is a truly philosophical inquiry into the origin, differentiation, development, and distribution of the different families constituting the originals of the present races

Ethnology springs from anthropology; its materials.

by men, and with the coarsest needs by which the primeval race was pressed and held in thrall, ethnology proceeds confidently by comparison, by hypothesis, by analogy, along the lines of growth and expansion until it reaches the grand discoveries and noble impulses which constitute the ripe fruit of the most recent epochs. The science is patient and laborious in its methods. It stoops to consider the food-supply whereby human life, in common with all other animal

Deals with evolution and phenomena of race-life on earth.

life on our planet, has been supported and perpetuated; the sexual relation, being the general term to express the methods and practices of the various tribes and peoples as it respects the union of the man and the woman for the increase of the race—the laws and the sentiments under which the sexual alliance has been sanctioned and encouraged by

eral rules of conduct which men by experience and right reason have invented in different ages for the subordination of themselves in communities and states; and finally, the religious systems which have appeared in many forms, but with many common features, as the expression of the hopes, the fears, the beliefs, and yearnings of the human spirit in its



PRODUCTION OF FIRE—THE FIRST ART PRACTICED BY MAN.—Drawn by Emile Bayard.

mankind on the way from rude savagery to a highly civilized condition; the phenomena of language, including a study of the affinities and connections of the different tongues in which the families and kindreds of men have endeavored to give a rational embodiment to their thoughts, beliefs, and visions; the technology, or art interpretation of the various peoples; the government, civil and social, and the laws constituting the gen-

discontent with the things seen and its aspirations for the things eternal. Following the clues furnished by ethnological research, the inquirer is enabled to make his way along the course from which men have descended, and to learn much of the time and circumstances under which the race began its existence on the earth.

7. *Ethnography*.—It has been proposed by modern scholars to separate that part

of ethnology which describes the customs, laws, and habits of nations from the principal science, and to name the new division ethnography. Of this branch of inquiry it is the proper function to describe the phenomena of race rather than to explain the same in terms of the known. The office of the one is delineative; of the other, expository. To the one belongs the descriptive and pictorial part of race inquiry, and to the other the philosophical interpretation of the things described. The relation of the two sciences is analogous to that existing between geography and geology, though the difference between the latter is more pronounced and conspicuous than that between the former. The ethnographic inquiry is much more easy and superficial than ethnology, inasmuch as the latter looks more profoundly into the subject-matter of the investigation, and must proceed by wider and more difficult generalizations.

The data of man-life obtained by mere observation and description are easily classified and arranged according to the nature of the subjects to which they refer. But the interpretation of the great facts in which the origin, the character, and, in a word, the history of the different races of men are embodied, requires a breadth of research and a scope of vision worthy the name of genius. In so far as ethnography preserves by careful delineations the characteristics of primitive peoples, in so far as the science notes the rate of departure and the extent of the divergencies among the ancient races of mankind, to that extent it affords valuable suggestions relative to the time of the beginning.

8. *Tradition and History.*—We have now followed the lines of scientific evo-

lution from a high view of world history downwards to man history proper. As in the case of the individual, there comes to pass a time in the progress of kindred and tribe and race when consciousness appears. When this happens in the individual, he at once begins, as we have seen, to consider himself, to remember with more or less distinctness the principal events in his past career, to speak of them as matters of importance to himself and others. In like manner the rise of ethnic consciousness leads at once to that peculiar, reflective, and communicative form of mental activity which we call tradition and history. When the proper stage has been reached, the tribe that was, becoming a people, begins to consider itself. The wisest members of the ethnic family, the most vigorous in thought and imagination, frame from the vague legends that have drifted downwards—assisted in rare instances by the monumental evidences which their race has left behind—at first an incoherent, and afterwards a coherent, account of the past.

Tradition and history thus become the first formal expression of national consciousness. Such expression is older than any other form of literary product.

It may be indeed that the earliest story-teller of mankind takes for his legend the vehicle of metrical language, but the subject-matter is essentially historical. The man-life thus begins to be delineated. Of a certainty everything is at the first local and peculiar. The myth-making power is busy in the production of the narrative. Fact and fiction are equally present in the concept and the work. The historian of the dawn is at once a sage and a bard, an annalist and a rhapsodist, a story-teller and a singer. What

Narrower and more special field covered by ethnography.

In what manner tradition begins to be evolved.

Ease of classification and difficulty of interpreting.

Blendings of tradition and history in the dawn.

he produces blends henceforth with the memory of his race. It is imbibed as a verity, and is used by future chroniclers and poets as the subject-matter of their work. The volume of tradition expands rapidly, and is to a certain extent rectified by the improving judgment and critical skill of after times. But ages go

history of mankind continues to flow in the mighty stream of history and to color all its waters.

But what is the difference between history and tradition? Is not the one the other, and the other that? Is it possible to discriminate with exactitude between that form of intellectual product



A CHALDEE RHAPSODIST RECITING (MODERN).—Drawn by Barbant.

by ere the elements of myth and tradition are eliminated from the narrative. Mankind advance to the possession and civilization of the great continents. Other branches of knowledge spring from the mental fecundity of the race. Nations react upon nations. A vast civil and political life appears. The mind improves by culture and discipline; and yet the fictitious part of the early

which goes by the name of tradition and that other form which is called history? May these two parts of the intellectual work of our race—its history and its tradition—be separated the one from the other and be considered apart? Certainly the two facts to which these terms refer are not the same fact; and yet the blending of the one with the other is so

*Distinctions to be drawn between tradition and history.*



intimate and universal as almost to preclude the division of the one from the other. Tradition is a general term, signifying any form of story relative to past events which has been transmitted from generation to generation simply by the vehicle of human memory and oral utterance. Tradition depends for its existence upon the two faculties of memory and speech. It is perpetuated by repetition. True, a tradition may be written, and may in this manner come at length to masquerade in the form of history; but the fact that it is written does not alter its essential nature. If the subject-matter have been handed down by memory and oral narration, repeated from one age to the next, the character of tradition in the thing narrated is ever afterwards present, though it be written.

From this consideration it will at once appear how variable is the value of traditions as measured by the length of time between the date of the thing constituting the subject-matter of the story and the date of the record in which it is contained. If a great period of time have elapsed between the one and the other—if the tradition have thus been subjected to the modifications, exaggerations, and reflections to which all stories are subject so long as they dwell on the tongues of men, then, indeed, is the tradition of small importance considered as a material of history. But if, on the other hand, only a single generation or a fraction of a generation have intervened between the date of the event and the record which preserved the story, then we may allow to the tradition a weight almost equal to that of true historical narrative.

The question will at once arise, Is not all history dependent upon or rather

derived from a traditional origin? Of a certainty every narrative, however immediate and exact, must have passed through the medium of consciousness in the author, and to that extent it is tinged with the quality of tradition. But if the author, while the event is still immediately present to his memory, makes record of the fact which he has seen and known, if he follows the criterion to which Æneas so confidently refers, and speaks only of the things "of which he has been a part," then, indeed, is the traditional element so slight that it may be well neglected. Cæsar in his tent by night recording the incidents and results of the day's conflicts, thus becomes the exemplar and type of the historian and his work pure and simple.

But of a certainty many other qualities besides this of the contemporaneity of the witness and the event must enter in before the work can be called true history. The definition of this great and important form of human knowledge and achievement narrows from age to age and becomes ever more exact. At the present day it is limited to that species of authentic narrative of human events which is arranged on the lines of the forces which produced them; that is, on the lines of universal sequence and causation. Chronicles and annals, merely such, are no longer considered as history proper. Neither is that form of dissertation which embodies the speculations of a writer with regard to the facts and tendencies of human society to be reckoned as true history. The latter implies that the personal element in the narrative shall be as little discoverable as possible. The historian in the ideal history is as little seen as Shakespeare is seen in the tragedy of *Hamlet*.

How history arises from traditional lore; the definition.

Variations in the authenticity and value of traditions.

The historian is an interpreter of events; but the interpretation is not colored—does not suffer diffraction—by the medium through which it passes. The camera is essential to the photograph. The easel, the palette, and the brush, aye, the arm and hand and eye of the master are essential in the production of a painting. But the camera is not seen in the sun picture; neither are the easel, the brush, the hand, and the eye of the artist seen on his canvas. So also of the historian. Beginning where tradition leaves off, freely employing every form and product of human knowledge, gathering in materials, especially from contemporaneous annals, chronicles, dramas, and fictions, he discovers wherever he may the threads of causation, of antecedence and consequence, and along these fine nerves of the man-life he builds his narrative on the principle of the photograph or the reproduction of a landscape.

But the thing which we are here to consider is not so much the essential nature of tradition and history, not so much their differences and dependencies, but rather the testimony which these two forms of human knowledge may bear with respect to the time of the appearance of our race on the earth, the date of the beginning. It is in the nature of tradition, then, to deal directly with these great questions. The brain of the primitive man was rife with conjectures and dim memories of his former state. Doubtless his recollection of the past had much of the nature of a dream. Doubtless the former experiences of the half-conscious race were transmitted to him with his blood. Doubtless the vicissitudes and the vivid impressions which time and circumstance had made

on his unthinking but highly sensitive ancestry recurred in his own thought, and constituted a sort of basis on which all of his theories respecting his past history were built. As for the substance of these theories, that was gathered from the folklore of his tribe.

Not deficient or inactive was the talk passion among primeval men. In this respect the various peoples differed greatly, some being comparatively taciturn, little disposed to communicate with their fellows, and others having a natural enthusiasm and gift in the commerce of speech. Some of the most intellectual and vigorous of the ancient races were loquacious to a degree that can not now be well appreciated. In such cases much of the reflective talk of the tribe took the form of traditional lore. The origin of man was the keynote of the oldtime story. The primitive peoples, especially those gifted with imagination and a highly developed language, were ever busy with the theory of the genesis of the race.

At the same time they took up the problem of nature outside of man. The forms, aspects, and phenomena of the material world demanded an explanation as well as man himself. Mythology, legend, and tradition were soon rife, and were infinitely inflected according to the fancy and fragments of information which the various tribes possessed. All agreed that *some* explanation must be given of the time, the place, and the circumstances of man's appearance on the earth. All were agreed that in some way he had come. None conjectured that his past existence was an eternity. Each had the concept of a previous condition in earth and heaven wherein man had no part or lot.

Impersonality of the historian; sources of his materials.

colored—does not suffer diffraction—by the medium through which it passes.

Work of the talk passion among the primitive races.

Tradition deals directly with the genesis of mankind.

nature of tradition and history, not so much their differences and dependencies,

Nature, also, demanded an interpretation.

It thus happened that each race, according to its light, according to what it had received from older members of the tribe, according to its concepts of the methods and possibilities of the case, produced the story of man-life in the earth. The story was from one point of view as variable as the fancies of the

Primitive concepts were generalized into a philosophy.

with respect to the remote past. It might be said, even at this late day, that the whole intellectual structure of the world rests on the concrete of tradition. He who therefore would investigate for himself and for others the primitive state of man—would in particular inquire into the probable time and conditions under

Beliefs of mankind derived in large measure from tradition.



LANDSCAPE OF THE BEGINNING.—Drawn by Riou.

race were vague and their creative powers capricious. But from another point of view there were common features in the traditions which now gained currency, and these common features at length constituted a sort of body of philosophy which was accepted with more or less reservation by the great minds of antiquity.

From all this it must readily appear how great a part tradition has performed in establishing the beliefs of mankind

which men began to be among the living creatures of our globe—must carefully consider the traditions which the races of men have formed with respect to themselves.

Here, then, true history begins. As it was the first, so also it seems to be the last and greatest of the products of the human mind. As it was the earliest endeavor of the conscious race to express its concepts of itself, so also is it the

Office of history to solve all problems of man-life.

latest endeavor of that same race to explain, interpret, and elucidate the true course and character of human affairs in the earth. It goes with the saying that it is sooner or later the function of history to answer in a satisfactory manner the all-important questions which stand at the beginning of the present inquiry. In doing so the science—if science it may be called—draws within its compass all the results which have been reached in all the fields of human inquiry.

Above all other branches of knowledge, history sits and broods, with wings outspread as though the universe of things were pregnant and must bring forth under the shadow and power of thought. It may be truthfully said that every other form of learning tends to this. True history is the generalized result of all things that have been thought and done by men. When complete, it must of course take cognizance not only of the genesis, but also of the final destiny of man. For the present it may be freely confessed that true historical inquiry has not extended very far into the past, and that it has still more feebly divined the future. Nor may the historian of this age with right reason hope greatly to extend the domain of this science of the sciences in either direction. He may, however, properly aspire to place in better light that part of human history which relates to the primal appearance of mankind on the earth, and to throw some pencils of reflected light on the time and circumstances of the beginning.

9. *Chronology*.—Out of history, and as a department thereof, has arisen chronology as a special branch of inquiry. It may be said to be at once a factor and a result of all historical investigation. With the ancients it meant properly the

computation of time. With the general analysis and classification of the sciences it has come to be a consideration of the time-order of the successive events which have occurred in the history of the world. It is the function of chronology to determine, not only the particular dates at which the events of the past have happened, but the order of their succession and the intervals of time between them. It thus furnishes the framework of all things soever that have occurred in the human universe. There is a sense in which the whole structure of tradition and history rests upon the chronological foundation. Even the ancients who gave, sometimes in charming manner, the narrative of events, paying attention to the dramatic order—which is only the natural order of all things soever—and who were as a rule given to the neglect of dates, nevertheless showed considerable appreciation of the importance of chronology. The true science, however, is of modern origin; its exact phases belong to the last quarter of the eighteenth century, and more particularly to the closer investigations of the present age.

Chronology finds its possibility in the movements of the heavenly bodies. The primary facts are the rotation of the earth on its axis and its revolutions around the sun. The abstract concept of time is more difficult to grasp than might at first thought be easily apprehended. This is to say that in the absence of tangible phenomena, such as those produced by the movements of the spheres, it might be difficult to form a true notion of that abstract continuance or duration to which we give the name of time. But the revolution of our globe, and the resulting aspects of the heavenly

*Chronology a branch of history; its proper function.*

*Supreme place of history in the realm of human inquiry.*

*Foundation of chronology in the rotation of the planets.*

bodies as viewed therefrom, divides duration into parts, and furnishes an easy calculus for time measurement.

Out of nature a scale may thus be constructed to which human affairs are adjustable, and in the light of which they are most easily comprehended.

Chronology furnishes a sort of time *locus* for everything, and it is by the employment of such a scheme that the vast and orderly progress of human events is first discovered. All historical perspective depends upon the chronological relations of the objects of the human landscape. There is, first of all, a horizon. The remoter facts stand far back against the dim line which divides the known from the unknown. The size, appearance, and relative importance of such facts must be estimated by their distance from the observer. The objects of the nearer landscape, as judged by the senses, seem vast and tall. Without the aid of the

Historical perspective depends on chronological order.

chronological perspective the concept of the past would be utterly distorted and ludicrous.

We have here reached one of the particular grounds of the inquiry constituting the theme of the present book, namely, the time of the beginning. If the scheme of human knowledge were perfected the inquiry would be simply chronological and nothing more. But the reader must bear in mind that the thing attempted is to *extend* the chronological lines into that obscure domain under whose mists and shadows the unconscious part of human history was transacted. For this reason all the preceding sciences to which we have referred are called into requisition, in this part or in that, in the hope of extending the scheme of chronology, not indeed with exactitude, but with some approximate certainty to the infancy and childhood of the human race.

If knowledge were complete chronology would end the inquiry.

CHAPTER II.—ASTRONOMICAL ARGUMENT RESPECTING THE ANTIQUITY OF MAN.



FROM what has been presented in the first chapter we may discover the general sources from which information and suggestion may be derived with respect to the antiquity of man. The various branches of science to which we have referred in the preceding pages are the *witnesses* which may be summoned to give testimony on the great question involved in this inquiry. It will be seen at a glance that, for the most part, such testimony is not direct. In some instances, particularly in archæol-

ogy and geology, the evidence may be considered immediate and indubitable. But in most respects the scientific knowledge which we possess relative to the time, the place, and the circumstances under which the human race made its appearance on the Earth is indirect and only by reflection. It is as though a mirror were held aloft in the surface of which we may see the objects and movements below the horizon. He who studies the prehistoric career of mankind by the aid of the sciences to which we have referred, is as the observer who, sitting by the window of the flying car,

Science testifies indirectly to the time and order of life.

may see the moving spectra of distant landscapes appearing and disappearing among the shadows of the other side.

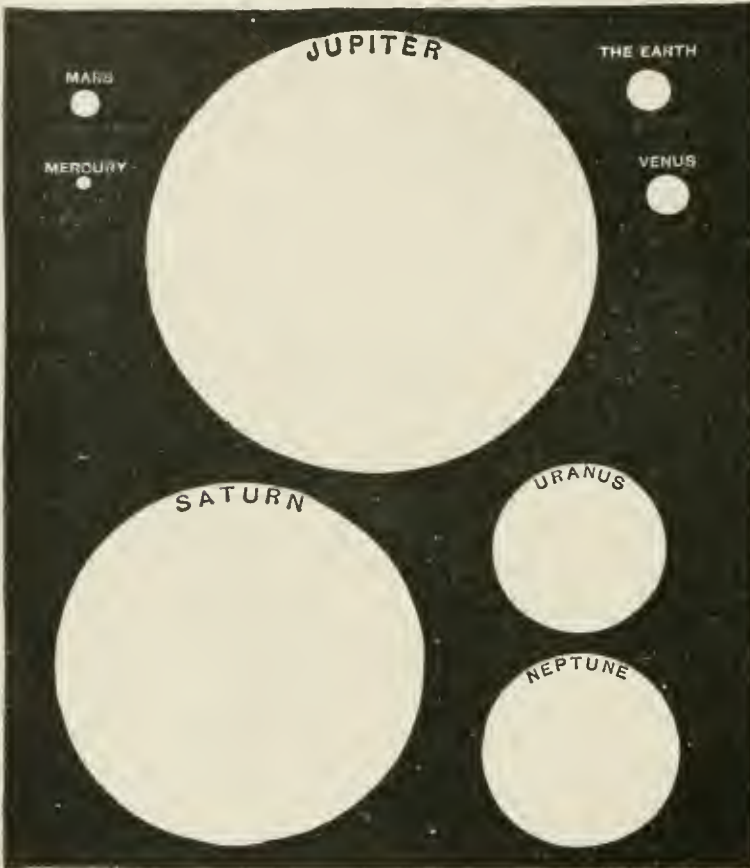
On the whole, those forms of human knowledge which we now possess, bearing on the question of the relations of world-life and man-life, are in analogy with the witnesses who observed our indi-

Authenticity of evidence for individual and race compared.

tions of right reason, more conclusive as to the things in question, than is the evidence derived from the branches of knowledge referred to with respect to the time and conditions of the infancy and childhood of mankind. But in other respects the latter evidence is the better of the two. It is, on the whole, less colored, less perverted by the im-

perfections of merely human testimony, less affected with errors arising from what is called the personal equation, than is the purely oral tradition handed down by our fathers and ancestors with respect to the unconscious epoch in our individual lives or in the lives of themselves. We may, therefore, in a general way take our stand among the sciences above delineated, and interrogate them with some antecedent expectation of profit with regard to the place of the appearance of primeval man.

If we take a critical survey of our solar system, occupying the astronomer's point of



COMPARATIVE SIZE OF THE PLANETARY WORLDS.

vidual development through the unconscious stages of infancy. In some respects the evidence which we possess with regard to our own growth and conduct during the unconscious stage—with respect to the date and circumstances of our birth and the events with which the first years of our individual life were associated—is superior in quality, more satisfactory to the condi-

view, we find that system to be in various stages of development as it respects the great fact called life. We here plant ourselves upon the assumption that the phenomena of life are generally distributed through the visible universe. The discovery in our own age of the fundamental identity of the stellar and planetary materials furnishes

Probability of the diffusion of life throughout our system.

a solid basis for the inference of the accompanying distribution of life. It is clearly demonstrable that the small group of worlds with which our own globe is associated are fundamentally identical in structure. From the sun outward to the lone satellite of Neptune no considerable variation has been discovered from the established material unity of the whole group. There is, therefore, in the first place, no perceptible physical barrier to the dissemination of the common forms of life throughout our neighboring worlds. But a stronger ground even than this for the hypothesis of life in the planets is found in the conditions of right reason. That indeed must be a strangely constituted intelligence which can accept the theory of the limitation of life to our own earth. Such a supposition must rather provoke a smile on the countenance of every intelligent being who has risen to anything like an adequate conception of the scale and character of the material universe. To suppose that a single insignificant orb like our own, scarcely discoverable in the multitude of worlds and systems, should be the favored spot in which life and intelligence are manifested, while all the rest of the stupendous universe round about is, as it were, a mere waste of material structure, is to entertain a concept of nature utterly absurd. Such a view is the very essence of that natural, but irrational, anthropomorphic notion of the universe, the existence of which in the mind of antiquity we can well understand, but the perpetuation of which in the era of light and knowledge seems at once unaccountable and preposterous.

The fact of life constitutes, then, the only rational explanation of the existence of the material universe. On any hypothesis material nature can hardly be said to exist for itself. A system of

worlds like our own has no rational explanation except that which is found in the suggestion of an arena of life, and finally of intelligent activity. Let him who will attempt to frame any other explanation of the existence of worlds, any other intelligent or even conceivable purpose for which things are designed or for which they merely exist, and he shall soon find the futility of the effort. Material nature has its *ratio ultima* in the basis which it furnishes for the display of vital phenomena, including intelligence as the highest expression of living force.

It is freely admitted that direct scientific demonstration of the existence of life and intelligence in any world other than our own is not possible in the present condition of human knowledge. It may not be possible for ages to come, or ever possible to the end of our own world-life and the final scene of the present state. One of the elements, however, of all our best attainment is the use of right reason and the ready acceptance of the results to which it leads. We may not admit that the universe is an absurdity. We may not any longer suppose that our own small earth with its burden of interests, to us so overwhelming, is of any superior consequence in the universal scheme beyond what the size, place, and physical importance of our little globe may reasonably imply.

We are thus to consider the system of worlds with which our own is associated as a common system, having common features, obeying common laws, subject to common vicissitudes, and determined by a common destiny. The planets that traverse the adjacent spaces are even as

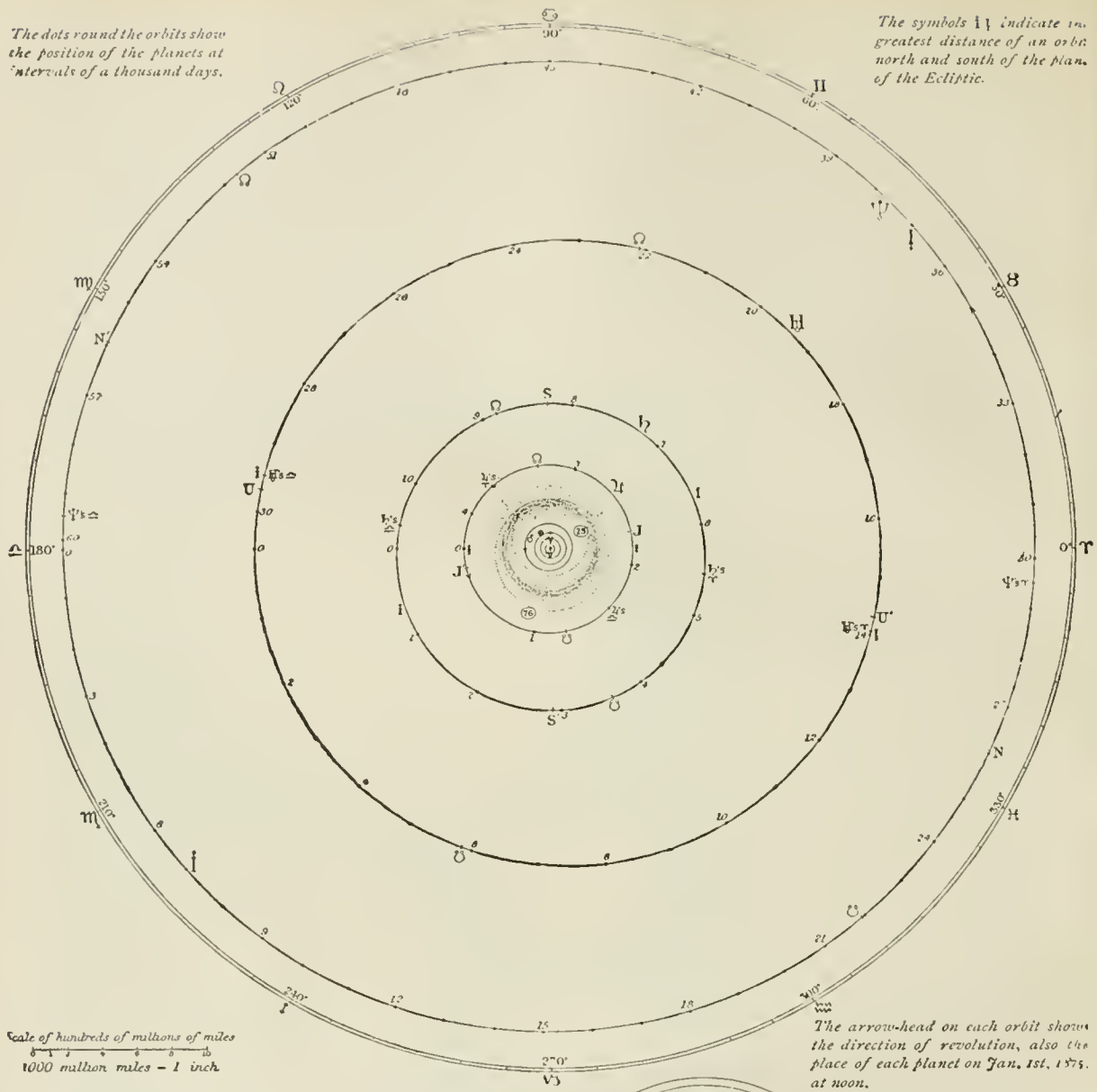
Life and intelligence the explanation of material nature

Reason must aid in determining the purpose of the universe.

General view of planetary system; its common features.

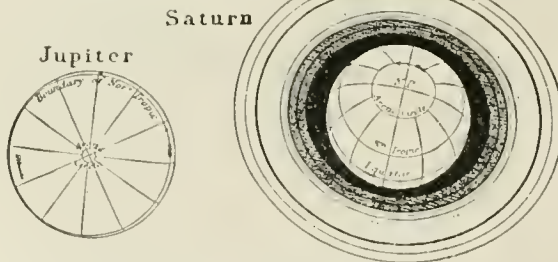
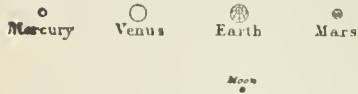
The dots round the orbits show the position of the planets at intervals of a thousand days.

The symbols  $\uparrow$  indicate the greatest distance of an orbit north and south of the plane of the Ecliptic.

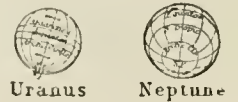


The arrow-head on each orbit shows the direction of revolution, also the place of each planet on Jan. 1st, 1875, at noon.

Orbits of Neptune ( $\Psi$ ), Uranus ( $H$ ), Saturn ( $\gamma$ ), and Jupiter ( $J$ ).



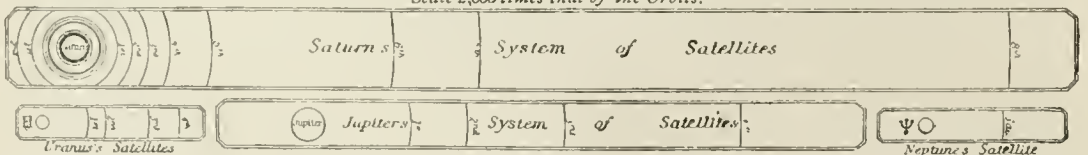
(Zone of Asteroids, and orbits of  $\textcircled{76}$ ,  $\textcircled{25}$ ,  $\textcircled{5}$ ,  $\textcircled{4}$ ,  $\textcircled{3}$  and  $\textcircled{2}$ ). Nodes  $\textcircled{8}$   $\textcircled{8}$ . Near-Apses N. U. S. J.



Scale of Planets 10,000 times that of Orbits.

Jupiter and Saturn are shown in their true axial position. Uranus and Neptune in the axial positions inferred from the motions of their Satellites.

Scale 2,000 times that of the Orbits.



SOLAR SYSTEM—SHOWING RELATIONS OF ORBITS, COMPARISONS OF PLANETS, AND PLACE OF THE EARTH.

Drawn by Richard A. Proctor. F. R. A. S



our own. Some are smaller and some are almost infinitely greater, but all are virtually identical in structure, characteristics, and final purpose. But the worlds above and around us are, nevertheless, greatly discriminated from our own with respect to the stage of development in which they are respectively found. Some are old and some are young as compared with our planet. Some are, doubtless, at the present time in a process of evolution and development almost identical with that through which our own globe passed in geological ages far agone. Others have gone forward more rapidly than the earth, and have reached the condition toward which our planet is slowly, steadily, but surely tending, and at which it must at length arrive under the force of universal laws.

Not only do the worlds differ among themselves with respect to their age, considered as planetary bodies, but they also differ in another ratio with respect to their age relative to the epoch of life. The antiquity of a planet, considered as a planet, does not determine its relation to life and its conditions. This is to say that the process of evolution may go on so slowly in some of the older worlds that they reach the epoch of life at a period much later in world history than do some other planets in which the process of world formation goes on more rapidly. In a general way it may be scientifically alleged that the smaller globes, having once assumed the planetary form and condition, sweep on more rapidly toward the epoch of life than do the larger, in which the development in the planetary sense is slow and long-postponed.

The New Astronomy has now assigned

to each of the worlds of our system its approximate place in the scheme of development. It would appear that as to mere planetary genesis the great worlds Jupiter and Saturn are the eldest-born of the system; but so far as the epoch of life is concerned, those mighty worlds are the youngest of all. The planets most advanced in age as it respects the correlated phenomena of life, are the

Science determines the relative ages of the planets.



POSITION OF THE PLANETS INFERIOR TO JUPITER—SHOWING THE ZONE OF THE ASTEROIDS.

earth and Mars, between which many analogies are discoverable. Of the two the earth is, doubtless, considerably older than the other, as world-age is measured by the manifestations of life thereon. This is to say that the earth and Mars gave off their excessive heat and were cooled sufficiently to admit of vegetable and animal life at an age far earlier than in the case of any of the other planets. Drawing our analogies from the forms of life with which we are familiar, it is quite certain that Jupiter

and Saturn have not yet reached the life-bearing epoch. That they will at length reach a stage of worldhood at which animate beings can exist upon their surface and in their waters can not be doubted. As little can it be doubted that in course of time the earth and Mars will lose the conditions under which life can be perpetuated. In that event we may be sure that the epoch of life will cease in our own planet, though the earth, as such,

are so changed as to prevent the further propagation or existence of life upon it. After that, as in the probable case of our secondary, the Moon, the given orb becomes a dead world, though still obeying the physical laws under which its place and motions have been hitherto determined.

Let us, then, briefly consider what we may call the astronomical preparation of the earth for the appearance of man-life upon it. By what process of world-evolution was it brought into the state of habitability? For we may be certain that the fact of habitability and the first appearance of man were coincident circumstances. The preparation of our globe for the human race had respect primarily to the condition of heat. This is to say that a heat equation had to be established on an astronomical basis; and by considering the astronomical conditions antecedent to



JUPITER—A PLANET NOT YET ARRIVED AT THE EPOCH OF LIFE.

may continue to occupy its place indefinitely in the solar system.

The thing to be granted from the consideration of these facts is that all worlds have a planet life, and that, in connection with this planet life, at a certain stage thereof life proper becomes tolerable in the given sphere. With this event the Epoch of Life begins and runs parallel with the history of the given world until the conditions of the latter

the appearance of man-life, and by knowing the rate of change which the world has undergone in its planetary relations, we may arrive at an approximate date for the beginning of the human race.

The equation of heat to which we have just referred has for its principal, though not its only, element a certain vibration, or oscillation, which has been going on in the orbit of the earth from the time when that body, loosened from

Epoch of Life is adjusted to certain stages of planet life.

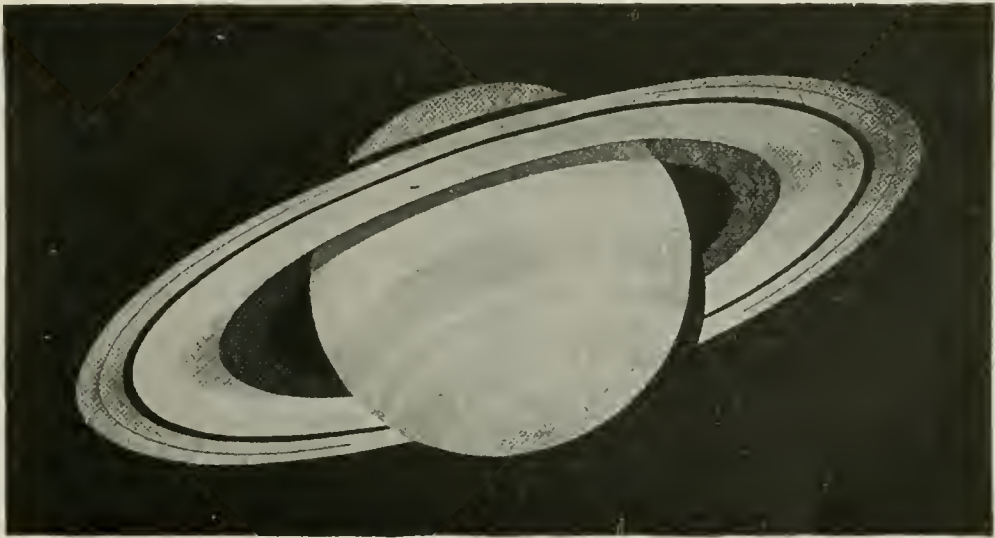
Preparation of the earth for habitability; the heat equation.

the common nebulous mass, began to be evolved into worldhood, and which will continue to the end of our planetary career. We must here refer to many astronomical facts which are familiar as facts, but of which the significance has in some measure been overlooked. The orbit of the earth is an ellipse, having the Sun in one of the foci; but the elements of the ellipse are not constant. On the contrary, the two axes of our orbit lying at right angles to each other

Vibrations of the earth's orbit as affecting distribution of heat.

approached, but never quite attained. The elongation of the minor axis, with the consequent expansion of the orbit, ceases, and the major axis once more begins to project like a lengthening arrow into space.

These changes in the two axes of the orbit, with the consequent fluctuation toward and away from the circle, continue at immense intervals, and will continue as long as the present system of world order endures. Under the force of the precession of the equinoxes, the



SATURN—A RING PLANET.

are inconstant or variable quantities. A change is ever going on by which the ratio between the major axis and the minor axis is affected.

The character of the earth's orbit is thereby constantly modified. At first it approximates the circle, and then recedes from the circle until it reaches a maximum elongation. This elongation, or departure from the circle, is called the eccentricity of the orbit. Having reached the maximum of this eccentricity, the major axis begins to contract and the orbit to expand laterally, until after a great lapse of time the circle is again

Nature of the fluctuation in our orbital axes.

position of the two axes, always at right angles to each other, constantly changes. They point to different parts of the surrounding heavens, each of them contracting and expanding within fixed limits which are determinative of the character and stability of our orbit.

It is assumed that the reader is familiar with such terms as aphelion and perihelion, that he has a clear concept of our planetary orbit, of the plane of the ecliptic, of the equator of the earth and the heavens, of the inclination of the earth's axis to the plane in which our globe makes its journey around the sun,

Assumption of knowledge of astronomical phenomena.

and of the circumstance of a summer and winter solstice, a vernal and autumnal equinox, and of the precession of the equinoxes. It is also assumed that he apprehends the nature of the solar illumination of an ever-changing hemisphere of the earth's surface, of the altered and altering position of the sun as viewed from any given point on our planet, and

traction, or approach to the circle. The major axis of the earth's orbit is diminishing, and the minor axis increasing in measurement.

Present phase of the planetary oscillation.

The eccentricity of the orbit is slowly but surely diminishing toward zero. This signifies that the difference between the perihelion, or nearest approach of the earth to the sun, and its aphelion, or greatest distance, is becoming less and less with each revolution. The process will continue until the difference shall be reduced to a minimum; but immediately thereafter the reversal of conditions cause the major axis to elongate and the minor to shorten, and will throw the aphelion and perihelion of the orbit into positions different from those which they now occupy in space.

Modern astronomy has made very careful and critical estimates of all these variations,



THE MOON—AN EXPIRED PLANET.

of the attendant phenomena of the seasons. Presumably he is able to apprehend that these phenomena go back for their causes to the inclination of the axis of the earth to the plane of its orbit, and to the eccentricity of that orbit; that is, its deviation from the circle.

It may not be known, however, that the phase of our orbital career through which we are now passing is that of con-

and more recently has ventured to apply to them the measurement of time. The eccentricity of the earth's orbit was determined with tolerable accuracy as early

Limits of eccentricity in the earth's orbit.

as the time of Leverrier; but since the days of that astronomer the calculations have been perfected, and the elements of our orbit more accurately determined. According to these tables, the highest

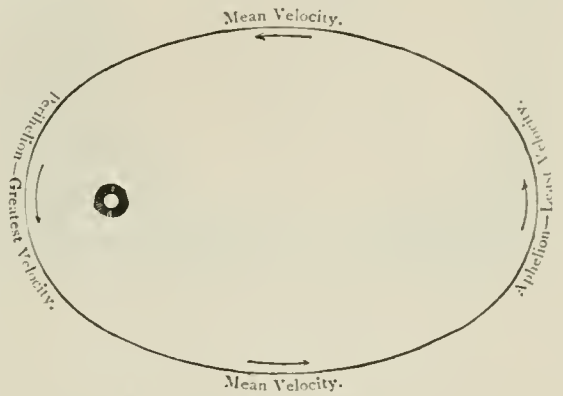
eccentricity ever attained by our orbit was, decimally expressed, 0.0747. The minimum eccentricity is about 0.0102. Between these two extremes the orbit oscillates with ever-changing conditions of climatic phenomena.

We may here discover the fundamentals of that equation of heat to which we have referred. It is well known that in the present condition of our orbit, the earth, in its annual revolution, approaches and recedes from the sun, thus fixing a point of nearest approach called the perihelion, and another point of greatest distance called the aphelion. At the present time the difference in the distances of the earth from the sun at these two crises in the annual revolution is, in round numbers, three million miles—a distance sufficient, as we shall see, to make a very perceptible difference in the heat conditions of the earth. It must be noted with care that our perihelion lies near to the winter solstice, and that our aphelion approximates the summer solstice. This is to say that when, owing to the inclination of the earth's axis to the plane of the ecliptic, the sun has receded far to the south in midwinter—when the days thereby have been reduced to a minimum for the northern hemisphere and the nights lengthened to a maximum—we are about three million miles nearer to the sun than we are in midsummer, when he has come by gradual approaches northward across the tropic and looks down almost vertically upon the temperate zone.

The amount of sun heat received on the surface of our earth depends upon two simple conditions: the angularity of the rays as they enter our atmosphere; and, secondly, the distance from the solar luminary. The more directly the

Perihelion and aphelion determinative of heat.

rays fall upon the earth, the greater the heat; the more obliquely, the less the heat. The nearer the approach of the earth to the sun, the greater the heat: this, being in a ratio inversely as the square of the distance between the two globes. We are thus in the northern hemisphere (fortunately we may say) brought into perceptible nearness to the solar luminary in midwinter, while in summer we are remote. This is to say that in all our parts of the earth the cold of winter is abated, as is also the heat of the summer, by the circumstance that the perihelion and aphelion of our globe



VARYING VELOCITY OF PLANETARY MOTION.

fall respectively in the seasons mentioned. If the conditions were reversed, so that our aphelion should fall in midwinter and our perihelion in midsummer, it is easy to see how greatly the seasons would be intensified. Instead of being tempered, as they are at present, by the relations of the earth and sun, the cold of winter would be aggravated by the removal of that luminary to a greater distance in space, and on the other hand the heat conditions of summer would be intensified.

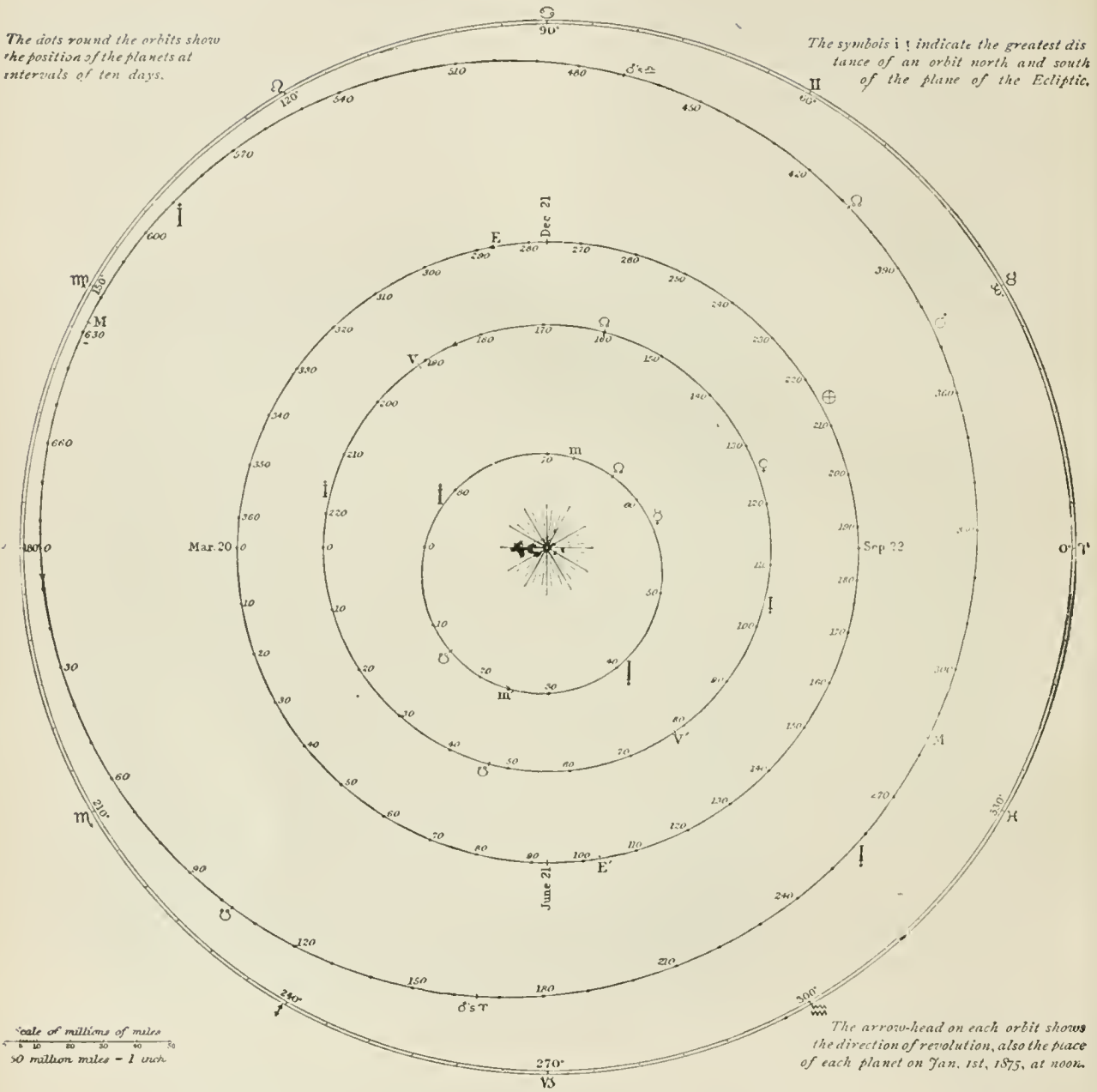
Astronomers have estimated with care the variation in climate produced by the circumstances here referred to. It has been demonstrated that the cold of winter in the northern hemisphere is

Conditions on which amount of the sun heat received depends.

*Orbits of Mars (♂), the Earth (♁),  
Venus (♀), and Mercury (☿).  
Nodes Ω Ω'. Nearer Apses M. E. V. m.*

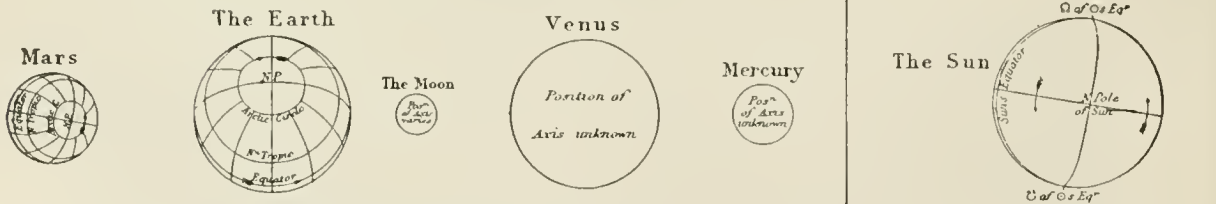
*The dots round the orbits show  
the position of the planets at  
intervals of ten days.*

*The symbols i ♄ indicate the greatest dis-  
tance of an orbit north and south  
of the plane of the Ecliptic.*



*The arrow-head on each orbit shows  
the direction of revolution, also the place  
of each planet on Jan. 1st, 1875, at noon.*

*Scale of millions of miles  
0 10 20 30 40 50  
50 million miles = 1 inch*



*Scale five thousand times that of Orbits.  
(The Earth, Mars, and the Sun are shown in their true axial position.)*

**THE SOLAR SYSTEM DISPLAYED—SHOWING ECCENTRICITY OF ORBITS INSIDE OF MARS.**  
Drawn by Richard A. Proctor, F. R. A. S.

less severe by about one fifteenth than it would be if the relations of perihelion and aphelion were interchanged. In like manner the heats of our summer time are less torrid by one fifteenth than they would be if the earth were at its nearest approach to the sun at that season of the year. Or to take the problem altogether, the distribution of heat has been tempered and moderated in the northern hemisphere by an aggregate of about two fifteenths of the whole increment.

As has been said, there was a time in the astronomical past when, by the fluctuations of the earth's orbit above described, our planet was actually thrown into the unfavorable relation of a perihelion in summer and an aphelion in winter. It must be borne in mind, moreover that the present eccentricity of the earth's orbit is greatly less than it was at the period of greatest elongation. At that date in the remote past the earth in perihelion approached within eighty-five million miles of the sun, and at its aphelion receded to a distance of more than ninety-nine million miles. This variation amounting to more than fourteen million miles, between the nearest approach and the farthest remove of our planet from the sun, would necessarily produce a corresponding difference in the amount of heat and light received in the two positions. This difference has been calculated to be for the period of greatest elongation about one fifth of the whole, or, to be more exact, as nineteen is to twenty-six. Since, at the present time, by the reduced eccentricity of our orbit, the difference in the sun's influence upon us by his approach and recession from the earth has been reduced to one fifteenth, we are able by comparison to

Favorable results of present position of perihelion and aphelion.

Former unfavorable astronomical position of our planet.

appreciate the vast difference between our present climatic fluctuations and those which prevailed at the period of greatest eccentricity.

We are here noting the condition of affairs in the northern hemisphere. It is from this point of view that all the phenomena of man-life on the globe are



COMPARATIVE SIZE OF EARTH AND SUN.

to be considered. At that period in the remote past when our orbit was extended to its greatest elongation, the earth being in aphelion at the winter solstice, the cold was increased to a very marked degree over that which now prevails at the corresponding season of the year. It was a time when the conditions of all kinds of life in our hemisphere were very unfavorable. At that time in the history of our globe the major axis of the earth's orbit was greatly extended and the minor was correspondingly shortened. This would throw the elongation of the orbit in the opposite direction to that which it now occupies. The result would be that during that period of our planetary career the earth would suffer a great depression of temperature while passing through its

Antecedent conditions of glacial epoch in northern hemisphere.

annual aphelion. Thus the cold throughout the northern hemisphere, which is still sufficient to produce and maintain great areas of ice, would be much intensified, and although the heat of the shortened summer would for the time be greater than at present, it could not prevail against the glacial condition which would obtain in all the northern parts of the earth.<sup>1</sup> In the southern hemisphere the case would be different. There the short and intense winter could not prevail against the long-continued high heats of summer, and the ice world would melt down and flow into the sea.

We are able in a measure to judge of what has been in the past, under these general laws, by a present survey of the condition of our climate. The northern hemisphere is the principal abode of man. It is tempered and modified as if in adaptation to man-life and the varied activities in which that life expresses itself on the surface of the earth. But in the southern hemisphere the case is

The two hemispheres with respect to development of man-life.

general laws, by a present survey of the condition of our climate. The northern

<sup>1</sup>During the perihelion of a planet, its motion in the orbit is greatly accelerated, and as a result the season of perihelion, whatever that may be, is shortened. On the contrary, the motion of a planet in aphelion is retarded, and the season lengthened in proportion. When the perihelion falls in winter, as it does in the case of our world at the present time, the season of rigor is abbreviated by the increased velocity of the planet. On the other hand, our summer is protracted by the slow movement of our globe during the period of aphelion in June and July. With the reversal of these conditions the winter would be not only intensified by the greater distance of the sun, but also prolonged by the retarded movement of the earth, and vice versa the summer, though intensified by the nearer approach of the sun, would be quickly over by the rapid motion of the planet in that part of its orbit. The aggregate effect would be to give us in the northern hemisphere a climate more severe as to the phenomena of cold by an increment of about two fifths—a change sufficient to produce the north polar ice-cap of the glacial period.—See diagram, p. 63.

reversed. There the ice mountain around the pole spreads far and wide as an everlasting desolation. Life is kept at bay not only by the absence of land in the antarctic continent, but rather by the excessive rigors of perpetual winter. The favorable one fifteenth of moderating heat which we receive in winter works in the southern hemisphere by contraries. So that, on the whole, the conditions of life—the astronomical conditions—in the north temperate zone are at present more favorable by two fifteenths than they are in the antarctic continents—if such there were.

The reader may now retrace the course of our globe to the time when the greatest elongation of the earth's orbit was coincident with winter; when the ice mountain surrounded the northern instead of the southern pole of the earth; when the vast fields of ice extending from the north pole southward in all directions covered the earth as if with a shining husk far down into what is now the temperate zone. At the same time he will perceive at that remote period the freedom and openness of the south polar region; because at that epoch the earth was in perihelion in summer and aphelion in winter; that is, as measured by an imaginary calendar for the northern hemisphere. Possibly at that epoch the antarctic continents were exposed, while many parts of the islands and shores of the northern hemisphere would be submerged under the overwhelming waters. It is easy, in a word, to recognize, in the conditions here established from the standpoint of astronomy, the existence and the causes of that wonderful epoch in world history to which geology gives the name of the Glacial Period. That period had its origin in the axial fluctuations of the earth's orbit. The

Winter aphelion with axial elongation produces polar ice caps.



northern hemisphere became the hemisphere of ice at the epoch when the major axis of the earth's orbit lay transversely to the position which it now occupies, and at the time when the greatest elongation of the orbit was attained. The result was that our globe, our northern globe, would be in aphelion in winter and perihelion in summer, and the effect of this would be the intensification of the seasons, resulting in the heaping up around the north pole of a prodigious ice mountain, extending down in all directions like a cap over the northern hemisphere, until its southern edges would be melted away by the solar heat.

We have thus established the primordial conditions of the glacial period in geology. We are able to see clearly how it was that from astronomical causes the larger part of the northern hemisphere was formerly enveloped with heavy masses of ice and snow. We may also perceive with equal distinctness the operation of the causes which would bring this period of desolation—certainly anterior to the appearance of man-life on the earth—to an end. These causes existed fundamentally in the fluctuations of the earth's orbit. The climax of the glacial period would be theoretically coincident with the greatest elongation of the earth's orbit at a time when, owing to the relative position of the major and minor axes, the aphelion of the planet would fall in winter. This is the key to the whole argument. This astronomical condition was the efficient cause of the creation of the ice mountain and envelop extending from the north pole far southward in all directions toward the equator. Practically, however, the crisis of this era of maximum rigor in our world history would fall *somewhat*

*beyond* the time when the greatest elongation of the orbit was attained coincidentally with the falling of the aphelion in midwinter. Just as the crisis of our present winter is carried by climatic conditions considerably beyond the winter solstice and thrown perhaps to the middle of January, so the crisis of the glacial period was carried by the astronomical conditions above described considerably *beyond* what may be called the midwinter of our world-life and thrown into our planetary January.

None the less, for practical purposes, we may consider the glacial period, or our world winter, to have been coincident with the time when the earth was in aphelion at the winter solstice and when the orbit had attained its greatest transverse elongation. From that time forth the epoch of moderation began to ensue. The major axis of the orbit began to contract, the minor to expand. The aphelion began to depart from the winter solstice, and as a consequence the sun with each cycle occupied a more favorable and favoring position with respect to the ice cap which covered the northern hemisphere. Gradually and with long lapses of time the lower parts, that is, the southern parts, or spurs, of the ice mountain began to melt away. Sometimes great masses, inconceivably huge in dimensions, were broken off, as we now see in smaller example in the breaking away of the feet of the Alpine avalanches. More and more the favoring conditions came into existence, and more and more the sun's heat carried away and poured down into ever-swelling rivers the southern edges of the glacial deposits.

We have here the beginnings of our present world order. It was at this time that the general form and physical features of the different countries of the

Fixing the place of our planetary January.

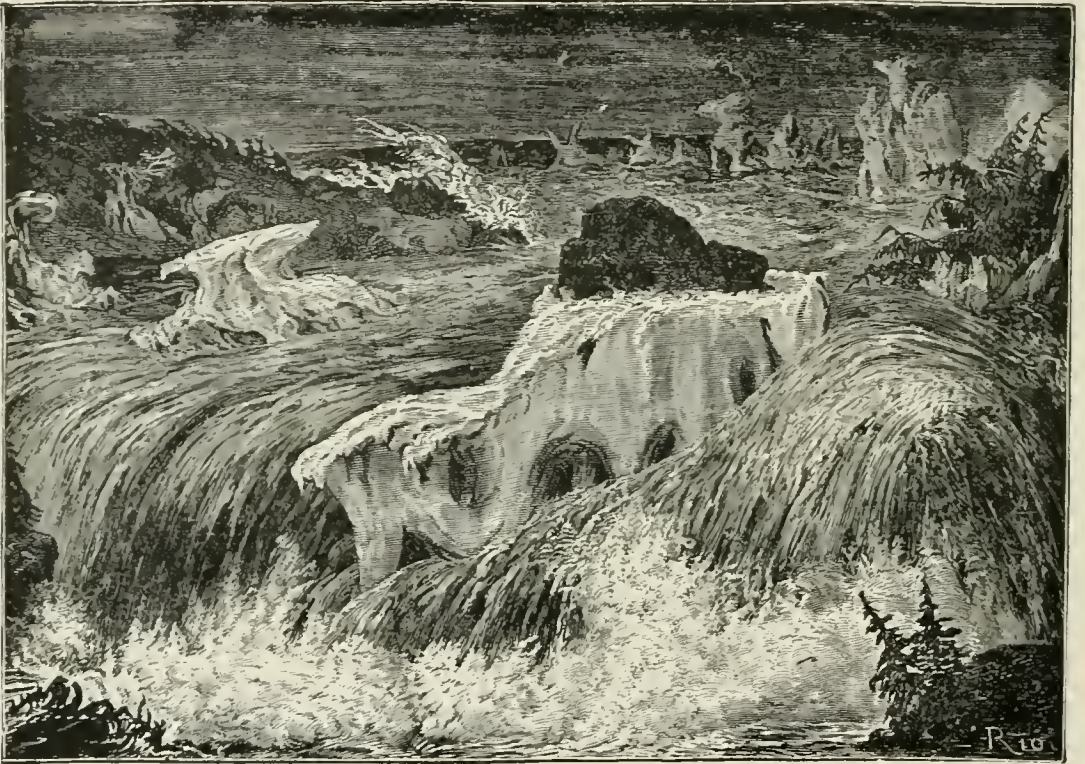
Epoch of moderation begins; formation of glacial rivers.

northern hemisphere were determined. Now it was, as time rolled on and as the glacial period came to a close, that the great valleys were formed and defined in the bottoms of which to the present day the descendent streams of the ancient flood-rivers creep along on their way to the seas. In all the continents and countries of the northern hemisphere it is notable that the river valleys are out of all proportion larger than the streams

the earth's surface by the crushing and plunging plowshares of the glaciers.

The circumstances and conditions here referred to are a part of geological inquiry; but the reader will have observed that the line of definition between astronomical antecedents and geological effects is quite difficult to draw. What we are here to consider is this, that the appearance of man on the earth is a fact

Man-life begins on this side of the glacial floods.



FORMATION OF GLACIAL RIVER.— Drawn by Riou.

of water which they have respectively borne at any time within the historical period. An examination of these valleys will show, moreover, unmistakably that they were once occupied with vast rolling rivers, extending from hill to hill, many times miles in width, and bearing downward under pressure of the prodigious floods all manner of flotsam and jetsam from the previous geological age, mixed with the detritus rubbed or scoured from

lying *this side of the glacial epoch*. The present state of inquiry points distinctly to the era of the subsidence of the glacial rivers—that is, the great volumes of water produced by the melting away of the ice cap of the northern hemisphere—into the channels, still large and swollen, but approximately the same which are now occupied by the great streams of our continents, as the *time* when man-life began on the surface of our planet.

It is not needed, in this connection, to enumerate the evidences by which the appearance of the human race on the earth is associated with the period of the subsidence of the glacial floods. These evidences will hereafter be presented when we come to consider the geological testimony bearing on the question of the antiquity of man. The particular inquiry with which we are here concerned is to find, if we may, a measurement of years, and adjust the scale to the changing planetary conditions which we have above described, determining thereby, with some fair approximation, the *date* of that epoch which may be taken as the maximum for the appearance of man on the earth.

It were unreasonable in the last degree to expect exactitude in such an inquiry. In considering astronomical epochs and geological ages the small calendars devised by man for days and seasons are lost in the vastness. We must content ourselves to consider large numbers as units. In attempting to measure planetary changes the thousand or the million must be taken for one. Employing such large measurement, much incidental and minor inaccuracy must fall in the result, to be eliminated by the further application of science to the problems of nature.

Fortunately, physical science is now in such a stage of proficiency and advancement as to enable us to complete the study with a tolerable approach to accuracy. Since the times of the younger Herschel inquiry has been steadily progressing with respect to the fluctuations of the earth's orbit and the changing climatic conditions dependent thereon. After Herschel the study was taken up by Arago, Humboldt, and other geolo-

gists belonging to the first half of the present century. More recently, and within the eighth decade, the distinguished Dr. James Croll has carried forward the investigation with greater success than any or all of his predecessors. In the following table, prepared by Dr. Croll, we have a calendar of more than a million of years arranged in periods of ten thousand years each, from the maximum of 1,100,000 B. C. down to the middle of the present century. This part of the table occupies the first column; the second column is made up of the decimals expressing the eccentricity of the earth's orbit for each corresponding period in column one; the third column contains, in degrees and minutes, the longitude of perihelion for the successive periods; the fourth gives the difference of distance of the earth in perihelion and aphelion measured in millions of miles; and the fifth the excess of winter days over summer days for the corresponding periods.

It will be noted that from several circumstances with which the astronomer is familiar the decimals expressing the eccentricity do not increase and diminish with perfect regularity, and the same is true of the degree marks expressing the longitude of perihelion. But the reader will not fail to note that *in a general way* the figures in all the columns rise and fall according to a definite law. He will note, for instance, that the lowest decimal of eccentricity given anywhere is 0.0102, and that the highest of all is 0.0747. He will also observe that the lowest measurement of the longitude of perihelion is 4° 8', the highest being 358° 2'. In the third place, it will be noted that a relation, not perfectly constant, but nevertheless clear and unmis-

Allowance to be made for inexactitude in vast calculations.

Attempts to fix time data for the appearance of man.

Maxima and minima of the fluctuations in our orbit.

takable, exists between the maxima and the minima in the several columns under consideration. The table is as follows, the periods of greatest elongation being set in antique figures:

From the accompanying table we may note with ease the periods when the earth's orbit in the past has attained its greatest elongations. The first of these corresponds in round numbers with the

CROLL'S TABLES OF PLANETARY FLUCTUATIONS.

Year B. C.	Eccentricity of earth's orbit.	Longitude of Perihelion.	Difference of distance in millions of miles.	Number of winter days in excess.	Year B. C.	Eccentricity of earth's orbit.	Longitude of Perihelion.	Difference of distance in millions of miles.	Number of winter days in excess.
		Deg. Min.					Deg. Min.		
1,100,000	0.0303	54 12	....	....	550,000	0.0166	251 50	3	8
1,050,000	0.0326	4 8	....	....	<b>500,000</b>	<b>0.0388</b>	<b>192 56</b>	<b>7</b>	<b>18.8</b>
1,000,000	0.0151	24 22	2.75	7.3	450,000	0.0308	356 52	5.5	15
990,000	0.0224	313 50	....	....	400,000	0.0170	290 7	3	8.2
980,000	0.0329	358 2	....	....	350,000	0.0195	182 50	3.5	9.5
970,000	0.0441	32 40	....	....	<b>300,000</b>	<b>0.0424</b>	<b>23 29</b>	<b>7.75</b>	<b>20.6</b>
960,000	0.0491	66 49	....	....	250,000	0.0258	59 39	4.5	12.5
<b>950,000</b>	<b>0.0517</b>	<b>97 51</b>	<b>9.25</b>	<b>25.1</b>	240,000	0.0374	74 58	....	....
940,000	0.0495	127 42	....	....	230,000	0.0477	102 49	....	....
930,000	0.0423	156 11	....	....	220,000	0.0497	124 33	....	....
920,000	0.0305	181 40	....	....	<b>210,000</b>	<b>0.0575</b>	<b>144 55</b>	<b>10.5</b>	<b>27.8</b>
910,000	0.0156	194 15	....	....	200,000	0.0569	168 18	10.25	27.7
900,000	0.0102	135 2	1.25	4.9	190,000	0.0532	190 4	....	....
890,000	0.0285	127 1	....	....	180,000	0.0476	209 22	....	....
880,000	0.0456	152 33	....	....	170,000	0.0437	228 7	....	....
870,000	0.0607	180 23	....	....	160,000	0.0364	236 38	....	....
860,000	0.0708	209 41	....	....	150,000	0.0332	242 56	6	16.1
<b>850,000</b>	<b>0.0747</b>	<b>239 28</b>	<b>13.2</b>	<b>36.4</b>	140,000	0.0346	246 29	....	....
840,000	0.0698	269 14	....	....	130,000	0.0384	259 34	....	....
830,000	0.0623	298 28	....	....	120,000	0.0431	274 47	....	....
820,000	0.0476	326 4	....	....	110,000	0.0460	293 48	....	....
810,000	0.0296	348 30	....	....	<b>100,000</b>	<b>0.0473</b>	<b>316 18</b>	<b>8.5</b>	<b>23</b>
800,000	0.0132	343 49	2.25	6.4	90,000	0.0452	340 2	....	....
790,000	0.0171	293 19	....	....	80,000	0.0398	4 13	....	....
780,000	0.0325	303 37	....	....	70,000	0.0316	27 22	....	....
770,000	0.0455	328 38	....	....	60,000	0.0218	48 8	....	....
760,000	0.0540	357 12	....	....	50,000	0.0131	50 3	2.25	6.3
<b>750,000</b>	<b>0.0575</b>	<b>27 18</b>	<b>10.5</b>	<b>27.8</b>	40,000	0.0109	28 36	....	....
740,000	0.0561	58 30	....	....	30,000	0.0151	5 50	....	....
730,000	0.0507	90 55	....	....	20,000	0.0188	44 0	....	....
720,000	0.0422	125 14	....	....	10,000	0.0187	78 28	....	....
710,000	0.0307	177 26	....	....	0	0.0168	99 30	3	8.1
700,000	0.0220	208 13	4	10.2	Year A. D.				
650,000	0.0226	141 29	4	11	1850	0.0168	100 22	....	....
<b>600,000</b>	<b>0.0417</b>	<b>32 34</b>	<b>7.5</b>	<b>20.3</b>					

To these we may append Croll's special calculation for the maximum eccentricity between 851,000 B. C. and 849,000 B. C.

Year B. C.	Eccentricity of earth's orbit.	Longitude of Perihelion.	Difference of distance in millions of miles.	Number of winter days in excess.
851,000	0.07454	....	....	....
850,000	0.074664	....	....	....
849,500	0.07466	....	....	....
849,000	0.07456	....	....	....

year 950,000 B. C.; the next, with 850,000 B. C.; the third, with 750,000 B. C.; the fourth reaches forward a little from the century mark thus far maintained to about 600,000 B. C. The next epoch is 500,000 B. C. It is clear from the table that the next lies between 350,000 and 300,000. The sixth corresponds with the year 210,000 B. C. The seventh and last falls approximately on

Periods of greatest elongation determined from Croll's tables.

the year 100,000 B. C. Or to generalize, we see that during the last million of years the fluctuations of our orbit from one period of greatest elongation to the next occupy approximately a span of a thousand centuries each. The movement is sufficiently regular to warrant us in accepting this period as the approximate unit of the oscillation.

Neglecting all the preceding epochs of greatest elongation down to the last, we note that the same corresponds approximately with the year 100,000 B. C.

This may be taken as our critical date for the present inquiry. This epoch corresponds not only with the last period of our orbit's greatest elongation, but also with the time when the earth was in aphelion in winter. The date, therefore, marks the last crisis when our globe passed through what we have called above our planetary winter; that is, the crisis of greatest cold—the time when the conditions were all favorable for the production of the ice mountain around the north pole, and its extension in a glaring cap far down in all directions toward the equator. In was, in other words, the glacial period of geology.

As we have intimated, it is doubtless true that the crisis of the epoch of rigor lay further on somewhat; that is, this side of the date of 100,000 B. C. We might in a rough and conjectural way deduct five thousand or ten thousand years from the date of the crisis as an approximation to the date of greatest rigor. From that time onward there would begin to be an abatement of those conditions antecedent to the glacial accumulations; that is, the planet would begin to come into more favorable and favoring relations with the sun, and at length the preponderance of cosmic forces

would balance the other way, and the glacial mass would begin, on its southern edges, to melt down into our northern oceans.

We thus arrive at length to the same condition which we have formerly described, namely, a condition of flood and river deluge in the northern hemisphere. In the present instance, however, we are working not abstractly, but with a scale of years determined by astronomical calculations. In other words, we see that somewhat less than a hundred thousand years ago the crisis of our glacial period was reached, and that subsequently, at a considerable span from that crisis, the ice mountains of the northern hemisphere began to give away under the returning conditions of heat. How long a period was required for these changed conditions to become operative in the liquefaction of the lower parts of the glaciers we are left somewhat to conjecture, but no doubt it required a considerable period for the returning approximation of the sun to begin to affect materially the glacial cap of the northern continents.

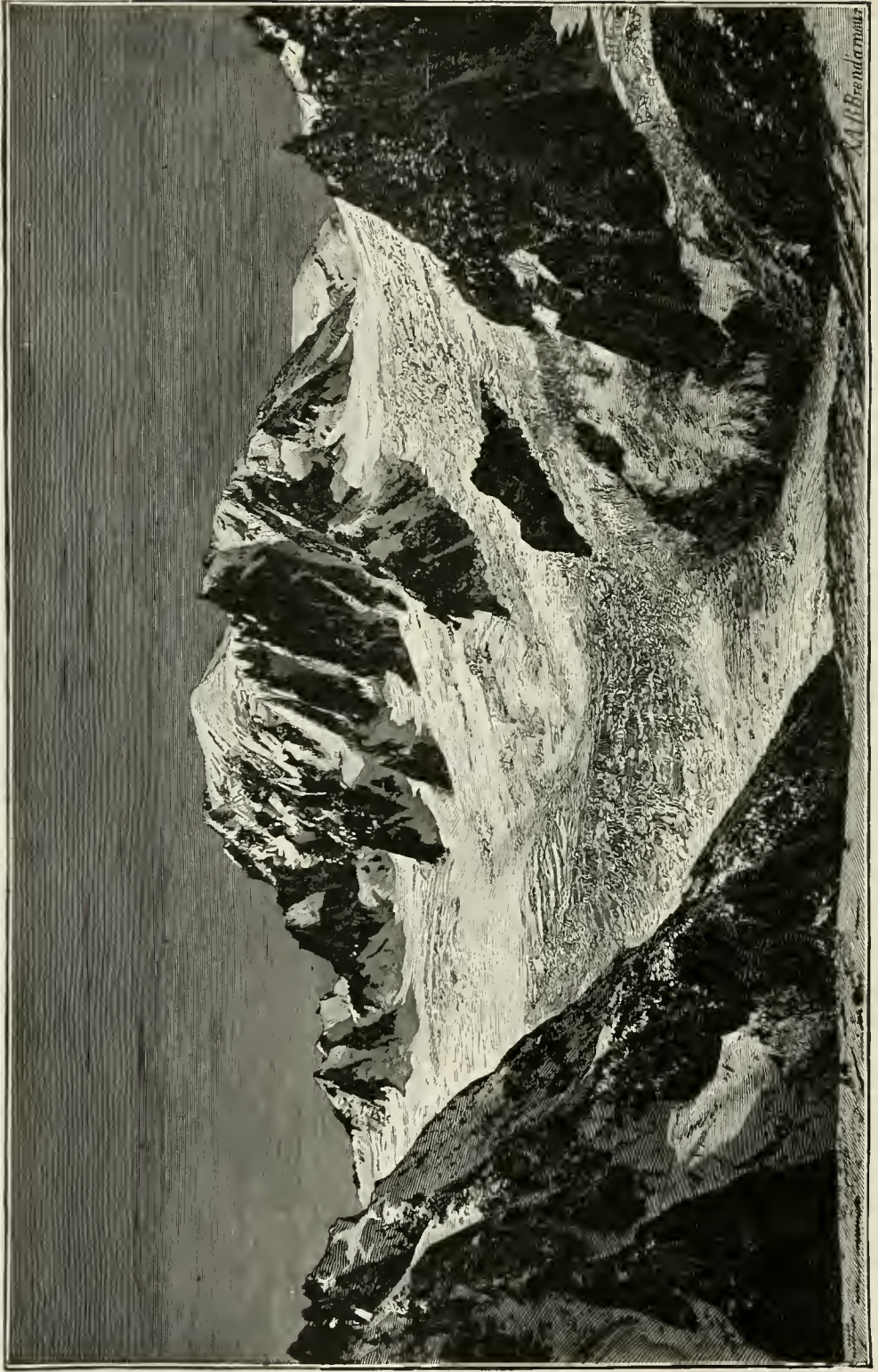
It may be assumed as a fact scientifically determined that the whole of man-life *lies this side* of the glacial period. Indeed, from what we know of the conditions present in the northern hemisphere during that period it would be impossible for the human race to maintain an existence upon the earth, even if the race had existed before. We are, therefore, to conclude that the being called Man made his appearance at a subsequent date, when the globe had been made habitable by the melting away of the glaciers, the subsidence of the rivers, and the definition of the continents in the forms which they now hold.

Fixing of date of our last planetary winter.

Epoch of the diluvial rivers in northern hemisphere.

Crisis of rigor on hither side of period of elongation.

Era of man-life on this side of the diluvial age.



EXISTING ALPINE GLACIER.—SUMMIT OF MONT BLANC.—Drawn by Riou.

M. BRENDAN

It would appear, therefore, that we might pass over at once from the work of astronomical laws to the geological conditions which ensued in and after the diluvian period, with a view to ascertaining more definitely at what time man and his works are first discoverable on the earth. This we shall presently attempt to do; but before passing to the geological inquiry respecting the antiquity of our race, it will be well to revert to one or two additional facts deducible from the laws of astronomy.

One of these is that next to the last period of greatest elongation in the earth's orbit, falling as it did about a thousand centuries before the last, occurred under such conditions as to produce an epoch of heat in the northern hemisphere. That is, about the year 210,000 B. C., when the greatest elongation just referred to was attained, the sun was at or near perihelion in winter, the result being a great increment of heat in the northern hemisphere, with corresponding climatic and vital phenomena. This supposition we find to be confirmed by geological inquiry. It is evident, indeed well known, that a period of heat preceded the glacial epoch. There was a time anterior to the great accumulation of ice and snow in the northern hemisphere when almost tropical conditions prevailed throughout what is now our temperate zone and far up toward the polar regions.

A thing of great importance to be observed in connection with this warm epoch is that the remains of animal and vegetable life which have survived therefrom, passing, so to speak, *under* the glacial epoch and reappearing in the diluvian period, are so mixed and blended with the remains of animal and vege-

Place of the last thermal epoch for the earth.

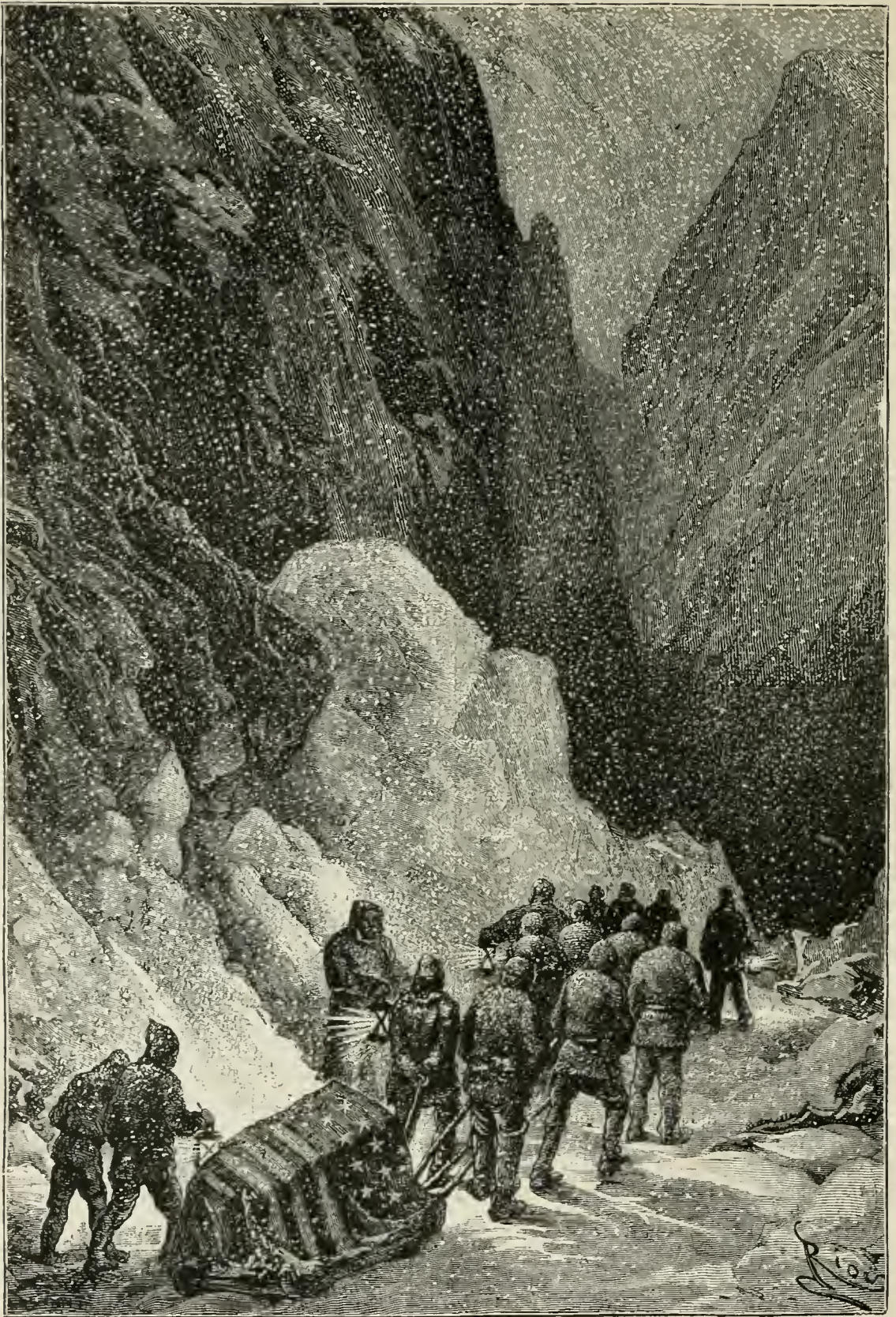
Relics of thermal age mingled with postglacial remains.

table life belonging to the period *subsequent* to the prevalence of the glacial age, that the casual observer and student is likely to confound the two classes of relics as belonging to the same epoch. For instance, the specimens of woolly elephant which were caught, so to speak, by the glacial age, frozen up far to the north, and thus preserved to the diluvian period, may easily be referred by the uncritical inquirer to the same geological period which produced the mammoth, the reindeer, and the cave bear.

The significance of this circumstance is *the great depth of the perspective*, and the large allowance of time which must be made from the close of the diluvian period to the present. If the span between the preceding age of heat and the succeeding age of cold is, as it appears to be, measured by a thousand centuries—if the distance from the woolly elephant to the mammoth is so great—we may be sure that under the slow and regular processes of the natural world the distance from the close of the glacial epoch to the present time is almost equally immense. Without the ability to lay a measuring rod upon these vast spaces of time, and limited as we are to estimates, the mind is necessarily embarrassed with uncertainty; but the conditions of the inquiry, its metes and bounds being determined from scientific data, we are enabled to rest securely upon the general knowledge of the great duration of the astronomical and geological epochs which we are considering, and to accept with confidence a belief in *the remote date* of man's appearance on the globe.

Depth of time perspective and remote date of man.

A summary of the leading facts gathered in this inquiry may serve to bring before the reader with conciseness the data from which the deduction of the



CONDITION OF EXTREME COLD, ILLUSTRATED FROM ARCTIC LANDSCAPE.—Drawn by Rion



high antiquity of man is made. These data, reduced to their briefest expression, are about as follows:

Summary of deductions from astronomical laws and data.

1. The last period of greatest elongation of the earth's orbit fell about a thousand centuries before the Christian era.

2. This epoch of greatest eccentricity was coincident with the aphelion of the earth in winter.

3. These two conditions acting together produced, so far as the climate of the northern hemisphere was concerned, an epoch of extreme cold, corresponding with that period in geology known as the glacial age.

4. The crisis of the glacial period lay somewhat *this side* in time of the coincidence defined in paragraphs first and second of this summary.

5. Our planet ever since the crisis of the glacial age has, by favoring astronomical changes, been coming more and more into an epoch of climatic moderation suitable for the existence and activities of the human race.

6. The time at which the conditions in the northern hemisphere became sufficiently amended to admit and favor the appearance of man was coincident with the epoch of the subsidence into their beds and proper channels of the glacial floods, produced by the melting down of the accumulations of the age of ice, as above described.

7. As an approximation to a measurement by time, it is safe to allow one fourth of the whole period, or two hundred and fifty centuries, for the period extending from the crisis of the glacial epoch to the time of the subsidence of the floods produced by the melting away of the mountains of accumulated ice and snow.

8. This would give us by approximation a maximum of seventy-five thousand

years as the date at which the habitability of the northern hemisphere was sufficiently established to admit of the coming and preservation of man-life in our continents; but

9. The estimate just given must be taken as a *superior limit* beyond which astronomical, geological, archæological, and ethnical inquiry need not reach in expectation of finding the evidences or remains of human activity on our globe.

10. In cases where a maximum and minimum date are established as the limits within which an event has occurred, the principle of averages points to the *middle part* of the whole period considered as the safest and most certain approximation to the time sought for.

11. This would indicate that, from astronomical considerations and conditions determinative of the character and fluctuations of the earth's orbit, the probable epoch of the appearance of man on the globe was from thirty thousand to forty thousand years before the beginning of our era.

12. Such approximations and probabilities are, in the nature of the case, tentative, and are subject to modification and displacement by the result of inquiries bearing on the same subject, but conducted from the standpoint of other sciences.

If the foregoing study has clearly impressed the mind of the reader with any one fact, it is *the slow rate of change* by which our earth has passed, and is still passing, from stage to stage in its history. This is said not only of the planet considered as an orb in space, but of all its attendant phenomena and attributes of life and organization. Great, almost inconceivable, lapses of time are necessary to any appreciable change in the constitution, aspects, and vital conditions

Slow progress of world changes a fundamental concept.

of the world. The concept of this slow and orderly progress of planetary growth and development is as sublime as that which contemplates the magnitude and endlessness of the material universe. Certain it is that nature hurries not. Certain it is that her progress does not consist of catastrophes, phenomenal cat-  
 aclysms, and astounding revivals. The rate of formation for our world, for all worlds, has been so gradual as almost to preclude the record of its growth by other than immortal or infinite beings. It is easy to refer the successive cycles of world history to the measurement of time by hundreds or thousands or millions of years; but a clear apprehension of the immense periods of duration necessary to the fact of worldhood is unattainable by the human mind with its present capacities and powers. The slow progress of world history and life history is, therefore, a fundamental concept in the work of determining the approximate time at which a rational form of being began its manifestations on our globe.

Still another consideration here suggested is the date—again approximate—  
 at which we have now arrived in the epoch of life considered with respect to our world history. Are we but entering that epoch? Are we journeying on toward its middle? Are we in the after part of the stately progress? Or are we nearing its close? In what part of the History of Life, considered as a whole, do we find ourselves as a race of intelligent beings?

It may be assumed that our race career on the earth is a long one. It stands to neither fact nor reason that the beginning and the end of human life on our globe lie near together. Everything that we know and observe points clearly

to an extended, long-continued epoch for our race. As we have said, the scale of man-life is not as great as that of the planet-life. But so far as our globe has a *purpose*, that purpose has respect undoubtedly to the human beings that inhabit it; and we are at liberty to presuppose that the time during which our race holds and dominates the planet is far-reaching, both in the past and in the future. The conditions of reason are such as to lead us to believe that the period of our ethnic career extends almost infinitely in both directions.

The particular point which we are here to consider is the place of the shorter scale of man-life on the longer scale of planet life, and the approximate position now occupied by our race in the shorter scale of existence. In determining the answer to this question, we have again to consider that fundamental condition upon which man-life on our globe depends, namely, heat. The existence and perpetuation of human beings upon our globe has from the first and will to the last depend upon the vitalizing power of heat on the surface of the earth. There was a time when this heat was in excess of the demands of life, and there will be a time when the deficiency of heat will lead to the certain extinction of all vital phenomena on our planet. Our globe, once superheated and afterward, as we have seen, subjected to the rigors of the glacial period, has by its endless elliptical journey through space parted with a great portion of its residual heat; and the process is still going on. As the earth speeds on in its orbit, its heat, like that of a vital body passing through a region colder than itself, streams off behind it; so that there is a constant loss of the vitalizing power of the globe.

Reasons for assuming an extended race career.

Conditions on which the perpetuity of man-life depends.

Question of our present place in the epoch of life.

This loss, however, is in great measure resupplied from two sources. That is, the superficial heat of the earth's surface is replenished from two fountains: first, the interior caldron, or reservoir, occupying the larger part of the planet and held in place by the outer crust of rock; and secondly, the constant contribution of the sun.

The human race continues its existence on the planet by economizing the vital energies of heat from the two sources just named. The **Most favorable condition for conservation of vital energy.** best condition of all for the existence and power of man-life on the earth is that planetary stage at which the loss and the gain of heat on the surface are equal. The middle, and we may say the maximum, epoch of man-life is coincident with that time in planet history when the wasting expenditure of heat into the surrounding spaces of our orbit is exactly counterbalanced by the radiation to the surface from the internal fires of the globe, plus the constant gift of the sun. When this condition is present, the state of the globe is most favorable for the propagation, the maintenance, and the longevity of human life. It is at this stage that the epoch of life-equilibrium is attained; and if the equipoise could be preserved there is no discoverable reason why the human race might not continue forever. Before this condition of highest equilibrium is reached all the warm-blooded animals, including man, are at a disadvantage with respect to their environment, because of the *superfluity* of heat at the surface of the earth, with the thousand concomitant circumstances of that superfluity, tending as they do to hasty growth, premature development, overexcitability of the nervous system, enervation, and all the physical vices which we observe to the

present time in the tropical and semi-tropical parts of the globe.

After the favorable condition has been passed—as it will be in the history of our planet—the struggle of life and for life takes another form. The increment of heat constantly received at the surface becoming less than the expenditure leaves man and his fellow-animals at a disadvantage of a different kind. The struggle to exist takes the form of an effort to maintain the vital fire against the draught of nature. A large part of human exertion must needs be wasted in such a state in trying to preserve the proper envelop of heat, wasting ever and but feebly resupplied. The after history of the human race must indeed take this form of contention with the efflux of the natural world, and must recount the struggle of man, becoming ever more arduous, to maintain himself and his kind upon the surface of a globe sinking into the rigors of an endless winter. From the middle epoch, most favorable to the production and longevity of man as an animal to the end of his career, he will be put at a disadvantage, and will cease to develop under the laws of his environment. Up to that time—the crisis—when the accretion and the expenditure of heat are equal, our race development will continue. The physical, intellectual, and let us hope the moral, powers of man will continue to expand and develop. But after the crisis we may expect to wane—slowly we may believe; but the cosmic law must doubtless be obeyed.

Nature of the struggle for life before and after the crisis.

Philosophy and astronomy have combined their resources in the attempt to determine the present condition of our heat equation and the relations of man-life thereto. The best scientific opinion has been brought to bear on the ques-



CONDITION OF EXTREME HEAT, ILLUSTRATED FROM AFRICAN FOREST.—Drawn by Alexandre de Bar.

tion, and the decision is that our planet *has not reached*, by a considerable span,

Condition of heat equation with respect to man-life.

the maximum of its vitality, considered as the arena of our race activities. This

is to say that the world is still receiving at the surface an increment of heat more than equal to the constant waste in its progress through space. The excess is not by any means so great as it was in the previous history of the planet; but as we approach the crisis—our epoch of equilibrium between the heat given and received—the approach thereto is retarded by many favoring circumstances, thus prolonging the period of human development. While the amount of heat received from the sun may be regarded as nearly constant, the quantity given off from the earth into space diminishes by an ever-decreasing ratio. The earth as a reservoir of heat is at present better fitted than ever before to preserve it. The adamantine walls round about our vast store of internal caloric are thicker and more substantial with each succeeding geologic age, and the loss of our living energy is less and less rapid as we journey on.

We are thus on the favorable and favoring side of our cosmic life. It is easy

The human race still on the ascending scale of vitality.

to demonstrate with proofs other than those here suggested that the epoch

most favorable for the production and maintenance of man-life on the earth has not yet been attained. Whatever conclusions we may reach by following the astronomical suggestions above given, there is a substantial agreement among the most competent and scholarly thinkers of our times that we still have on the surface of our earth an annual gift of heat from internal and external stores in excess of our waste into space.

It follows that the conditions for the

further development of man-life on our globe are still present, and that we may comfort ourselves with the belief and knowledge that we have not as yet by a con-

Our rate of progress toward the crisis considered.

siderable stage in our ethnic life reached the highest or middle point in our race career—the period of greatest longevity and intellectual and bodily power. Our rate of progress toward that approaching crisis we are able to judge by the brief knowledge which we possess historically of the previous history of mankind. That is, we are able to estimate our *rate of progress* toward that epoch which shall be most favorable for the maintenance and duration of human life in the earth. We know from historical data that our march toward the crisis in our ethnic life is extremely slow—so slow indeed as to have left much confusion in the human mind respecting its own direction and tendencies. There have been historical periods within the limits of recorded annals in which man-life seemed to move not at all, but rather to remain stationary, or at best to move only on a level. At other times progress has seemed to be actually retrogressive. This is said of the physical life of man, of his intellectual life, and of his moral capacities and characteristics.

From a wider point of observation, however, we can but perceive the slow but unmistakable progress of mankind from lower to higher forms of activity,

Slow movement of mankind toward higher development.

to greater length of life, to superior wisdom—particularly in the knowledge of nature and of the means of subduing and utilizing her magnificent energies—to nobler aspirations and worthier achievements, to higher purposes and to grander concepts of the universe.

Here again the slow rate of progress which the human race has made in its

course during the brief period of recorded history gives us a distinct hint of the long prehistoric extent of man-life on the earth. It is easy for the geometrician from a small arc to determine the extent and character of the whole circle. The indications to which we have just referred may serve a like purpose to the ethnologist and philosopher in estimating the extent and variety of our race career before our coming into the epoch of conscious history.

We have a traditional and historical knowledge of mankind extending over several thousand years. The knowledge

**Historical hints of our present stage in race career.**

thus derived is sufficiently clear and authentic as to the character, activities,

and duration of human life in remote antiquity. In some particulars the progress since the earliest date of recorded annals has not been great. In intellect, pure and simple, the races of to-day hardly surpass, if indeed they equal, some of the favored peoples of the ancient world; but in most respects progress can be discovered in every particular of the life and career of man. One of the most marked of these improvements is the matter of longevity. Notwithstanding the temporary wreck and devastation of the Middle Ages, it can not be doubted that human life is on the average more stable and enduring than it was four thousand years ago. The average period of human existence is greater than it was at the Renaissance; greater than in the age of the Antonines; greater than at the date of the Trojan War; greater than when the Vedic hymns were sung by the Brahmanic shepherds.

More remarkable by far has been the gain in the means of subsistence—the methods of taking from earth and sea the materials on which the support of human life is founded. The capacities

of the earth have been discovered and utilized. The mother of all has been made to bring forth her gifts in their season, and the ability of maintaining life has been given to a greater number and in larger measure than ever before. As to the increase and accumulation of knowledge, the gain has been most marked of all. The race has been made acquainted with the laws and phenomena of its environment, and nature has been converted from a foe into a friend and servant of man. The elements so long considered hostile have become propitious under the dominion of scientific knowledge, and the maintenance of life has become easy and universal.

**Gains of mankind in mastery of the environment.**

All of these facts, merely touched upon in this connection, agree substantially with the theory of the improving habitability of the earth. The scientific

**Facts indicating improving habitability of the earth.**

concept that the planet is still improving as a world suitable for the habitation of rational intelligences is borne out by the facts of the improved and ever improving conditions of human life. The great cosmic law is exemplified in that small segment of human experience which goes by the name of history; but the whole significance of the argument lies in this, that the *rate* of improvement in the human race, the increase in longevity, the multiplication of the means of subsistence, and the permanent increment of knowledge, have been so slow in movement and so small in the aggregate since the beginnings of recorded time as to convince us that the whole circle of man-life is a circumference of vast extent. Every fact and circumstance within the range of our information points clearly to the long-extended duration of the human period, and every condition under which we live on the

earth, and have lived in the past, opposes itself with persistency to the supposition that we are at the present time near either the beginning or the end of our race career. The phenomena of life, that is, of human life, are all so intimately related and correlated with the phenomena of planet life as to convince us that, though the planet life has a wider sweep of duration than the race-life of mankind—though there were antecedent ages of preparation for the appearance of man, as there will doubtless be succeeding ages to his disappearance from the surface of the globe—the date of the beginning of rational being on the planet was remote from the present by multiplied thousands of years, as the date of the disappearance will be remote by multiplied thousands to come.

We may here with propriety add a few paragraphs drawn from the conception of design in the universe. It is not intended in this connection to place so great stress upon a plan and purpose in universal nature as was done by the natural theologians of the last century. Much less is it intended to intimate the *absence* of purpose and design in that vast and magnificent system of worlds of which our own is but an insignificant example. That the universe is orderly can no more be denied than that it is grand and magnificent in extent and variety. If the thing for which the old mythologists invented the name of Chaos ever existed, it exists no longer, at least not in those tremendous fields of space which have been penetrated by the great telescopes of modern times. So far as our solar system is concerned, the chaotic element, if ever present, has wholly disappeared. The belt of the asteroids may, indeed, represent the path and the fragments of a former

Concept of design points to an extended race career.

world; but even in this region of space the reign of law holds all things in its beneficent grasp. In all other parts of our system regularity in worldhood appears to right and left. Adaptation is discoverable. Reason seems to prevail. The universe *appears* to be the habitation of intelligence and purpose.

Without following, beyond the suggestion of a just rationalism, the hints of design, of regularity and plan, in the universe, and in our own world in particular, we may well accept the belief of an adaptation of the planetary spheres to the abode of rational intelligences like ourselves. Thus much being granted, it is but a step to the conclusion that the principle of duration might be expected as a part of the plan of worldhood. Given the habitability of a planet as a part of its purpose and plan, and the concept of permanence, or at least great duration, follows as a necessary inference. Why, indeed, should a world be habitable for the highest order of beings only for a brief season? What possible reason could be assigned for the late appearance and early extinction of the highest and best form of intelligent existence? If our own earth, for instance, had in it from the first the condition and prophecy of habitability, as it undoubtedly did have, and as we are at liberty to infer all other planets have, then why should there be a period of preparation almost infinite in extent to be followed only by a brief and quickly vanishing residence of the noblest of all the creatures? Every condition of right thinking leads to the belief that the appearance of man on the planet would occur at the earliest practicable moment (so to speak), and that mankind would continue to flourish to the latest practicable date. It is one of the novel con-

Long duration to be expected in the plan of worldhood.

traditions in the philosophy of a certain school of thinkers that they would have us believe that the earth, fitted up as it were for the dwelling place of man, lay green and virgin, waiting for his appearance through eons of useless time—all this for no better reason than to satisfy the preconceptions of some impossible system of chronology.

Such short-sighted views of nature

consistent with the astronomical and geological preparation of the globe. Reason and fact alike require us to accept *as early* a date for the appearance of man as the design of the world and its conditions of habitability will admit. The results of reason must be accepted in a world governed by law. That the date of man's appearance was coincident, or nearly coincident, with the



LANDSCAPE OF THE LOWER OÖLITE (BEFORE THE AGE OF MAN).—Drawn by Riou.

and of man we may at once dismiss as belonging to the ignorance and blindness of a former age. While the demands of right reason do not call for a limitless extension of man-life into the past, and while such a view is contradicted by scientific data which may not be doubted, a rational concept of the human race in relation with the planetary life upon which it is maintained does call for as wide and far-reaching an arena as is

astronomical changes in the character of the earth's orbit heretofore described, can not well be doubted by any one whose mind has been freed from narrow preconceptions on the subject. That our race career, measuring backward through the brief historical and traditional periods of our ethnic life, has extended far enough into the past to cover a considerable part of the planet life with which it is associated, is a conclusion warranted by every condition of



right thinking. That the design of the world and of our solar system points to a long-continued career for the highest form of living intelligences on its surface can hardly be doubted by him who believes the universe to be underlaid with

plan and purpose. Finally, that our own race, by its slow rate of progress, has not yet attained the maximum of its power, longevity, and rational activities, is a fact which we may accept at the hands of science as demonstrable from existing data.

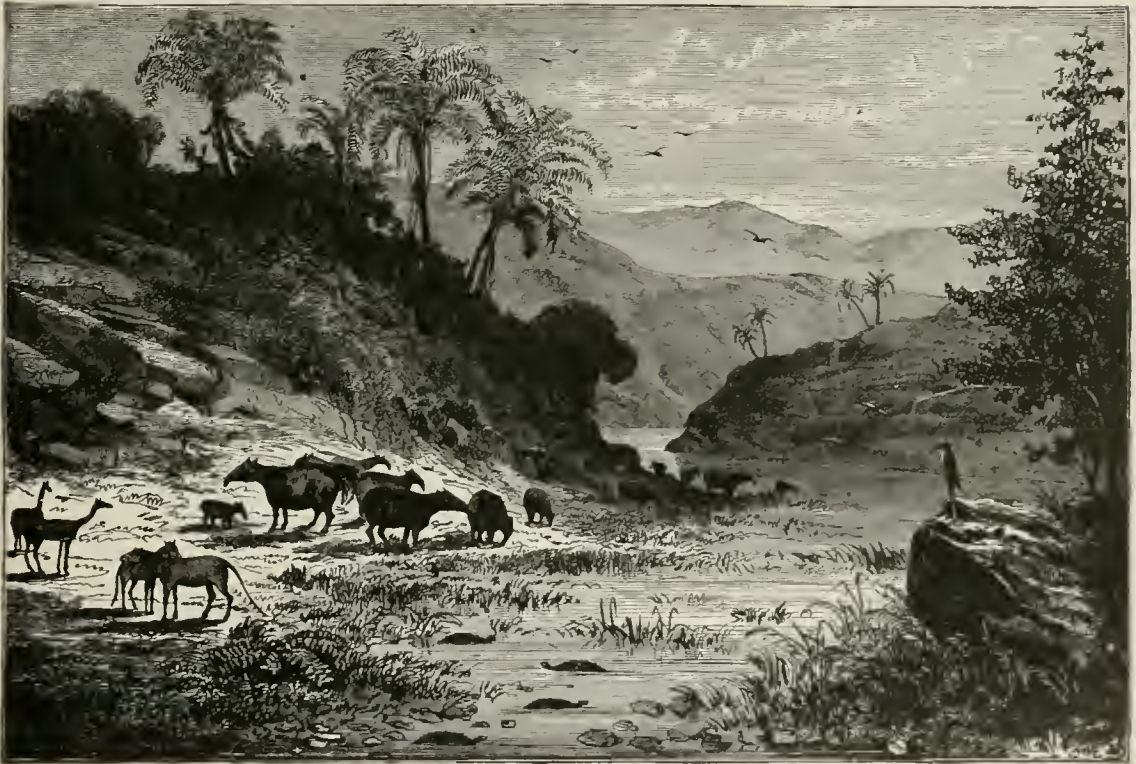
CHAPTER III.—ARGUMENT FROM GEOLOGY.



TURNING then from the astronomical to the geological argument respecting the antiquity of man, we shall reach the same general views, the same conclusions as above. We are not to enter here into the broader discussion of the

able for the human race. The science of geology belongs virtually to the present century. Hitherto any truly scientific concept of the formation and character of our globe was wanting. All the former achievements of mankind in geological inquiry were not equal in extent and variety to those which have been made

Geological science a product of the present century.



PALÆOZOÏC AGE OF THE EARTH.—LANDSCAPE OF THE EOCENE.—Drawn by Riou.

geological age of our planet, but only to note the epoch in which it became habit-

able by the geologists of the nineteenth century. The result has been a tolerably

complete investigation of the character of the earth's crust and of the order of world formation. A summary of these results may here be presented with a view to showing the epoch of man.

In the bottom of the world we have the azoïc, or lifeless, age. Above this, and next in order of succession, we have the palæozoïc age; that is, the ancient life period of world formation. Above this

Outline of the order of the geological ages.

the Carboniferous, and the Permian strata of the earth's crust. The secondary rocks of the neozoïc age include the Triassic, the Jurassic, and the Cretaceous, or chalk, formations. The tertiary, or cænozoïc, rocks are divided into what are called the eocene, the miocene, and the pliocene, and above these we have the superficial formations known as the post-tertiary, quaternary, pleistocene, or most recent deposits of all. This sketch



PALÆOZOÏC AGE OF THE EARTH.—CAMBRO-SILURIAN LANDSCAPE.—Drawn by Riou.

and succeeding it we have the neozoïc, or new-life, age, reaching to the surface and including the present life-forms of the world. For convenience, the neozoïc age has been divided into a lower, called the secondary, or mesozoïc, period; and an upper, called the tertiary epoch. The palæozoïc age, if we begin at the bottom, next to the azoïc rocks, includes the Cambrian, the Silurian, the Devonian,

includes what are known as the fossiliferous strata of the world, reaching downward from the present fauna and flora of the surface to the lifeless bed of the azoïc rocks.

It is needless to urge upon the attention of any intelligent reader the great periods of time which are indicated in the geological formation of the earth. How great these periods are has never

been determined, and it is possible that their duration may remain indeterminate to the end of time. But approximations can be made which are highly useful, and many scientific data exist by which previous calculations may be rectified. Every decade witnesses an increment of knowledge to the subject before us, and wider and more accurate generalizations are gradually building up

Exact time measurement not required in world history.

tions are conducted. In the first place, the rate of geological change now going on in the earth is a matter of observation and scientific measurement. The slow but steady transformation of the earth's surface, the reduction of its inequalities, its tendency toward the level, its failing adaptations to certain forms of vegetable and animal life, and many other of our superficial terrene phenomena are well-known facts, and have



PALÆOZOÏC AGE OF THE EARTH.—DEVONIAN LANDSCAPE.—Drawn by Riou.

an accepted theory of the geological age of our planet.

The question may well arise by what possible means the inquirer can arrive at any practical conclusions relative to

Principle of determining the rate of geological changes.

the lapse of time in former periods; that is, in the pre-historic ages of our world.

It may be appropriate, in view of this just skepticism, to cite a few of the facts and principles by which such investiga-

been observed in their processes for a sufficient period to warrant scientific deduction as to both the future and the past.

To this we must add the accepted law of the uniformity of nature, upon which, indeed, all science rests as upon an immovable foundation. We may safely assume that the processes of the natural world which we observe around

Acceptance of the law of the uniformity of nature.

us are the same processes which have been giving form and feature to the surface of our planet through eons of past time. True, we may not assume that the rate of change has been uniform for successive geological ages. On the contrary, experience and observation within the historical period have shown that the rate of change is not by any means invariable. At some epochs transformation goes forward more rapidly than at others; but on the whole, not only the process of change, but the

chasm and recession of the Niagara river. It is easy to trace the course of the great falls backwards from lake Ontario, or at least from Lewiston, to the present position of the cataract; and it is easy to foresee the inevitable recession of the chasm back from the present fall to lake Erie. We may already contemplate (at a date how remote!) the wearing away of the channel until the Niagara river shall lie in the bottom of the chasm all the way from Ontario to the exhausted bed of Erie. The rate of the



LANDSCAPE OF THE CARBONIFEROUS PERIOD.

rate of change may be depended on as scientific factors in determining the past conditions and periods of duration in geological history.

It may be well in this connection to illustrate with a few specific examples the general laws of change to which we have just referred. We have in the United States an example of the action of the elements which may well convince the most skeptical of the value of geological physics in determining the lapse of time. This example is furnished by the

Suggestion furnished by the recession of Niagara Falls.

nothing is required but scientific observation to determine approximately the length of time which has been required to wear out the channel from Ontario to the present falls. Of a certainty several circumstances must be kept in mind and admitted into the calculation which may modify the deductions. The stone in some parts of the river platform may be harder and in others softer. There may be occasional rents and fissures which, under pressure of the floods, will permit large masses of

the rate of the recession of the falls is a thing of observation and measurement. It has been placed as low as eight feet in a century. Other estimates have been higher; but fast or slow, the process of wearing away goes steadily on, as it has done in the past, and

Argument not destroyed by elements of uncertainty.

the supporting ledge to break away and be carried down at once. But these circumstances are only modifying elements in the problem, for which indeed allowance must be made, but which should not be permitted by the uncertainty which they introduce to destroy the scientific character of the investigation. There is not wanting a certain kind of mind filled with reactions and prejudices, and for that reason ever disposed to resist the progress of scientific truth, which is prone by its constitution and habit to seize upon any element of uncertainty which may exist in an investigation of this kind, and to use that modicum of uncertainty as a reason for rejecting the whole inquiry, and for falling back into the easy nest of mediæval preconceptions and ignorance.

Another instance of geological change which may be used as a measure of time is that of the rise of the valley of the Lower Nile, by the deposition of matter from the annual overflow. It is popularly supposed that quite a deposit is left each year in the Nile valley as a sediment from the swollen waters. If it were suggested, for instance, that the annual deposition amounted to a fourth of an inch, it would not seem an astonishing proposition; and yet a little reflection will show that at such a rate the Nile valley would long since have disappeared and the river would have been turned back upon its fountains in the Sudan! A fourth of an inch annually would amount to more than two feet for each century; a little more than twenty feet for a thousand years; about forty-two feet since the times of Cæsar; and much more than a hundred feet since the age of Ramses! As matter of fact, the elevation of the lower valley by the annual deposit has not been more

than about five or six feet, as measured at Rosetta or Damietta, within the historical period; from which fact we may scientifically determine the thickness of the annual deposit as little greater than that of a sheet of paper. This slight increment, however, when once it has been scientifically measured, is good for the past, the present, and the future, serving as a measure not only of historical but of geological time, and furnishing incidentally a striking example of the slowness and orderly progress of those physical changes by which the surface of the earth and its distinctive features have been determined.

Still a third example of time measurement by means of physical conditions may be appropriately cited. The time was when the mass of the earth was fluid through its whole extent. If, while the globe was in such condition, the rate of rotation on the axis had been rapid, the equatorial distention would have been correspondingly greater than it is. With a very rapid rate of rotation the earth would have become a thin wheel or circular plate. On the other hand, if the rate of revolution on the axis had been as slow as that of our own secondary, the moon, the equatorial protuberance would scarcely have been discoverable. As a matter of fact, the elevation around the equator is somewhat greater than it would be with our present rate of planetary revolution. This is to say that when the earth was still in a fluid or semifluid condition, and its general form was determined by the rate of axial revolution, the motion was more rapid than at present. With the hardening of the crust, the globe was able to maintain its oblate spheroidal form even when the rate of revolution was considerably slackened.

Rate of deposition in the Nile valley furnishes a scale.

Spheroidal form of the earth a datum for time measurement.

Astronomical science is now able to determine the rate at which our axial revolution has diminished, and we may thus calculate backwards to the time

when the globe was fixed in its present form. We are thus able to reach by approximate time measurement the date at which the crust of the earth became sufficiently firm and thick to preserve the form which the globe had taken under physical law while still in a state of fluidity. Sir William Thomson, following the theory of Fourier, showed by an elaborate argument, published in the *Transactions of the Royal Society for 1862*, that the lower limit or minimum date at which our globe, under the action of physical laws, could have taken its present form and become superficially consolidated, could not have been less remote from the present than twenty millions of years. His calculations were mathematical, and were based upon the established laws of physical science. While we may not accept his conclusions with such certainty as might be had in the case of computations resting on known and invariable data, we may, nevertheless,

conclude, tentatively, that the form of our globe—its solidification at the surface and its assumption of the oblate spheroid as its permanent figure—occurred at a date fully as remote as that declared by Sir William Thomson.

The earth had become the arena of vegetable and animal life before the fixation of its form. Long before the instability of the surface of the globe

Life began before fixation of globe; Croll's estimates.

had given place to permanence, the rudimentary forms of life had appeared and begun to flourish. This is to say that the epoch of life considered from the standpoint of geology reaches back for its beginnings at the close of the azoic age to a period much more remote than that assigned for the final fixation of the figure of our planet. Geologists have been busy in like manner with computations for the entire period since the beginning of vital phenomena on the earth. If the successive strata constituting the superficial parts of the planet have been formed at the rate of change which now prevails, and has prevailed since the beginning of recorded observation, then the entire epoch of life is, perhaps, from three to five times as extensive as the period which lies this side of the final fixation of the form of the globe. Dr. James Croll has, with his usual skill, calculated the whole period since the beginning of vital phenomena on the surface and in the waters of the earth at a period not less, and probably greater, than sixty millions of years. Other eminent geologists, reasoning from like data, have been disposed to increase rather than diminish this estimate. Sir William Thomson has suggested a period of a

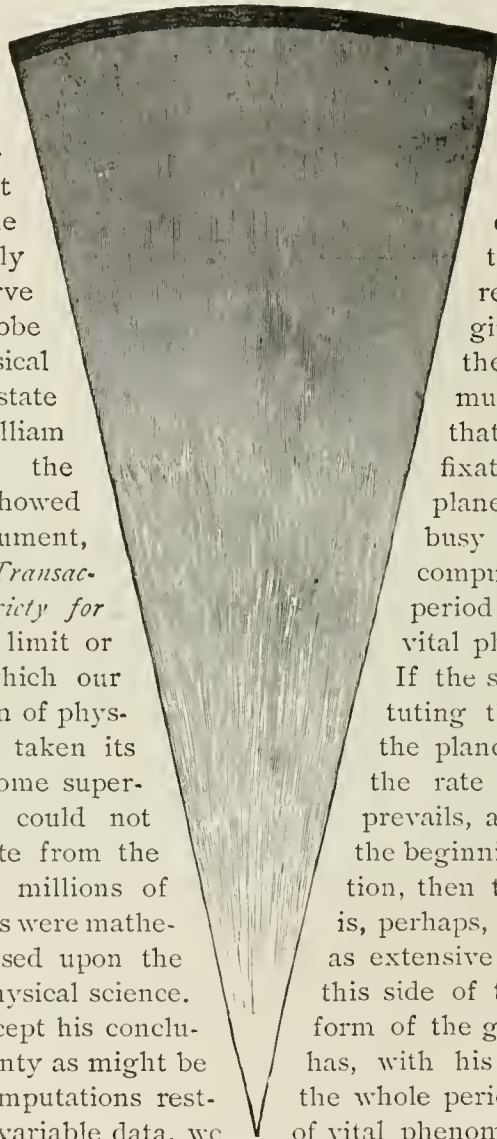


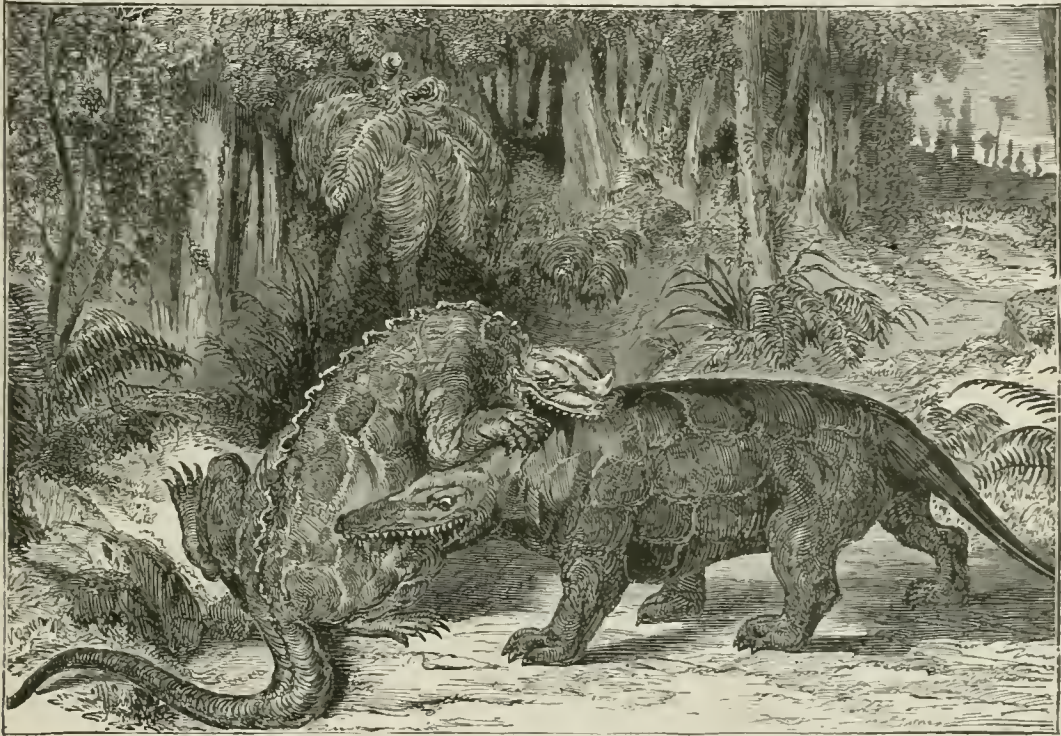
DIAGRAM SHOWING RELATIVE THICKNESS OF EARTH'S CRUST AND DEPTH OF INTERNAL CALDRON.

hundred million years as an approximate inferior limit of the date when the first forms of life appeared on the earth.

There is, however, a full concurrence of opinion that man-life occupies but a relatively small part of the whole scale of vital existence. We have already shown that according to the best data and most approved deductions the human being was one of the latest to make its

Only a small part of the life epoch occupied by man.

True it is, as is constantly shown by experience and observation, that human remains proper easily perish and are resolved into the elements. It requires no great period of time, when the human body is exposed to the free action of nature's forces, for it to be completely transformed into its elementary gases and mere dust. Only under the most favorable conditions can the skeleton of man be preserved from one geological epoch



FORMS OF LIFE IN CRETACEOUS PERIOD (PRECEDING THE AGE OF MAN).—Drawn by Riou.

appearance. It is only in the tertiary, the post-tertiary, pleistocene, or so-called recent deposits of the earth's crust, or at furthest in the miocene, that the remains of man and of his activities are found. True, we may not reason positively to the nonexistence of human beings before the diluvian age. It is possible that such creatures as ourselves had existence on the earth in the pre-glacial epoch; but there is no probability of the truth of such a hypothesis.

to another. When these favorable conditions do exist, as we shall see hereafter, the actual relics of our species are preserved from age to age with scarcely a perceptible mark of change.

The analogy between animal and vegetable bodies is in this respect complete. With exposure grains of wheat and seeds of various plants and grasses are quickly resolved into their constituents; but wheat grains, still preserving their vital germs and capable of growth

and reproduction, have been taken in recent times from the Egyptian sarcophagi where they were deposited as much as three thousand years ago. A single find and demonstration of this kind is sufficient to establish the law of vegetable and animal preservation under favorable conditions. The absence of such discoveries does not positively disprove the existence of given forms of

Possibility of long preservation of organic remains.

of, that we are warranted by geological evidence in placing the apparition of man on the earth. In order to make clear the conditions under which such remains have been discovered, it is necessary to revert again to several situations which are peculiar to the recent period in geological history.

One of the places or conditions most favorable for the deposit and preservation of the relics of man-life is the loam in the bottom of caverns; that is, in caverns having a certain relation to rivers. A second favorable position is that of river alluvia proper, namely, the masses of accumulated gravel and detritus borne along by running streams and deposited in the bends or eddies, or more particularly spread out in broad, deep layers near the débouchure of the rivers with the larger bodies of water into which they



SKETCH MAP SHOWING (IN DARK LINES) THE PART OF EUROPE UNDER ICE COVER IN GLACIAL PERIOD.<sup>1</sup>

life in past geological ages; but the fact that no single example of human remains belonging to the pre-glacial period in geology has been found, while not conclusive of the nonexistence of our race in a period so remote, is sufficient to destroy the probability.

It is, then, in the post-glacial, or diluvian, age, and in the earlier parts there-

<sup>1</sup>The darkest portions of the map show the present areas of the ice fields.

fall. A third place favorable for the preservation of animal and vegetable remains is the bottom of lakes. A fourth is the collection of peat mosses in the countries where such formations exist. A fifth is the sand dunes heaped up in certain localities by the action of the winds or thrown into place by the joint action of the winds and sea.

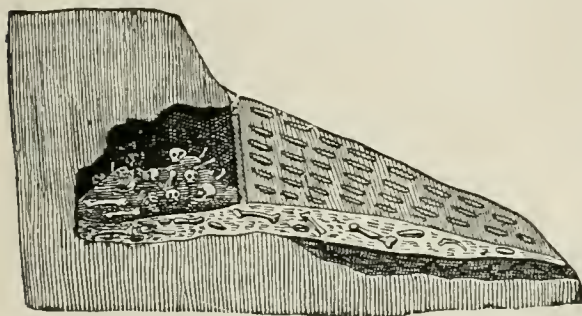
Of all these situations, perhaps the

Situations most favorable for preserving human relics.



first is most favorable for the prolonged preservation of human relics. The great majority of subterranean caverns have been formed by the action of water. Underground streams frequently carry away the softer parts of the rock or for-

Formation and peculiarities of man-caverns and grottoes.



SECTION OF CHALK CAVERN WITH HUMAN REMAINS

mation through which they pass, leaving chambers and cavities of large extent. After these nether vaults have once been formed the streams may disappear or dwindle to a trickling branch in the bottom. Frequently the caverns so formed are left entirely dry. In many parts of the European countries the rivers flow through districts where the chalk formations are abundant and are favorably situated for the production of caverns and grottoes. In former ages, while the glacial rivers were still of great width and volume, the beds lay at a much higher level than at the present time. In such countries the formation of underground tunnels by the action and pressure of the waters was a common phenomenon along the river shores.

In course of time the rivers of the diluvian period, as we have said above, receded and sank with diminished volume into the lower parts of the valleys. The beds were cut to greater and

still greater depths, until at the present day it is a common circumstance, both in Europe and America, to find the water surface of running streams as much as a hundred feet or more below the level formerly occupied by the river. Almost every considerable stream presents on either side a secondary terrace of drift which, at a former age, marked the level of the bed. With the recession of the waters to the present channels, the caverns formed in the old diluvial banks, especially those in calcareous regions, have been left dry. The mouths of such alluvial grottoes open on the hillsides, facing the rivers, and it was into these caverns that the animals, including primeval man, made their way as places of natural resort in the earlier ages of the postglacial epoch.

In the bottoms of nearly all of the caverns are found a certain residual of loam, or cave-earth, swept in as sediment by the departing waters; and over this loam there is usually a solid layer of

Date of remains indicated from geological data.



EXAMPLE OF STALAGMITIC FORMATION.

stalagmite. Whatever organic remains were left in the caverns in the age of the deposit were, as a rule, mixed with the loam, and afterwards covered and, as we

might say, hermetically sealed, with stalagmitic material. It is easy to perceive that a study of the rate of diminution and sinking away of the rivers from their former elevation into their present beds would furnish a measurement of time for estimating the date of the deposit of the human relics referred to. In so far, therefore, as geology is able to determine the time at which the alluvial caverns were formed and at which the receding waters left them subject to habitation, she is able to suggest an approximate date for the appearance of man-life on the earth.

The facts here referred to, which in



EXAMPLE OF STALACTITE.

way to the sea is, as a rule, not rapid, and in those portions where rapids exist we find almost invariably that the waters are supported by the hardest and most enduring ledges of rock. The action of water courses is therefore slow. To erode such channels as we find to have been formed for the passage of rivers must have required almost immeasurable periods of time—periods in which centuries rather than months and years must be the units of measurement.

It is by the erosion of their beds that rivers gain the material in the forms of sand and gravel which they deliver in certain parts of their course and more particularly at their mouths. One must needs note the vast accumulation of gravel and other detritus brought down from distant regions and spread out in beds of miles in extent, if he would gain an adequate idea of the length of time which has been required to furnish such accumulations of matter. The most eminent geologists have given close study to the subject of the rate of formation

the nature of the inquiry must be mentioned in many parts hereafter, are now brought forward solely to illustrate the possibility of time measurement in the prehistoric ages. This fact must be borne in mind by the reader. The same should be said respecting the alluvial deposits of gravel and other detritus containing the relics of animals and men. The gravel beds at the mouths of rivers have been gradually formed through immense periods of duration. The slow rate of such accumulations is a fact noted and emphasized by all candid and capable observers. The course of rivers on their

for the alluvial deposits, and though they have not agreed with any near approximations in the results at which they have arrived, in one thing there has been concurrence among them all, and that is the vast lapse of time requisite to produce the given results, and the consequent remote date which must be assigned to the remains found in the alluvial strata at the mouths of rivers.

An examination of the sediment accumulated in the beds of lakes has led to the discovery of many traces of organic life belonging to the prehistoric age. In such situations the remains of human

Slow process of formation of alluvial river beds.

brought forward solely to illustrate the possibility of time measurement in the

approximations in the results at which they have arrived, in one thing there

Vast reach of time required to complete such formations.

beings have been found, as we shall hereafter note with more particularity, associated with the bones of animals long extinct. In this case, however, the attempt to determine the time of the deposits has been less successful from the peculiar character of the data than in the case of caverns and river beds. The rate at which the sediment has been deposited in the bottoms of lakes is a very uncertain factor, and though the position and depth, below the surface,

Less certain results from examination of lake bottoms.

vegetation prevalent at the time when the peat mosses were laid, and when they received their relics of human life, may be easily referred to certain geological periods, the date of which may be approximately known. Certain kinds of forests, long since extinct and supplanted by other kinds belonging to a later cycle, are thus known to have prevailed at a time when primeval man was in the earth; and by estimates made on scientific grounds for the date of the given forest, an approximation may be



LANDSCAPE OF THE PEAT BOGS.

of the sediment led to the conclusion of a great antiquity, geologists have not succeeded in measuring the intervening time between the deposition of the lake fossils and the present.

In the case of the peat mosses better success has been attained, and the same result reached as from other sources of inquiry. The peat bogs are found in peculiar localities, and the superincumbent earth has accumulated by regular accretions of growth and decay which may well furnish the proper data of time measurement. The character of the

Peat bogs furnish a better basis for time estimates.

reached for the time of the appearance of the human race.

Of the sand dunes which are found in certain localities, holding the relics of primitive men, the same may be said as of the lake bottoms, namely, that the measurement of time applied thereto is difficult, if not impossible. The forces which produce the sand dunes, whether terraqueous or aqueous, are comparatively irregular. It is easy to understand how a sudden cyclone might by torsion heap up the sand of seashores or desert places into the forms which we

Uncertainty of evidence gathered from sand dunes.

now discover, though in other instances it might require ages for such accumulations to be made.

In some instances, however, the dunes are clearly the result of human agency, being composed of the débris of primitive dwelling places scattered about the homes of the first men until heaps amounting to considerable mounds were found. In such cases we may well allow long periods of time for the formation of the dunes. It is a fact of observation that it requires many centuries in thickly populated localities to raise the surface

instructive results. Sir Charles Lyell, one of the greatest of geologists and conservative thinkers, has in his work, *Travels in North America*, undertaken to estimate the rate of formation in the delta of the Mississippi river. That low-lying terrace of alluvium has an area of about thirteen thousand six hundred square miles. Sir Charles by investigation discovered that the thickness of the deposit is of an average of about five hundred and twenty-eight feet. From these data he was able to compute

Time required  
for deposition of  
the Mississippi  
delta.



SAND DUNES OF EL-FEVANE, ARABIA.—Drawn by D. Grenet.

but a few feet above its former level; this, too, where the agencies of civilization have been actively operative in leaving a residue. The Appian Way of Rome, after more than two thousand years, is no more than two or three feet below the level of the surrounding country. It is, therefore, safe to conclude that the primitive dunes left around the dwelling places of the first men were slowly formed through many centuries of time.

If we take up the actual estimates which the best geologists have given for some of the dates suggested in this inquiry, we have the same tangible and

approximately the whole quantity of matter brought down by the Mississippi since the establishment of the river in his present bed. The next class of experiments related to the amount of solid matter in each cubical foot of the Mississippi waters. It was found that about one three-thousandth part in volume of the water discharged into the gulf is composed of mud, sand, and other detritus. The percentage in weight of solid material is about one part in twelve hundred and forty-five. Pursuing the line of reasoning and computation here suggested, and assuming the law of uniformity, Sir Charles Lyell came to the

conclusion that at the rate of three thousand seven hundred and two millions of cubic feet annually it would require sixty-seven thousand years for the building up of the Mississippi delta in the form in which we now find it.

In this computation there are one or two serious questions to be raised. In the first place, it is undoubtedly true

that in the earlier periods of the diluvian age, when such rivers as the Mississippi were greatly swollen and much more perturbed than at present, the quantity

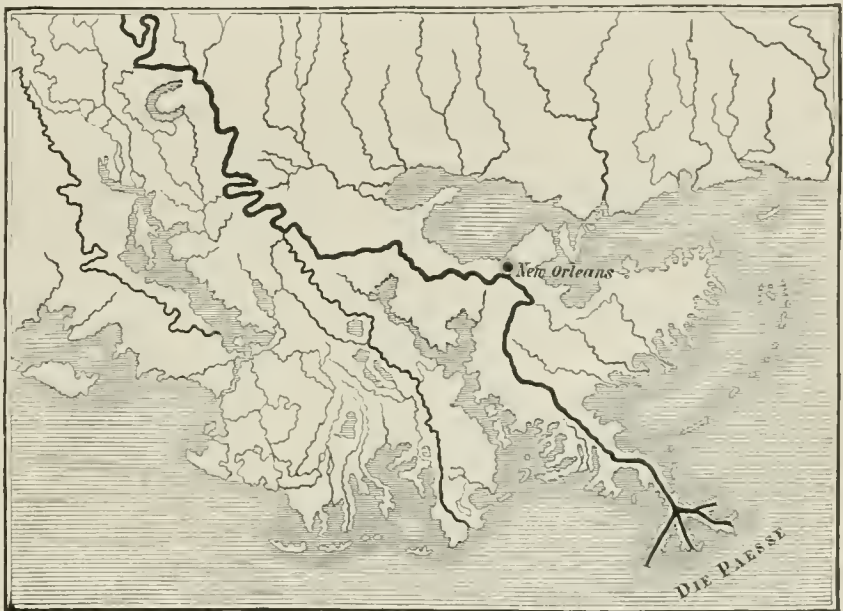
of solid matter annually brought down by the floods was much greater than at the present time. It is easy to conceive of a condition in which the percentage of mud and gravel in river water should be many times greater than at the present. We need go no further than the spring rains of each year in our present climatic condition to note the large quantities of solid matter that are carried down into our river currents. Doubtless, in the times of the formation of river beds, when the overwhelming waters, new melted from the glacial spurs, were rushing along the surface of valley lands to seek a permanent channel, the amount of solid material cut away, mixed with the waters and borne onward in a volume of slush to the sea, was vastly

in excess of anything of like kind

which now falls under our observation. Even to the present day there are large rivers whose sloppy floods bear down a quantity of solid matter so great as to build up large sand bars and gravel banks in a comparatively short space of time.

It is, therefore, reasonable to suppose that in the early age of the Mississippi the annual deposits at the delta were much more extensive than they have been within the historical period. On the other hand, however, a counter-

Influence of the heavy volume of the diluvial rivers.



DELTA OF THE MISSISSIPPI.

vailing circumstance must be noted which has tended strongly to prolong the period of formation in alluvial deposits. This is the fact that when the primitive rivers were still swollen and much mixed with solid materials the current was so heavy as to bear those materials far out to sea. The strong probability is that in the case of the Mississippi the earlier and heavier masses of solid matter were borne out by the immense floods and deposited in

the bottom of the gulf, so that it may well be doubted whether the larger contribution of solids in the earlier ages was not actually unfavorable rather than favorable to the rapid building up of the delta.

Two additional facts should be noted in connection with this particular subject. The first is that Other estimates confirm the calculations of Lyell. investigations subsequent to those made by Sir Charles Lyell and by geologists of the highest reputation have in general terms corroborated his estimates. Sir John Lubbock, traversing the same ground, has arrived at virtually the same conclusions with Sir Charles Lyell, and the latter at a later period of his life, reviewing the whole subject in his work on the *Antiquity of Man*, is more disposed to increase than diminish his estimates for the lapse of time requisite in the formation of alluvial deposits.

The second fact referred to is the approximately coincident results reached by Sir Charles Lyell and those deducible from the astronomical tables of Croll respecting the date of the formation of the post-glacial rivers with the attendant phenomena. It will be remembered that the last epoch of planetary winter, coinciding doubtless with the glacial age, was about a thousand centuries ago. Making allowance for a considerable period thereafter to cover the time when under more favorable conditions the ice cupola of the northern hemisphere should melt away with sufficient rapidity to feed the glacial rivers, we arrive at a date comparatively the same as that which geology assigns for the beginning of the delta of the Mississippi.

We have referred on a preceding page to the deposits of the Nile valley as a time measurement for geological and

human history. To this subject much patient effort has been given. Professor Leonard Horner, of Edinburgh, a noted geologist of the first half of the present century, was sent out in 1851 by the Royal Society of Great Britain to investigate the antiquity of Egypt as determined by the rate of alluvial deposit. In the time of Herodotus it was believed and taught by the Egyptian priests that their country of Lower Egypt had in former ages been an arm of the Mediterranean, reaching far up toward the site of Thebes. It was from this consideration and the belief that the sea had been driven out by the impact of the river and the deposition of sediment that the priests were wont to declare that their country was the gift of Father Nile—a form of speech which, though mythological in appearance, is scientific in its subject-matter. For it can hardly be doubted that that Egypt, which was perhaps the first abode and arena of a civilized life of man, was literally the gift, that is, the product, of the Nile.

Before the visit of Horner to Egypt the savants who accompanied Napoleon on his Egyptian campaign had undertaken the like problem of determining the geological age of the country by estimating the rate of annual deposit from the inundation of the Nile. The estimate made by these philosophers was five inches of elevation in a century. It was found, however, that the rate of accumulation was more pronounced in some parts of the valley than in others; and Professor Horner determined to conduct his experiments on the sites of two ancient cities, Heliopolis and Memphis. In the first of these stood the famous obelisk, and in the other the statue of Ramses II. The date of the building

Inquiries into the rate of formation of the Nile valley.

Deductions of French savants; Horner's investigations.

of these two celebrated monuments is known with approximate certainty. The obelisk was erected about two thousand three hundred years B. C., and the reign of Ramses, according to the chronology of Lepsius, occupied the larger part of the fourteenth century B. C.

It was the theory of Horner that, having laid bare the foundations of these monuments and discovered the level of the plateaus on which they were built, he might easily compute the rate of accretion from the overflow of the Nile. The explorer found that there had been deposited around the obelisk during the four thousand one hundred and fifty years of its existence eleven feet of sediment, which by an easy calculation gave the result of three and eighteen hundredths inches to the century.

In the case of the statue of Ramses it was found that the surface had risen by a little more than ten and a half feet above the platform on which the statue rested. But he was led to believe that this platform was fourteen or fifteen inches below the surface at the time of the building of the colossus. Making the proper reduction and accepting the antiquity of three thousand two hundred and fifteen years for the statue, it was found that the rate of accretion has been at Memphis about three and a half inches to the century.

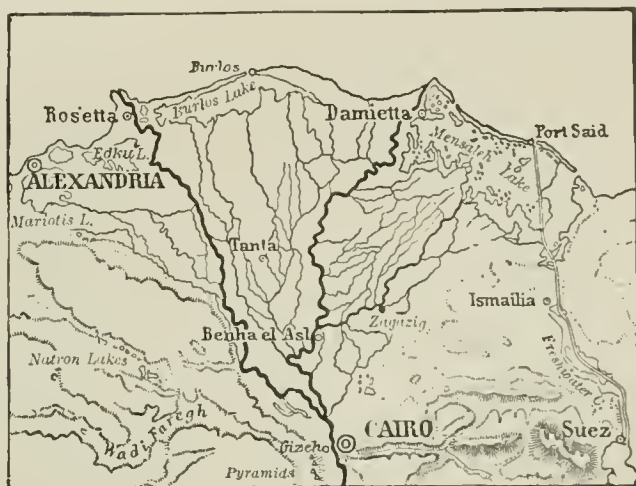
These data furnished Professor Horner the scale of measurement by which various excavations were made in different parts of the valley, in some places to the bottom of the alluvial formation. In one instance a piece of pottery was found, near the base of a statue,

Principal data from which calculations of Horner were made.

Resulting estimate of the antiquity of man in Egypt.

at the depth of about thirty-nine feet, which according to the established scale would prove the existence of man and his workmanship in that locality at a date remote from the present by the span of thirteen thousand years. Even this long period does not exhaust the possible habitability of the valley; for the depth at which the relics were found was greatly above the beginning of the alluvial deposits!

In other parts of the world besides the deltas of the two great rivers to which we have referred above, similar investi-



DELTA OF THE NILE.

gations have been carried forward with almost identical results. Sir Charles Lyell transferred his observations to the river Somme, in France, and, after examining the valley and débouchure of that river, came to the conclusion that in that part of the world also the human period extends into the prehistoric ages many thousands of years.

Lyell's investigations in the valley of the Somme.

The argument with respect to the age of the caverns, in the bottoms of which the relics of man-life have been found, is perfectly correlative with that which we have followed respecting the time required to erode the river valleys and

form their deltas and gravel banks. It was only when the rivers began their subsidence from the glacial epoch that the definite arrangement or plan of the present alluvial deposits along their banks and at their mouths was determined; and it was at this very time that the caverns of the calcareous regions were by the recession of the waters left first open and then dry for the occupancy of men and animals. It should be borne in mind, however, that the conclusion of a deposit of human remains in such situations *immediately* after the river floods had ceased to flow in would be unwarranted by the facts, and there is, therefore, a likelihood from this point of view of attributing an exaggerated antiquity to the relics of life discoverable in the caverns. In other respects the argument in favor of the antiquity, that is, of a coincident antiquity, between the human relics found in the caverns and those discovered in the alluvial deposits of rivers, holds good.

Attempts have been made in accordance with geological science to discover the approximate age of the relics found in the lake bottoms of Europe, particularly those of Switzerland. Careful investigations have been made at the Pont de Thiele between the lakes of Neufchâtel and Biemme. These two bodies of water are connected by a stream which was formerly an arm reaching from the one lake to the other. The whole valley between the Neufchâtel and the Biemme has been gradually filled and choked up with mud and other deposits under the action of forces which are still at work. The discovery of the remains of so-called lake dwellings in this region and the knowledge of the rate of deposition by which they have been buried

Approximate age of caverns containing human remains.

Estimates of the age of the Swiss lake villages.

away furnish acceptable data for an estimate, not indeed of the first appearance of men in this region, but of the time when the lake dwellers were prevalent.

It has been found that the old Abbey of St. Jean, built at the close of the eleventh century, has by the filling up around the margin of the lake receded, as it were, from its original situation at the edge of the water by the space of four hundred and six yards. Professor Gillieron, of the College of Neuveville, has applied the ratio thus established to the larger question of the date of the lake dwellings which at this point have receded from the shore a distance of three thousand two hundred and fifty yards, and has thereby determined the minimum antiquity of the ancient lakeshore establishments to be about six thousand seven hundred and fifty years. The reader in considering this calculation must bear in mind the peculiar character of life in the lake dwellings under consideration, and remember that the lake habitations, while they were of a prehistorical character, should not be regarded as the work of the primitive inhabitants of Europe.

Another example of geographical evidence may be taken from a similar situation to that last described. Where the small and rapid river Tinniere falls into lake Geneva, a large accumulation of sand and gravel has been made, extending back to prehistoric ages. The deposit is in the form of a cone, which has been opened with a railroad cut and exposed for examination for a distance of about a thousand feet and of more than thirty feet in depth. The rate of formation in this remarkable body of materials has been determined with what is believed to be tolerable accuracy. The

Data from which Gillieron's calculation was made.

Evidence gathered from the gravel cone of the Tinniere.





RUINS OF LAKE VILLAGE OF MORIGEN, SWITZERLAND—LAID BARE BY SHOALING OF LAKE BIENNE, OCTOBER, 1874.  
From a photograph.

remains of man and his workmanship have been found at a depth of as much as nineteen feet from the surface, and careful calculations conducted by the French geologist, M. Morlot, have shown that the period required for the formation of the whole bed has been between seven thousand four hundred and eleven thousand years. The facts and the argument have been reviewed by Sir John Lubbock, who agrees in general with the deductions of M. Morlot.

Another fact which already comes to view in considering these subjects, and which will persist in obtruding itself in many parts of the present work, is the wide-apart situations which have been submitted to geological science, and the consequent wide diffusion of the human race in remote prehistoric times. We are here only concerned directly with the geological evidences of the antiquity of man; but among these evidences we may not forget or neglect the unquestionable indications of the wide distribution of man in the epochs soon succeeding the glacial age. This wide distribution is itself one of the conclusive evidences of great antiquity, and though it does not properly belong to geologi-

Deduction from wide-apart situations of primitive races.

cal testimony, it is so closely connected therewith as to justify a reference to it in this connection.

On any theory of a common local origin for mankind the immense periods of time necessary for the multiplication and diffusion of the race into continents far distant from one another, and in some instances separated by wide oceans, must be granted at the very beginning. When we see the evidences of common forms of life, including the life of man in common stages of development, in regions remote from each other by the breadth of continents and seas, and almost inaccessible on account of physical barriers interposing themselves to the movements of the first tribes of men, we must be profoundly impressed with the great depth of the chronological perspective, and might well conclude that the lapse of time requisite for the distribution of the first men, whoever they were, from any common point of origin to the respective localities where we find the first evidences of man-life in the matrix of geology, would be as great as all that vast geological period which lies between such earliest evidences of human activity and the present time.

#### CHAPTER IV.—ARCHÆOLOGICAL AND PALÆONTOLOGICAL ARGUMENT.



THE relations of archæology to geology have already been indicated in the first chapter of this work. It remains for us in this connection to point out with more care and elaboration the bearings of archæological science on the

question of the date of the appearance of mankind on the earth. Archæology may be properly defined—though with seeming paradox of language—as prehistoric history. At first glance the inference might well be drawn that the study of archæology, leading us backward as it does along the positive traces of the human race, would furnish more

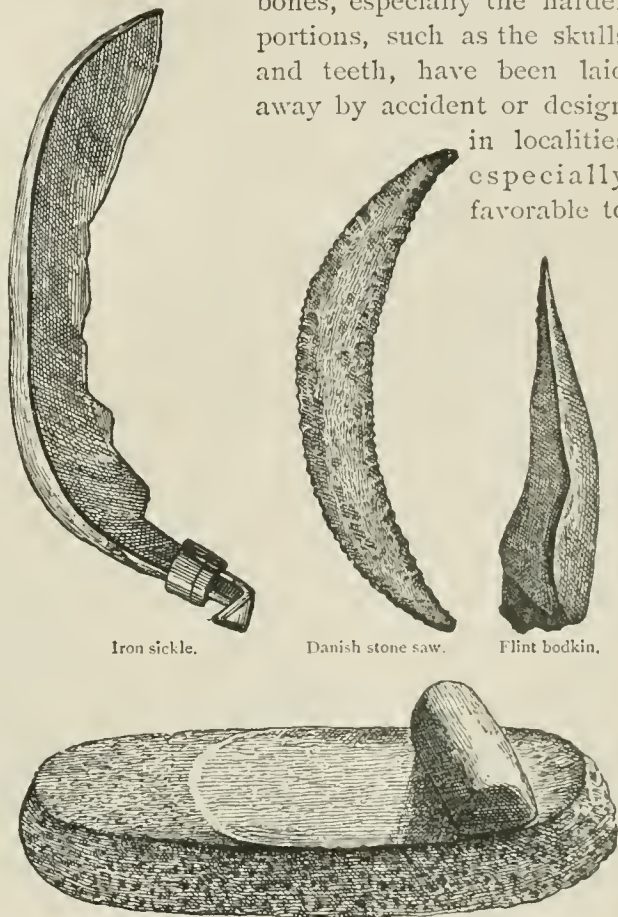
satisfactory data relative to the Age of Man than might possibly be derived from the astronomical or geological side of the question. Such, however, is not the fact. While it is true that much more satisfactory and direct evidence may be gained from archæological sources with respect to the mode and limitations of the primitive life of man than can be deduced from geological, or indeed from any other form of inquiry, it is also true that the *chronological* value of archæology rests upon the geological data with which it is associated. As it respects the question of time, therefore, archæology helps and corroborates the estimates and time measurements of the prehistoric ages without furnishing much original and independent testimony thereto.

These observations, however, should not lead to the conclusion that archæology—though long impeded in its progress by preconceived opinions—is less scientific in its methods and results than is geology. An examination of the traces and remains of the human race in the long ages before the beginnings of national consciousness furnish excellent materials in proof of the progress, and to some extent the rate of the progress, by which the human race has advanced from its primeval to its present condition; but the proper time measurement comes from the connection which the facts of this science bear to the facts of geology.

We shall here refer at once and in an introductory way to the material and

subject-matter of archæological inquiry. In the upper parts of the earth's surface the remains of primitive men are found associated with the products of the post-diluvian age in geology. Human bones, especially the harder portions, such as the skulls and teeth, have been laid away by accident or design in localities especially favorable to

Subject-matter of archæological inquiry.



Iron sickle. Danish stone saw. Flint bodkin.

Primitive cornmill of the Stone Age.

ARCHÆOLOGICAL PROOFS OF THE EXISTENCE OF PREHISTORIC MAN.

their preservation. Such remains are associated with rocks and other geological products of known epochs, and are also mixed with the bones of extinct animals, the place of which is known in prehistoric zoölogy. Not only this, but the works of the first men and the secondary races, namely, their implements and utensils, made in many instances of imperishable materials, are plentifully

found in association with the bony remains of the people by whom such implements and tools were devised and used. The materials which primitive men first employed in their rude way in the fabrication of such utensils as their low existence and manner of life called for have remained in the forms originally devised, and indicate most clearly the customs and inartistic methods of the age.

Nature led the way as to the substance and design of primeval implements.

Materials employed by primeval man in making implements.

Stone was chosen first, with little modification in the natural or accidental form.

At length the evidences of selection of materials appear. The better qualities of stone are chosen. Obsidian and flint become favorable articles of primeval factory. Bone also is used, and the horns of animals in the making of utensils and weapons. At length, with the increase of intelligence and the gift of experience, the metals begin to be taken and employed in the primitive arts. Copper and bronze more and more take the place of the stone utensils and tools which had hitherto been employed. Bronze is succeeded by iron, and the age of war and nationality—the daydawn of the historical epoch—is ushered in.

It is thus comparatively easy to determine the sequence of races and times in the prehistoric ages; but this establishment of an order does not by any means give us an absolute date for the various periods of early man history on the earth. The stages through which the race has passed in the evolution of the civilized life from the very lowest and most ancient epoch to times within the limits of authentic history are easily discovered and established by quite indubitable testimony. But at this stage of

Time order establishes relative but not absolute dates.

ment of an order does not by any means give us an absolute date for the various

the inquiry the chronological scale falls into confusion and doubt. The great patent fact is that some races have outstripped others in their rate of progress, so that even to the present day a section of world history presents contemporaneously all stages of development. There are still existent in the world many tribes similar in nearly all respects, except with respect to strength and aggressiveness, to those primeval races which passed away during the formation of the tertiary deposits of the earth's crust.

We have only to look abroad into different parts of the world to discover the first men still pursuing methods of life that were prevalent in the times almost immediately succeeding the glacial age. The native inhabitants of Australia, the Maoris of New Zealand, the aboriginal races of other Polynesian islands, the natives of the Greater and Lesser Antilles—such as they were at the time of the discovery of America—and the Red races distributed through the New World from Patagonia to the lands of the Esquimaux, were all, at least until a recent date—as many of them still are—unacquainted with the use of metals in any form. They therefore belong to the age of stone as much as did the barbarians of prehistoric times. It thus becomes impossible, without collateral evidence, to fix the dates of archæological phenomena other than relatively. The relation of such facts may be fixed, but not the time. It is easy to say that certain facts precede others, and to prove that the rate of progress from one stage of development to the next is slow; but it is difficult, if not impracticable, to prove from the existing materials of archæological inquiry *how* ancient or *how* modern they may be.

Existing savagery illustrates the prehistoric state of man.

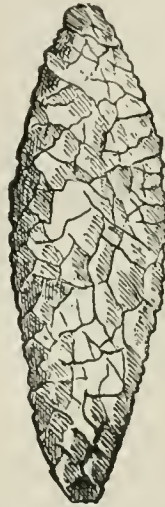
EIGHT PROGRESSIVE STAGES OF HUMAN DEVELOPMENT, ILLUSTRATED IN FABRICATION AND MATERIALS OF IMPLEMENTS.



(1) Palaeolithic awl.



(2) Worked flint.

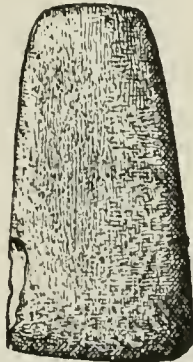


(3) Chipped spearhead found in a cave of Langerie-Basse.

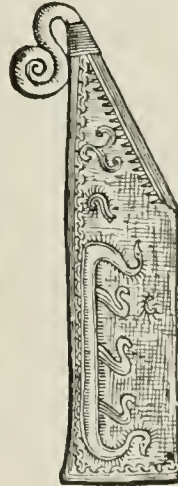


(4) Half-polished stone ax.

To this rule, however, there are certain exceptions, principally among the osseous remains of ancient peoples. There are certain types of structure unmistakably belonging to remote antiquity. The surviving barbarous races do not possess those strongly marked animal characteristics by which the aggressive barbarians of



(5) Neolithic hatchet.



(6) Bronze razor of Denmark.



(7) Bronze-handled iron dagger.



(8) Iron sword.

Differences between surviving and extinct barbarians.

remote antiquity were characterized. It would appear that the more peaceable, less

warlike, less adventurous, less progressive tribes and races of the ancient world have in one sense outlived the stronger and more ferocious of the primitive peoples. The latter seem to have survived in a civilized posterity, while the former have preserved their ancient proclivities with little evolution or change. It is for these reasons that certain kinds of human remains may be judged from their own na-

ture to have belonged to far-remote primitive races; but the general fact remains that those

implements and weapons, by which the Age of Stone is easily discriminated from the Age of Bronze, and the latter from

the Age of Iron, are comparatively useless in determining the absolute dates of prehistoric times.

Another flaw—but of opposite import—in the argument for the antiquity of



SKULL OF CAVE BEAR.

man from archæological remains is found in the reliance, sometimes too implicitly placed, on the association of human bones and implements with the remains of extinct animals. It should be remembered that the present distribution of animals over the earth, particularly of the carnivora, has been largely effected and limited by the agency of man himself. The lion, the tiger, the hyena, *et id omne genus*, can not coëxist in the same country with civilization. Not indeed, as is generally supposed, on account of the climate, but specifically because when the man and the tiger are in the same arena the one or the other must go to the wall. It has been generally assumed that the great extinct cave bear, the cave lion, and the cave hyena, whose remains are found associated with those of primitive men, must have belonged to a period very remote from the glacial age in Europe—either before or after—since the climate of that epoch, when the ice-cover of the European countries generally abutted southward against the Alps and the Pyrenees, would be too rigorous for the existence of animals now confined to Africa and the Asiatic jungles.

This conclusion, however, is to forget that the tiger, the bear, the hyena, and even the lion are, to the present time, fully capable of sustaining a degree of

Ferocious beasts not wholly of tropical habitat.

cold approaching that of the arctic circle, and that these creatures have receded into their present habitat, not because of its tropical character, but for the reason that civilization has driven them back into those fastnesses where an abundance of vegetable-eating animals furnish subsistence for the carnivora. In prehistoric

Europe, therefore, there was no reason for the nonexistence of these savage beasts close along the line of the receding glaciers. At the present time the Indian tiger, where the wall of civilization is not around him, breaks freely from his jungle, pursuing the antelope and the deer up the slopes of the Himalayas to the line of perpetual snow; while the leopard, the panther, and the cheetah stop not even for the snow, but follow their prey into the fastnesses of Siberia.

For these reasons we may perceive clearly the fallacy in the argument of



SKULL OF CAVE HYENA.

those who would reduce the date of the first men by claiming that the association of their bones, even in the most primitive localities, is with the relics of animals which, though extinct, must

have existed at a period long subsequent to the glacial age.

There are, however, some direct evidences of the antiquity of archæological remains; that is, evidences in the remains themselves. By common consent the stone age marks the first stage in the human evolution. Now stone, when it is worked by the human hand, or when broken or abraded by accident, presents a new surface to the action of the elements, and this surface bears witness ever afterwards to the antiquity or the recency of the fracture. All kinds of stone, even the hardest and most carefully polished, show after the lapse of years that the surface so exposed is growing old. The granite shafts preserved from ancient Egypt proclaim even to the unscholarly observer their manifest and indubitable antiquity. The glint of all varieties of broken or polished stonework disappears at length, and is replaced with a dulled and hoary surface, the difference between which and any recently polished or broken exposure is intensified by a microscopic examination. These facts hold whether the specimen or monument in question has been exposed only to the aerial elements or whether it has been buried in the earth.

To all persons the difference between an ancient and recently fabricated stone implement is apparent, but most apparent to the archæologist. To his practiced eye every stony surface tells the story of its antiquity—not, indeed, with absolute certainty as to date, but approximately as to epoch. It is easy to arrange and classify the palæolithic specimens of a collection by the degree of the secular erosion of their surfaces, to arrange the most ancient in a group by

Direct evidence deducible from archæological data.

Stone implements witness to the age of their production.

themselves, and to fix with some approximation to accuracy the age of each.

It is by the means here suggested that archæologists have determined with tolerable certainty what are the most ancient remains of human industry yet discovered in Europe. In a deposit near Thenay, in Central France, certain implements of flint have been recovered which are regarded as the workmanship of the first men. The specimens in question are rather larger than the majority of such finds, and were produced by primary and secondary chip-pings. Competent geologists have assigned to these rough relics of primitive handicraft a date coincident with the middle of the tertiary period. Of equal age are some relics which have been taken from the old bed of the river Tagus, near Lisbon. The French archæologists, and in particular M. Ribeiro, who made the discovery, are strongly of the opinion that the relics in question are of the middle tertiary, and that nothing more ancient of the workmanship of man has been found anywhere in the earth's crust. Even in this case, however, science is constrained to fall back upon the situation and surroundings in making an estimate of the true date of the implements referred to. Archæology, pure and simple, is able to say no more than this, that the articles in question were made by a tool-using animal acquainted with the use of fire; that they are, by the evidence of their own surfaces, of a very remote period in the prehistoric ages, and that the coincident geological proof points to the borders of the miocene epoch as the date of their production.

Place and character of the most ancient human remains.

It should be understood by the reader in his effort to grasp the remoteness of the probable period at which these most

aboriginal implements were produced that the gap in time and skill and progress between such finds and the next in order is very great. It would seem indeed that the period reaching from the age of these most archaic relics to the age of the finely executed flint arrowheads and spearheads which we may see in almost any museum of natural history, was fully

Immense time-gap between successive archaeological ages.

anthropoid apes. The latter have been known to break a club from the branch of a tree and to set the weapon in a place where it might be found again; then to use it a second time—all this, however, without direct adaptation of the weapon to the object of its use. In the case of the stone implements of the earliest age, we find them, as a rule, prepared on one side only. The first men seemed to



LANDSCAPE OF THE MIOCENE—BORDERLAND OF MAN.—Drawn by Riou.

as extensive as that reaching from the age of the arrowpoints to the age of iron.

This consideration, indeed, brings us again to the use and application of right reason to the problem before us. The ancient implements which we are here considering mark the first departure of human intelligence from that of the lower animals. The rude artisanship of the articles in question advances but a stage above the skill and cunning of the

Intelligence of the first men compared with that of animals.

have sought such fragments of stone as had been partly shaped by the accident of nature. This fact would reduce the amount of labor and skill which the aborigines must employ in preparing the other side of the block. Perhaps a majority of the most ancient forms are characterized by human workmanship on one side only, the other remaining as it was produced in the more ancient shop of nature.

The span from such art as this to that



of a symmetrical arrowpoint is very great. It is not, however, such a stage of progress as might not be rapidly passed in an age of progress and amelioration.

Modern society very frequently sees such transitions accomplished in a few decades; but not so in the primitive world. In that it would appear that the aboriginal savages were unable to lift themselves to new methods of life except after great travail and cons of time. We have only to glance at a few facts in order to find indubitable proofs of the truth of this hypothesis.

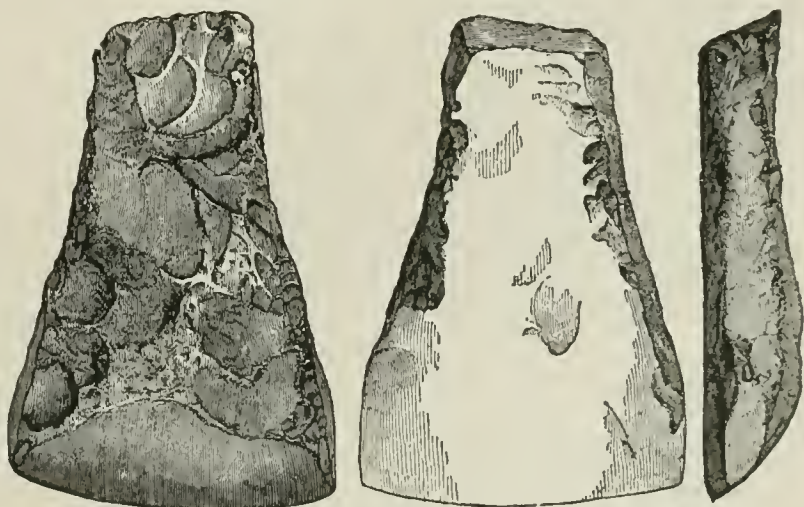
One of the most significant of these facts is the wide distribution of implements of the kind referred to above. It is definitely known that the race of beings by which they were used was not at all restricted to France and England

—in which countries archaeological inquiry has been prosecuted with greatest success. On the contrary, such archaic implements have been found in regions of the world widely separated by mountains, rivers, and seas. Relics of like character have been discovered in the Rhone gravel near Arles, and in the Po and Vibrata, and as far south as Rome. Others of identical character have been recovered on the banks of the Meuse and the Scheldt, and still others in Central Germany. Farther abroad, even in the sands of the African rivers, and more frequently in the river-beds of North America, such relics have been discov-

Wide distribution of palæolithic implements.

ered. Professor Henry W. Haynes, of Boston, has taken implements of like sort out of the sands of the Nile. Such specimens have been found forty feet below the surface in the diamond fields of the Cape of Good Hope, and still others in a deposit near Madras, India, and still others in Japan.

We thus see the unmistakably wide distribution of primitive men established by archæological evidences. But if we look closely at the situation in which the most ancient stone relics of human



EXAMPLES OF OLD STONE WORKMANSHIP—ADZES OF NEW ZEALAND.

workmanship have been found, we shall see that everywhere the situation is alike. The rivers were chosen as the nesting places of the aborigines; and there they clung. No specimens of ancient stone weapons or implements of the most archaic type have been found in Switzerland, or any other countries greatly elevated, or in regions far removed from river banks. This would seem to establish several facts: First, that the date at which the primeval races here under consideration flourished was as far back as the time when the mountains and highlands were still covered with the glacial deposits.

Common situation of the most primitive tribes; deductions.

Secondly, we note that the geological condition was such everywhere as to invite the gathering of the primitive savages in the warmer spots near the estuaries of rivers, on those grounds where the ice had melted away and from which the waters had receded. Thirdly, we infer that these first races of human be-

an age and from such a beginning the human evolution proceeds most slowly, and it is probable—almost certain—that many thousands of years were consumed in this winter of the human race before it began to grow, to break the soil of environment, to rise into the air and light of intelligence and progress.



EXAMPLES OF NEW STONE WORKMANSHIP—HATCHETS OF YUCATAN.  
Drawn by Eugene Meunier.

ings were sedentary; that is, that they were locally fixed to their places of habitation, from which they wandered forth for no purpose but to procure the means of subsistence. Fourthly, we may justly deduce the conclusion of the exceedingly unprogressive character of the tribes referred to. They were virtually without ideas or thought. In such

Still another consideration may here be properly adduced, and that is the negative Negative proofs of low condition of man in the Old Stone Age. argument as to the condition and consequent remote date of the Old Stone Age. We may learn from the things *not* found that the epoch in question was almost inconceivably remote from the present. None of the implements belonging thereto seem to have been devised for the purpose of skinning beasts, preparing hides, or manufacturing clothing; from which it is probable that the artificial protection of the body by means of garments had not yet been discovered. It is claimed that no evidences of burial or other reverential or superstitious care of the dead bodies of the people have been found among the relics of this age. Nor has any trace of religious ceremony, as evidenced by charm or amulet, been discovered in association with the rude weaponry of this most ancient period of human exist-

ence. It is claimed, however, that certain shells prepared for personal adornment have been found associated with implements of the earliest age; from which the inference is drawn that the earliest æsthetic ideas of mankind were those relating to the decoration and adornment of the body—a hopeful sign, and most hopeful in the savages.

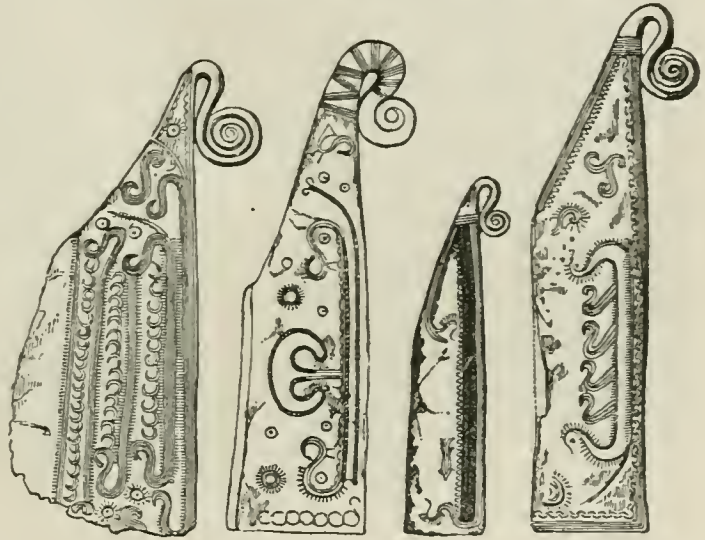
After the Old Stone age a change appears not only in the implements and weapons of the ancestors of mankind, but, what is far more significant, in the makers also. Ideas and thought appear. Talent begins to be. There are evidences of reflection, studied purpose, and design. Already in the New Stone epoch we discover the beginnings of progress and taste. The implements of this age are polished, fashioned, finished. They have, at least by suggestion, the rudiments of artistic form. The men who made them could conceive a pattern and follow it, and—if that—could imagine. Further on, in the age of bronze, the mental faculties are displayed in still higher activity. Some of the relics of this age are positively elegant. Design reaches as far as ornamentation and real art. Actual genius is displayed, even though it be in the carving of a knife-blade or the decoration of a razor.

It is not needed in this connection to follow the lines of progress downward from the most primitive ages, since our only purpose in these chapters is to approximate the date of the beginning of the career of man. The testimony of archæology taken altogether is entirely corroborative of that drawn from astronomical sources and of the evidences gained by geological study. Indeed, the whole web of proof holds together, and presents a unity of structure which could hardly

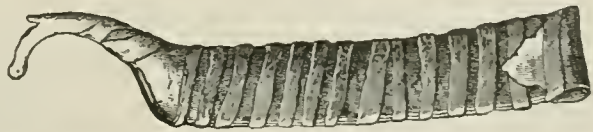
Archæological testimony corroborates the other sciences.

have been expected considering the recent date of the physical sciences and the still imperfect knowledge which men have gained respecting the former conditions of the earth and its inhabitants.

If we turn, in the next place, to palæontology, we shall find the same cor-



Razors from Denmark.



Small knives from Denmark.

EXAMPLES OF PREHISTORIC WORKMANSHIP, FROM BRONZE AGE.

roboration in proof, and virtually the same examples in illustration. It is the peculiarity of the study before us that, beginning from an astronomical basis and working our way downward through many branches of investigation to common tradition and history, the successive subjects seem to anticipate one another

Palæontology a branch of archæological inquiry.

in their results. Geological inquiry includes as one of its departments archæol-

table and animal forms of life prevalent on the surface or in the air and waters.

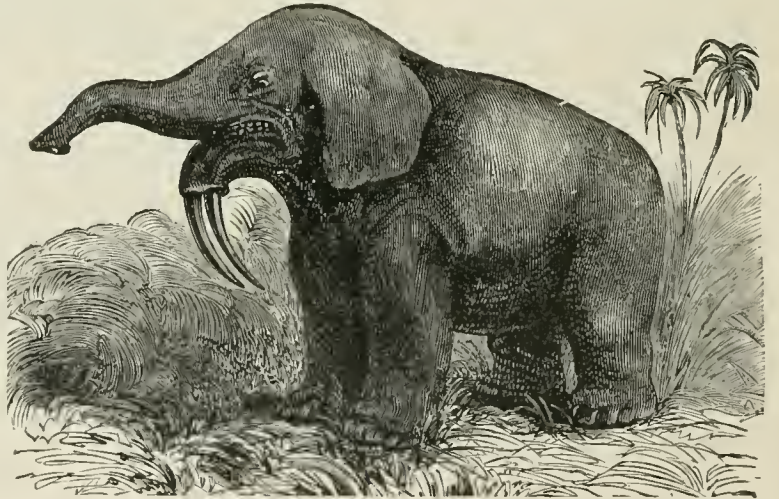


HUGE ANIMALS PRECEDING THE AGE OF MAN.  
(1) Megatherium, restored.

A very casual examination of these flora and fauna reveals to us the fact that they are in a state of transformation. The law of vegetable and animal forms. The changes going on in the forms of life, whether vegetable or animal, are slow and orderly; but the fact of change is as certain as the fact of existence. There is not a vital phenomenon of any kind on the face of the earth which does not reveal under scrutiny this law of transformation. The individuals of a given species come and go by the processes

ogy, and archæology in like manner embraces palæontology. We can not investigate the evidences of man-life in the earth by an examination of the implements, weapons, utensils, adornments, primitive architecture, etc., without finding constantly in the path of the inquiry the subject-matter of palæontology. But without pursuing these reflections, let us look at once at the testimony afforded in the fossiliferous history of the earth relative to the date of man's appearance.

of procreation, growth, maturity, decline, and death; and the species themselves, to which these individuals be-



HUGE ANIMALS PRECEDING THE AGE OF MAN.  
(2) Dinotherium.

A glance at the present aspect of the world shows us as the two most conspicuous facts of the landscape the vege-

long, though of far greater duration, are in a process of change exactly analogous to that of the individual parts.

Some species of vegetable and animal life are already old; others are young; some are middle-aged. If we begin an examination of the most recent superficial deposits of the earth, we find therein what may be called the back history of many existing orders of life. But we do not pursue the investigation far until we arrive at unmistakable evidences of other forms of preëxisting life that are now extinct. Following these preëxisting forms through their fossiliferous history downward, we are able with care to discover in the correlations of geology the whole career of these extinct orders—to find their beginnings, their middles, and their ends.

But meanwhile, as we continue our exploration of the crust of the earth, we come to still other and older varieties of life which are no longer to be found in existing species, or even in the more superficial parts of the earth's crust. Still onward and downward we make our way, with results always analogous to those discovered at the first. We are soon able to generalize and to say that the whole history of life is a history of cycles, succeeding each other from the azoic ages of our planetary history to the present day. An Order of Life is thus established, consisting of many varieties and forms through rising scales of development, the older ever dying away, the newer ever surviving, through the whole extent of world duration.

This order of life, with its great cycles and successions, when once it has been established, is as invariable as the geological epochs and transformations with which it is so intimately associated. The life history of the globe comes at length to be as well fixed and as invariable as the geological annals of the globe.

It is from this point of view that we are able to discover the superior value of palæontological inquiry as it bears on the question of the antiquity of man. Motions of the evolutionary process among living forms.

We have seen, in a former part, that archaic implements and other relics of human workmanship surviving from prehistoric times do not easily establish the antiquity of the races by which they were produced—this, for the reason that we have at the present time the age of stone coëxisting with the age of iron. But the extinct forms of life never coexist with the current forms. The order of living being, whether in the vegetable or the animal kingdom, is absolute. The newer race, the higher type, succeeds the older—the lower; from which it happens that the age of a given fossil, having been once determined by its correlation with some geological epoch, becomes ever afterwards a means and measure by which the antiquity of associated facts may be determined.

Thus we have in prehistoric chronology the Age of the Great Cave Bear succeeding the Age of the Mammoth, the Age of the Mammoth that of the Reindeer, and the Age of the Reindeer that of Domestic Animals. This order holding good in Central Europe, where it was first discovered as a law of zoölogical succession, may be depended upon with almost as much certainty as the order of the geological formations of the earth's crust. We should as little expect to find the remains of a mammoth succeeding the remains of a reindeer in a given country as we should expect to find a pliocene stratum under a chalk bed—unless, indeed, there had been in the latter case a physical cataclysm to produce the inversion.

This established order in the animal

Existing orders the residue of extinct types of being.

Older forms give place to new in a fixed order of life.

Order of animal existence as fixed as geological order.

world has been of vast use in determining the date of human phenomena in the prehistoric ages. Man has always been closely associated with the other forms of animal existence. Being to some extent carnivorous in his habits—and much more so in the barbarous than in the civilized condition—he has from

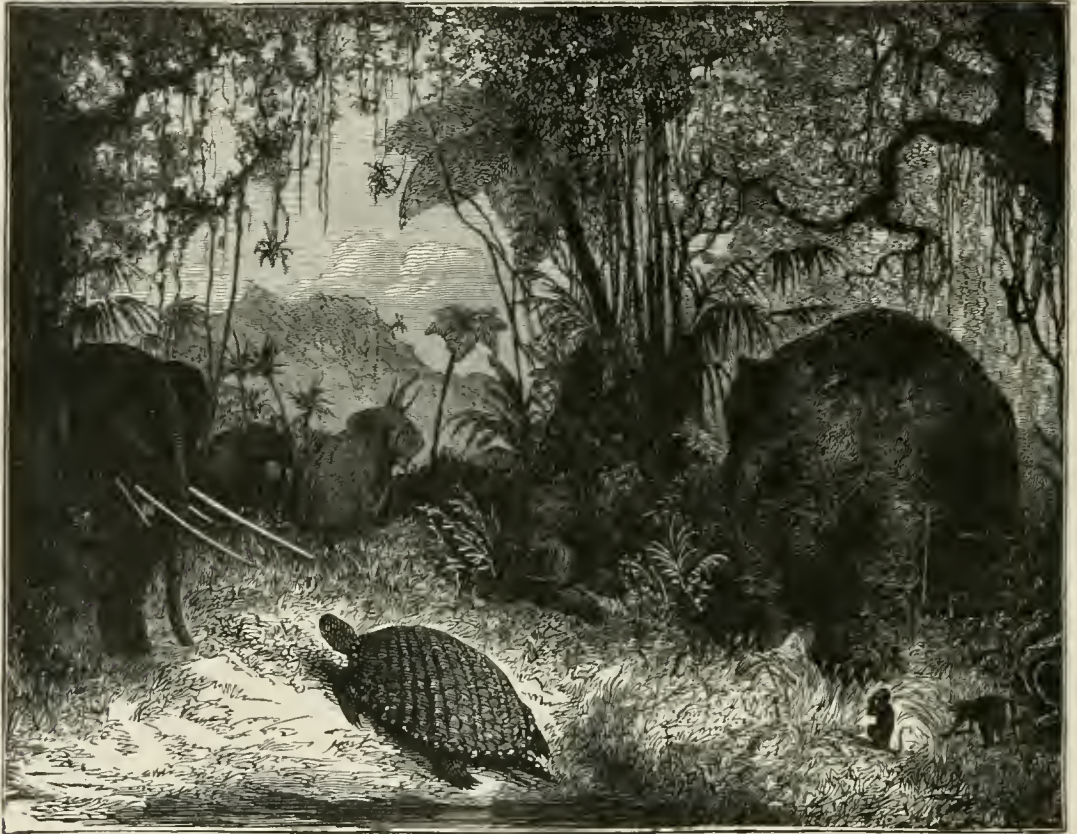
Man-life closely linked with the history of animal species.

the prehistoric ages. Man has always been closely associated with the other

forms of animal existence. Being to some extent carnivorous in his habits—and much more so in the barbarous than in the civilized condition—he has from

we have many additional facts that are of great value and essential interest drawn from the history of the fauna of the world. One of these is the law of diminishing size and power which holds generally of the different species of wild animals and inversely of the domestic animals. Many of the beasts which in-

Wild animals diminish in size in successive eras.



Elephas primigenius.

Glyptodon.

Cave bear.

ANIMALS ASSOCIATED WITH PRIMEVAL MAN.—Drawn by Riou.

his most primitive condition relied to a very great degree upon the associated orders of life for his means of subsistence. We are not here to dwell upon these facts save sufficiently to show the usefulness of animal remains in determining the unknown dates of human history.

Besides the established order of animated nature, from the first appearance of life on the earth to the present day,

habited the earth coincidentally with the first men were of prodigious size. We have already referred by name to several of the huge carnivora at one time prevailing in Europe and America. One of these was the tremendous cave bear, another the cave lion, another the cave hyena. In general, these creatures were of the genus *Felis*. Besides these there were vegetable-eating animals, also huge and powerful. To this order belonged

the gigantic *Megaceros Hibernicus*, or Irish Elk. There was also the *Rhinoceros tichorinus*, or Wall-nosed rhinoceros, with his two horns and woolly body; likewise the *Hippopotamus major*, vastly greater in bulk and more savage in habits than the descendent variety still wallowing in the mud of the Nile.

All of these animals, carnivora and other, were greatly larger and stronger than any living representatives of their respective kinds. The great pachyderms, most prodigious of all the warm-blooded animals that have inhabited the earth, declined in proportion as they tended toward extinction, and the same process continues to the present day, except in those species which have been reduced to domestication by man. Wherever the last-named process has been effected the law of bulk and power has been reversed. The tremendous horses which we now find patiently serving man in all the civilized countries are the descendants of the prehistoric *hiparion elegans* of palæontology. There are to-day larger dogs, larger sheep, and larger swine in the world than ever before; and if the cattle do not surpass in size the primeval ox, they do exceed in weight and strength any of the varieties from which they are nearly or even mediately descended.

These two laws, the one expressing the rate of decline in the size and capacities of the wild animals of the earth; and

the other the inverted law of increased bulk and power of animals under domestication, become the data which the inquirer may use in generalizing with respect to the antiquity of man. The coëxistence of the human race with the animals mentioned by name in the above paragraphs is now a fact so well established that it is no longer in controversy, at least among scientific men. The question, therefore, as to the antiquity of man resolves itself into the question of the antiquity of the prehistoric animals that were his coïnhabitants of the earth in prehistoric ages. The question of the antiquity of these animals resolves itself, in turn, into the question of the age of the world when they were the prevailing forms; that is, the latter question is partly so resolved. For, as we have seen above, there are some principles by which the age of a given form of animal life may be approximately determined even without reference to the geological conditions under which the remains of such animals are discovered. But for the most part the decision of the question goes back, as before, to the date of that post-glacial epoch in geology at which the extinct animals referred to and primeval man existed together. In a word, the geological date is the determinative factor in the greater part of the inquiry, while the corroborative elements of the argument are derived from archæology and palæontology.

Antiquity of man determinable by sequence of species.

The law reversed in the case of domesticated animals.

## CHAPTER V.—THE ETHNOLOGICAL ARGUMENT.



WE have thus by progressive stages already impinged on the domain of that recent branch of science called anthropology. The scope and limitations of this department of inquiry have already been defined in the first chapter of this work. The science in question has one division, namely, the human division, of palæontology as its first part, while in its after development it divides naturally into ethnology and ethnography. For our present purpose it is sufficient to say that

Anthropology bears witness to the antiquity of man.

anthropology throws at least some reflected light on the question of the antiquity of man. Take, for example, the longevity of the individual of our species as a hint on the longevity of the race of beings to which we belong. There is undoubtedly a correlation between the brief life of ephemeral and transient living forms and the rapid transformation of that variety of life to which they belong. Man is without question one of the most long-lived animals inhabiting the earth; and the supposition of great duration, past, present, and future, for the human race, is in accordance with right reason and scientific deductions.

In the anatomical structure, in the physiological offices of man there are evidences of the profound antiquity of the race. In many parts of the human body there remain from the prehistoric state the rudimentary forms and indications of organs which, as organs, no longer exist in our species. These rudimentary parts in every case stand for

Existence of atrophied organs in the body.

actual organs in some other varieties of animal life, thus indicating most positively, as the evolutionist believes, the ultimate kinship and successive differentiation of all forms of living beings on the earth. It is by no means our purpose in this part of the inquiry to consider the validity of the hypothesis of evolution; but it may well be urged in this connection that, from whatever point of view we consider the descent of man, the existence in the human body of rudimentary parts points, as we think unmistakably, to a very high antiquity for the human species.

Consider for a moment the existence and significance of rudimentary organs in the body. Under the eyelids of every human being are found the outlines, and indeed the fact, of a semi-lunar fold corresponding precisely to the nictitating membrane in the eyes of the domestic fowl or the goose. Here in the human anatomy is the potential representation and simulacrum of an organ which must, in the nature of the case, answer to some function or use in the present, the future, or the past. The semilunar fold in the eyelid has **no use** in the present. It is against the laws of right reason to suppose that it will ever have a use in the future, since the means of protection to the eye will increase rather than diminish with the further evolution of human life; and at the same time the dangers to which the organ is subject will be correspondingly diminished. We must therefore conclude that the rudimentary part represents an organ which once had an office to perform for the benefit of the organism as a whole. With the

Such organs signify a preëxisting mode of life.



gradual amelioration of conditions and with the physiological improvement of the eyelids proper, the necessity for such an organ as the nictitating membrane gradually ceased, and with disuse came feebleness of function, reduction of size, and final atrophy. This would appear to be the only possible explanation of the presence of such a rudimentary part as the semilunar fold in an animal such as man.

The very same thing may be said of those other structural elements in the human body which no longer serve a purpose. What that purpose would be under certain conditions we are able to see by a glance at the anatomy and physiology of other animals. It is no longer useful to human beings, having as they do the free use of the arm and hand, to possess a muscle

for moving the ears, though such a muscle in the lower animals is highly important and beneficial. But the muscle, though in an atrophied or semiatrophied condition, still exists in man, and in some

instances the possessor is still able by the will to move the ear in a manner which must have been common and convenient for the species in some remote prehistoric epoch. The same thing may be said of



EXAMPLE OF EXTREME LONGEVITY—AN EASTERN SORCERESS.

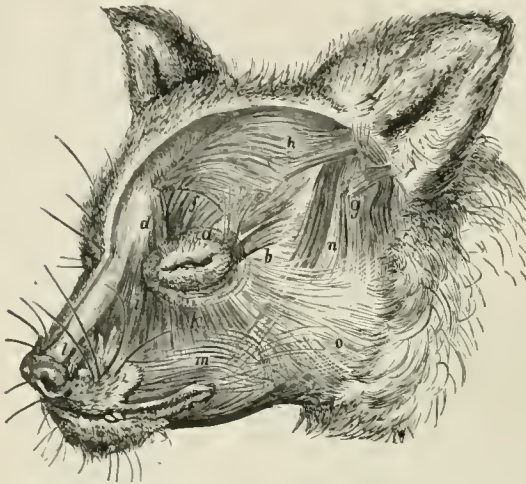
Drawn by G. Vuillier.

Atrophied ear-muscles and extinct mammæ in man.

highly important and beneficial. But the muscle, though in an atrophied or semiatrophied condition, still exists in man, and in some

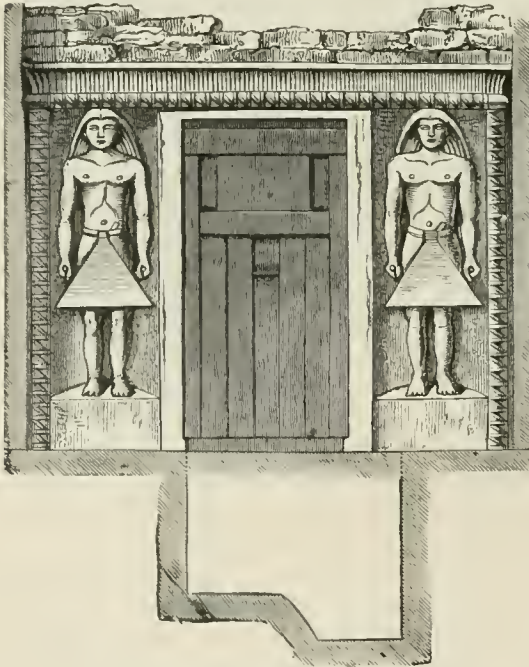
the appendix vermiformis and of several other parts of the human body for which no plausible explanation has ever been offered *except* that they stand for organs and offices that were once in full exercise and development by the ancestors of our

race, but have fallen into desuetude through ages of changing conditions and



DOG'S HEAD, SHOWING MUSCLES FOR MOVING THE EAR WHICH HAVE BECOME ATROPHIED, THROUGH DISUSE, IN MAN.

the altered necessities of life. Aye, more than this, we have in the human anatomy certain parts, such as the rudi-



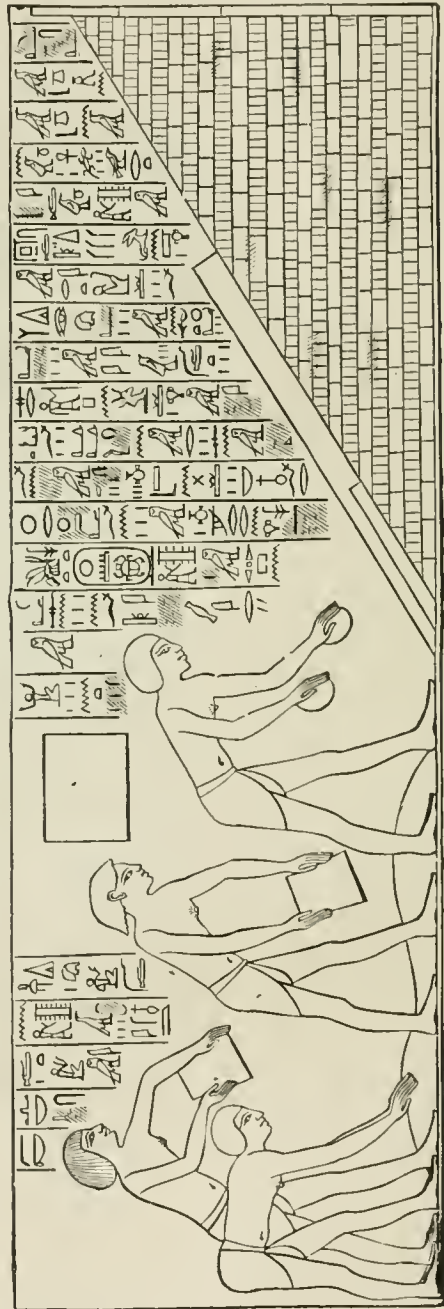
BODILY FORMS OF THE PYRAMID BUILDERS, FORTY-THREE CENTURIES FROM THE PRESENT.

Drawn by B. Strassberger, from door of tomb at Gizeh.

mentary breasts of the male, which seem to point to a condition still more primitive in the development of our race—to

a time when even the sexes had not been differentiated the one from the other!

As we said above, these facts, and the



BODILY FORMS OF THE PYRAMID BUILDERS, THIRTY-FOUR CENTURIES FROM THE PRESENT.

Drawn by Wiedenbach, from sculptures of prisoners of war, time of Thothis III.

conclusions toward which they tend in support of the hypothesis of evolution, are not adduced in this connection as an evidence of the truth of that theory, but

simply to illustrate the testimony which anthropology is able to give respecting the antiquity of man. For how vast must have been the time requisite for producing such astounding changes as have manifestly taken place in the organs and functions of the human body! Consider for a moment the backward look which we are able to give to the condition of mankind by the single light of history. It is hardly an exaggeration to refer to consecutive facts in the annals of Egypt as far away as three thousand years before the Christian era; yet among the most ancient works of that primitive seat of civilization we are able to discover unmistakably the presence of the man-form already differentiated into ethnic varieties and present aspects of activity. We have no reason to suppose that the rudimentary organs of the pyramid builders were any larger, more vital, more active, than they are in the race to-day. This is to say that the work of evolution—or whatever it was—by which the atrophied condition of certain organs which had fallen into disuse had already been completed five thousand years ago! What, therefore, shall we say of the lapse of time necessary to have effected the transformation? What shall we say of the almost inconceivable period in human development requisite for the differentiation of the sexes in all hot-blooded animals, the evidence of which has been transmitted in rudimentary organs still existing in the males in a condition of atrophy after at least five thousand years?

Vast reach of time requisite to produce anatomical changes.

the antiquity of man. For how vast must have been the time requisite for

Anthropology parts into at least two kinds of inquiry of the greatest importance. These are ethnography and ethnology. According to Jean Reclus these two departments of human knowl-

Relations of ethnology and ethnography to other sciences.



ETHNIC DIFFERENTIATION.—(1) MARIA OF COS—EUROPEAN TYPE.  
 Drawn by E. Ronjat, from a photograph.

edge “run up into anthropology, as anthropology does into zoölogy, and zoölogy into biology.” It is true, how-

ever, that the line of demarkation between ethnographic and ethnological investigation is difficult to draw, just as the division between geography and

philology, jurisprudence, archæology, geography, and even to tradition and history.

The present work, devoted to a history of the great races of mankind, must, in the nature of the case, be essentially ethnographic and ethnological in its subjects and manner of treatment; but we are not by any means at this juncture to branch out into the treatise at large. Our present purpose is no more than to note in a general way the light and testimony of ethnology and ethnography respecting the question of the antiquity of man.

Let us mark then, first of all, the dispersion of the human race into tribes and kindreds. The traveler abroad, going from country to country, visiting one people after another, is perhaps more impressed with their *differences* in ethnic characteristics, in manners and customs and language and law, than he is with their *identities*. The distribution of mankind is literally from the rivers to the ends of the earth, and their differences range through a wide scale of departure covering almost all possible variations in physical, intellectual, and moral character.

When—at what time in the past—did these ethnic peculiarities appear? As a preliminary to answering this question we may confidently assert that they *did not appear all at once*; that is, the ethnic marks and peculiarities by which the various tribes and kindreds of mankind are so strongly discriminated, did not appear phenomenally; but only

Ethnology here considered as indicating the antiquity of man.

Ethnic differences already well developed in the dawn.



ETHNIC DIFFERENTIATION.—(2) THE "BLACK FLAGS" OF SOUTHERN CHINA—ASIATIC TYPES.  
Drawn by Barbotin, from a phot. graph.

geology is faint and in some parts undiscoverable. In fact, ethnography, ethnology, and anthropology hold fast in their subject-matter and methods to

nic marks and peculiarities by which the various tribes and kindreds of mankind are so strongly discriminated, did not appear phenomenally; but only

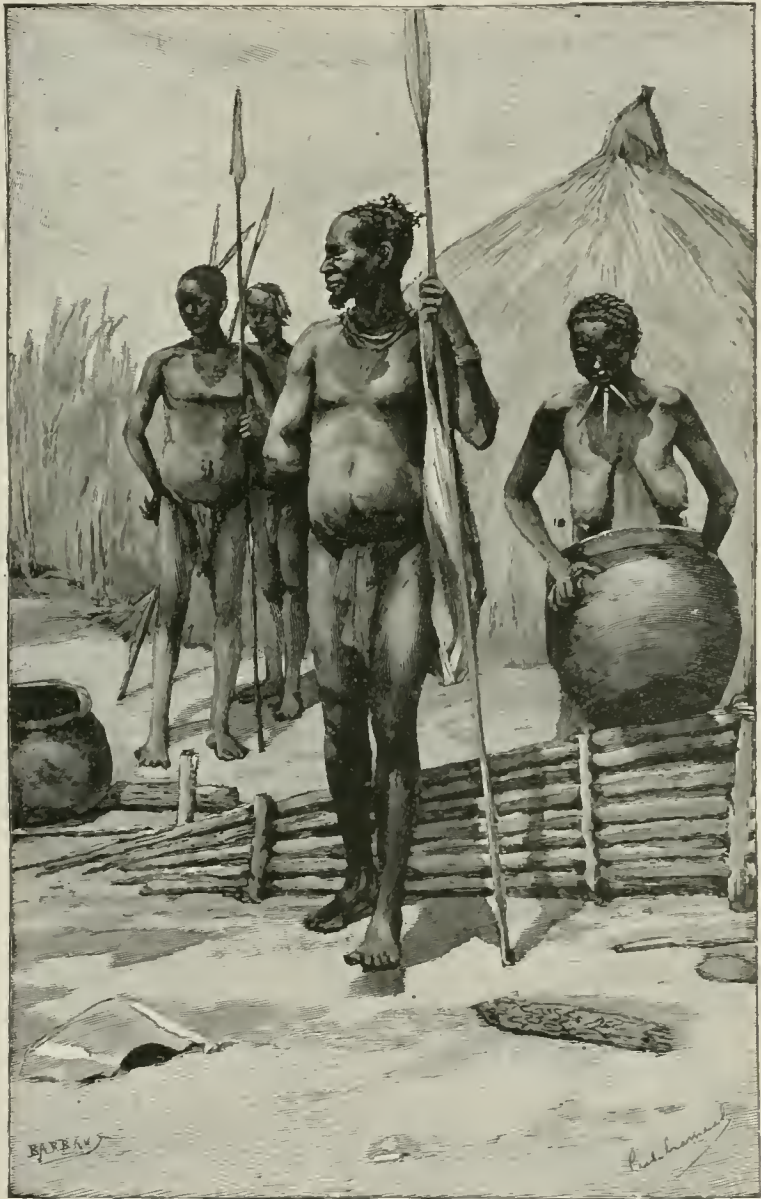
mediately, and by imperceptible degrees. Of one thing we are historically certain, and that is that the distinguishing traits of the different peoples of the earth were already strongly and deeply drawn in the daydawn of human annals, and that since the remotest epoch of tradition they have scarcely been so much as emphasized by increasing differentiation. Indeed, it is unmistakably true that in modern times at least the strong, deep-cut lines of demarkation by which races and peoples were aforetime distinguished the one from the other are, to a considerable degree, effaced and obliterated by the ebb and flow of civilization; so that on the whole the tribes and nations of antiquity—the most remote antiquity—were, by much, more clearly discriminated than they are at the present time.

It is trite to refer to the historical evidence which abounds respecting the truth of these statements. The monuments of ancient Egypt and Assyria, if none other existed, would of themselves suffice to establish the early differentiation of

Evidences of the early evolution of race distinctions.

mankind. Among the former sculptures we find positively delineated at least four leading types of men as they exist to-day;

and the lines are drawn with as much distinctness as though they had been executed by an ethnographer in the last decade of the nineteenth century! Thus



ETHNIC DIFFERENTIATION.—(3) CHIEF YABANDA AND FAMILY, OF THE CONGO—AFRICAN TYPES.

Drawn by Madame Paule Crampel, after a sketch of Nebout.

at the epoch of the pyramid builders the races of Europe, Asia, and Africa had already been confirmed for all time in their ethnical characteristics.

These facts established, as they are, right reason demands the acceptance of one of several possible inferences. The first of these is that the races of men, as they come into view in the early dawn of history, had descended through a remote prehistoric past from a common origin, and that in the long processes of that descent the ethnic characteristics of each race and people had been developed and established. Another supposition possible in the case is that men began from various parts of the earth, under various conditions, and from different originals. From these the descending lines of ethnic life were drawn under the influences of environment, until at length, in the morning of tradition, the various peoples emerged into view with their respective characteristics fixed as we find them at the present day. A third view is that which presupposes phenomenal departures from a common type at some period in the prehistoric ages. This hypothesis includes a supposed anomalous divergence; as, for instance, in a common family in which the sons, though born of one father and one mother, should come into the world with different ethnic traits upon them, thus establishing, or rather opening, the fountain heads of races and peoples. The suppositions may be multiplied, but the foregoing are sufficient to indicate the possibilities of the case.

It is almost needless for a writer of the present day—strongly indoctrinated as the age is with the principles of science, a knowledge of causation and universal sequence—to assert that only one, namely, the first, of the above suppositions is tenable. It is not our purpose in this place to discuss the monogenetic and polygenetic theories of the origin

Several theories to account for the differentiation of the races.

Acceptance of monogenesis and influence of environment.

of the human race. From what we know, however, of the orderly evolution of life, there is only one rational and thoroughly consistent view of the history of the ethnic distinctions existing among mankind, and that is that in a period far remote, beyond the beginning of human annals and extending to a great depth in the prehistoric ages, mankind, of a given type, appeared on the earth, and that in the vicissitudes of the ages following, far below the remotest rim of historical knowledge, the tribes of primitive men gradually, almost imperceptibly, diverged from the common type, taking new features and new dispositions under the conditions in which they found themselves by migration, dispersion, and the contingency of climate. How slowly these forces operate in producing the changes which have manifestly been effected among the peoples of the earth is well known to all who have investigated the subject, and those who have never done so may easily apprehend the almost inconceivable lapses of time necessary to effect such changes.

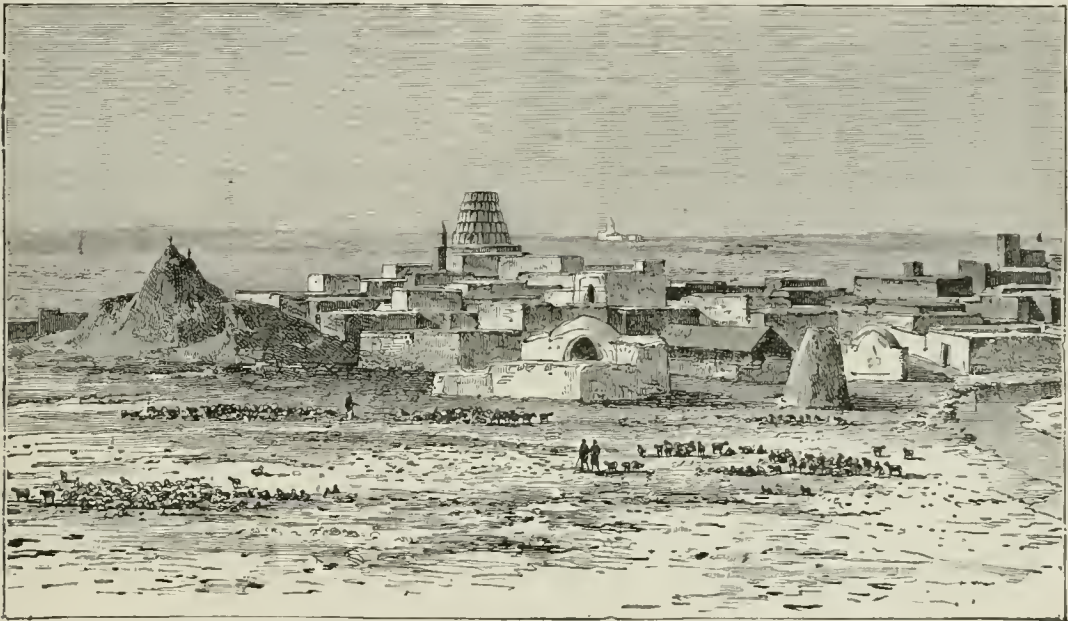
The problem has in it a sort of mathematical basis—an ethnic calculus—suggestive at least of the immense distance at which, from the ethnological point of view, the origin of the human race must be placed. As was intimated in a foregoing paragraph, we have what are no doubt exact representations of the different race-types at a period nearly five thousand years ago. From these, and by comparison with descendent forms, we may, as it were, compute the rate of ethnic change in the human species. It is noticeable in doing so that the rate is more rapid under civilization than in barbarism—a fact the reverse of what might have been anticipated. The Negro physiognomy as

Deduction of great antiquity from early race departures.

depicted in the Egyptian sculptures is almost identical with that of to-day; but the Copt of modern Egypt, affected as he has been by so many historical influences, has diverged not a little from the parent Egyptian type. The modern Greek and the modern Italian are discriminable by many ethnic marks from the great Greek of the ancient world and the Roman original; but the wild men of the Asiatic steppes, and no doubt the aborigines of the American continent,

kind had been evolved and established as they have ever since remained, how far off must have been the beginnings of the process! If we should say that a lapse of time equal to five times the whole distance from the beginning of human annals to the present day should be allowed for the ethnic divergence of the prehistoric races, we should certainly not exaggerate the probabilities of the case. That many thousands of years

Probable estimate of the duration of prehistoric ages.



VALLEY OF THE EUPHRATES—ONE OF THE PRIMITIVE SEATS OF MANKIND.  
 Drawn by Taylor, from a photograph by Madame Dieulafoy.

have changed but little in form and feature during several milleniums. This law of the more rapid change of ethnic characteristics under the civilized life tends to lengthen, rather than abbreviate, the duration of that prehistoric period in which the ethnic peculiarities of the various peoples were evolved and fixed.

If, therefore, as much as five thousand years ago, when the civilized life had certainly and strongly asserted itself in the valley of the Nile and had probably appeared in the valleys of the Indus and the Euphrates, the ethnic traits of man-

were required for such a transformation of peoples and kindreds as had already taken place before tradition and history began to record the words and deeds of men, can hardly be doubted by any one who has taken an enlarged view of the subject.

Not only has the prehistoric divergence in ethnic traits established the great antiquity of man, but the testimony derived from this source has been corroborated by the fact of the wide distribution of the primitive peoples of the earth. Within the historical period only a few

places, and these for the most part islands, have been found which were not already

Time required for distribution corroborates the estimate.

occupied by human beings at the time of discovery.

Some of the West India islands were uninhabited at the close of the fifteenth century. The same circumstance has been noted in Polynesia. But as a general fact the world has all been inhabited, even from antiquity. More than this: the first comers, even thousands of years ago, invariably found the countries into which they made their eruptions already peopled by an earlier race. It may readily be granted that the old Aryans themselves, before the dawn of history, making their way westward, found no uninhabited regions. As far back as we are able to reach by historical record and tradition, we note the same condition—the same invariable circumstance of the universal occupancy of the world by men.

The fact of this early diffusion of the human race over the earth tends strongly

Subjective and objective hindrances to diffusion of races.

to establish the great antiquity of the race. This

view of the situation in prehistoric times is intensified when we take into consideration the difficulties which confronted the first men in making their way from place to place. Great were the barriers and obstacles which constantly interposed themselves to the movements of primitive mankind. The common idea of tribal migration is almost wholly erroneous. True, there were times and peculiar conditions under which primitive peoples moved out from their old seats and in a phenomenal manner made their way across the prehistoric landscape into new countries, new islands, and even new continents. But, on the whole, the distribution of mankind over the earth has not been effected by *migration*, but by *diffusion*. The race

has diffused itself, like the slow growth of a vine creeping over the surface at a rate so small that it can not be detected by the senses. Only after a lapse of time are we able to see that the vine has taken a new and advanced position. In like manner the first men spread over the surface of the earth by gradual diffusion. Whenever a really favorable situation was reached by the outlying members of the tribe, then there would be a movement somewhat more rapid in that direction, until the better place so discovered was peopled and dispossessed of its native treasures.

By right reason we are able to see the spreading volume of the human race in the prehistoric ages. The advance of the frontier line in every given direction

Slow movement of the frontier line in race distribution.

would be like the current of Cæsar's river, "so slow that by the natural eye the direction of the current could not be determined." What we are here concerned to note is the great period of time requisite for the distribution of the primitive peoples over the earth and the consequent high antiquity of the race. The process or processes, for instance, by which a population was finally contributed to the islands of the Pacific and to the American continents must have been so tedious, so much retarded by the opposing conditions of the natural world, so greatly heightened by the barbaric state of the primitive tribes by which the work was accomplished, so long held back by pauses and retrogressions as to demand for the accomplishment what may well be estimated not at a hundred or a thousand years, but at an eon of time.

Certain facts must constantly be borne in mind which by their nature must have long retarded the distribution of the original races over the earth.



The work was effected in some way before the dawn of civilization. This sig-

Particular obstacles to be surmounted in migration of races.

nifies that men in a state of nature inhabited a natural world, little modified as yet by the influence of its inhabitants. It is almost impossible for men under the civilized life to realize the difficulty which a primeval people, a real aboriginal tribe, would experience in attempting so simple a feat as crossing a river. We may suppose that the aboriginal man

could swim; but the transportation of children across a broad and rapid stream must have been to the men of the first epoch an almost impossible task. No doubt the introduction of boats and rafts was an event belonging to a very early age in the human evolution. Nevertheless, there was a time when primeval savages worked their way up slowly, cautiously, distrustfully to the concept of a canoe with as much difficulty, aye, much greater difficulty, than the modern man has experienced in the idea and construction of the ocean steamer. Indeed, every advance which marked the slow progress of mankind in the prehistoric ages was attended with such labor and doubt and tedious approaches of attempt and failure as must have retarded for almost immemorial ages the coming of primitive civilization. All calculations respecting the antiquity of man, which do not include among the prominent elements of the problem these facts respecting the difficulties interposed by nature to the diffusion of the first races over the earth, are inadequate and erroneous in their bottom principles.

In all the primeval world there was not a single highway. Nature builds no roads, constructs no bridges. We must remember in this connection that

in all that vast and warlike world revealed to us in the history of Egypt and India and Greece and Carthage and Rome there was not a single tunnel. Absence of means of communication in primeval ages.

The aqueduct, the viaduct, the sewer, even the Cloaca Maxima, were known at a very early age; and the building abilities of the people were able to have produced a tunnel in the proper sense; but it remained not for the age of Alexander or Cæsar or the Antonies, not for



PROGRESS OF PRIMEVAL MAN BY WATER.

the epoch of Justinian or the era of Charlemagne, not for the Renaissance or the times of Napoleon, but for the nineteenth century to construct the first underground passageway for the movements of civilization—the quick transit of men and merchandise.

We have already referred more than once to the tremendous obstacle of the seas and oceans. With what a sense of impotency must the primitive man have come to the seashore! Even after the age of boats and ships, how did he cling to the shores and inlets of the seemingly infinite deep! It must be remembered

that the concept of the impassibility of the sea and even of lakes and rivers was one of those ideas which in the early ages of the world became fixed by the law of heredity—transmitted from generation to generation, until it was a part of the intellectual and even the religious belief of the primitive peoples. No science but history—and history not well—is able to estimate at its full value

Check offered to ethnic progress by seas and oceans.

the rate of diffusion by which the earth was peopled with the aboriginal races; the slowness of the progress by which from valley to valley, from river to river, through untrodden forests, from shore to shore, and finally from continent to continent, the aborigines of the world at last made their way into its more favorable and favoring parts; the vast, almost immeasurable, periods of duration

Rate of race diffusion to be estimated from obstacles thereto.



THE AGE OF BOATS.—EARLIEST NAVIGATORS, OF NEOLITHIC EPOCH.

the retarding and paralyzing effect of hereditary beliefs upon even the physical, to say nothing of the intellectual and moral, progress of mankind. Not infrequently we find the forward march utterly impeded and a given people held absolutely to their last camping ground for a thousand years by a single hereditary thought driven down like their tent pins through the belief and practice of that kindred.

The significance of these facts and principles is their powerful bearing on

that must have elapsed between the beginning and the end of the distribution of the human race, and the consequent remoteness of the date which must be assigned for the appearance of man on the earth.

Every part of the problem tends to establish the same conclusion. Perhaps the most striking attribute of man is his faculty of speech. Language is his. Philology as a science has risen, as a branch of anthropological study, to

Division and development of languages require great time.

explain and interpret the significance of linguistic phenomena. It is not our purpose in this connection to review the among the varieties of human speech. We desire to refer to the subject only in the corroboration of the conclusions which


προς θεσσαλονικας

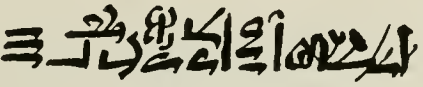
ὍΤΙ ΤΑ ΑΥΤΑ ἘΠΑΘΕΤΕ ΚΑΙ ΥΜΕΙΣ  
 ὑΠΟ ΤῶΝ ἸΔΙῶΝ  
 ΣΥΝΦΥΛΛΕΤῶΝ  
 ΚΑΘΩΣ ΚΑΙ ΑΥΤΟΙ

Greek.

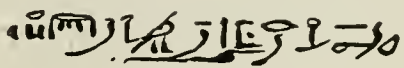
ईश्वर इत्थं जगददयत यत् स्वमद्वितीयं  
 तनयं प्राददात् यतो यः कश्चित् तस्मिन्  
 विश्वसिष्यति सोऽविनाश्यः सन् अनन्तायुः  
 प्राप्स्यति ।

Sanskrit

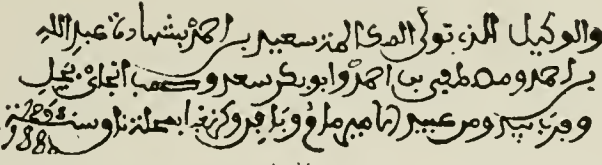




Egyptian Hieratic (eleventh dynasty).




Egyptian Hieratic (Græco-Roman Period).



Arabic.

કેનેકે ખોદાએ દુનીઆ પર એવો પીઆર કીધો  
 કે તેણે પોતાનો એકાકીજનીત બેટો એ  
 વાસતે આપીઓ કે, જે કોઈ તેના ઉપર  
 એતકાદલાવે તે હુલાક ન થાએ, પણ હુનેરાંની  
 હંદગી પામે.

Parsee.



Aramaic.

DIFFERENTIATION OF LANGUAGES ILLUSTRATED IN ANCIENT STYLES OF WRITINGS.

history of language, or to discuss the varieties of form in which it has appeared, and the correlations existing

have been already deduced from other kinds of knowledge.

Each ethnic branch of the human race

has its own form of language. Among the peoples who compose a given family

Time a condition of the creation of dialects and languages. of mankind there is generally a common speech with dialectical differences.

These differences sometimes become so well marked and firmly fixed as to constitute independent languages. This process of linguistic differentiation requires *time* as one of the conditions of its accomplishment. As a rule, the rate of change, even in the alteration of an accent, is slow, and the larger transformations are even more difficult to be accomplished. Human language passes through changes and modifications under the law of evolution just as the mind does, which requires speech as one of its functions. In the case of peoples intellectually active, and as yet not restricted by the set forms of literary expression, linguistic mutation is more rapid; but among barbarians and conservative races marked with little activity of thought speech continues in set forms for long periods of duration.

The division of mankind into families and races has been largely determined by means of language.

Linguistic differences deep and ineradicable. Some of the differences by which one family of languages is discriminated from another are very deep and ineradicable. The forms of speech by which the Semitic peoples are distinguished are fundamentally different from the forms employed by the Aryan races, and these in their turn are radically of another type from those employed by the Turanians. The very root-forms of the Semitic languages, so called, are unknown in the Indo-European tongues. It has been claimed by philologists that not more than ten common radicals exist in the Aryan and Semitic vocabularies. Even the few cases of identity may doubtless be ex-

plained by reasons other than linguistic affinity.

The same utter dissimilarity exists in the grammar of the two families of speech referred to. Utter dissimilarity of Semitic and Aryan forms of speech. There are no common features in the sentential structure and composition of the two types of language. The development of the speech-forms of the two seems to have been by the law of contraries; inasmuch that the student of a Semitic language must transpose his very methods of thought and abandon all of his preconceptions and principles of analogy before he can enter the spirit of the strange linguistic structure before him. The student who has mastered Latin and French may take up Spanish and find so much that is common to what he has already learned, so much that is in analogy with all his preconceptions and knowledge, that his task is as easy as to go to the same city by a slightly divergent route; but not so in the acquirement of Hebrew or Arabic.

What we are here concerned to note, however, is that the profound structural differences between the Such structural differences require great periods of time. great divisions of human speech must have required

long periods of time for their production. How long these periods have been to effect the given result it were but conjecture to estimate. The problem is exactly analogous to that presented by the dispersion of races. There has been a dispersion of speech. Whether it is possible, indeed, to refer all languages to a common point of departure is matter of dispute among linguists of the highest authority. The attempt to derive Hebrew and German from a single original is, to say the least, beset with as many difficulties as confronts the ethnologist in his effort to trace an Anglo-

American to the same stock with an aboriginal Australian. All that we are at liberty, in face of the facts, to say is that it may be done; and in such a hypothesis, whether for the different races themselves or for the languages which they speak, we are encouraged by the results thus far attained in philology and ethnology, nearly all of which tend to support the belief in the monogenetic origin of mankind and a common original for all human speech.

The great significance, therefore, of all that we have been able to learn with respect to the languages of the world is that *if* they are of a common derivation, then the lapse of time required for the production of their several forms must have been very great. At the daydawn of history human speech had already been deflected into forms even more variant than those at the present existing. At that epoch the inflectional languages were in full efflorescence. The Sanskrit and the Greek presented examples of completeness in structural development for which the student of language must search in vain among the current tongues. Already at that most remote date, on the easternmost shores of the Mediterranean, a Semitic language had perfected itself into that perfect triliteral rigidity which we see in the sacred books of the Hebrews. In a word, the linguistic types were as far apart and as well established in that remote morning of civilized life as they are to-day. The whole divergence between them had been effected before the

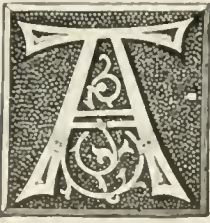
Hebrew as a Hebrew and the Greek as a Greek had made their appearance in the remotest dawn of tradition and story.

This period of divergence must have been of great duration indeed. The conditions of the case are such as to force us to believe that the prehistoric age or ages in which the Greek and the Hebrew—as examples for all others—were parted from a common linguistic original must have been so great as to place the date of the origin far beyond the puny calculations which were accepted aforesaid as not only probable but authentic. Even beyond this imaginary point of departure for the two languages from a common linguistic original we are obliged to look still further and take into account the vast structure and derivation of the Oriental tongues. In doing so, geographical difficulties have to be overcome. The high mountains of Asia must be surpassed and vast ethnical obstacles removed before we can combine the line of the Mongolian languages with that of the races of Western Asia and Europe. In other words, the same profound perspective is here required as in the case of the dispersion of races and of the geological history of primeval man. It is as difficult to reach a common original for all existing linguistic forms as it is to find a common ancestry for the cave dwellers of Western Europe, the native Australians, the blubber-eating Esquimaux, and the flint-chipping barbarians of Polynesia.

Ages demanded for production of Hebrew and Greek from a common stem.

If languages be of common origin time must be greater.

## CHAPTER VI.—HISTORY AND TRADITION.



As we approach the present, through the various branches of inquiry which have occupied our attention, we come at length to History and Tradition. If the

first of these were complete, or the other trustworthy, we might walk with more confidence through the shadowland of the past. We are constrained, however, to take history as it is, with all its incompleteness and tradition, with all its crudity, contradictions, and inflections, and to gain therefrom whatever we may respecting the date of the appearance of man on the earth. In the first place, his-

Why history can not testify directly of the beginning.

tory as an oracle is silent on this subject; but this is no more than what we should expect. Indeed, if the historian, without the light reflected from other fields of inquiry, should attempt to fix a calendar for the prehistoric ages, he would at once denounce himself to the thinkers of all posterity. History is a product of the conscious and reflective life of man—of that civilized life upon which the race enters *after* it has reached the stage of a high human evolution. What, therefore, shall history be able to record about the unconscious life of the race extending below the horizon of the past, and impossible of approach by any backward exploration?

In the first chapter of this work we have attempted to define what history is, and to show its limitations.

Two distinct types of historical composition.

There have been two clearly distinct views and practices in the composition of historical narrative. There was an ancient type,

and there is a new type. The first was pictorial, descriptive; the other is expository and sociological. The first proceeded no further than men and the deeds of men; the second reaches through all the individual aspects of human life, and through the deeds which men have seemed to accomplish, to the event, to the cause of the event, and to the great social evolution of which the event is but the temporary expression.

The ancient history aimed at a perfect style and form of narrative, at dignity of language and eloquent deductions from the lives and actions of men. It

Spirit and aim of the old history and the new.

was far more concerned about the turning of a period than about the accuracy of the research and the authenticity of the data which it employed. In the new history we might say that there is little concern about the form and expression, but an infinity of painstaking with respect to the materials of the narrative and an ever-increasing interest in those lines of causation by which all events are held together in a single great event constituting the totality of human life. It is almost needless to add that the new history is a creation of the present century, and that by its method and spirit and the significance of its results it is destined to relegate all the previous historical labors of mankind to the place of the *materials* of history rather than history itself.

We must, however, in an inquiry like the present, freely and gladly accept all historical productions as of value and importance.

The present inquiry makes free use of all materials.

This is particularly true of the products of the early ages, as they lie so much nearer than the present to

the beginnings of civilization and the first conscious life of the race. They express at least the concepts, beliefs, and philosophy of the greatest minds of antiquity. They reveal to us, without intentional effort to do so, many aspects of the societies which rose and flourished around the Mediterranean. In some there is an attempt to revive in the historical garb the myth and tradition of the prehistoric ages, and thus to acquaint the reader with the movements of mankind before the dawn.

History, as a species of composition, was invented by the Greeks in the fifth century before the Christian era. To that age belong Herodotus, Thucydides, and Xenophon. Ctesias, Philistus, Theopompus, and Ephorus came afterwards, each with his particular merits and blemishes, and with an

evident decline from their greater predecessors. With the spread of Roman power and the conversion of Hellas into a province, the seat of culture was transplanted to the Tiber; but the products of the Roman muses were never equal in spirit and art to the works of

the Greek masters. From the Græco-Italic fountains literature, including history as one of its branches, flowed down and mingled with the intellectual life of all the peoples of Western Europe, and finally with that of the New World. It is only within the eighteenth and nine-



THOTH AND SAFEKH (GODDESS OF HISTORY) WRITING THE DEEDS OF RAMSES II.  
 Drawn by E. Strassberger.

teenth centuries that the models of the classical ages have been to a certain extent put aside and the scientific type of composition substituted in their stead.

It is possible, even probable, that a better acquaintance with Chinese literature and with that of India will put us into possession of historical works of a

Rise and dissemination of history in Europe and America.

more ancient date than those of Greece; but the question is still an open one in the hands of explorers and Oriental scholars. Not so, however, with the sacred books of the East.

Possible opening of new historical vistas in the East.

These have in many parts at least a semihistorical character. Perhaps none of them were produced with the true historical intent. The annals and chronicles which we find among the literary remains of the East Indian races, the Mesopotamian nations, the Egyptians, and the Hebrews in particular, were not formulated by the ancient seers and scribes with a view to the preservation of an authentic narrative of events, but with the ulterior purpose of furnishing a mold and matrix in which the religious history and polity of the respective peoples should be expressed, established, and perpetuated. Nevertheless, historical narratives of this secondary kind have a great value as a source of information respecting the early progress of the race.

The oldest works of the kind referred to, belonging to the literature of the Aryan race, are the sacred books of the Brahmans, the principal of which are known collectively by the name of the Vedas. This work, like the Hebrew Bible, is made up of parts which were produced at successive intervals of time, extending in the aggregate over a great period of duration. The oldest of the Vedas has been assigned to the era between the twenty-first and the nineteenth century B. C. While the work in question is by no means historical in its design, it contains not a little historical matter, and may thus be accepted as the earliest existent hint of the condition of society among the Aryan peoples at a distance of twenty centuries beyond the Christian era.

Old historical documents of the Aryan races.

Among the Hamitic races still more ancient records have been preserved. The condition of literature (even historical literature) at the time of the visit of Herodotus to Egypt was of a kind to impress that forerunner of European history with a sense of remote antiquity such as the modern inquirer experiences in examining the oldest Greek manuscripts in existence. The records of ancient Egypt, whether engraved on granite shafts and the walls of palaces and tombs, or written on sheets of papyrus, are undoubtedly the oldest *contemporary* documents in the possession of mankind—unless future researches into the literature of China should bring to light others still more ancient.

Hamites precede all others in contemporary documents.

The antiquity of the writings composing the Scriptures of the Hebrews has never been definitely determined; but they are known to antedate the writings of Herodotus, if not the poems of Homer. It was about the eighth century B. C. that the prophets and scribes of Israel began to reduce their oral utterances to the fixed form of manuscript. Writing, however, already existed among the Hebrews and other Semitic peoples long before this date. In the time of Josiah, reigning at the middle of the seventh century B. C., a Book of the Law was discovered, containing, as is believed, Deuteronomy and some other fragments of more ancient composition, and these were used by the king and the hierarchy in a religious reformation of the people. It was not, however, until after the times of the Babylonian captivity of the Jews that most of the sacred books of Israel were composed, approximately in their present forms.

Time and place of the Hebrew historical books.

Behind all the writings, historical and semihistorical, poetical, mythical, and



prophetic, to which reference has been made in the preceding pages, lies the age of tradition. Certain it is that human thought and speech long precede the fact of written records. There was a period in the history of mankind when the imagination of the more highly developed peoples ran riot through all the forms of fiction and mythology. The beliefs, hopes, longings, purposes, and doubtless the dreams of the primitive races issued from a thousand fountains and combined their products in a volume of oral tradition. The lore of one age was handed down to the next, sometimes in its integrity, and sometimes greatly modified and inflected by the additions made thereto by subsequent myth-makers and story-tellers.

We must remember constantly the difference between history and tradition.

The first rests, however remote the subject-matter may be, on the testimony of witnesses contemporary with the facts described; the latter reposes on the testimony of those who were removed in time or place, or both, from the circumstances and events constituting the subject-matter of the story. History transcribes directly from the eyewitness, the ear-witness, of the event, or from the manuscripts and sculptures made by them; while tradition repeats a narrative which has been transmitted from tongue to tongue, transformed through all the uncertainties of memory and speech, and delivered to the fixedness of literary form only after the lapse of generations.<sup>1</sup>

It will be seen at a glance that history,

<sup>1</sup>A good example of the historical tradition is furnished in the story of Atlantis as given by Plato. When Solon was a traveler in Egypt, near the beginning of the sixth century B. C., the priest of Saïs, pretending to a profounder lore of the past than was

as determinative of the dates of past events, has in it two elements of value. The first and greatest of these is present in those historical writings or sculptures which record the contemporary event *at the time and under the conditions of its occurrence*. Of this kind are such writings as the *Commentaries* of Julius Cæsar, who used neither tradition nor documents, but recorded only the facts of his own observation and experience in the Gallic War. To the same class belong a part of the writings of Josephus. Many European warriors and diplomats have recorded the history of their epochs in books of memoirs, most instructive to after times. The last half of the nineteenth century has witnessed the composition of much historical narrative by the participants in such great events as the Civil War in the United States. It is needless to emphasize the superiority of historical narrative composed on this plan to every other form of recorded annals. The second element of value and authenticity is found in those writings which, though not written by participants in the events described, are based exclusively upon documents and evidences which were contemporaneous with the

What constitutes highest and secondary authenticity.

possessed by any other cult, told him that in former ages the Athenians had been great in war. In that remote time the men of the great kingdom Atlantis, beyond the pillars of Hercules, had made war on Europe and had finally been driven back by the Hellenes. Solon, on his return to Greece, told the story to his friend Critias, and the latter, in his old age, recited it to his grandson, also named Critias. The grandson became a member, in his mature life, about a hundred years after the times of Solon, of the Socratic group, and to the members of that unequalled club he told one day what his grandfather had heard from Solon. Plato afterwards took the story up, and in the dialogue of *Timæus* reduced it to literary form. The world is much concerned to know how much credence may be given to the tradition of Atlantis and other such famous narratives handed down from the primitive ages.

event and as far as practicable a part thereof.<sup>1</sup>

We may now attempt to apply certain principles and deductions to the question

of the antiquity of man as determined by historical and traditional evidence.

In the first place, history in the primary intent is, out of the nature of the case, wholly silent. Nobody saw the advent of mankind on the earth. The first men did not themselves record that event on stone or parchment. No memorial or monument exists which bears remotely on the apparition of mankind on the earth. No diligence of antiquarian research has ever been rewarded, or can ever be, with the faintest trace of an original authority, that is, of contemporary evidence, respecting the rise of the human race. The case stands precisely as might be anticipated by the light of right reason. No man remembers his own origin. No child notes its coming into the world by making a record of the event for posterity. To suppose as much is to suppose the impossible. For how could the unconscious being make a record of its own advent? How could primitive man, unacquainted with the arts, a stranger to the desire of historical fame, wholly concerned with the material wants of life and the instinct of reproduction, be expected to create memorials of his coming in a record which would presuppose reflection, ambition, forethought, and the desire of renown with posterity?

We must not, therefore, expect to find any satisfactory evidence in history at

<sup>1</sup>The first great example of a history conforming throughout to this lofty standard of authenticity was Gibbon's *Decline and Fall of the Roman Empire*, which, according to the author's own testimony, was deduced throughout from documents contemporary with the events; nothing was taken at second hand.

first hand relative to the date of man's appearance. This is equivalent to saying, also, that history in its

second form, that is, that kind of historical narrative

History from contemporaneous data also impossible.

which is derived from original contemporaneous documents, inscriptions, and monumental remains, is likewise silent about the time of the beginning. The first men were, as we have said above, involved in labors far different from that of producing monuments and preparing parchments for the interest and instruction of after ages. The very same reason which precludes the possibility of the first man's having recorded for himself the time of his coming, by monument or tablet, precludes also the possibility of the discovery of contemporary evidences by the story-teller or historian of after times. Why should an antiquarian search for that which is not? Why should the archæologist hope to find an inscription which, should he find it, would be the best possible proof that it did *not* bear witness to the beginning? Why hope that some contemporaneous monument will be found with a record of an age which neither built monuments nor desired to be remembered?

While it is true that history in its first and second forms and also in its primitive elements, in poem and

sacred book and rhapsody and prophetic oracle, can

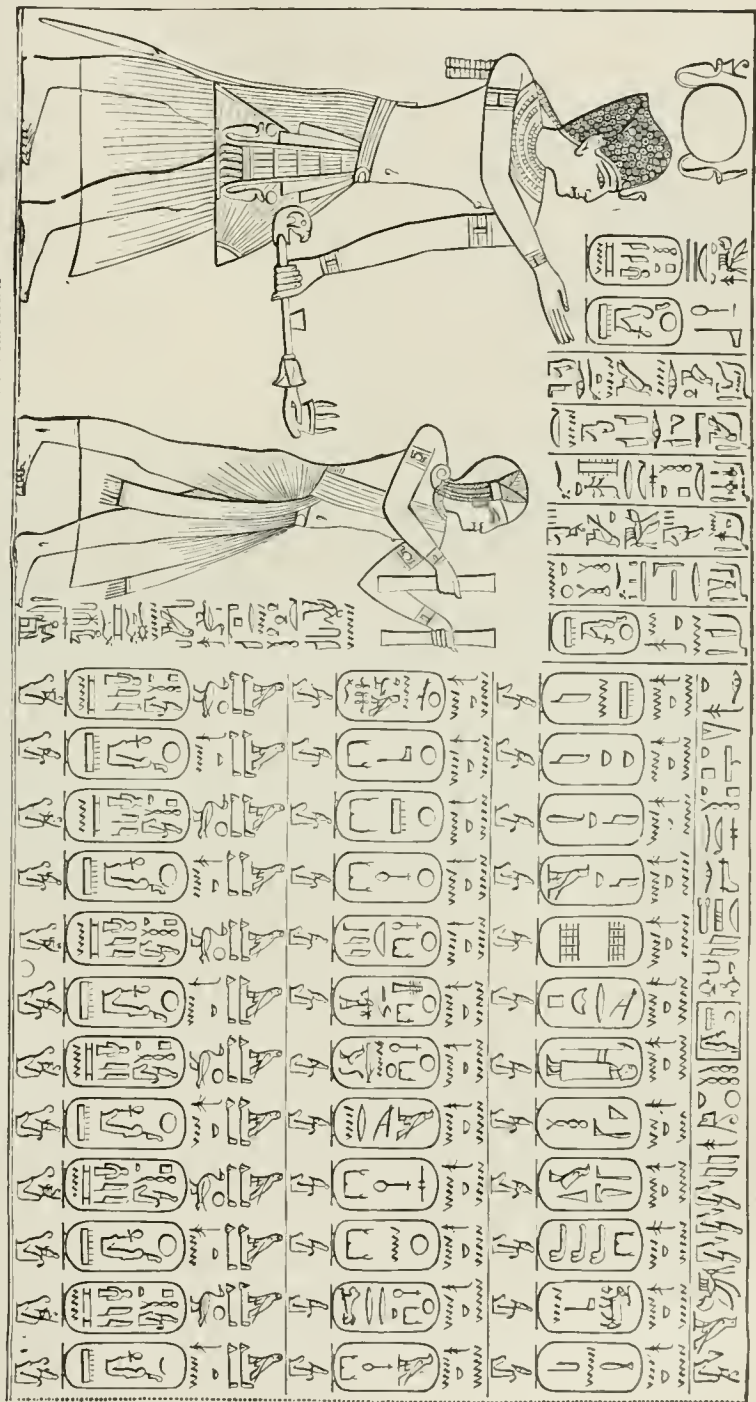
Important deductions from earliest historical records.

bear no *direct* evidence respecting the antiquity of man, there is a collateral inference drawn therefrom of considerable importance. This is found in the fact that the first writings in narrative form, or tending to that form, are found at very early stages in the histories of great peoples widely separated in place and already developed into different aspects of ethnic life. We may accept it as true that writings of this kind existed

among the Chinese as much as fifteen centuries before our era. We have already discovered the beginnings of such a literature among our Aryan ancestors, in the valley of the Indus, as far back as about two thousand years B. C. The historical remains of the valley of the Euphrates and the Tigris reach back perhaps to the twenty-first century. The monuments of Egypt bear unquestionable evidence of the existence of historical thought and expression in that country about twenty-four centuries before the current era. As early as the eighth century the bards and prophets of Israel were wont to reduce their utterances to poetical and semihistorical forms. We find the Greeks, in the person of Herodotus, inventing historical narrative proper at the beginning of the sixth century B. C., and afterwards, by the art of Thucydides, bringing that species of composition to a perfection which, so far as structure is concerned, has never been surpassed.

from each other, among peoples as diverse in ethnic life as any that are

EGYPTIAN PRIEST TEACHING A NEOPHYTE IN THE TEMPLE.—Drawn by Weidenbach.



found on the earth at the present time, in forms of speech as widely differentiated as any dialects known to philology, there

We thus see that in regions far remote

were at least the rudiments of historical lore at a date ranging from six to twenty-four centuries before the Christian era. This fact of itself constitutes a powerful argument for the antiquity of the human race. Letters and the art of writing are among the later products of primeval man. Even when these have been invented, it requires another long period of development to bring the reflective powers and the art of composition to the level of historical narrative. We speak here not of philosophical history, but of the first rude attempts of the human mind to make record of the events of the past. To these considerations we must in the next place add a third period of great duration to cover the time required in the development of the mind to this grade of activity in wide-apart localities. If it be true that there were men of letters engaged in the historical art in China at an epoch beyond the age of Homer and David; if it be true that at a still earlier period the sages of the Indus valley had begun to produce narrative, as well as song; if it be true, as it certainly is, that the Greeks as a nation had, at the beginning of the sixth century B. C., reached a stage of intellectual progress at which the story of Herodotus might be received with national applause; if, more than all this, in the valley of the Nile the priests and seers of the age of the pyramids devoted themselves in large measure to the composition of sacred history and philosophy, then, indeed, how great must have been the *antecedent* lapse of time requisite for the evolution of these various forms of ethnic life and achievement!

We thus reach the subject of Tradition proper. While history in the true intent does not presume to fix the time

and place of the beginning, tradition has ever been busy with these themes. In almost every nation, among almost every people, a body of traditional lore has been produced in the earlier and half-conscious epoch, and handed down to subsequent times, including the belief of that particular branch of mankind with respect to its own origin. Such traditions in the prehistoric ages became a part of the national faith, was interwoven with the folklore of the people, and afterwards with the whole system of philosophical belief. The myth reached forward out of the past and grasped the present. The poetical fiction mingled with the rudimentary forms of history, and became a wellnigh inseparable part thereof. The dream of the primitive man became a penumbra around the life of the conscious man, and thus the earlier ages of reflection and truth were shadowed and haunted with the fancies and fictions which had arisen in the childhood of the race.

Many are the forms and applications of tradition. Generally the body of primitive belief contained one or two essential articles. The first of these, as a rule, declared the high antiquity of the given tribe or people. It was a point of honor among the primitive races to assert priority. The Egyptians, for instance, scorning the narrow limits of earth-made calendars, declared that they, as a race, were *Proscelnoi*; that is, Before the Moon! Almost every tribe and incipient people urged some extravagant claim to a prior possession of the country or place which they occupied. There seems to have been in primitive men, even in the remotest ages of violence and barbarism, some notion that priority gave right and advantage to him who

What the wide-apart writings of many races signify.

ty-four centuries before the Christian era. This fact of itself constitutes a power-

Tradition becomes a penumbra around the conscious life.

Essential articles in primeval traditions of our race.

could assert it. This principle in human nature acted powerfully against the preservation of a belief in recent migration, and in favor of the assertion of long occupancy. Though we are convinced that the world was peopled by the diffusion of races, nearly all the early peoples disclaimed this method of possession, and asserted immemorial residence in their respective countries.

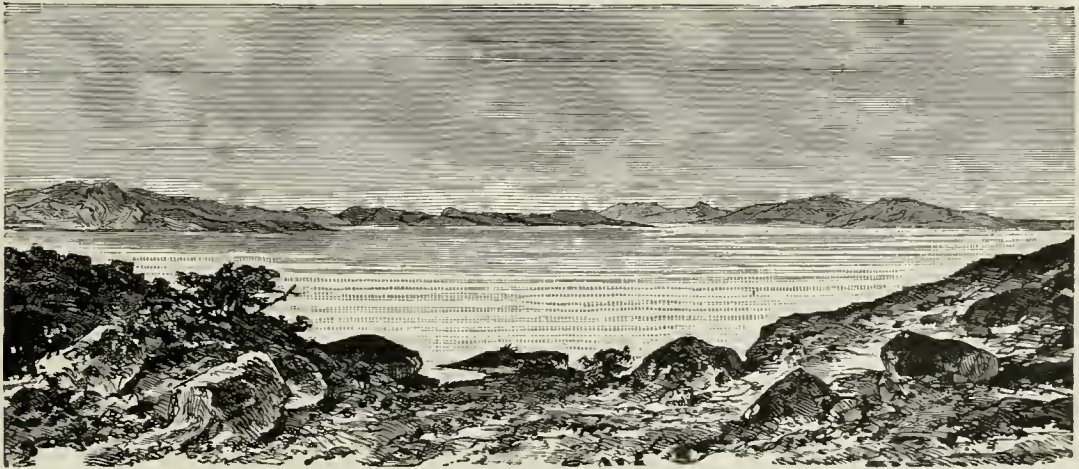
These conditions may serve to explain the general prevalence of the belief in an autochthonous origin among the primitive peoples of the world. There

invasions of others more warlike and adventurous.

But the belief among the ancient peoples that they were autochthones did not imply simply an origin from the earth. Vegetable life springs from the soil.

Autochthony derived from analogies of vegetable world.

The growth of plants must have been one of the first and most tangible phenomena recognized by the senses and considered by the reason of primitive men. The idea that they themselves might have originated *in like manner* would have been natural enough to the situa-



VIEW OF MOUNT OTHRYS FROM TRIKHALLI.—Drawn by Dosso, after Stackelberg.

was scarcely an extant tradition of human genesis which did not associate the beginning of man-life and tribe-life with the earth. It pleased the fancy of the first men to declare that they were earthborn, or at least that the power which called them into existence used the earth as the vehicle and substance of creation. There was thus established, as it would appear, among each people a sort of claim to the earth by the right of an indisputable priority—a claim which the reader may well perceive to be of great use to sedentary tribes in maintaining themselves against the migratory

Universality of belief in an autochthonous origin.

tion; but the myth took always another form.

There was in the thought of antiquity a conception of evolution and a conception of creation. The two were blended. Man was made out of clay; but a supernatural being was the maker.

The ancient myths mingled evolution and creation.

Among the Greeks one myth ran to this effect, that the first men were *plasmata pēlou*, that is, effigies of baked clay from the hand of Prometheus. And for this deed the jealous deities chained him to the rocks of Caucasus. The more famous belief was that which assigned the origin of mankind to the act of Deucalion

and his wife Pyrrha. These twain, saved from a deluge of waters, reached Mount Othrys, where, upon landing, they were commanded by Zeus to cast behind them the bones of their mother. Albeit the bones of the mother meant the stones of the earth. These Deucalion and his wife threw down the hillside, and forthwith sprang up both men and women, who were the Stone race, the *Laoi* of Greek mythology. The Indian myth runs to the effect that Prajapati, the creator, after many tentative experiments, succeeded in producing from the earth a race of beings in harmony with their environment, and therefore capable of surviving. In India, however, the fundamental concept of the genesis of man was inflected into many forms, including beliefs in his origin from the lower animals, rather than immediately from the earth. The legends of Greece, and more anciently those of Egypt and Libya, generally assigned the Cephissian marsh as the scene of man's creation—this if we may accept a fragment of Pindar as authority.

It is not our purpose, however, to pursue the forms of ancient myths, but only to sketch their general character and to deduce therefrom such value as they may hold respecting the antiquity of man. It is clear, in the first place, that the above views relative to the beginning of human life belong to the adolescent period of the mind. A little reflection will show us the stage in the life and development of the individual to which the legendary period in the history of the race corresponds. That stage is childhood; in the one case the childhood of the individual, and in the other the childhood of the race. The period in either instance is that in which the fancy and the senses are wholly pre-

dominant over reason and the reflective powers of the mind.

At the time when the tradition of the kind above described was produced, the mind of the race was not as yet haunted with the question, *Why?* nor were the insuperable difficulties which rose in the way of such myths regarded as of the slightest value. For instance, the question might well have arisen among the Greeks how it was that the clay-baked beginnings who arose into consciousness under the touch of Prometheus could have known ought of their origin. How could an autochthonous people have had the slightest memory of the process by which they came into being? How did the *Laoi* of Deucalion understand that they had been produced by the flinging behind of stones? Yet these very obvious forms of rationalism seem never to have occurred to the wise Greeks, even of the classical ages.

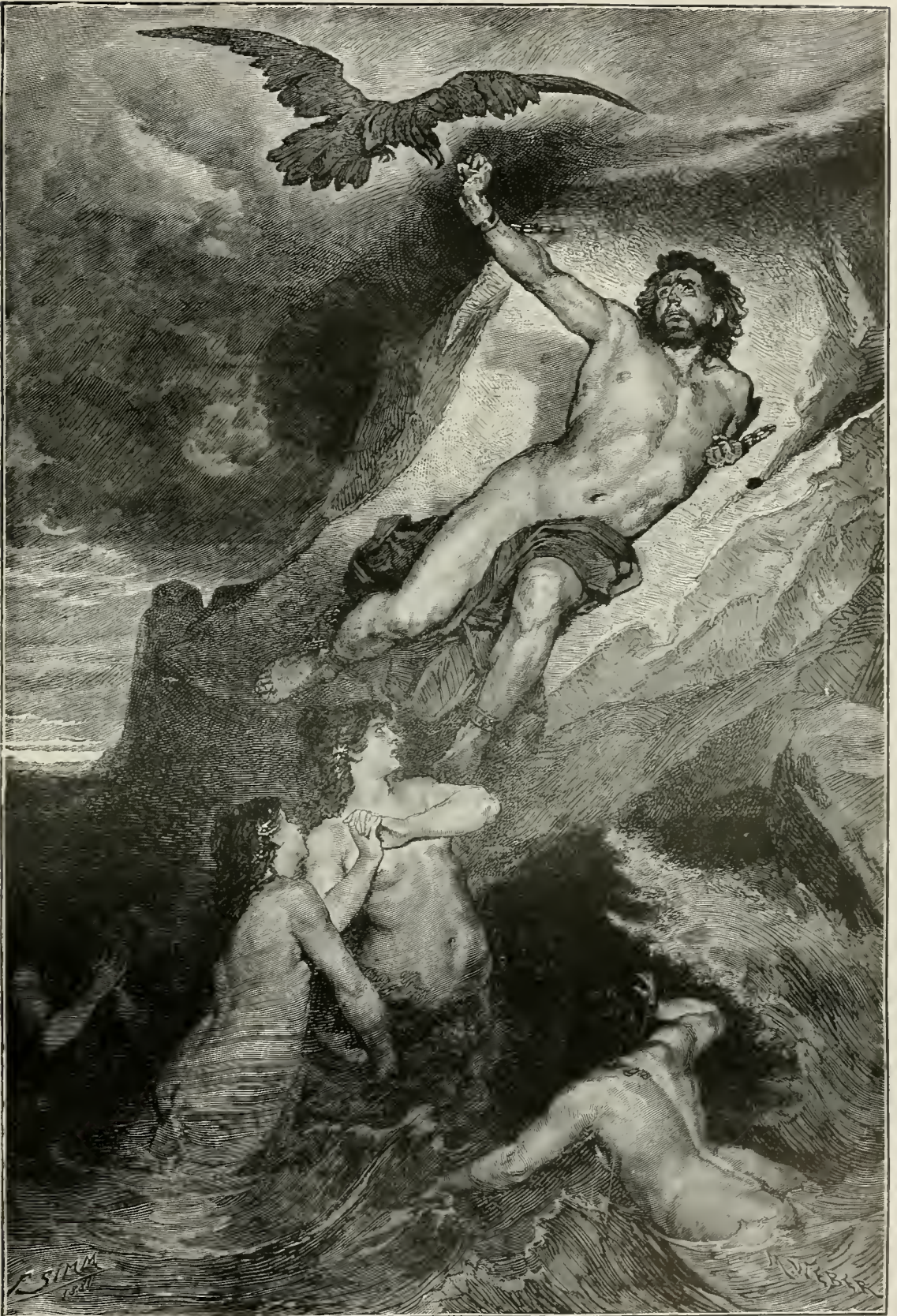
All this is in exact analogy with the life of the individual. The child-mind is not at all concerned about the inconsistencies of a story. To that grade of intelligence the more marvelous the story the more acceptable it is. The legend of childhood impresses itself indelibly upon the memory, and passes down with the current of understanding, mingling therewith and combining with the beliefs and concepts of a later period of development. So with the oral traditions of the primitive world. They were manifestly produced in what may be called the childhood of the race, and were delivered by oral transmission to the conscious race which came afterwards.

The present significance of these facts is that they tend to confirm the belief in the remote origin of the human race, and

The question  
Why? belongs  
not to adoles-  
cence.

Child-mind of  
individual and  
of race alike.

Myths of the  
origin of man  
belong to race  
childhood.



PROMETHEUS VINCTUS.—After the painting by F. Simm.

to familiarize our thought with the concept of a long period for the adolescence of mankind. Beyond this it were hard to say that the traditions with which the early life of every people abounds have any value relative to the date of the beginning. It must be constantly borne in mind that chronology and geography are precisely the circumstances which tradition and the traditional age of human history are most likely to neglect. Very little are the primitive races concerned about accuracy as to time and place. Such facts as time and place require investigation, laborious study, travel, mathematical knowledge, and many other conditions which the adolescence of mankind could in no wise supply. Whatever the mind could invent for itself by dream and reverie and fanciful excursion, that was abundantly produced; but the sober and solid materials and structure of real history were too heavy and exact and burdensome to be supplied or borne by the early races of men.

The great deduction, therefore, from the traditional lore of mankind with re-

spect to the time of the beginning of man-life on the earth must be drawn from the subject-matter of the traditions themselves and from the unmistakable evidence which they present that they were the products of the child-mind of the world. History, on the contrary, is the product of the man-mind. It comes only with the adult age of reason and reflection. We have seen how far back in the past, however, lie the rudiments of historical composition. The argument is that *greatly beyond* this date of the earliest formal efforts of mankind to express its knowledge of itself lay the misty and inchoate realm of tradition and fable. The time relation of such an age is deduced from the character of its products. If the beginnings of history are to be found in wide-apart regions of the earth at a date as remote as twenty centuries before the common era, how great must be the distance of that childhood of the race and that early youth when the mind, still surrounded with all visions and dreams, looked forth into a landscape and beheld on every side men as trees walking!

## CHAPTER VII.—CHRONOLOGICAL INQUIRY.



It may next note with interest the results which have been reached in chronology proper. This science is, as we have said, a part of history. Every historic event must, in the nature of the case, have a time locus, and its significance will depend upon its temporal relations. No satisfactory interpretation can be made of the affairs of men without

considering them in their relations and dependencies of time. So important has been this element in the annals of mankind that a distinct Science of Time has been developed, and to this is given the name of chronology.

Many ages ago the thinkers of the world began to see the importance of an accurate system of time measurement applied to the affairs of peoples and nations. It is not known, indeed, at how early a date attempts were made to in-

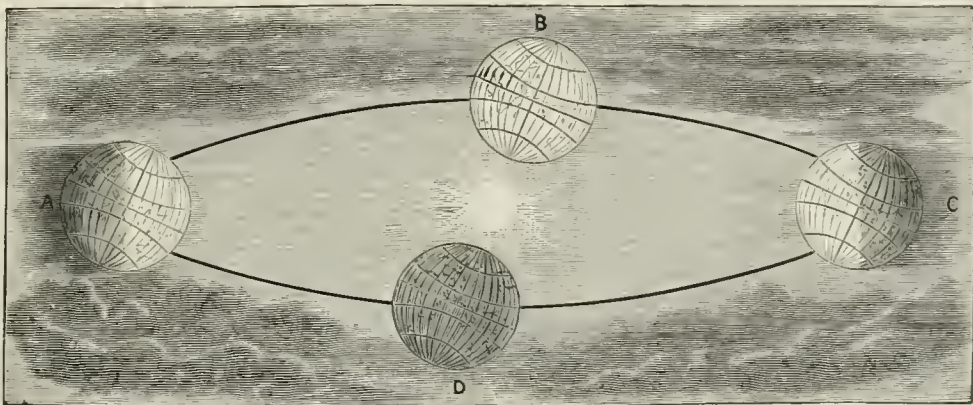


vent from astronomical data a system of years and eras. Perhaps every people in the world on arriving at the conscious and rational stage of development busied itself with the problems of a calendar. The rotation of the earth and the position and aspect of the spheres furnished the data of the first rude calculations, as they have continued to furnish the foundation of the highly refined system of to-day.

As a rule, in these tentative efforts at time computation, some prominent event in the tribal or national life was taken as

chronology have been produced. Almost every nation of ancient times had its own date from which all others were measured by years or cycles. There appears to have been a special activity among the great peoples who flourished in the eighth century B. C. in the work of establishing eras as starting points for chronological measurement. The ancient Hebrews seem to have had in their earlier history no era from which they reckoned the dates of their national life. Such facts in their tradition and annals as the call of Abraham out of Ur, or the

Great eras established; Hebrews had no date.



PHENOMENA OF DAY AND NIGHT AND SEASON (FOUNDATION OF ALL CALENDARS).

the starting point for all dates. The primitive organization of the state, the founding of the city, the accession of some heroic king, deliverance from some impending disaster, or triumph in some civic or warlike contest, would furnish, each in its kind, a crisis from which all other events would be reckoned. There is an instinctive disposition among peoples to refer all common affairs to the great event gone by, and to measure its distance therefrom, as if a proper estimate of the current fact might best be made by holding it in contrast with an established standard set up at a distance.

It is thus that the so-called eras of

exodus of Israel from Egypt, might well have furnished a historical era for the Jewish race. But that people seems never to have adopted any such crisis, but rather to have used the reckonings of other nations.

Not so, however, the Babylonians. By them the accession to the throne of the great king Nabonassar, in the year 747 B. C., was taken as the national era, and was long used by the people of the Lower Empire. A short time before this, namely, in the year 776 B. C., the Greeks had established the Olympiad, dating from the victorious contest of Coræbus, in the Olympic games, in the

Fixing of Babylonian, Greek, and Roman eras.

In what manner the so-called eras in chronology arose.

year referred to. Each Olympiad included four calendar years. According to Varro, the city of Rome was founded in the year 753 B. C., and this era was chosen by the Roman race as the origin of dates. It thus happened that the three great eras of antiquity—Babylonian, Grecian, Roman—were established so near to the middle of the eighth century B. C. that a period of twenty-nine years covered them all! It is true, however, that though the events constituting the starting points of the three eras thus lay so near together, the eras themselves were established by the respective nations at subsequent dates much further apart.

The three eras referred to continued to be used until the Christian religion had risen to such importance in the Roman empire as to be able at length to substitute the birth of the Christ for the founding of the city. The new era gained the day among the Western nations, and is at the present time more extensively used than any other epoch of computation. The substitution of the new for the old led to much confusion in fixing the dates of historical events, and it was to remedy this difficulty that Joseph Scaliger, in 1582, invented what is called the Julian period. This, indeed, is not an era, since it does not begin with any particular date in the past. It uses as its units the years as they were fixed by the calendar of Julius Cæsar, and the Christian era is made to correspond with the year 4714 from the beginning of the period. A scale is thus furnished by which any year of the era of Nabonassar, of a given Olympiad, or from the founding of Rome, may easily be reduced to terms of the Christian calendar; that is, to the corresponding year B. C.

In the early centuries of our era the Christians in many parts were scandalized with the observance of pagan festivals according to dates and anniversaries which had been perpetuated from the classical ages. In order to free themselves from these heathen rites the adherents of the new faith began to imitate a usage which had now grown up among the Jews of reckoning from the creation of the world. Israel had by this time become sufficiently scholastic to produce a calendar which in its terms reached back to the beginning of things. The Christians deemed it wise to imitate the Hebrew method, and to employ the supposed date of the creation as an era from which to reckon all subsequent events. In doing so, however, there was much confusion. It was found that the Old Testament narratives presented the elements of at least three distinct computations. There were three texts of equal authority, and neither agreed with the others in the matter of dates. There was a Samaritan, a Hebrew, and a Greek text of the Scriptures, containing irreconcilable accounts so far as time was concerned. Nor was there any other calendar with which the three might be compared and thereby corrected.

It thus happened that among the Christian nations of the West the era of the creation came to be referred to as the primary epoch to which all other events must be referred. In the later Middle Ages, and down to the beginning of critical scholarship in our own century, the effort was many times renewed by the unlearned dogmatists of the time to fix the date for the creation of the world and whatever therein is. For it must be understood once for all that

Era of the Christ prevails in the West; the Julian period.

Hebrews choose and Christians accept the era of the world.

Attempts to fix date of creation out of Hebrew Scriptures.

the era of creation which credulous scholastics have so much busied themselves to find was always, in the estimation of those who sought it, the era not only of the physical world, but also of the human race. The theory of coincident origin for the world and its inhabitants was held implicitly by the early chronologists, and was incorporated by them in their systems of reckoning. In the absence of facts, hypotheses, unwarranted assumptions, and vague applications of the three different texts of the sacred writings of the Hebrews led to an endless variety of results. Desvignes has collected more than two hundred sets of calculations, the authors of which have attempted to determine the era of creation from the Scriptures. Nor is it possible for the modern inquirer, with these computations before him, to extract therefrom any one system, or to form a new one out of the given materials more satisfactory than the rest.<sup>1</sup>

Among the calculations to which reference has just been made, the briefest of all is that by the Rabbi Lipmann, which

<sup>1</sup>The fundamental difficulty in making out a biblical chronology for antiquity lies in the irreconcilable differences of statement as to the ages of the first ten patriarchs as given in the Hebrew and Septuagint texts. The following table may interest the reader as illustrative of the many disagreements between the two principal texts of the Scriptures upon which modern times have placed reliance as authentic records:

PATRIARCHS.	Age at Birth of Heir.	
	Hebrew Text.	Septuagint.
Adam .....	130	230
Seth .....	105	205
Enos .....	90	190
Cainan .....	70	170
Mahalaleel .....	65	165
Jared .....	162	162
Enoch .....	65	165
Methuselah .....	187	187
Lamech .....	182	188
Noah (at flood) .....	600	600
Time of the flood .....	1,656	2,262

assigns the year 3483 B. C. as the era of the creation. The longest of all is that by Regiomontanus, which sets the date of 6984 B. C. as the beginning of the world.

Contradictory results; rise of the Usherian system.

We have thus the scholars and chronologists of the fifteenth, sixteenth, and seventeenth centuries—though they employed the same data, namely, the three texts of the Scriptures—differing among themselves by as much as thirty-five centuries! It could hardly be supposed that out of such diverse materials and such contradictory results any conclusion of importance could be deduced by modern scholarship as to the era of the world.

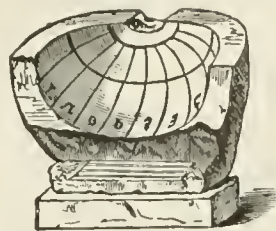
It was, however, from these data that Archbishop James Usher undertook, at the middle of the seventeenth century, to prepare a system of sacred chronology. The result, strangely enough, was the production of a work which gained and held an ascendancy among the writers of the Western nations for more than a century. It is only in recent times that scholarship has succeeded in unseating the Usherian system from the places of learning, and even to the present day it continues to exercise a remarkable influence over the common mind, especially among the English-speaking peoples.

The reason of the ascendancy of this system of dates in the literature of Europe and America is to be found in the fact that the Usherian scheme secured

Literature and philosophy of Europe infected thereby.

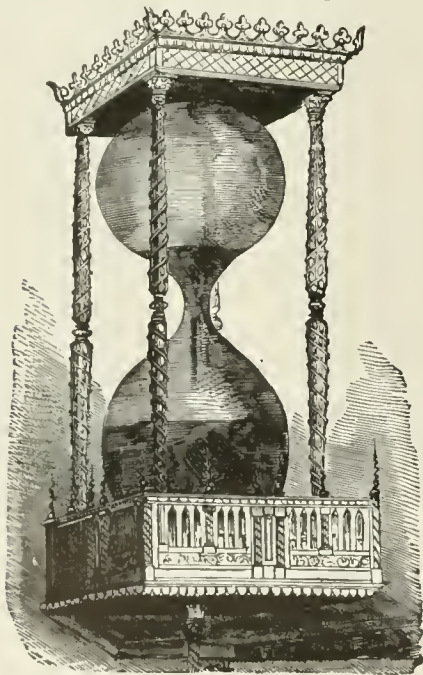
for itself, without warrant of fact, the claim of being a biblical chronology. By some unknown authority the dates prepared by Usher were inserted in the margin of authorized editions of the Scriptures of the Old Testament, and having once gained a place therein, the uncritical and unscholarly opinion of the

age permitted their retention. From this source the system diffused itself into general literature. The historical writers of the last century and of the first half of the present century, for the most part, continued to accept and to employ the



TIME INSTRUMENT—ANCIENT  
SUNDIAL.

Usherian dates for all the events in the ancient history of mankind. To the present day the authorized editions of the Bible are sent forth with the Usherian chronology in the margin, and in the popular belief that system is referred to the same source and authority as that by which the sacred canon was produced!

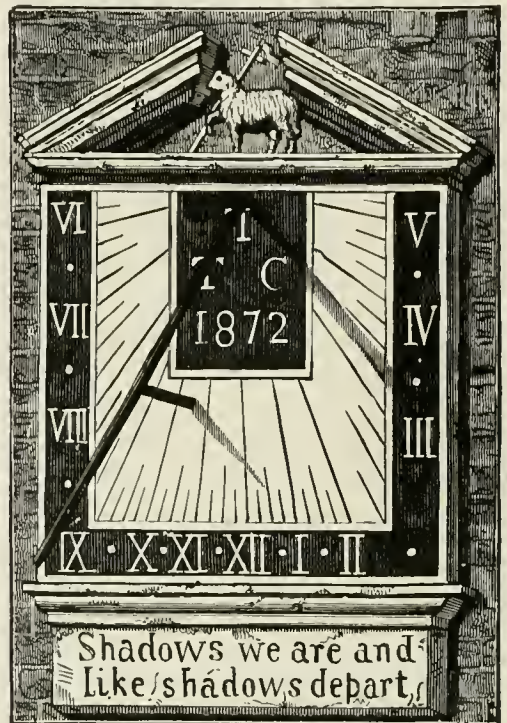


TIME INSTRUMENT—HOURGLASS.

It was thus that in modern times a supposed date has been established for the era of the creation of the earth and man. Usher fixed upon the year 4004 B. C. and the autumnal equinox of that year, namely October 23, as the pre-

Astonishing de- tails of the Usherian scheme.

cise date of the apparition of the world! The creation of man he placed with equal exactitude five days later, that is, on October 28th! The remainder of



MODERN TIME INSTRUMENT—SUNDIAL.

It is matter of profound astonishment that such a system of chronology as that devised—utterly without warrant of fact—by Archbishop Usher, should have been received and adopted by the best scholarship of England as late as 1825; this, too, without the slightest apparent distrust! The new *Edinburgh Encyclopædia* of the date just named, conducted by Sir David Brewster, with the assistance of more than a hundred European scholars most eminent in science and literature, incorporates without the slightest note of dissent the Usherian system. The reader of the present day, and still more the reader of the future, will almost doubt his senses when he finds the chronological table in the great encyclopædia just referred to beginning as follows: "4004 B. C. The world created at the autumnal equinox, on Sunday, October 23.

\* \* \* \* \*  
"Adam and Eve created on Friday, October 28."

History is not the place for satire or humor; but the comment is pardonable, and the inference might well be drawn from these astounding particulars of the creation that Archbishop Usher had been a schoolmate and playfellow of the progenitor of the human race!

the primitive scheme was arranged with like precision and confidence; nor may we well be offended at so monstrous a chronological system when we remember that its author was born only thirty-four years after the death of Luther. Our astonishment must be abated when we remember that the Usherian chronological tables were prepared before Louis XIV was twenty years of age and within less than a half century of the planting of the first English colonies in the New World. That a trustworthy system of chronology could be produced in such an age and from such materials as were then extant, under the scholastic methods which then prevailed in the English and Irish universities, is a supposition beyond the limits not only of reason, but of possibility.

The Usherian system of dates, however, though originated in absurd assumptions and pressed into form by the hand of dogmatism, has played a large part in the historical writings of Europe and America. Beyond these and through them it has reached the popular belief, becoming as it were an article of faith, and intimately associated with orthodoxy in religious belief. The system has thus performed a most deleterious office, particularly since the beginnings of scientific scholarship within the current century. Almost every branch of historical inquiry has been checked and impeded by the preconceived opinion that there exists a system of biblical chronology for antiquity to which all events, since the appearance of man, must be conformed.

As a matter of fact, the so-called biblical chronology, with its supposititious era of creation, was invented by an Irish prelate born in the sixteenth century;

was imposed on the sacred books in some unknown manner and without the sanction of any ecclesiastical authority; was foisted, as it were, upon the books of the Old Testament, and forced into union with them; and was henceforth made to supply the place of investigation and forestall the advance of knowledge. It is only within the last half of the present century that the system of dates invented by Usher as a sort of compromise and average among others that were irreconcilable has been challenged, dethroned, and put aside from all the high places of scholarship, holding its place only by usurpation and folly in the authorized editions of the Bible.

The system an impediment to inquiry and knowledge.

It may suffice to refer briefly to some of the other eras which have been employed in the attempted measurement of time and the emplacement

of the dates of antiquity. After the dispersion of the

The other principal eras of time reckoning.

Jews, and up to the fifteenth century, that people employed in their business affairs and secular records what is called the era of the Seleucidæ, that is, the year B. C. 311; but since the fifteenth century the Israelites have fallen back upon their interpretation of the Hebrew text for the era of the world, fixing that event at the year 3760 B. C. Meanwhile, the Greek Christians of Russia and the East adopted for themselves what is known as the era of Constantinople, which places the creation of the world in the year 5509 B. C., and makes the Christian era coincident with the fourth of the one hundred and ninety-fourth Olympiad. There is also what is known as the era of Alexandria, which placed the creation in the year 5500 B. C.

It were better, however, to satisfy the reader's curiosity in these particulars by a tabulated statement showing the rela-

tions of the principal eras which, until a comparatively recent date, have been employed in fixing the time relations of events in the ancient history of the world. The table is inserted, not because of any value in its fundamental assumption of the era of creation, but only as a convenient reference to exhibit the relations of the more important eras:

*Synoptical view and comparison of the leading eras.*

geological and archæological research the discrepancy between the facts of the prehistoric world and the current system of dates became apparent. One or the other had to yield. Either scholars and travelers must disbelieve the testimony of their senses or reject the narrow and dogmatic system which the old chronologists had fixed up as the framework of ancient history.

*Scientific spirit works have with old dates.*

The era of creation corresponds to.....	The year 4004 B. C. The year 710 of the Julian period. The year 3251 before the founding of Rome. The year 5996 of the French era.
The first Olympiad corresponds to.....	The year 776 B. C. The year 3228 of the era of creation. The year 23 before the founding of Rome. The year 3938 of the Julian period. The year 2568 before the French era.
The founding of Rome corresponds to.....	The year 753 B. C. The year 3251 of the era of creation. The year 4 of the sixth Olympiad. The year 3961 of the Julian period. The year 2545 before the French era.
The common, or Christian, era corresponds to	The year 4004 of the era of creation. The year 1 of the 195th Olympiad. The year 753 of the founding of Rome. The year 4714 of the Julian period. The year 1792 of the French era.
The Hegira corresponds to.....	The year 622 of the Christian era. The year 4626 of the era of creation. The year 3 of the 348th Olympiad. The year 1375 of the founding of Rome. The year 5336 of the Julian period. The year 1206 before the French era.
The era of the French republic corresponds to	The year 1792 of the Christian era. The year 5796 of the era of creation. The year 1 of the 643d Olympiad. The year 2545 of the founding of Rome. The year 1206 of the Hegira. The year 6506 of the Julian period.

In no department of human knowledge has the scientific spirit wrought greater changes during the last half century than in the previously accepted chronology. With the beginning of

Philology, the science of human language, added its testimony. The ruins of Nineveh and Babylon were exhumed from the oblivion of centuries, and the cylinder-tablets of the library of

Asshur-Bani-Pal were recovered for the instruction of mankind. The cuneiform inscriptions were translated. The hieroglyphics of Egypt opened their long-sealed treasures. The vision of men began to clear, and the narrowness and incapacity of the old system of chronology were seen in ridiculous outline against the almost limitless background of the past.

The chronological researches of scholars in recent times have been directed to special fields of inquiry rather than to the establishment of a general system for the whole ancient history of mankind. The result has been that the annals of China and India have been traced back by means of native records and monuments

Results of historical research among several races.

to special fields of inquiry rather than to the establishment of a general system

of a fairly creditable character to about 2200 B. C. Sir John Gardner Wilkinson has fixed with approximate certainty the beginning of the fourth dynasty of Egypt at the year 2450 B. C. — to which must be added at least the uncertain period covered by the preceding dynasties. Karl Richard Lepsius, laboring in the same field of inquiry, has extended the period of Egyptian history back to the beginning of the first dynasty, to which he assigns the date of 3892 B. C. The French Egyptologist, Mariette, one of the most expert and skillful scholars of the century, by a cross-examination of the history of Menetho and the Egyptian sculptures has shown many reasons for fixing the date of Menes as far back as 5004 B. C. The Chaldaean records, according to Berosus, extend

to a much higher antiquity than that assigned for the beginning of Egyptian history, and the careful Rawlinson fixes upon the year 2286 B. C. as the approximate date for the accession of the first dynasty of Old Babylonian kings. On every hand the scheme of dates has been widened out by the most competent scholars of the age, in so much that all rational belief in the chronological tables which were accepted at the beginning of the century has passed away.

What then does chronology as a department of historical investigation prove or tend to prove with respect to the antiquity of man? It shows that many great nations of the ancient world, widely separated, in some instances by high

General deduction respecting the antiquity of man.



STONE MASONRY ON THE SUMMITS OF THE ANDES.

mountains and almost impassable seas, were already developed into fixed forms of society and government, already in possession of institutions and laws and literary forms of record, at dates ranging from twenty to fifty centuries before the common era. To this we must add the monumental evidence already obtained relative to the ancient peoples of the

mountains and almost impassable seas, were already developed into fixed forms of society and government, already in possession of institutions and laws and literary forms of record, at dates ranging from twenty to fifty centuries before the common era. To this we must add the monumental evidence already obtained relative to the ancient peoples of the

American continent. Such facts as the ruins which have been discovered in Central America and the stone-hewn foundations of temples and palaces in the tops of the Andes must tend strongly in every thoughtful mind to increase rather than diminish the chronological estimates of the antiquity of the ancient European, African, and Asiatic nations.

We may now proceed to *summarize* in a few paragraphs the various evidences which may be gathered from scientific and other sources of inquiry respecting the age of man on the earth. In the first place, the astronomical conditions and laws under which our planet came into the habitable state furnish us with a tolerably accurate estimate of the time when with the subsidence of our last planetary winter the earth, by the favoring conditions which were then introduced, presented itself as a fit abode for the human race. With due allowance for the prolongation of the epoch of rigor and for the melting away of the ice cap in the northern hemisphere, and with certain other allowances which are suggested by science and right reason, and with the application of the law of averages between the maximum and minimum dates which may reasonably be assigned for the appearance of man, we may fix the time of his coming approximately at *thirty thousand* or *thirty-five thousand years* before the Christian era.

With this conclusion the important, almost irrefragable, evidence of geology fully corresponds. The investigation of the earth's crust has not yet positively demonstrated the remains of man and of his works belonging to a period quite as remote as that indicated by the astronomical antecedents as the approximate

time of the habitability of the globe. But the geological evidence has stretched out far toward the same remote date for the origin of our species. If we trust to geological evidence and indications *only*, we shall have to reduce the astronomical indications respecting the date of the appearance of man by perhaps a hundred centuries. It is clear, however, that after making all proper allowances for error of computation, mistakes of judgment, and partiality of the inquirer for one form and result of conclusion instead of another, and after estimating as well as may be done the irregularities in the rate of change in the formation of the earth's crust at different geological periods, we must still assign a date of not less than from *twenty thousand* to *twenty-five thousand years* B. C. as the time of those geological formations with which the remains of man and the traces of his activity are indubitably associated. To this conclusion should be added the consideration that the lesser estimate for the antiquity of man, gathered from geological evidences as compared with the estimate from astronomical conditions, furnishes against the latter only a negative form of proof. All that may be said is that geology *has not furnished* as high an estimate for the date of the appearance of man as is indicated by the astronomical conditions which perfected the habitability of the planet at a period somewhat more remote.

The great foundations of the inquiry lie in the solid structure of geology, including the astronomical antecedents by which the globe was prepared for the maintenance of man-life upon it. About these conditions all other forms of proof are related and made thereto dependent. The archæological evidence respecting the antiquity of man has its principal sig-

Summary of the arguments; astronomical indication.

and other sources of inquiry respecting the age of man on the earth.

Geological research lies at the foundation of the inquiry.

Geology corroborates the results arrived at from astronomy.



nificance from the geological basis on which the whole science reposes. The evidence afforded by the remains of man and the fragments of his industrial arts transmitted from the prehistoric ages depends constantly for its value upon the geological correlation and dependency. From this origin of calculation and estimate the archæologist proceeds with much the larger part of his investigations. But while it is true that the significance of his results depends upon those already reached in geological science, it is also true that those results *fully harmonize* with the deductions of geology, and corroborate and sustain them without break or discrepancy, in so much that the evidences afforded by the two branches of inquiry become common and consistent as a whole. We may therefore repeat as a conclusion drawn from archæological research the same approximate date deduced from the records and inferences of geology, namely, a period of *twenty thousand years or more* before the common era as the epoch of man.

With this latter estimate coincides also the deduction from palæontological inquiry. Here again we fall back upon geology, not indeed for the *order* of the facts considered, but for the approximate *dates* to which the facts must be assigned. Those forms of animal and vegetable life with which the remains of man are associated in the geological matrix of the earth are referable to the same kinds of proof as to their antiquity as are the other materials of archæology. To a certain extent the antiquity of the prehistoric flora and fauna may be determined independently of the age of the geological epochs to which the same belonged. But, on the whole, the argument from palæontology has the very

same basis, so far as the antiquity of man is concerned, as that from archæology; and each alike corroborates the geological record with respect to the age of man. Negatively it may be said that palæontological research has in no case tended to *reduce* the high estimate for the antiquity of man which has been made from the basis of geology.

The same results are reached from the anthropological point of view. Every branch of man-study points unmistakably to an origin for the human race remote from the present by not *less* than *a hundred centuries*. The evidences found in the human body of organs and offices which had already become rudimentary before the beginning of historical records; the like indications of the prehistoric differentiation of the sexes, by which the traces of a common physical life were left in each; the established slowness of the intellectual evolution of the race, whereby the increment of mental power and the average capacity of the faculties of the mind have hardly been perceptibly augmented in the space of three thousand years, and many other facts and laws of human development which have been scientifically determined, all tend to establish beyond doubt an antiquity for the race approximately as high as that indicated in the deductions of geology.

So also of ethnological and ethnographical inquiry. The period requisite for the ethnical dispersion of the race must have been as great as that furnished by the indications of geology, archæology, and anthropology. We may mark with certainty not only the presence but the historical development of the different races of Asia, Africa, and Europe at a time so far remote from

Anthropological deductions are essentially the same.

Deduction from palæontology harmonizes with other results.

Ethnology and ethnography point to identical conclusions.

the present as to warrant, and, indeed, compel, the conclusion that the length of time required for the differentiation of the various peoples from some common stock was fully as great as that indicated by the rude implements and other remains of primitive mankind and the emplacement of the same with the later, if not the middle, deposits of the Drift. No scholar can reflect with earnestness and dispassion upon the phenomena of tribal and race development among the Aryan families of men only without perceiving the stretch of immeasurable time requisite for the whole distribution—for the departure, migrations, settlement, and evolution of the Indic peoples, for the like divergence, organization, and development of the Iranian nations, for the far-off and vine-like progress of the fathers of the Græco-Italic tribes, and older than they the

Celts, and perhaps the Teutonic barbarians of the northern forests, all gradually rising through slow and painful processes to the plane of permanency and conscious life—without perceiving the necessity for a span of at least a *hundred centuries* to accomplish the given results apparent at the beginnings of recorded annals.

Back of all this a still profounder vista must be opened of at least equal extent, in order to provide the time and conditions of ethnic change, such as were

necessary for the division of the Aryan races from the Semitic and Hamitic families, from that ancient Cushite stock seen with difficulty on the horizon of Egypt and Arabia and the Lower Euphrates, from the original Black races of Africa and Australia, and finally from the ancestors of those Asiatic and Polynesian Mongoloid varieties of mankind which to-day are represented by at least one half of the inhabitants of the earth. The demands of ethnology can hardly

be satisfied with a period for the whole distribution of mankind, and for the development of the ethnic varieties already present in the dawn of history and tradition, of less than a *hundred and fifty centuries*. An ample estimate for the required time, not unreasonable in view of the demonstrable conditions that have

surrounded the progress and differentiation of the race, may be set at *twenty thousand years*.

With such conclusions history and tradition—including the special department of chronology—are in full and harmonious accord. History does not say or intimate that the world of man-life extends only six thousand years into the past. As we have shown in the foregoing pages, the testimony of history is negative rather than positive with respect to the date of

Large allowance must be made for the period of race dispersion.



EXTREME OF ETHNIC DIVERGENCE—HIGHEST TYPE.—  
(1) EROS OF PRAXITELES.  
Drawn by C. Colb.

History substantially accordant with the other sciences.

the beginning. Nothing more can be expected of historical research proper than to record such dates and epochs of the past as are deducible from contemporaneous documents, industrial remains, and monumental inscriptions. But it does not follow that because she can go no further than this there was, therefore, no previous career for mankind on the earth.

On the contrary, history clearly infers that there was a childhood, an adolescence, and at last a maturity into consciousness of the primitive races. With this view the historical record, as far as it extends, is in entire accord. Historical inquiry looks already with clear vision across those narrow and factitious eras of time which the ignorance of a former age succeeded in imposing upon mankind as a dead wall and boundary to the ancient world.

History sees beyond these limitations the shadows and outlines of the real facts of the early morning of the race; but she does not presume to say *thus-and-so* of events and movements concerning which she has not, and in all probability can never have, the testimony of contemporary records.

History accepts at their proper valua-

tion the traditions and legends of antiquity. She gives to them such credence as the master gives to the stories of the nursery and the playground. She gladly admits what truth soever may have been transmitted from the most ancient times to the epoch of records and monuments

Oral story may not contradict science and right reason.

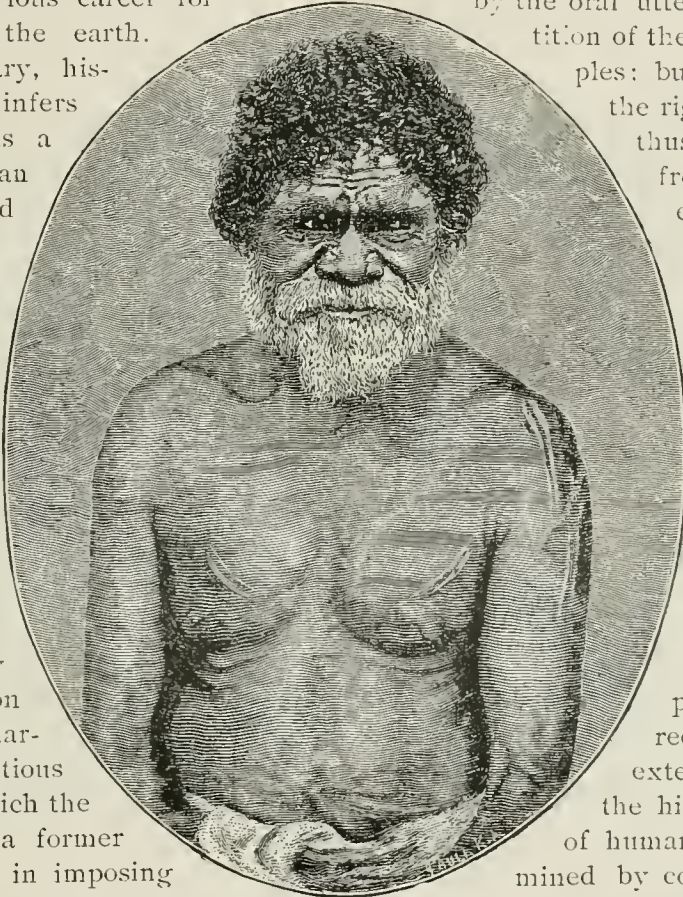
by the oral utterance and repetition of the primitive peoples: but she disallows the right of oral story thus handed down from age to age to contradict the exact and indisputable evidence of science and to set tradition on the throne in the place of truth.

We have seen in the foregoing pages to what depth into the past the actual records of our race extend. Perhaps the historical horizon of human life, as determined by contemporaneous evidence, lies not far from the line of forty centuries be-

fore the Christian era. But this signifies no more than that the record is there broken by the limitations of human knowledge.

Historical horizon about the line of the fortieth century B. C.

Beyond that border line, which for the present divides the historic from the prehistoric life of man, extend those vast unrecorded epochs of human existence concerning which our informa-



EXTREME OF ETHNIC DIVERGENCE—LOWEST TYPE.—  
(2) AUSTRALIAN OF THE TOWNSVILLE COAST.  
After a Danish drawing.

tion must be derived from those branches of science which have extended their investigations beyond the historical horizon.

We have endeavored in the preceding pages to gather and summarize the evidences which the present state of knowledge has furnished with respect to the extent of man-life backwards through the prehistoric shadows. While much remains as yet indeterminate, while the evidence in many parts is indecisive, while the application of the law of averages and probabilities may mislead somewhat the most skillful research respecting the vestigia of human life in the prehistoric ages, we are never-

theless fully warranted, by the juxtaposition of all the proofs, in accepting it as an established fact that the appearance of the human race belongs to a date not less than *two hundred centuries* from the present time. It only remains to remind the reader that "human race" in this assignment of an approximate date for its apparition signifies that species of beings the traces of whose primitive life are found close down to the miocene era in geology, a species having the rudiments of reason, the upright form, and the potency of the civilized life, but otherwise not strongly discriminated from the higher primates except in the ability to fashion an implement and to kindle a fire.

## CHAPTER VIII.—THE QUEST OF EDEN.



HAVING traversed the field of inquiry respecting the probable date of man's appearance on the earth, we come, in the next place, to consider the *place of his origin*. Since there was a time in the history of our globe when men did not exist upon its surface, and since there was a date at which human beings in some manner made their appearance and became the progenitors of the race, there must have been a place of apparition, a point or points from which the first men and their descendants took their departure to people the earth. Science, conjecture, and blank dogmatism have all in turn sought to solve this problem. Nor can it well be said that even at the present advanced stage of inquiry the question has been satisfactorily settled.

Final estimate of the date of the beginning.

Origin of man-life necessarily in some locality.

It will be seen at a glance that the subject before us, namely, the place of the beginning of man-life on the earth, is involved with another question which we are to consider hereafter. That other question relates to the unity or multiplicity of the origin of mankind. If the monogenetic theory be true, then only *one* place is to be sought as the point of original departure for all the races of men; but if the polygenetic theory should be established, then several, perhaps *many*, points of origin must be ascertained—at least as many as may correspond to the leading ethnic varieties of human kind.

One place or many places a condition of the problem.

There have not been wanting scholars and thinkers of the current century who, after an extensive survey of the field of inquiry, have adopted the theory of polygenesis; that is, the doctrine of the multiple origin of mankind. According

to this belief, the race has sprung from several fountains wide apart in place and time. There has been one fountain for the Black races of Africa and Australia, another for the Asiatic Mongoloids, another for the Polynesians, another for the nomadic races of Northern Asia, another for the Indo-European, or Aryan, family, and still another, or perhaps more than one, for the aborigi-

Theory of the multiple origin of mankind pronounced.

the inquiry as to the geographical locus of the first men is in great measure taken away. Should it be shown that the human race has had more than one point of original departure, then it may have had ten places of beginning or a hundred. Indeed, if we adopt the polygenetic theory, we put the inquiry upon another foundation—that of supposing that when the earth was in a certain cosmical stage of development and



TO PEOPLE THE EARTH.—Drawn by Riou.

nal races of the American continents. From these several points of departure the vines of diverse human life have sprung and extended themselves by devious growth over the surface of the earth.

We may not here pause to consider the merits of the two opposing theories of the single and multiple origin of mankind. It is sufficient to note the fact that if the hypothesis of polygenesis be admitted as true, then the interest in

Polygenesis, if admitted, destroys interest in the inquiry.

preparation the conditions antecedent to man-life were present and prevalent over a large part of the globe, from which conditions human existence was as likely to take its origin in this place as in that.

Hereafter we shall consider the value of such a theory as explanatory of the manner and means by which the appearance of man on the earth is to be accounted for. But for the present we shall take up the opposite view as more

Opposite view more accordant with facts and reason.

nearly in accord with the facts, shall adopt the theory of the unity in *place* as well as in *time* of the origin of all mankind. With the acceptance of this view, our interest in the attempted discovery of the point of departure from which all the kindreds and families of men have derived their ultimate descent is greatly heightened.

given in Genesis not only of the manner, but of the place of the origin of mankind, has formed a part of the foundation of those great systems of religious thought and powerful ecclesiastical organizations which have constituted so strong an element in the civilized life of the nations of the West. The account given of the creation and emplacement



HIGHLANDS OF ARMENIA.—Drawn by Taylor, after a photograph by Madame Carla Serena.

The general belief among the nations of the West on this subject has been derived from the Hebrew Scriptures, constituting the basis as they do of the religious faith and practice of the Israelitish race and, in later development, of the faith and practice of all the Christian nations of the earth. The account

of man need not here be repeated. It is sufficient to say that the scene of this beginning of human life is fixed by the record as in "a garden eastward in Eden." It is said that "a river went out of Eden to water the garden; and from thence it was parted, and became into four heads. The name of the first [that is the first head or river] is Pison:

The "garden eastward in Eden," with its four rivers.



THE BIBLICAL PARADISE.—Drawn by Gustave Doré.

that is it which compasseth the whole land of Havilah, where there is gold; and the gold of that land is good: there is bdellium and onyx stone. And the name of the second river is Gihon: the same is it that compasseth the whole land of Ethiopia. And the name of the third river is Hiddekel: that is it which goeth toward the east of Assyria. And the fourth river is Euphrates." Here we have the geographical definition, so to speak, of that place which is described in Genesis as the scene of the creation of man.

But where was the garden of Eden? Is it possible to lay this ancient sketch of the Scriptures practically on a map or globe and define its position? Many have been the efforts of scholars and visionaries to accomplish this task of identifying the ancient Eden with some place or places now known to men. In the first place, it may be observed that only one of the four rivers which are said to have taken their rise from Eden is known or has been known to the geography of modern times. The others are lost, either in mythology or in changes which have supervened in the character and distribution of ancient rivers. As to the Euphrates, the stream has been explored through its whole course. Its head-waters lie in the highlands of Armenia. But from that situation there is no Pison to compass the land of Havilah, nor is there any Havilah which may be discovered, except by the fancy of him who searches for it. Neither is there any second river called Gihon, rising from Armenia to encircle Ethiopia. And if the name Ethiopia have been used in the ancient record as equivalent for the countries possessed by the primitive Cushites, then no river proceeding from Armenia other

than the Euphrates itself could be said to approach, much less to encompass, Ethiopia. As to the third river, Hiddekel, that likewise is impossible of identification, unless indeed we suppose the Tigris to be meant; and certainly that stream does not flow toward the east of Assyria. In other words, if we accept the identity of the Euphrates mentioned in the second chapter of Genesis with the river of that name which flows from the mountains of Armenia to the Persian gulf, we find it impossible to identify the other three with any existing streams without supposing that the geographical landscape has been transformed by some revolution of nature.

We may here pause to note that the narrative of Eden as given in the Book of Genesis is common in its leading features with traditions which still exist, or which have existed, among the collateral branches of the Semitic race. The ancient Aramaic peoples, the Chaldæans, perhaps the Old Arabians, the Ishmaelites and their descendent nations of the Arabian peninsula, no less than the Hebrews themselves, had the same tradition, though much inflected in its parts and circumstances, as did the family of Abraham. It is evident, therefore, that a belief in an Eden, with its four emergent rivers and for its occupants the ancestors of the human race, was prevalent among the Semites at a date long before the Babylonians were Babylonians, or the Hebrews were Hebrews.

Reviewing the subject in the light of actual geography, we may best of all conclude that the river Euphrates referred to in the ancient tradition, of which the account given in Genesis is the most authoritative, if not the oldest,

Difficulty of fixing the place of the biblical Eden.

Hebrew narrative consistent with all the Semitic traditions.

The Euphrates of Genesis not the Euphrates of geography.



form, was some other than the stream now known by that name. We should thus be driven to reject altogether the emplacement of Eden in the Armenian highlands, and to seek for it at the source of some other system of streams corresponding with those mentioned in the Book of Genesis. But in so doing

into criticism and general literature respecting the place called Eden. Some of the older writers were inclined to lift it from the surface of the earth, and to assign it a position in the third or fourth heaven. Others, less mythological, but hardly less extravagant in their credulity, have assigned to Eden a place within



THE CEYLONESE EDEN.

we at once enter and are soon lost in the region of conjecture.

It may well surprise the reader who may not have given special attention to the subject, to note the various conflicting and visionary views which have not only been entertained, but have been put by their authors—scholarly men even, according to the standard of their age—

Visionary and  
absurd views of  
the place of  
Eden.

the orbit of the moon, while still others have contended that it lay in the moon itself! Some have tried to locate the terrestrial paradise in the upper air, but beyond the attraction of the earth. From these celestial emplacements the less fanciful searchers for the original seat have given it a place *under* the earth, far within our sphere, or some unknown situation on the surface. Still another

class would have us accept the north pole as the place of Eden, while others go into the equatorial regions in the search. Tartary and China have both been selected as the countries within whose borders Paradise was established. The banks of the Ganges and the island of Ceylon have in turn been chosen as the site of Eden. The more rational have generally attempted to fix the place in Armenia; but others rejecting the suggestion furnished by the mention of the Euphrates, have fixed the situation in Equatorial Africa. Mesopotamia, Syria, Persia, Arabia, Babylonia, Assyria, and Palestine itself have all had their advocates as the honored land in which lay the ancient Eden. More recently the claims of Europe to the distinction have been advanced and strenuously defended; and in this particular the advocates of a European Paradise have had the advantage of some strong scientific indications; for it is now agreed that the most ancient relics of mankind as yet discovered in the crust of the earth are those which the archæologists of recent times have found in Central and Western Europe.

The modern scholar is obliged to abandon the pursuit. True, he may  
 Modern scholar-ship fails to identify the Paradise. very properly and anxiously seek to discover the point of origin from which the human race has proceeded; but the location of the particular Eden, or Paradise, described in the second chapter of Genesis may well be given over as a hopeless task. The geographical concomitants do not consist with the present character of any of the countries to which the place has been assigned. In order to identify the spot called Eden, we are obliged to concede to him who is leading the discovery so many things as to make the whole argument incongruous, if not

absurd. The identity of Eden, for instance, with the region about the north pole, can be shown, no doubt, to the satisfaction of one who begins with the conclusion which he is trying to establish, and whose credulity has been stimulated with the indulgence of the fallacious hope of demonstrating a preconceived opinion; but to the inquirer who takes up the subject without preconceptions and prejudices no single proof will appear which may properly be regarded as valid.

In pursuing the inquiry, it is well to adopt the argument by exclusion. Negatively, the traditional garden of Eden may *not* be found in this place or in that. We may show by almost irrefragable proofs that many of the assumptions which have been made about the location of Eden are untenable. If, for instance, the favored hypothesis of the Armenian highlands can not be entertained without supposing that a river descending from that locality can make its way into Equatorial Africa, we may properly reject the supposition as impossible. Or, if we must suppose a river flowing over the crest of the Caucasus in order to make its way into the Black sea or the Caspian, we may reject that hypothesis also. So in any other case, if insuperable barriers interpose, instead of trying to reason them away with preconceptions and syllogistic leverage, we should at once reject the proposed theory as contradictory of the facts, and therefore impossible. But if, on the other hand, a hypothesis can be formed against which no inexplicable facts may be opposed, and with which all the discoveries made by scientific investigation fairly harmonize, then we may at least tentatively accept such a supposition as the basis of a true theory of the primitive origin of the human species.

The places suggested may be excluded by negation.

Let us therefore look attentively at some of the views which have been entertained about the location of the first seat of the ancestors of mankind. Certainly we need not adopt any of those mythological and transcendental notions which the credulity of even recent centuries adopted and foisted upon posterity as a solution of the question. What shall we say of the idea that mankind originated somewhere in the celestial sphere round about? Shall we indeed be terrified by sheer dogmatism from rejecting such an opinion as belonging to the superstitious era in the evolution of human intelligence? Such a notion fairly becomes the childhood of the race. It is fitting that children should be satisfied with the notion of a Paradise fixed

afar somewhere in the orbit of the moon, or on the face of that bright globe, and that the ancient Eden thus hung up in the skyland should dip down into touch with the earth, and at length, after the rebellion and expulsion of its inhabitants, be drawn back from contact with this low and degraded sphere where the great act of life must henceforth be performed. But why should such opinions be obtruded upon the adult age of the world? Why should they be thought to hold some important relation to the happiness and conduct of

Mythology must yield to reason with respect to Eden.

human beings? Why should they be thrust in and blended with the scientific concept of our earth and its inhabitants? Is it indeed possible that any intelligent human being will accept it as true that the Eden of our origin lay beyond the sphere of earth—was not a part of the plain, substantial, unmetaphorical surface of the ground, such as we see it and know it with our clear senses and perceptions at the present day?

The conviction is thus easily fixed in



AN ETHIOPIAN EDEN—ONE OF THE SUPPOSED PLACES OF THE BEGINNING.  
Drawn by G. Vuillier.

the mind that right reason and the investigations of science must guide us through the maze of many suppositions about the local origin of our species. Looking attentively at the geographical landscape of antiquity we see that many parts of the earth could *not* have been the place of the beginning. The high regions of the north must all be rejected as unfavorable, not only as the starting point, but also for the development and maintenance of the race-life of mankind. At the time when men began to leave

the mind that right reason and the investigations of science must guide us through the maze of many suppositions about the local origin of our species. Scientific inquiry must decide the place of the beginning.

Looking attentively at the geographical landscape of antiquity we see that many parts of the earth could *not* have been the place of the beginning. The high regions of the north must all be rejected as unfavorable, not only as the starting point, but also for the development and maintenance of the race-life of mankind. At the time when men began to leave

the traces of their activity in the river gravels and caverns of the Old World and the New, our hemisphere was just recovering from the rigors of the glacial epoch. This is to say that then, much more than now, the ice cap around the north pole would keep at bay the beginnings of human plantation and distribution. It is fair to assume that at this time all the continental parts of the northern hemisphere north of the fiftieth parallel of latitude were still under cover of the glaciers. We must therefore look to the more favoring regions of the south, to those parts of the earth which, under the cheering influence of the sun, had more fully recovered from the effects of the long-continued planetary winter, as a suitable scene for the appearance of the first human inhabitants of the earth.

A few general laws and facts of the kind just referred to may serve a good purpose in narrowing to reasonable bounds the field of the inquiry; but within those reasonable limitations there will be found a vast geographical area running through the major continents of the earth in which human life might well

Large area in which mankind might have originated.

purpose in narrowing to reasonable bounds the field of the inquiry; but

have had its origin. If we were left with no better indications than those afforded by geology and geography, we should, perhaps, remain, as we have so long been, blind leaders of the blind in our search for the probable locality of the beginning of man-life on the earth.

But we are not thus left without support and guidance. Ethnography, ethnology, linguistic science, history, and tradition here become our best and most profound sources of evidence. The dispersion of mankind into races and kindreds furnishes, in a word, a clue for tracing backwards the course of ethnic descent, and with the aid of geography and other branches of science to indicate the original point of departure. Negatively, the very same evidence goes to show from what regions the different families of men have *not* proceeded. We are thus enabled to get upon the track of the inquiry, and to follow it, first historically, afterwards traditionally, and finally by the lamp of right reason to approach, at least, that part of the earth's surface from which only the progressive distribution of the race could have begun.

Recent sciences aid in determining the place of origin.

## CHAPTER IX.—TRUE PLACE OF THE BEGINNING.



It is not our purpose to anticipate any part of what must more properly be said, in a subsequent division of this work, on the primitive migrations of man-

kind; but it is well in this connection to indicate in a general way the proofs furnished by ethnography respecting the place of the beginning. Take, for in-

stance, the Semitic family of mankind. The Hebrews inhabiting Palestine had been a migrant race. More immediately they had come into the country of their choice from Egypt, but more remotely their ancestral tribe had removed from the Lower Euphrates westward into Canaan. This migration, well preserved in the history and tradition of the Israelites, furnishes an indication of the place,

Migration points to place from which mankind proceeded.

or at least the *direction*, from which the Semitic division of mankind was derived. In North America, within the historical period, we have an example of the migration of the Tuscaroras from south to north—from the Carolinas to the region of the New York lakes. The ancient world is full of the traces of such migratory movements among the primi-

of the ethnic fluctuations by which the earth has been populated. We must not suppose that the first men, the first tribes of men, drifted over the continents under lawless impulses, blown hither and thither like mists before the capricious winds, but that all the transigrations by which tribes and peoples were carried into new

The movements of races are governed by law.



WESTWARD PROGRESS OF THE SEMITES.

tive peoples. That the Greeks came out of Asia can not be doubted any more than that the Vandals, who conquered Spain and Africa in the fifth century, came out of the North.

The inquirer will not have pursued the subject far until he perceives that the migrations of antiquity, and, indeed, of all time, are governed by general laws, showing the direction and ultimate origin

regions of the earth were under the reign of law.

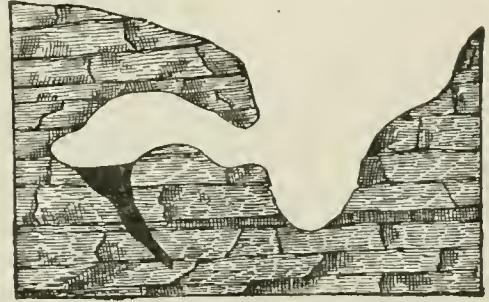
In some instances the motive or impulse of the primitive ethnic distribution may be discovered, and in other cases not so easily. But aboriginal tribes, as well as enlightened people, act by motive and inducement, and not by whim and caprice. We may not

Not whim and caprice but motive decides race conduct.

suppose, for instance, that the original Aryan population of India made its way from the head-waters of the Indus down the river toward the sea, instead of in the inverse direction, by accident or without a motive. Those migrating tribes had a reason and an end, and it was in pursuance of these that they continued to distribute themselves in the country which they and their descendants were to possess for at least four thousand years. The impact of the White race upon the shores of the New World from the side of the Atlantic rather than from the Pacific coast was not by accident, but under the reign of law; not, indeed, that men are mere automations, but they are creatures of reason and motive; and reason and motive are, as a rule, derived from that general causation and sequence under which the world and its inhabitants exist and go forward to their destiny.

We have been able by ethnological research and historical tradition to discover, we might say, a thousand threads in the complicated processes by which the early races of men were distributed in Western Asia, along the African shore of the Mediterranean, and throughout Europe. By following these threads as a clue, we are able to reason both by inclusion and exclusion to tolerably satisfactory theories respecting the starting point of the human distribution. Take, for example, the recently originated theory of a European beginning for the human race. As we have said on a former page, the indications of archæology look rather to Europe than to Asia or Africa as the starting point of mankind. It may be accepted as true that the oldest existing remains of man have been found in the valley of the Somme. But that fact is

by no means conclusive on the general question of the local origin of our species. Indeed, the indication is but slight. It signifies no more than this, that no example of the *reliquæ humane* older than those of Europe has been discovered in Asia or Africa. But it



SECTION OF EUROPEAN RIVER CAVERN, SUITABLE FOR DEPOSITION OF HUMAN REMAINS.

should be remembered that antiquarian research has had its development in Europe, and that Asia and Africa have in all probability not yet yielded up their most ancient archæological treasures.

However this may be, the theory of a European origin for the race is confronted and opposed by almost every historical, traditional, and ethnological fact with which we are acquainted. All the races of Europe since the beginnings of history have regarded themselves either as autochthonous or immigrants from the East. The early movements of the European races were all from the line of the Caspian and the Ural in the direction of the Dnieper, the Danube, and the Rhine. We know how powerful within the historical period has been the ethnic pressure from the East in all parts of Europe, and how seldom the ethnic lines have curved backwards from the Atlantic and Mediterranean borders in the direction of their origin. The emplacement of primitive cities and states was nearly always in the western parts of the respective countries in

Indications of starting point of human distribution.

cover, we might say, a thousand threads in the complicated processes by which

Hypothesis of European origin of mankind rejected.

which certain peoples had at length passed from the migrant to the sedentary phase of life. We know that the whole power and contrivance of civilization within the historical period has scarcely been able to withstand the ethnic and cosmic impact of the westward tendency of mankind in Europe.

point unmistakably to an Asiatic origin for the ancestors of the great peoples of Europe and the West. On the other hand, there is not the slightest evidence, from an ethnological point of view, among the peoples of Western Asia that they or any of them, with the single exception of the Galatians, have



WEST ASIAN LANDSCAPE.—SOURCE OF THE ARYAN MIGRATIONS INTO EUROPE.—Drawn by Paul Langlois, after a photograph by Madame Carla Serena.

These remarks apply with unusual fitness to the movements of the Aryan nations. The Indo-Europeans seem to have obeyed the cosmic law—to have felt its force and mandate more universally and profoundly than any other family of men. The whole Aryan tradition and all the testimony of history

Indo-Europeans  
move westward  
under cosmic  
laws.

come, either mediately or remotely, out of the West. Tradition and history indicate unmistakably that the inhabitants of Western Asia, such as the Turcomans, have themselves, like the inhabitants of Europe, migrated from countries further to the East. In short, every fact deducible from ethnographic and ethnological inquiry confirms the

belief that all the peoples inhabiting the occidental parts of the Eastern hemisphere are the descendants and representatives of migrant races which were distributed from an Oriental origin at a period far below the dawn of human tradition.

In this connection the history of language may be cited as one of the strongest proofs of an Eastern origin for the races of the West. The discovery of the radical identity of Greek and Sanskrit made by scholars in the first half of the present century is, of itself, a fact sufficient to establish the Eastern origin of the European Aryans. On no other grounds or hypothesis can we account for the fact that the *Iliad*, the *Æneid*, the *Jerusalem Delivered*, and the *Paradise Lost* are written in the same tongue as the Vedas. Either the great Epics, and indeed all literature, mythology, and history of the Western nations have been produced by peoples who had the same ultimate derivation with the inhabitants of ancient India, or else the Hindus themselves have derived their culture, as well as their blood, from some fountain in Europe. The latter supposition can hardly be entertained, and certainly not entertained at all by any one who has acquainted himself with the subject-matter and deductions of ethnology. Indeed, it is certain that the ancestors of the European-Aryan peoples came out of Western Asia, and after long ages of wanderings and wars fixed themselves, by discovery, occupation, and conquest, in the respective countries where their descendants, within the historical period, have grown into great and famous nations. It is certain also that in their westward course in the prehistoric epoch they brought with them the language, laws, institutions,

manners and customs, ambitions and mental habitudes which the ancestral tribes had possessed before the beginning of the migratory era.

By a method of investigation and reasoning precisely analogous to the foregoing, we are able to prove that there never was any general migration

Ethnic distribution in Africa from east to west.

of primitive peoples out of Africa into Western Asia. It might be sufficient to say that here also the ethnic lines, in so far as they have been preserved by history, tradition, and language, run in the opposite direction. The westernmost parts of the continent of Africa have, as a general fact, been peopled with migratory tribes from the eastern parts. In ancient times the states and cities which abounded and flourished on the southern shores of the Mediterranean were planted progressively from east to west. Egypt was the oldest of all. Carthage was one of the younger plantations of that region of the earth. In the westernmost parts of Africa the ethnic lines have been sometimes doubled back by the barriers of mountain and sea, just as in Europe the Celtic race, having explored and to a certain extent peopled the southwestern peninsulas of that continent, doubled back and proceeded far to the east before the close of the age of migrations. But it is clear to the student of these exceptional movements that they were made against, and as it were in the face of, the cosmic and ethnic law by which the primitive tribes had been carried from their Asiatic origin into the West.

If the study of peoples of Western Asia in ancient and modern times should bring us into contact with Ethiopian and Nigritian tribes—if we should find in certain places the distribution of Black men of the ethnic type peculiar to Equa-



torial Africa, speaking the languages of that region and having their manners and customs—we might well suspect that there had been at some time in the past a race movement from the direction of the Red sea backwards toward the Caspian, the Persian gulf, and the borders of India. But no such evidences have been discovered. On the contrary, the impingement of Asiatic races upon the African coast as far south as the equatorial region is a fact everywhere attested. The movement of mankind in this region has been from the Persian gulf toward the Red sea and Abyssinia. Indeed, we can see dimly through the prehistoric shadows to the time when, probably six thousand or eight thousand years before the Christian era, the ancestors of the Egyptians themselves made their way into the valley of the Nile, out of Asia, became sedentary in that favorable situation, and planted there, after a long period of development, those first famous dynasties which mark, like far-off mountain peaks, the extreme verge of the historical horizon.

Again, should we begin an inquiry in regard to the Mongoloid races, we should find them pressing from the interior of Central Asia eastward toward the Pacific.

The older divisions of this race are inland peoples rather than maritime. The maritime and insular families are more recent. The Japanese are younger than the Chinese, and the Polynesian islanders are of later date than the continental Mongoloids, from whom they are descended. We must therefore accept the conclusion that the general diffusion of the eastern Asiatics has been from the direction of Central Asia toward the Pacific, and that the ethnic movement has been strong enough to carry the van-

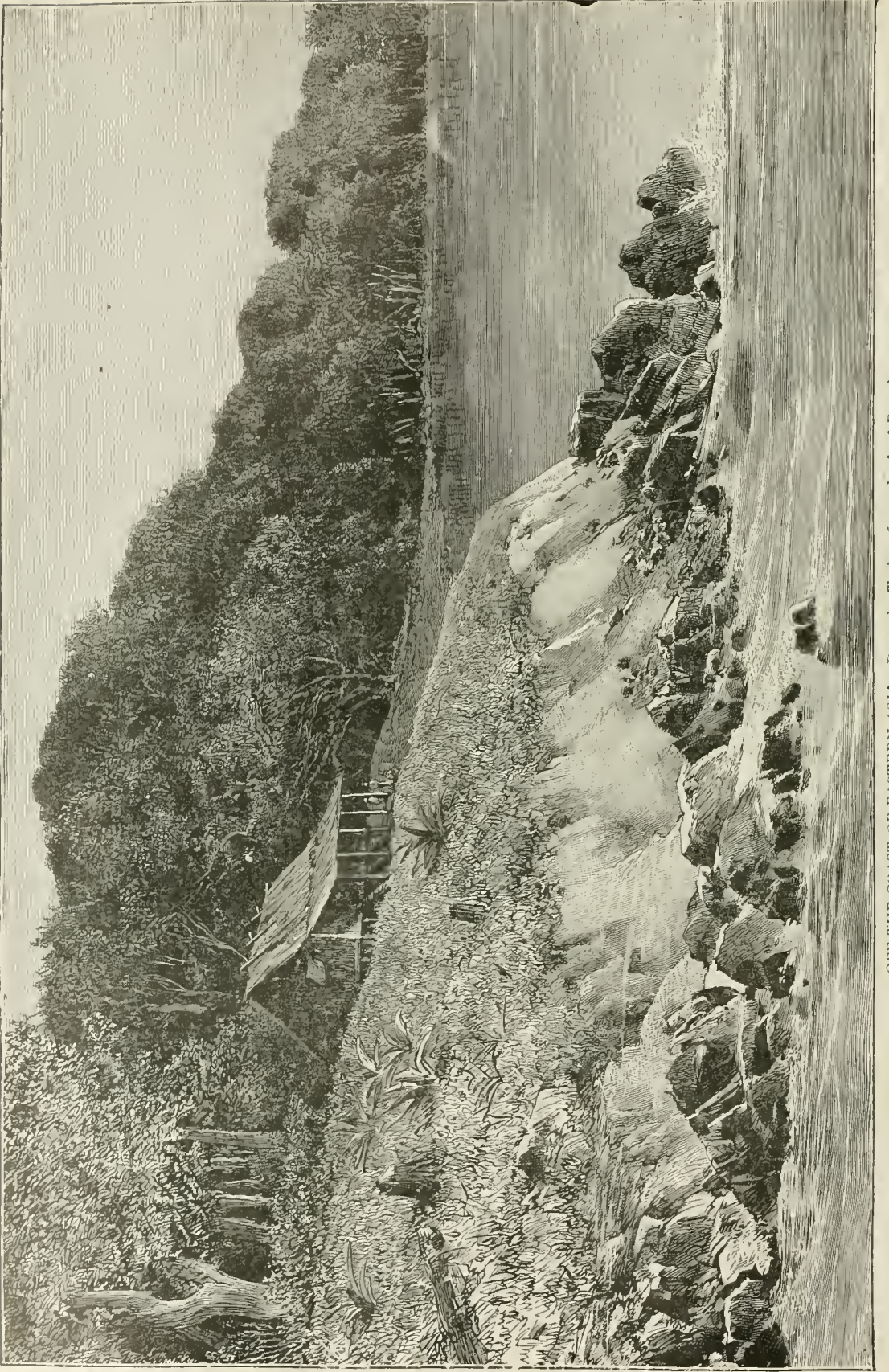
guard into peninsular and insular situations far removed from the original seats of the race.

The principles of ethnology and linguistic inquiry applied to the Black races give similar results. These Nigritian dis-  
races are found only persion contradicts theory of European origin. in Central and Southern Africa, in Melanesia, and Australia. As to Africa, the ethnic distribution, as far as it has been discovered and traced, is from the eastern coast into the interior, and as far west as to where the continent becomes almost peninsular in the direction of the Cape Verde islands. The theory of a European origin for the race of man is scientifically contradicted by the present distribution of the Nigritian peoples, and by the direction from which the diffusion has been effected. In like manner it would be impossible to find any European stem to which the native Australians and Melanesian islanders can be referred—this for the reason that there are neither ethnographical nor linguistic traces of such peoples between the countries which they now occupy and the borders of Europe.

The same may be said also of Asia—unless, indeed, we should except the extreme southern parts of Hindustan. There, indeed, No continental point for distribution of Black races. are found the Veddahs and other descendants of a race belonging, ethnologically, to the same branch with the Negroes and the Melanesians. There is, in a word, *no continental origin* which can well be assigned for the Black races, unless we should fix the same within the equatorial belt on the eastern coast of Africa. From that point, indeed, the Nigritian peoples may all be derived with a fair conformity to science and right reason. At the same time, however, there would appear to be insuperable objections to this lo-

No Blacks in Western Asia; Egyptians from the East.

Mongolians move eastward from Central Asia.



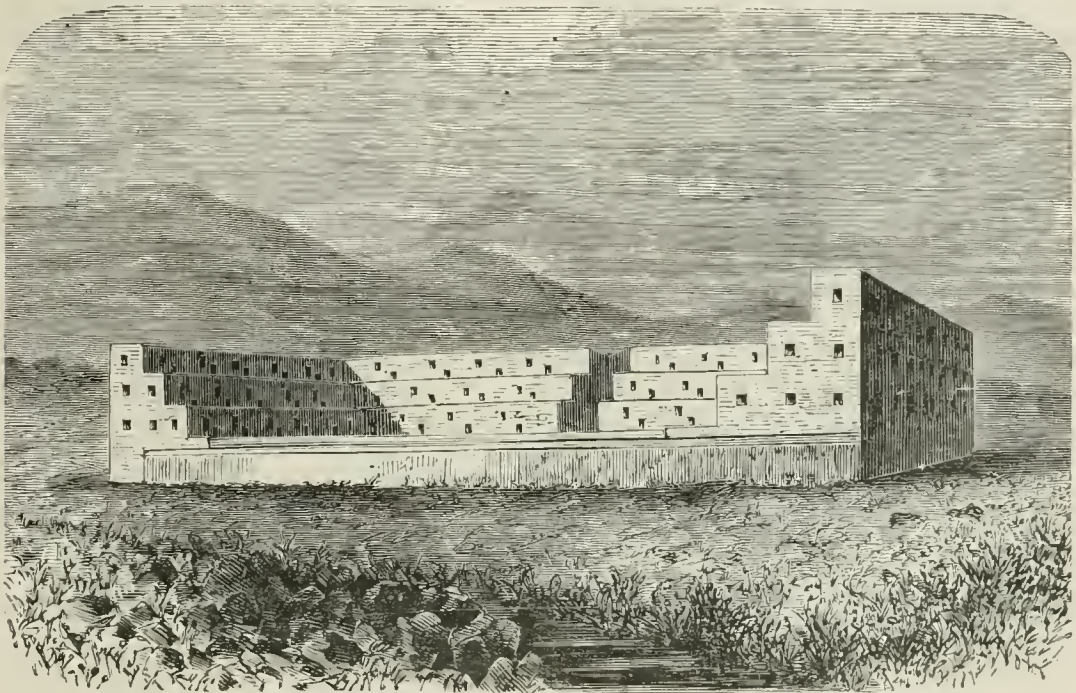
OFF THE COAST OF EASTERN ASIA.—Drawn by Taylor, after a sketch of Bertolty.

cality as the original nidus of the Black races. For in order to deduce from such a situation the natives of Australia and Melanesia, the original stock must have crossed the Indian ocean through several thousand miles—a hypothesis hardly tenable under the law of probabilities.

If, moreover, we allow a great antiquity for the Black races, and fix some spot in Eastern Africa as the point of their departure, we are at a total loss in

so-called Caucasian, or White, variety of the human species from an original seat *in Africa*—this whether we call that original seat by the name of Eden and surround it with the circumstances of the terrestrial Paradise, or view it merely as the locality from which the tool-making, fire-kindling, anthropoid ancestors of mankind arose and took their departure to people the world.

Analagous reasoning may be applied



EVIDENCE OF PREHISTORIC RACES IN AMERICA.—(1) BUILDING OF THE PUEBLOS, RESTORED.

attempting to derive therefrom the great Brown peoples of Eastern Asia or the Ruddy races of Western Asia and Europe. If we should establish the origin of the Black race in the continent, where it now displays itself in great diversity and power, then we should be obliged to abandon the monogenetic theory of the origin of mankind and agree that the Black races are of one ultimate stock and the Ruddy races of another. Of a certainty it is not possible to derive the

Brown Asiatics can not have an African origin.

with the same results to the supposition that the American continents may have been the original home of man. To this hypothesis the deductions of almost every branch of science are opposed. As to the White race and the Black race we know the dates of their arrival on the shores of the New World. While there are evidences in all the three Americas of the great antiquity of the aboriginal peoples who occupied and, to a certain extent, civilized the milder and more favorable

American continents not the first home of man.

regions of the western hemisphere, there are no other than the most visionary reasons for supposing that the great historical peoples of Asia, Africa, and Europe were derived therefrom. The habits, manners, customs, arts, and physical characteristics of the original Americans—by whatever names we may define them—ally them with the Mongoloid divisions of mankind, and suggest with great emphasis a derivation by way of the northwest out of Asia, or by the Polynesian islands to South America. But to



EVIDENCE OF PREHISTORIC RACES IN AMERICA—(2) PYRAMIDAL MOUND IN MEXICO.

draw outward across the oceans from any part of our three continents the lines of ethnic distribution, and to carry them to Europe, Africa, or Asia, is to contradict every principle of ethnography, and to run amuck with all the facts which science has discovered relative to the earliest inhabitants of the continents round about our own.

Upon the known direction of primitive migrations we may plant ourselves firmly in this inquiry. When a given race of the prehistoric times has come by

long descent and removal from a given point of the horizon, we may look confidently in that direction in the hope of discovering a region of general ethnic

Direction of migrations a clue to point of origin.

dispersion—this always upon the hypothesis that all the races of men are of one common ultimate derivation. But the inquirer, in following backwards as far as he can with fact and theory the lines of ethnic distribution, is likely to come upon many confusing and some seemingly contradictory evidence. Nothing

in which man has been concerned is regular or mathematical. Life has its order and its law; but it is the order of freedom and the law of variation. The calculus by which the movements of all living organisms, particularly those which are rational, are governed, is vastly more intricate than that in which are expressed the mathematical laws and principia governing material nature. The inquirer, however, in considering the movements of the primitive races of men, is as likely to be aided as he is to be confounded with the irregularities and ostensible lawlessness which appear in certain parts of the problem.

In no other part of the question is this fact more noticeable than in that

relating to the general directions of the movements of mankind from Orient to Occident. At first glance

General movement of the races from east to west.

we should easily conclude that the proper course of the human race had always been, as indicated above, from east to west. This is, indeed, one of the most tangible circumstances that presents itself to the ethnologist. We should say at the first that all men and tribes and peoples naturally follow in the course of the sun from his rise to his setting. Undoubtedly the

whole of Europe, and, indeed, all of the Mediterranean countries have been populated in accordance with this cosmic law. So, also, in America, leaving out of view the aborigines, we note the tremendous pressure of the White races from the eastern to the central and western parts of the continents.

It would be a mistake, however, to suppose that all ethnic movements have been in like direction. Inanimate nature shows many exceptions to the general disposition of vines and tendrils to

Exceptional movements of man and nature against the sun.

adjust themselves from left to right around the objects to which they cling. Some vines and tendrils turn the other way. The ethnographer, following his clues eastward across Europe and Western Asia, comes at length to a region

where the lines seemingly enter the earth, and where others springing up depart *in an easterly direction*. By careful study from north to south through this region of the earth he finds the recurrence of the same phenomena. In a word, he is unable to trace further the footmarks of the Aryan races. It is natural, and, indeed, necessary, to the prosecution of the inquiry that this particular belt from which the lines of ethnic transmission seem to depart to right and left, that is, to east and west alike, should be examined with great care.

If the observer take his position on the northern shore of the gulf of Oman and look straight across Asia in the direction of Nova Zembla, he will have before him a continental line which will approximately coincide with a sort of ethnic watershed in the history of mankind from which the races have flowed to right and left in the original distribution. Of a certainty this statement is not scientifically exact. There will be found much twisting and turning after the manner of streams that take

Watershed between west-bound and east-bound races.



EVIDENCE OF PREHISTORIC RACES—(3) RUINS OF TEMPLE, IN TITICACA IN AMERICA.

their rise, flowing in their upper courses in many directions rather than in one, until a heavy volume has been acquired and a definite course determined. But, on the whole, that belt of Asia lying between the fiftieth and sixtieth parallels of longitude east from Greenwich will be found to contain the fountain heads, as far as the same have been discovered, not only of the Europic-Aryan races, but also of the vast Indic and Iranic-Aryan families, as well as the still more widely distributed Mongolian families by which the larger part of Asia, Polynesia, and the aboriginal Americas have been peopled.

The geographical belt in question coincides roughly with the line of the river Ural, the Caspian, the division of modern Persia centrally from north to south, the Persian gulf and its outlet into the Arabian sea. So far as ethnological research has extended, it may be averred that all the primitive races departed from this belt in their primal distribu-

Primitive races depart right and left from a common belt.

ceptional deviations and reflections as may be accounted for by geographical contingencies and the vicissitudes of discovery and war.

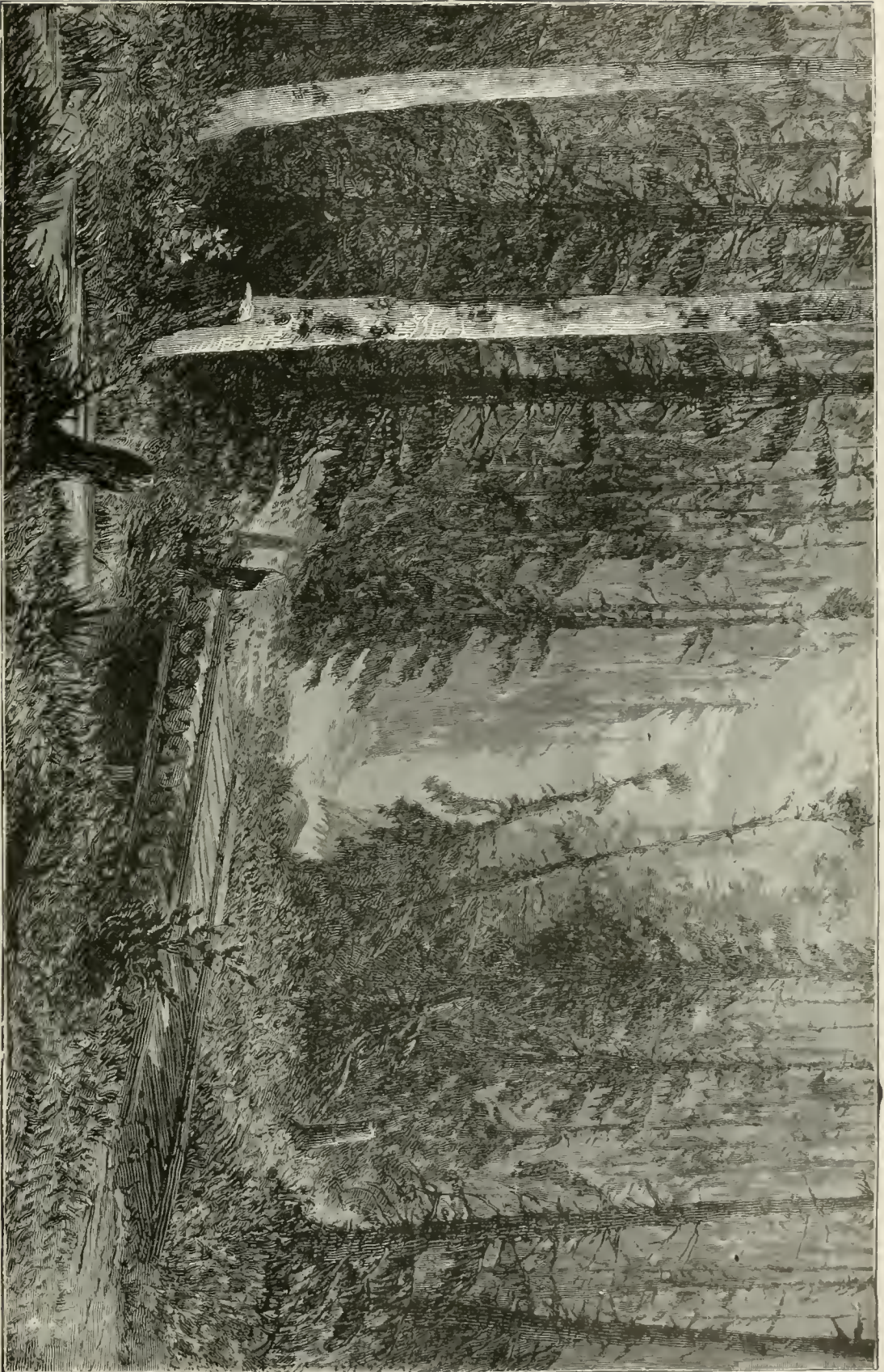
So also were the Semitic and the Hamitic families dispersed from the same belt of the earth's surface. If we press the inquiry further we shall find the first appearance of the Black races on the eastern coast of Africa, in the



LANDSCAPE OF ETHNIC WATERSHED.—MOUNTAINS OF JOBLA.—Drawn by G. Vuillier.

tion in an easterly or westerly direction. It was only after the migrations of the Mongoloid races had carried them to the eastern borders of the continent against the Yellow sea, the sea of Japan, and the sea of Okhotsk that the lines of ethnic diffusion were bent backwards in a westerly direction across the northern and northwestern parts of Asia. In like manner from the same meridian the migrations of the European Aryans were always to the west, with only such ex-

southern part of Hindustan—the former moving in a western direction and the latter in an eastern—show- All non-Aryans have the same line of departure. ing conclusively that the Black division or divisions of mankind also departed to right and left from a meridian almost identical with the watershed of the White and Brown races across Asia. It is hardly pressing the hypothesis beyond the warrant of established facts to say that within the belt of land and sea bounded by



LINE OF THE ARVAN WATERSHED.—REGION NORTH OF THE CASPIAN.—Drawn by Meynet.

the fiftieth and sixty-fifth meridians of longitude east from Greenwich the first fountains of man-life in the earth are to be discovered.

Under this hypothesis it still remains to be decided *in what part* of the belt referred to, viewed from north to south, the primal seats of mankind are most likely to be found. First of all, we may exclude the north. Nothing is more clear than that the races now inhabiting the region north of the Caspian, including the countries drained by the Ural and the Volga, have made their way into those semiarctic countries by toilsome and comparatively recent migrations. We have every reason to believe that the Kirgheez, the Calmucks, the Cossacks of the Don, and the Russian Mongols in general are newcomers in the countries which they now occupy.

Hereafter we shall see that man, as an animal, was not in his primitive state adapted to the rigors of such situations as those lying between the Caspian and the White sea. Into such regions he had to make his way slowly, fortifying his constitution as he went, and learning by much discipline and experience how to protect his body from the inclemency of the natural world. We may, therefore, reject the transcaucasian and supracaspian region from the list of places to be considered in the inquiry.

To this conclusion we are also led when we consider the impossibility of tracing the Black and Brown races to such a geographical locality. The derivation, for instance, of the Negroes, Australians, and Papuans from a country above the fiftieth parallel of north latitude is a thing contradicted by every fact with which we are acquainted and

by every principle of right reason. Moreover, the races just referred to are much lower in the scale of physical, intellectual, and moral development than are the great Indo-European families of men; from which fact we must either suppose that the Black races have been derived *by an inverse order of descent*, involving retrogression and reversion toward the lower order of animals from the higher races of the north, or else reject altogether the possibility of a northern origin for the native inhabitants of Central Africa, Australia, and Melanesia.

We are thus drawn down from the subarctic regions to the consideration of the countries lying between the Caspian and the Arabian sea. It is to this part of the earth, as we have already said, that the ethnic lines of the Aryan races seem to be traceable. The latitude coincides with that great belt of our globe, running from east to west, in which the energies of those races have been so magnificently displayed. It is a region presenting those climatic vicissitudes under which the best discipline and most vigorous development of the human race have been achieved. As we have said above, the lines of Aryan descent do seem to arise from the ancient Iranian region under consideration, and to depart to both east and west, as might be expected, if this were the starting point of human development. Limiting our view, therefore, *to the Aryan races only*, we might well believe that we had discovered in the region north of the Persian gulf and included between that water and the eastern extension of the Caucasus the original home of man.

This supposition, however, is again confronted with insuperable difficulty

Recent arrival of the supracaspian races.

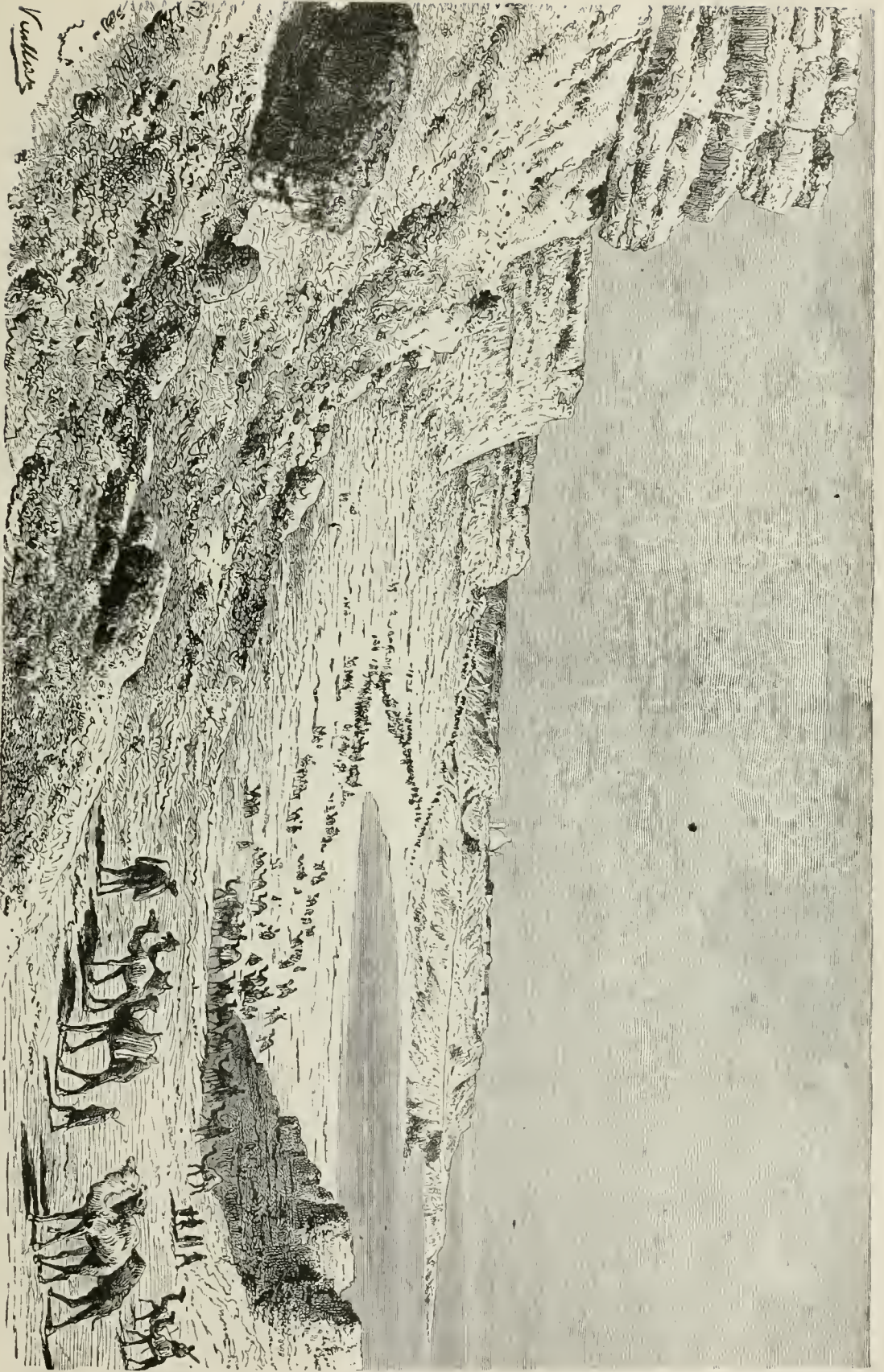
Primeval man fully adapted to northern rigors.

Impossibility of deriving Black races from the North.

Region between Caspian and Arabian seas indicated.



LINE OF DIVISION BETWEEN RUDDY AND BROWN RACES.—COAST OF ARABIAN SEA.—Drawn by G. Vulliamz.



when we take into consideration the races other than Indo-European. There have never been discovered in the countries south of the fiftieth parallel and west of the sixtieth meridian the slightest trace of the Mongoloid families of men. North of the Caspian and the Black sea Mongols are abundantly distributed; but on the plateau of Iran, from which Aryan life appears to have taken its rise, no vestigia of Mongoloid existence have been found. Still more is this true of the Blacks. The Nigritians have nowhere risen above the twentieth parallel of north latitude—except, indeed, in countries like the United States, where the presence of the Blacks is to be accounted for on other than ethnic principles. If we attempt to deduce the Black races from what appears to be the Aryan nidus in Bactria, we are confronted with the same insuperable difficulties mentioned above. The Black races have not advanced as far along the lines of the human evolution as the so-called Caucasians. Their physical structure, their intellectual compass, and their moral attributes are all clearly of a more primitive and less specialized form of life than we find in the peoples of Western Asia and Europe. There must, therefore, have been retrogression in the case of the Blacks, or else a derivation from some region lying approximate to the equator. There has not been retrogression.

It would thus seem to be impossible to find a position on the land surface of the earth, as the same is now distributed, from which the Black, the Brown, and the Ruddy races can be derived as from a common original home. Indeed, it is impossible to make such derivation; but when this is said, the limitations of

Mongolians and Blacks not derivable from this region.

possibility are determined by the resources of our present knowledge. It is altogether correct for the inquirer to use such language in the present age and at the present stage of human attainment. But it is not meant that it is absolutely beyond the boundaries of the possible that the Ethiopians and the natives of Australia should have been derived from some point on the continent of Asia. Such conclusion, however, appears so strongly impossible, and is so immensely improbable, that we are warranted in adopting the expression, and in rejecting altogether the supposition of an Asiatic origin for the Black races of mankind.

What then? If the Aryan races have not been derived from Africa or Australia, as they have not been; if the Brown races, the great Mongoloid divisions of mankind, have not and can not have had an African origin; and if they have not been found, even by trace or tradition, as far west in central and southern Asia as the seat of the Indo-Europeans, must we conclude that the discovery of a common primitive home for the first men of the human species is impossible, and must we adopt the theory of a multiple origin for the different races? Not at all. There still remains a single view which, if adopted, may make consistent the theory of monogenesis and progressive distribution with what we know of the present ethnic position and former migrations of the various peoples of the earth. This view is in brief, that the geographical distribution of land and water in that quarter of the earth from which it would appear that the human race has taken its origin may not be, and in all probability is not, the same as it was at the date of the appearance of man.

Tenability of another hypothesis.

No land surface answers the demands of the problem.

There are many grounds for believing that the water area now occupied with the Arabian sea and the northern parts of the Indian ocean, including Madagascar and extending eastward almost to Australia and the Malay peninsula, was formerly a continent upon which

Grounds for believing in a submerged continent.

a great submerged continent in the region referred to is rendered probable, if not positively established, by several kinds of inquiry having no reference to ethnological results.

In the first place, the shoal character of the waters of the greater part of the Indian ocean is a well-known fact of



IDEAL LANDSCAPE OF LEMURIA.—Drawn by Riou.

the ocean gradually encroached until its submergence was effected. If this suggestion were made with a view merely to furnish a possible common home for primitive mankind, it might at once be rejected as a part and example of that visionary reasoning in which dogmatic scholarship has so much delighted for several centuries; but the existence of

marine geography. That part of the ocean between the thirtieth degree of south latitude and the equator bounded east and west by Madagascar and the eightieth meridian from Greenwich is very shoal. Should we take our stand on the island of Mauritius or Rodriguez, we should see around us a vast area of

Shoal character of Arabian sea and Indian ocean.

shallow sea. Even beyond the borders of this the waters are not deep like those of the profound Pacific. A comparatively slight recession of the ocean such as we may well suppose to occur in one of those secular movements to which the fluid surface of the earth has been

these may be mentioned with confidence the distribution of animals and plants on the two sides of the Indian ocean. The birds of Madagascar and those of the Malay peninsula are of a common type. Certain species of palm trees, which are

Evidences of former existence of such a continent.



LANDSCAPE IN BELUCHISTAN.—DEPARTURE OF THE BROWN RACES.

many times subjected in the past, and which we know to be actively in operation—though slowly—at the present time, would be sufficient to lay bare a continent much larger than Australia in the region between the Malay archipelago and the eastern coast of Africa.

The former existence of such a continent is attested by many proofs. Among

disseminated with great difficulty by seed or transplanting, are common in Singapore, the Moluccas, New Guinea, Australia, and the western islands of Polynesia. Botanists of great reputation have insisted that this distribution could not have been made *without a continuous land-bridge* among the countries where this species of palms is found.

In like manner the conclusions of geology are at least consistent with the former existence of a continent in what is now the bed of the Indian ocean.

Geology recognizes clearly two secular processes by which a continent existing in this region could have ceased to exist by emergence under the sea. One of these is the settling, or sinking, of the low-lying tropical lands in question below the level of the ocean. The other is the encroachment of the sea by one of those vast fluctuations of the presence of which in geological time there are many indications.

Still another consideration worthy to be weighed in the argument is the fact that the human race must have had *some* geographical starting point on the earth. The area from which mankind began to be distributed may have been larger or smaller; but the very necessity of the case requires us to select

some locality as the probable home of the first men. Thus much granted, the locality must answer to the hypothesis. It were vain to select some place from which the various races could not have been derived. This kind of reasoning is

strictly scientific. The search must be for some situation which will answer to the conditions and the facts as they now appear. If we may find any region on the land, or even the water surface, of the earth toward which the indications of eth-



HOFFMAN'S SLOTHS.  
After a drawing from life.

nography, philology, anthropology, history, and tradition all alike point as to a locality from which all the varieties of men might have been diffused, this fact of itself becomes a powerful argument in favor of that locality. Indeed, it is this particular reasoning which has

Place of man's origin must answer to some hypothesis.

brought us at length to the conclusion that the most probable locality in which to establish the first seat of the human race *was in a continent now submerged beneath the Indian ocean.*

If we accept such a hypothesis, the whole question begins to clear. The existence being granted of such a continent, to which we may say, once for all, that the name of Lemuria has been assigned, we are able to look out, as it

Ethnic outlook from the suppositious continent.

existence being granted of such a continent, to which we may say, once for all,

with fair probability the departure of the pre-Mongolians in the direction of Beluchistan or Western India, for in these countries the first traces of Mongoloid life are discoverable. Lastly, we may imagine a Dravidian line of ethnic descent carried almost in the same direction with the pre-Mongolian, upon which, in Beluchistan or Eastern Persia, we may place the primal development of the Ruddy, or White, race of mankind. All of these suppositions are



BRUSH-TAILED ROCK KANGAROOS.

were, along the lines of the primitive dispersion of mankind. To the west we may note the departure of the Nigritian stem, the presence of which is historically discovered first of all on the mid-eastern coast of Africa. To the east we may remark in like manner the divergence of another line of Black men whose presence we find within the historical period on the northwestern coast of Australia, in New Zealand, and in the extreme south of Hindustan. Without changing our position we may perceive

cited in this connection not because they include established facts, not because they represent scientific knowledge of the first distribution of men, but because they do furnish a consistent basis for such an inquiry and harmonize, as is believed, in every part with the present results of investigation, and accord with what may be called the necessities of the case.

But we are not left entirely to reason and conjecture as it respects the fixing of the primitive seat of the human race

in Lemuria. Much scientific evidence may be adduced to strengthen the hypothesis.

The nature of man points to a tropical beginning.

In the first place, man is originally a tropical animal. The very least

that can be said is that he is by his nature semitropical in constitution and habits. We are obliged to select for him an original habitat corresponding with these conditions. Let us remark, once for all, that where these conditions have been maintained, there the race has invariably made least progress from its original state. The lowest forms of man-life are tropical. The most original types are found in those regions where the environment has prevented the evolution of the higher human varieties. In a word, the life of man seems in the tropical situation to have continued *on the original plane*, with little variation under the influences of physical nature.

Not so, however, with those peoples who have departed from the original en-

Development coincident with progress from point of origin.

vironment. As soon as the unclothed primitive man, covered with his delicate skin, made his way from his warm and equable climatic surroundings and began to be exposed, first to the vicissitudes, and further on to the rigors of higher latitudes, he began to acquire the discipline of nature, to be specialized in his faculties, quickened in his energies, and strengthened for battle with the opposing forces of the material world. With this he began to rise in the scale of existence. The extreme distance of his departure is now measured by the span between the Papuan and the German.

The significance of these facts is that human life began from some region where tropical or semitropical conditions prevailed, and that its progress has been coincident with its departure into regions where the warfare of nature and the

struggle for existence have developed and symmetrized the body, awakened the mind, and produced by complexity, reaction, reflection, and the evolution of conscience the higher phenomena of the moral life. Limiting our inquiry to the period of geological time this side of the last glacial epoch, the conditions favorable for the beginnings of our race life can be found only within the tropics, or at least close to the Tropic of Cancer; not above that line. The distinction between a situation favorable for the unaided *beginning* of the first men and the situation most favorable to the *development* of the race into hardihood, activity, and greatness, must be constantly borne in mind.

Conditions favorable to beginning unfavorable to development.

We are thus led by many lines of suggestion and argument to select as the probable home of the ancestors of the human species

Conclusion of a Lemurian origin not final.

the countries now overwashed by the comparatively shoal waters of the Indian ocean. It is proper to say that such a conclusion is not absolute and final. Further investigation may possibly show us another way; but it is not probable that the conclusion will ever be displaced by a different hypothesis or seriously modified by subsequent investigation. It is a principle of science that that hypothesis which explains a given group of phenomena, which contradicts none of the facts and is consistent with all, passes, at least tentatively, into the theoretical phase of knowledge; and this is at the present day the condition of the inquiry with respect to the primal seat of mankind in the Lemurian continent.

We may not, however, pass from the proofs which are adducible in favor of this conclusion without citing the strong argument drawn from the distribution of the primate animals. If we strike a cir-

cle around the shores of those waters which now cover the Lemurian continent, we shall find strong evidences of what may be called a *zoölogical climax* in the area covered by the Indian ocean. The view here taken includes the whole earth. There is in general a *gradation of animal life upward from the horizon toward this region*. If we approach the so-called Lemuria from any point of the compass, west, north, east, or southeast, we shall find the animals graded up toward man, as though somewhere in this region he stood on the apex of all life. The zoölogical conditions of the primitive world seem to have been such as to make the appearance of man in any other quarter than in the tropical Orient impossible—unless, indeed, we suppose the uniform gradations of animal life to have been suddenly broken and reversed in the case of man by his displacement in time and locality from that region of the earth where the other forms of animate existence had been most highly developed.

A glance at a few facts and principles of zoölogy may serve to show the force of these deductions. Australia is the native home of the marsupial animals. These are the lowest in the scale of the hot-blooded creatures with which the human species is particularly associated. True, the marsupials are widely distributed in other quarters of the globe; but it is evident that their presence in foreign parts is, as it were, at the extreme of zoölogical lines which are central in Australia. In the next place, the South American continent is the primal seat of the edentates, or toothless animals, which are next in order of development above the marsupials. Primitive North America was the home of the herbivorous ani-

Gradation of animal life upward toward Lemuria.

Illustrations of the rise of animal life toward this center.

mals, which are third from the lowest in the evolution. The tropical Orient is clearly the native seat of the great carnivora, which are one stage higher than the herbivora in the scale of development. As in the case of the marsupials, so also the edentates, the herbivora, and the carnivora are of world-wide distribution; but the density of the several orders, as well as their multiplicity and high development in the respective situations indicated, points to those regions as the zoölogical centers of these different orders of life. In a word, Australia is on the lowest zoölogical plane, South America next, North America third, and the Oriental countries within the tropics fourth in the ascending scale.

The argument is strengthened in an especial manner when we come to consider the distribution of the primates, or of those forms of animal life next to man. This subject has been investigated with great care by the English naturalist, Wallace, and the American palæontologist, Winchell—by the former, in his work on the *Geographical Distribution of Animals*, and by the latter in the preparation of the materials for his *Precadamites*. For the purpose of making clear their reasoning, the earth has been divided into several regions to which specific names are given as an aid to understanding the distribution of the primates throughout the world. The first division, including Europe and Asia, except the Malay peninsula, Hindustan, Southern Arabia, and Africa north of the Tropic of Cancer, is designated as the Palæartic region. The remainder of Africa, including Madagascar and the adjacent islands, is called the Ethiopian region. The Oriental region includes the Malay peninsula and islands, Hindustan, and Southern Arabia. Aus-

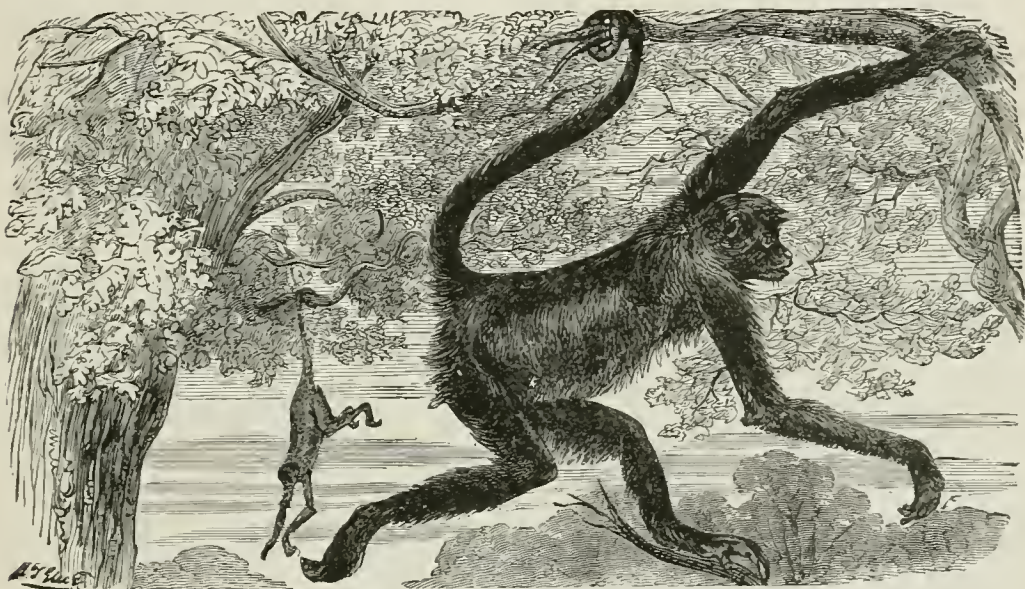
Primate animals in particular culminate around Lemuria.



tralia, Polynesia, and New Zealand are defined as the Australian region. South America, the West Indies, and Mexico as far north as the tropic, constitute the Neotropical region, while the remainder of North America is defined as the Nearctic region. The problem is with the map thus adjusted, to determine by orders, suborders, and families the distribution of the primate animals.

which we have fixed upon as the probable home of the first men, was held in between the two approximate parts defined in the above table as the Ethiopian and Oriental regions. A glance at the synopsis will show the astonishing preponderance of the primate animals in those countries. True, the largest single distribution is that of one hundred

Place of supposed continent between Ethiopian and Oriental regions.



AMERICAN MONKEY WITH PREHENSILE TAIL.

The following table prepared by Winchell contains an abstract of the results:

DISTRIBUTION OF PRIMATE AND CARNIVOROUS ANIMALS.

NO. OF FAMILIES.	Palaearctic Region.	Ethiopian Region.	Oriental Region.	Australian Region.	Neotropical Region.	Nearctic Region.
Apes.....	..	2	10	..	..	..
Old World Monkeys.....	1	11	28	..	..	..
Baboons and Macaques...	4	42	23	2	..	..
American Monkeys.....	..	..	..	..	81	..
Marmosets.....	..	..	..	..	33	..
<b>Total Anthropoids ...</b>	<b>5</b>	<b>55</b>	<b>61</b>	<b>2</b>	<b>114</b>	<b>..</b>
Lemurs.....	..	49	4	..	..	..
Tassiers.....	..	..	1	1	..	..
Aye-ayes.....	..	1	..	..	..	..
<b>Total Lemuroids.....</b>	<b>..</b>	<b>50</b>	<b>5</b>	<b>1</b>	<b>..</b>	<b>..</b>
<b>Total Primates.....</b>	<b>5</b>	<b>105</b>	<b>66</b>	<b>3</b>	<b>114</b>	<b>..</b>
Carnivora.....	65	90	95	..	48	43
<b>Total Primates and Carnivora.....</b>	<b>70</b>	<b>195</b>	<b>161</b>	<b>3</b>	<b>162</b>	<b>43</b>

and fourteen species in South America; but it has been noted that the South American primates are much lower in order of development than are those of Southern Asia and Eastern Africa. No apes or any of the higher primates have been found native in any part of the New World. Leaving out, therefore, from the count the South American monkeys and marmosets, which are the very lowest of the anthropoids, we have the primates virtually limited to the southern parts of Asia and the tropical parts of Africa.

The same is true of the lemuroids, which are found only in the Ethiopian and Oriental regions, with the single exception of one species of Tarsiers for

It will be remembered by the reader that the supposed continent of Lemuria,

Australia. In the case of the carnivora there is, in the regions just named, an excess of fully fifty per cent over the number of species found in any other great division of the earth. From all of which we note conclusively and emphatically the climacteric tendency of all the higher forms of life, most particularly of the primate animals toward the basin of the Indian ocean. On the hypothesis that the bottom of this comparatively shallow sea constituted in

Lemurs and Carnivora increase toward Indian ocean.

direction of the Indian ocean, the human species *fall off inversely in the same direction.* This is said of the general character of the different races as measured by the extent of their departure from Lemuria. Instead of finding the highest type of men heading in the direction of the hypothetical continent referred to, thus following the trend manifested by all the lower orders of animals, the law in the case of man is totally reversed. If we seek for the very

Mankind falls off inversely in the same direction.



GROUP OF LEMURS.

prehistoric ages a low-lying, tropical continent—reaching on the one hand to the Asiatic peninsulas, and on the other to the coast of Africa—we are able to see with strong probability in this region an apex of the animal evolution, and near that culmination the ancestors of the human species.

The argument is intensified when we estimate the character of the human species round about the seeming culmination of the lower orders of life in the Lemurian region. While these orders, as we have seen, rise to an apex in the

lowest types of human beings, we must do so among the Papuans and natives of Australia. After these, we must look to Africa for the next in order of ascent. Thence we should have to consider the native races of South America, and from these might proceed to the aborigines of our own continent; thence to the Polynesian islands, and to the races of Eastern and Northern Asia;

finally to the Aryan division of mankind, with its magnificent development in such groups as the English-speaking, French-speaking, and German-speaking families.

The course of this excursion is manifestly outward from the region of Lemuria. Certainly the **Lowest dip of humanity and highest reach of animality.** diagram is far from perfect or exact; but in general the rise of human life, as estimated by its elevation and proficiency, seems to have been from that precise quarter of the world toward which the lower orders of animated nature ascend to a climax!

This is to say that at the lowest geographical dip of the human species it seems to touch the highest lift of the subordinate orders of living beings! Where the highest of the lower primates reach their culmination, there the lowest of mankind

beginning, so in that for the place of the beginning there must be, in the present state of human knowledge, a considerable margin left for uncertainty. The reader in pursuing such inquiries must remem-

Place of origin  
conjectural  
rather than exact.



FAMILY OF GORILLAS.

take their rise. It is as though the noblest of the anthropoids should from the sunken continent hold out his right hand to touch the left hand of the most ignoble of human kind.

As in the search for the time of the

beginning, so in that for the place of the beginning there must be, in the present state of human knowledge, a considerable margin left for uncertainty. Knowledge on the one hand is absolute and demonstrable, and on the other probable and approximate. Nearly all deductions relative to the movements, character, and

circumstances of the human race in the prehistoric ages have in them considerable elements of doubt and perhaps of positive error; but we are not by any means to place less value on that kind of knowledge which we are able to gain concerning the first estate of mankind—its time, its place, its circumstances—than if we might apply thereto the formulae of exact science.

Perhaps the human mind would rest in a state of greater satisfaction to know more precisely the date, the locality, and all the concomitants and conditions under which our ethnic career began. Nevertheless, exact knowledge has its discounts and defects in the treasure-total of our mental wealth. It may be

Philosophical  
advantages of  
uncertain  
knowledge.

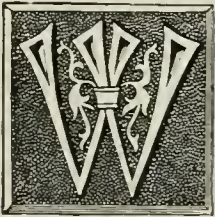
observed that the exact sciences, while they have a vast and salutary effect upon the mind in correcting the judgments and decisions of the intellect, nevertheless tend to reduce all mentality to a formula and mathematical equation. At the same time they tend to weaken by disuse the ideal faculties, to benumb if not destroy the fancy and the imagination, and thereby diminish that excursive power of the mind upon which the discovery of truth and beauty has so greatly depended. It is not desirable that conjecture, uncertainty, and doubt should be removed from the concepts which we form of ourselves and of universal nature, else the dream of the artist and vision of the poet might cease to add their gifts to the treasures of humanity.





## BOOK II.—MANNER OF THE BEGINNING.

### CHAPTER X.—FIAT AND EVOLUTION.



WE have now looked with some attention at the great questions of the approximate date and probable place of the first appearance of man-life on the earth.

It remains to consider the still more interesting problem of the mode of man's appearance—of the process, or processes, the *manner*, if we may so say, of his coming. Here at the outset we are con-

fronted with the same difficulty which arose in the previous investigation relative to the time and place of the birth of mankind, namely, the inability of men themselves to testify respecting the circumstances and conditions precedent to the unfolding of consciousness. This is true in the individual life, in the life of the tribe, in the life of the people, in the life of the human race. Consciousness began; but neither perception nor memory is able to pierce the oblivious conditions which preceded the conscious

state, or to give more than imaginary testimony with respect thereto.

A still more formidable difficulty arises from the preconceptions and deep-set opinions which men of every age and race have formed with regard

Preconceptions impede the freedom of investigation.

to the circumstances of their origin. Among almost every people there has been a sort of national faith, involving, first of all, the circumstances of the genesis not only of that people, but of mankind. The belief in some particular *manner* of the appearance of the race has been interwoven with the philosophical, social, and religious systems of the various peoples, sometimes forming a part of the political constitution, and always opposing itself with persistent conservatism to such investigations and excursions of thought as might seem to disturb the existing order. To the present time it has continued to appear to the great majority of the most enlightened peoples that a certain interpretation—accepted from the wisdom of the fathers—respect-

ing the nature and circumstances of the origin of mankind is essential to the steadiness, welfare, and spiritual elevation of the civilized life.

Without pausing to discuss the validity of such opinions, we may proceed at once to an analysis of the divergent views which have been held with respect to the manner of the beginning. There are two general beliefs on this subject:

Statement of the two divergent views; phenomenal creation.

fectured form and stature as new existences without ancestry, strangers, so to speak, to the planet upon which their activities were to be displayed and their descendants multiplied and disseminated.

2. That the world and all its forms of life are the result of the process called evolution, or growth; that the different species of animals and plants now abounding on the surface of the globe

Evolution would account for living forms by growth.



MANNER OF MAN'S APPEARANCE.—Drawn by Riou.

1. That the world, with all forms of life existing thereon, was created by the fiat of the Almighty; that the different species of vegetable and animal existence were produced at once and phenomenally by the agency of an intelligent power over and above the world and apart from it; that the work of creation occupied but a brief interval of time; and that the various kinds of living creatures appeared under the creative act in per-

and in its waters and atmosphere sprang from a few primordial germs, or possibly a single seed of life, endowed with the power of development, differentiation, and adaptation to environment; that the germs of life from which all living forms are descended were existent in the world at a period almost infinitely removed from the present; that the processes of evolution by which the existing forms of organism have

been produced have extended over an incalculable lapse of time, working out their results slowly, tortuously, and painfully, but preserving by survival of the fittest the best forms from age to age, thus yielding at last by the struggle of life and by natural selection the approximately perfect species of the present age.

Concerning these two widely divergent views several important observations may be made. In the first place, they have interested and divided the great thinkers of the after-half of the nineteenth century more profoundly than any other question whatsoever. Secondly, it may be remarked that in general the scholastic, conservative, and religious elements among the civilized peoples have mostly espoused and held to the doctrine of phenomenal creation, while scientists and progressive thinkers have adopted the theory of evolution. Thirdly, and very importantly, it should be observed that the fundamental difference between the two opinions is simply one of *modus operandi*. The evolution hypothesis does not account for, and has never undertaken to explain, the origin of life, but has limited the investigation to the *manner* by which from certain primordial germs the existing races of plants and animals may be accounted for.

There is thus a common ground which has been greatly overlooked between the creationists and the evolutionists—for both begin with the hypothesis of life. The difference, therefore, takes the following form: That the doctrine of immediate creation lays great stress upon the phenomenal *method* by which the species or specific prototypes of the various orders of living beings were pro-

duced; while the doctrine of evolution, without attempting to explain the origin of life, proceeds scientifically to consider the long intermediate *processes* by which primordial organisms were raised by differentiation and development to the present perfected forms of life.

Fourthly, there seems to be a grave mistake in the nomenclature by which the two views of the origin of nature and of man are distinguished. One is called the Hypothesis of Creation. The other is known as the Hypothesis of Evolution. From this distinction it might well be inferred that those who hold the doctrine of immediate creation reject evolution altogether in the consideration of natural and living phenomena. On the other hand, also, it is plainly inferential from the terms employed that the hypothesis of evolution has been made to exclude the notion of creation. As a matter of fact, neither of these inferences is correctly drawn, if we are to judge by the state of opinion in the present age. The creationists have not excluded, and do not exclude, evolution as *partly* explanatory of the facts and conditions of life. They admit that evolution has performed a certain subordinate and limited office in the production of the living forms now inhabiting the earth; but they lay great stress upon the phenomenal aspects of the beginning.

On the other hand, the evolutionists do not exclude creation from the scheme of universal nature. As we have said, they begin the inquiry with the fact of life. The theory runs thus: Given life—that is, the primordial germs of life—and evolution will account for the rest. But this theory clearly does not preclude creation as a part—that is, the primal part—of the scheme of life.

Paramount interest and general tendency of the question.

Grave mistake in the nomenclature of the two hypotheses.

Common ground and point of divergence of the two opinions.

Neither theory is exclusive of the other

From which, as indicated above, the true division of opinion relates to the mode of operation—the processes and methods by which the present organic

dowed with life, and having in them the possibilities of all the descendent species of living beings which now appear on the earth.



THE TRADITIONAL EDEN.

forms have come to pass—whether from perfected ancestral pairs for each species, created by a fiat immediately, and, so to speak, full-grown in power and capacity, or whether from potential germs en-

Still another observation should be made at the outset with respect to the contention of the two opinions or views of the origin of living species. This is that, on the whole, the belief in evo-



lution as explanatory of the *modus operandi* of universal nature has steadily gained ground in the highest opinion of the age. Its first conquest was that of the earth itself. The hypothesis of creation, that is, of immediate and phenomenal creation, formerly included the earth as one of the products of a creative fiat. For a long time the conservative beliefs of the past held their grounds steadily against the encroachments of geology. That science was resisted in its progress by misconception and prejudice as persistently as was the heliocentric theory of our planetary system. Inch by inch the geologist—even as Galileo, his prototype—was obliged to fight his way to a truer concept of the modes and processes by which the crust of the earth has been gradually formed through immeasurable ages of time. Step by step he was obliged to struggle with his demonstration that the fossiliferous history of the globe, as well as the history of the globe itself, extended backwards through eons of time and indescribable vicissitudes of transformation. But the evidence was at length sufficient to convince, and the ancient concept of the earth retreated before the new.

This conquest, however, was only the preliminary swirl of another more important. Zoölogy and botany, taking up the work already accomplished by geology, began to demonstrate that the plants and animals now inhabiting the earth are but the descendants and variant forms of others more simple which preceded them in prehistoric time, and these in their turn but the descendants of the fossiliferous species brought to light in the explorations of geology. Against these discoveries the creative hypothesis opposed itself with great

force and tenacity of purpose. The old opinion had been that the existing plants and lower animals are but the living representatives of others *like themselves*, created in perfection and full form only a few thousand years ago—created without an ancestry or previous life of any kind on the earth.

To yield this long-accepted opinion seemed as if pulling up the sheet anchor of the whole system of thought which, as a ship, had borne the civilized life of man for centuries. Nevertheless, the evidences in favor of the new theory accumulated. Every excursion into the natural world added its proof in behalf of the belief that the animal and vegetable forms now prevailing over the earth are but the living representatives of more primitive forms preceding them, and they of others back to the geological era, and thence downward through the measureless ages of time required to build up the crust of the globe from the azoïc bed to the present surface.

At length the evidence prevailed. Again the advocates of immediate and phenomenal creation as applied to the plants and lower animals must recede before the facts and demonstrations of science. The field was yielded with reluctance, and the scattered squadrons of the ancient theory of the method of the beginning of plant-life and animal life are still seen in various parts, holding the ground against the prevalent opinions that have occupied all the heights and vantages of the human understanding.

But the advocates of immediate specific creations did not yield *all* in conceding that plants and the lower animals, such as we now find them in living example on the earth, were the results of

Belief in evolution as a method gains ground among thinkers.

gained ground in the highest opinion of the age. Its first conquest was that of the earth itself.

Investigation confirms new belief as to the lower orders.

Old opinions contest the field with zoölogy and botany.

portant. Zoölogy and botany, taking up the work already accomplished by geology, began to demonstrate that the plants and animals now inhabiting the earth are but the descendants and variant forms of others more simple which preceded them in prehistoric time, and these in their turn but the descendants of the fossiliferous species brought to light in the explorations of geology.

Is man exceptional in the scheme of nature?

an evolutionary process extending backwards indefinitely into the past. Man was still held to be exceptional. To him the hypothesis of phenomenal creation was now applied with redoubled energy. The advocates of the long-accepted belief respecting the mode of the beginning of man-life on the earth, yielding up with reluctance the rest of the field of universal nature, still held with the utmost tenacity to the belief that the human species had had a beginning different in form and manner and circumstance from all the other inhabitants of the earth. Man was set apart and considered in another category of life from all the remaining forms of existence. Here the current view, strongly entrenched in old belief, strongly conservative lest the disturbance of the established opinion might in some way work harm to the existing social and moral order of the world, made its stand, not only for the maintenance of the long-accepted hypothesis, but perhaps for the recovery and reestablishment of the former systems of belief.

Such was the state of opinion as between the two hypotheses of life history at the middle of the nineteenth century.

Lamarck fore-  
runs the new  
theory of the  
mode of life.

Already before this time an occasional thinker had, on a more daring excursion than the rest, suggested the application of the known laws of the natural world, universally, to the human species in common with the other forms of animated existence. Foremost among those may be mentioned Lamarck, who, before the beginning of the century, and more fully in the first quarter of our centennium, set forth in his wonderful speculations, with a cogency and clearness almost unsurpassed, the rudimentary principles of that vast system of thought which now goes by the name of

evolution. As must needs happen, however, in the case of a great mind fore-running the camp of progress in strange regions, and not sufficiently acquainted by fact, observation, and experiment with the new realm into which he has entered, Lamarck produced a visionary rather than a substantial scheme of nature; and while the lines which he drew around the unexplored region of the New Biology that was to follow in the hands of another were sufficiently ample, and ran in many parts surprisingly near to the accurate surveying of recent science, he nevertheless included in his excursions and trial maps of nature a vast amount of crude and erroneous deduction for which the more accurate knowledge of the present finds no place.

It remained for a subsequent generation and the more careful mind of another naturalist to reconsider the general aspects of the natural world and to deduce therefrom that hypothesis of evolution which is now accepted by science as explanatory of the *modus operandi* of all living organisms, including man. It is not our purpose in this connection to enter fully into the explication of the principles upon which the evolutionist relies to explain the existence of the various forms of organic life, and in particular the descent of man. It is our purpose rather to point out in an introductory way the leading grounds of divergence between the two opinions respecting the life history of the world, and to show the general trend of opinion and the gain of one theory over the other. It will be desirable, in following the inquiry, to state more fully the substance of the two beliefs respecting the origin of man, embracing in the exposition of each theory some of the particulars of its application to the

The work taken  
up and rectified  
by recent nat-  
uralists.

world history and life history of our planet.

The hypothesis of creation is generally understood to signify the production of the world out of naught. Perhaps the beliefs of those who hold the theory of phenomenal creation are not altogether uniform and consistent on this point. In general, however, the belief is that the *matter* of the earth was brought into existence by the fiat of the Almighty.

General explanation of the hypothesis of creation.

the universe was spoken phenomenally into existence out of nothing, and this view is still maintained by the great majority of those who hold to the hypothesis of immediate creation.

As we have said on a former page, the belief in a creative fiat as the producing agency of the world and its inhabitants, has included as one of its features the notion that our globe was produced *immediately*, and not through intermediate

Literal acceptance and application of the Book of Genesis.



AGE OF FISHES, OR THE "FOURTH DAY."

Some hold that the creative act, as it relates to the earth, was only *formative*—that the matter of our globe existed already in space, and that the act of creation had respect to the production of our sphere and its fitting for the abode and life arena of plants and animals and man. This view is to a certain extent a concession to scientific discovery in recent times. Up to the close of the last century the popular and scholastic belief was that the matter of our world and of

stages. The statements contained in the first chapters of Genesis were accepted literally throughout the Christian and Mohammedan nations. According to the account referred to, the space of six days was assigned for the creative work. The account in Genesis is seemingly succinct. Each of the days is occupied with a certain part of creation, and is defined as beginning with the evening and ending with the morning—according to the phraseology of the an-

cient Oriental peoples. By implication this period seems to include the creation of the planetary and sidereal heavens; for "God made two great lights; the greater light to rule the day, and the lesser light to rule the night; he made the stars also."

The progress of the creative work through the six days of creation is delineated in the first chapter of Genesis. The arrangement is climacteric, and ends on the sixth day with the creation of man, and the words are added, "Thus the heavens and the earth were finished, and all the host of them." It would thus appear that according to the account preserved and transmitted by the Hebrews of the beginning of things the work of producing the material universe, of creating our world in particular, with its inhabitants, including man as the paragon of animals and favorite of the Almighty, occupied but six days of time. The Hebrew word is *yom*, and is the term which is universally employed in that language to express a natural day as measured by a revolution of the earth on its axis.

In this sense the account of the creation given in Genesis was universally understood until a comparatively recent date, when the rise of geology and the correlated branches of natural science made the position no longer tenable. At this juncture the upholders of the hypothesis of creation were obliged to take a new position, and that was that the six days, or *yoms*, of the scriptural narrative did not signify six literal days but six indefinite periods of time, corresponding, if rightly understood, to six geological eras, or ages, during which the world had been fashioned for its later inhabitants. Examples were found

Order of creation in the "six days" of the first chapter.

Meaning of the "yom" enlarged for scientific reasons.

in Hebrew literature where the word *yom* had been used in a figurative sense, meaning "a period of duration" quite different from a natural day.

There was thus a rationalizing process applied to the account of the creation in Genesis, and its meaning was modified and interpreted anew according to the demands of scientific discovery. It is no longer believed by the advocates of the hypothesis of phenomenal creation that the world and its original inhabitants were created in six literal days—such an opinion being altogether untenable in the light and diffusion of knowledge which the nineteenth century has brought to the understandings of men.

It was still held, however, by the believers in the creative fiat that *the plants and animals* were phenomenally created—that the Almighty by his will and edict brought forth without germ or seed the various species of vegetable and animal life which we see in their descendants at the present time. It was at this point that the real divergence between the two theories began. The hypothesis of creation seems to have yielded material and inanimate nature to the dominion of those known laws under which the world is governed, but to have refused to admit the extension of those laws over the organic forms of which life, whether vegetable or animal, constitutes the essential principle. The theory of creation rejects the notion of a development of the vegetable and animal forms of the natural world from germs remotely planted in the past, and to hold firmly to the immediate production by almighty power of the mature and full-grown originals of the various species of living things.

This is particularly true in the case of man. The doctrine of creation as enter-

Rationalizing process checked at the borderline of life.

tained by the enlightened peoples of Europe and America includes as its leading article the belief in *the immediate and phenomenal production of the ancestor of the human species*. In this particular, also, the opinion which has long prevailed with regard to the progenitor of mankind has been based immediately on the narrative of creation as given in the first two chapters of the Book of Genesis. The account, or rather the accounts, there given of the formation of the first pair of human beings are world-wide in their dissemination, and have found a profound lodgment in the convictions of all those peoples whose religious institutions are based upon the sacred writings of the Hebrews.

The two forms of narrative in Genesis are, first, that the Almighty in the sixth day or epoch of creation designed the production of a being superior to the other orders of animate nature; that the being thus purposed as the climax of organic life was to have "dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth." So the Elohim created man in his own image, in the image of the Elohim created he him; male and female created he them. In the second chapter the variant form of the narrative is given. There is a reference to the atmospheric and meteorological condition of the world. For as yet there had been no rain, nor was man found to till the ground. But there went up a mist from the earth and watered it. Then the Lord Elohim formed man of the dust of the ground, and breathed into his nostrils the breath of life, and he became a living soul. This first man was placed in the garden

of Eden, said to have been "planted eastward." But the man was alone, and the Lord Elohim caused a deep sleep to fall upon the Adam—for such was the name given him—and he took one of his ribs and made thereof a woman, that is Ishah, or *female man*, and brought her to Ish, the man, as his companion. The name of the Adam which was given to the man signified Earth, or Red Earth, and to the woman the Lord Elohim gave the name of Life—for she was the mother of all living.

Such according to the common understanding of the narrative in Genesis was the origin of the first pair of human beings, and from them the races of mankind have descended. Further on in the Book of Genesis we have sketches and outlines of the immediate and more remote offspring of the parents of the race. In the tenth chapter there is an account of tribal and ethnic dispersions sufficiently ample to explain the presence of the primitive peoples in the westernmost parts of Asia, Southeastern Africa, and Eastern Europe. With this summary, however, the subject of ethnography is dropped from the Scriptures, though certain important lines of descent were recorded until long after the destruction of the Israelitish nation.

The account of the origin of things given in the first chapter of Genesis is a part of a lore which was common to all the Semitic peoples of antiquity. All of these held traditions in which the critical reader is able to discover at least the outlines of a common belief with regard to the *modus operandi* of creation. One of the particulars which always reappears in these accounts of the beginning is that flood, or great deep, or primeval chaos upon which the wind or breath of

Creation hypothesis demands an ancestor.

Summary of the two narratives in the Book of Genesis.

Outlines of a biblical ethnography.

Account of creation in Genesis common to all the Semites.



THE EDEN OF POETRY.—MILTON'S VISION OF THE FIRST PAIR AND RAPHAEL.—Drawn by Gustave Doré.

the Elohim is said to have blown as the first movement of order.<sup>1</sup>

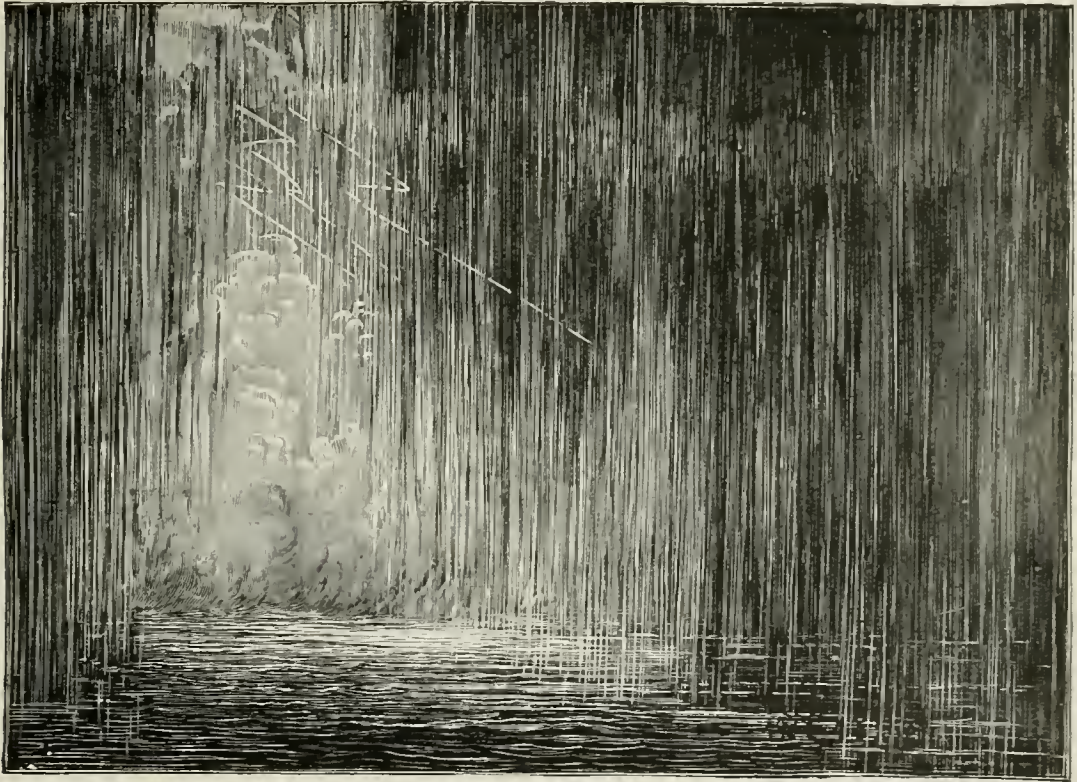
This notion is strongly imbedded in the cosmogony of the Chaldees, though with them the primeval flood is spoken of as *feminine*, instead of the masculine form used in Genesis. The universal chaos is, in the oldest Babylonian accounts, regarded as containing the crea-

the primeval flood, but as apart therefrom, and brooding over it, and sending thereon the primal winds of order.

In other respects the ancient Semitic accounts of the creation preserved in the fragments of Berosus, and better still in those inscriptions and tablets which the learned George Smith has interpreted to the understanding of our age, corre-

Variations in the Chaldean story of the beginning.

General agreement in the two visions of creation.



ONE OF THE PRIMORDIAL CONDITIONS OF THE GLOBE.

tive beings or forces by whose agency the world was to become organic and man be produced. From this concept there was a departure in the Hebrew narrative. In the latter the Demiurge is not represented as coming up out of

respond with the majestic imagery outlined in the Book of Genesis. There is the same general arrangement of the materials of nature and the same agents of order and intelligence; the same introduction of a Demiurge, or Creator, speaking a fiat; the same eulogy pronounced after each creative effort upon the thing created as "good" or "beautiful" or "delightful;" the same subordination of the stars and greater luminaries as determining days and seasons.

<sup>1</sup>The language of Genesis seems in the original to bear this sense: "Now the earth was involved in chaos, and darkness was upon the face of *tehom* (that is, the flood), and the wind of the Elohim was hovering upon the face of the waters. Then the Elohim said, Let light be. And light was."

In one respect, however, there is, or has been believed to be, a striking difference between the narrative in Genesis and the ancient forms of the creative story as the same are preserved in the ruins of the Babylonian plain on the tablet cylinders of Asshur-Bani-Pal's library chamber, and in the fragmentary remnants of Berosus. This is the polytheism of the creative work in all the Babylonian accounts of the beginning of things, and the monotheism of the ancient Hebrew narrative. Even in this respect there is a hint of the original common derivation of all the accounts in the word *Elohim* used by the primitive Hebrew seer in expressing his vision of creation. This word is plural, though it is believed by critics to be an instance of what is known in the Hebrew idiom as the "plural of majesty or strength." Literally, the polytheistic idea is carried forward into Genesis, where it is said that the Elohim (literally, the El-gods) created the heavens and the earth and all the host of them.

In still another particular a divergence may be noticed in the earliest Semitic accounts of the creative work. In the Hebrew narrative the Demiurge, or Creator, works *upon* matter. It seems to be plastic under his hands. Aye, more than this, according to a long-accepted construction of the account in Genesis, he *makes* the matter out of which he makes the form. His work is not only formative, and as it were plastic and constructive, but creative, in the prime intent, of something out of naught. In the Chaldee traditions and kindred forms of Semitic lore the creation, on the other hand, is rather evolutionary. The creatures by whom the later work is done are themselves evolved out of the chaotic

Monotheistic divergence of the Hebrew narrative.

floods. There is no hint of the production of matter out of nothing, but only a secondary process of demiurgic workmanship and power upon the materials of nature.

On the whole, it is sufficient to note the substantial identity of the cosmogonies of all the Semitic peoples and the transmission of the outlines of the same in the sacred writings of the Hebrews to the nations of modern times. Among other ancient peoples the Egyptian system may be mentioned as an example of one of the oldest forms of belief in phenomenal creation. In that system the Demiurge is named Thoth. He it was who gave light to the world when all was darkness, "and there was no sun." To this extent there is a suggestion of the same primeval chaos believed in by the Semitic seers. In Egypt, also, the work is polytheistic. While to Thoth was assigned the creation of light, Ra was regarded as the supreme Demiurge of nature. He was at once the sun god and the Anima Mundi. The more immediate evolution of living forms was assigned to Ptah, who was the "opener of the egg of the world." From this origin the species of living forms may be said to have proceeded. But the system is vast and intricate, and calls for no additional comment in this connection.

Egyptian tradition of the beginning of things.

Hebrew Demiurge works upon matter and creates it.

Scholars have busied themselves much with the work of attempting to discover among the mythologies of the Aryan nations the outlines of a system of creation similar to that of the Hebrews and the Semites in general. But the effort has been attended with little success. The Aryan peoples have from a very early age looked upon nature and creation with another eye. In a single instance a likeness has been discovered between

Creative hypothesis of the ancient Iranians.



the belief of a primitive Aryan people and that of the Semitic races. This is in the case of the ancient Iranic family whose religious faith and theory of the origin of things are recorded in the Avesta. In that work the creation of the visible world is ascribed to a supernatural deity who issues a fiat, and nature begins to be. There is a similar godspeech at the beginning of each creative act, and a like eulogy at the close on the perfection of the world. A striking point of dissimilarity—in which the Avesta myth agrees with the accounts preserved by the Chaldees and the Assyrians rather than with the narrative of Genesis—is that in the latter the world is spoken from naught, while the Zend represents it as being formed from preëxisting matter. Ahura-Mazdão speaks and creates; but he employs the matter of a universe already existing. Also he avails himself at times of the aid of other spirits, both good and evil. At times the traditions of Ahura-Mazdão rises in majesty almost to the level of the Elohim of the Hebrew seer. In the celebrated cuneiform inscription at Naksh-I-Rustam he is described as “the great God of gods who made heaven and earth, and made men.”

If we follow the line of the Aryan evolution, however, we shall find the development to present a universal polytheism. In Indian and Grecian mythology there are as many gods as tribes, with only an occasional glimpse at a supreme deity. There was, moreover, little trace therein of an original universal creation. The Hellenic system followed the present aspects of nature back to a multiplicity of secondary causes and agents, but never fixed the beginning of things on any substantial basis. Matter was always presupposed. In the old Indian

**Polytheistic character of the Aryan myths of creation.**

system there are glimpses of a higher and seemingly monotheistic belief. In one of the greatest of the Vedic hymns we have the following: “In the beginning there arose the Golden Child. He was the one-born Lord of all that is. He established the earth and the sky. Who is the God to whom we shall offer our sacrifice? . . . He who by his might looked even over the water clouds, the clouds which gave strength and lit the sacrifice; he who alone is God above all gods. Who is the God to whom we shall offer our sacrifice?”

“May he not destroy us—he the creator of the earth; or he the righteous who created the heaven; he also created the bright and mighty waters. Who is the God to whom we shall offer our sacrifice?” In this last strophe we have the ascription of creation to Indra, and the earth and the heavens and the waters are mentioned as the workmanship of his hands. There is no suggestion, however, of a creation out of naught. On the contrary, among all the Aryan mythologies there is the presupposition of material nature. It is as though the earliest bards and philosophers of these great peoples should have adopted one of the fundamental theorems of modern materialism, namely, there are two eternal things—matter and force. But in all the attempted explanations of the natural world there was a recognition of creative intelligences employed in forming and shaping and begetting the world and its inhabitants.

Old Vedic hymn assigns the creation to Indra.

On the whole, the principal distinction between the views entertained of the beginning by the Semitic and the Aryan poets and philosophers on the one hand, and the Aryan seers on the other, was that the latter accepted to a larger degree the ex-

Aryan seers more evolutionary than the Semitic.

istence of evolutionary processes in the origin of the world and all living creatures, while the former, the Hebrews in particular, laid great stress upon the creative fiat of an Almighty Power, speaking the world out of nothing and acting by his breath and will upon the flood-like chaos of primeval nature.

This outline of the manner of the beginning of things by immediate and phenomenal creation—entertained as it was by the nations of antiquity—need not be amplified, as it is familiar wherever the civil and religious institutions of the Western nations have prevailed. Up to the middle of the present century the belief in a fiat of the Almighty as the sufficient cause and explanation of all created things was wellnigh universal. This implied the production of all living beings, by their respective species, at one stroke of a supreme will exercised upon matter, and answered by the springing up of immediate and perfected creatures, each in its kind.

With the development of the natural sciences, however—with the better understanding of the genesis of the earth as revealed in geological history—many doubts arose as to the correctness of the popular and dogmatic concepts respecting the origin of man and the associated orders of life. More and more it came to be accepted as true that nature has been uniform in her methods of production and development, and that scientific evidences are wanting of any break or sudden reversal in the progressive methods of life unmistakably recorded in the fossiliferous and subsequent history of organic forms.

We have already seen to what extent Lamarck forecast in his speculations the impending struggle of the new sci-

entific concept of life history with the long-accepted belief in a phenomenal origin of species. That philosopher formed and promulgated a theory of nature involving in many of its elements the system of evolution which a half-century later was to appear with more distinctness in the writings of another and greater naturalist. The leading doctrines of the Lamarekian system are embraced in four theorems by which the author would explain the production of organic forms and the differentiation of living species. These are as follows:

1. "Life by its proper forces tends continually to increase the volume of every body possessing it, and to enlarge its parts up to a limit which it brings about.

2. "The production of a new organ in an animal body results from the supervention of a new want continuing to make itself felt, and a new movement which this want gives birth to and encourages.

3. "The development of organs and their force of action are constantly in ratio to the employment of these organs.

4. "All which has been acquired, cast off, or changed in the organization of individuals in the course of their life is conserved by generation and transmitted to the new individuals which proceed from those which have undergone those changes."

Concerning these propositions of the French naturalist we may remark of the first that it clearly *presupposes life*, and therefore suggests no more than the method or manner by which the development and completeness of organic bodies are attained. The theorem does not touch the question of the genesis of

Long-continued prevalence of belief in creation by fiat.

Science discovers the uniformity of natural processes.

The Lamarekian philosophy; the four theorems of life order.

What the system does and does not contain.

life, but only the *modus operandi* of living organisms. As to the second law, it departs widely from the doctrine of evolution as subsequently propounded; but the principle expressed therein is nevertheless recognized as an existing and efficient force in the production of the organs with which living bodies are supplied. The third law is doubtless correct in the main as expressing the ratio between the use and the development of the organic parts in all living structures. The fourth law is simply an expression of the well-known principle of heredity, which undoubtedly plays so large a part in determining the character and limitations of species.

On the whole, though Lamarck—following as he did the hints and suggestions of Buffon—made a bold excursion into what was, at his time, a comparatively unexplored field of inquiry, and suggested much which was calculated to arouse the understandings of men to the difficulties and inconsistencies involved in the accepted belief respecting the origin of species, and, indeed, the whole method of the natural world, he nevertheless missed by much the clearer principles of that system of doctrine which was destined, under the name of evolution, to contest so strongly the ground long occupied by the hypothesis of phenomenal creation as the only solution of the beginning of universal nature and of man. It remained for the first part of the after half of the nineteenth century to witness the rise and development, first in the higher circles of science, and afterwards more broadly among the peoples of the Western nations, of the belief that the varied and perfected forms of living organism have resulted from a process of differentiation and development from a few simpler primary forms by the

Lamarck missed the recent theory of life in many essentials.

agency of natural selection and the survival of that which was best adapted to the conditions of its environment. The progress of this opinion and its actual conquest of several antecedent beliefs respecting the *modus operandi* of life has itself been an evolution in the history of human thought, and may well require some extended notice of the various stages through which it has passed.

The term evolution first appears in the biological essays of the eighteenth century; but the idea is as old as Aristotle himself. It might almost be said to have been in all time the covert or half-expressed opinion of leading naturalists in different ages and countries. The great physiologist Harvey (1578-1657), who shares with Servetus the honor of having discovered the circulation of the blood, was a believer in the theory of *epigenesis*, namely, that the new organs of the higher animals do not appear suddenly by the simultaneous addition of parts, or by a sudden change in the arrangement of tissue, but by the successive differentiation of a single rudiment into the several organs of the body by the influence of *use* and *the adaptation to environment*. Near the close of the seventeenth century the question was reviewed by Marcello Malpighi, of Bologna, who by the application of the microscope to the study of tissue in embryo came to conclusions quite different from those of his predecessors. His views respecting the process of production in living bodies are known as *metamorphosis*, in contradistinction from *epigenesis*. The new opinion was taken up and carried forward by Leibnitz and Malebranche, and by Bonnet and Haller, who amplified and applied the speculations of their predecessors to large groups of

Historical development of the evolution hypothesis.

vital phenomena. After them came Buffon, the elder Darwin, and Lamarck, to the last-named of whom, as we have seen above, the origination of much of the hypothesis of evolution as it is now understood must be referred.

Up to the middle of the present century, however, the views of biologists

great an extent fixed itself in the convictions of mankind as the true explanation of the manner by which the germinal forms of life have been evolved, by struggle, adaptation, survival and natural selection, into the multifarious varieties of living forms which inhabit the earth. With him and his work is intimately as-

sociated the great naturalist, Alfred Russel Wallace, who, by a complete coincidence, on July 1, 1858, transmitted by the hands of Sir Charles Lyell, and, without knowledge of the investigations of Mr. Darwin, gave to the Linnæan Society his paper "On the Tendency of Varieties to Depart Indefinitely from the Original Type." It was on the very same date that Darwin himself read before the society his paper "On the Tendency of Species to Form Varieties,



CHARLES ROBERT DARWIN.

From the medal by Alphonse Legros, Royal Academy, 1882

were rudimentary and tentative. It remained for Charles Robert Darwin to gather up the opinions of his predecessors, to eliminate therefrom by observation and critical methods those parts which did not consist with the order of nature, and to formulate on the basis of fact and right reason that remarkable theory of the origin of species which has to so

Darwin and Wallace lead the revolution in biology.

and on the Perpetuation of Species and Varieties by Means of Natural Selection"—a production which was the basis and fundamental form of the greater publication made by the author in the following year.

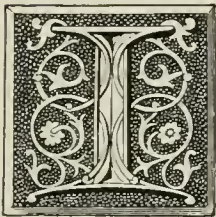
Since the close of the sixth decade of the current century a vast controversial and expository literature has been produced, having for its bottom principle of

contention the hypothesis of evolution. To this literature the leading naturalists and thinkers of all the civilized nations of the West have contributed. The new doctrine has made its way from the speculative reveries of men and from the hitherto unconsidered facts of nature into books and libraries and seats of learning, and from these it has descended by percolation into the common mind until, at the present time, some knowledge of the leading principles of evolution is

Controversial literature and tendency of contest.

possessed by nearly all intelligent people. The hypothesis is most clearly stated in Darwin's *Descent of Man*, published in 1871—a work supplementary to the *Origin of Species*. Biologists have in general adopted the doctrine as the beginning of all their teaching, and it is but just to say that the more it is applied to the phenomena of life, the more complete and reasonable does it appear as an explanation of the process by which all living beings have arrived at their present state of development.

CHAPTER XI.—GENESIS OF THE NEW DOCTRINE.



N order to a clearer understanding of the Doctrine of Evolution, it is necessary to note with precision several things which it does not teach. Close attention to these particulars may serve to show how grossly a new opinion—making its way among the old beliefs of mankind—is likely to be misunderstood, misapplied, and misrepresented by the advocates of opposing views. Perhaps no other hypothesis which has ever been propounded as the explanation of a large group of phenomena has suffered more in this respect than the doctrine of evolution. It seems at the very first to have been looked upon as a malevolent opinion, calculated—and indeed designed—to disturb the existing intellectual and moral order of the world.

It is an unfortunate fact in the history of the human mind that it takes up arms and assails with unseemly animosity whatever opposes itself to its preconceptions and long-established modes of

The mind takes arms when old opinions are assailed.

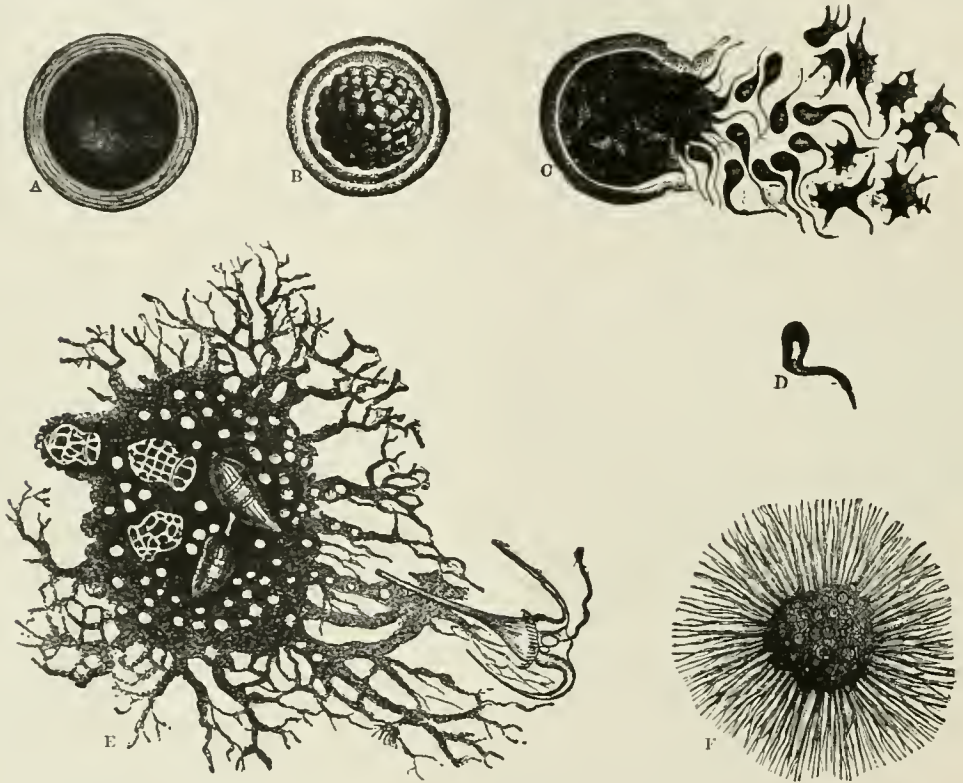
action. Evolution did to a certain extent, though propounded in one of the mildest and most conciliatory books of the century, disturb the existing beliefs of the world with respect to the phenomenal creation of species; but otherwise it can hardly be said that the new doctrine obtruded itself with violence upon the former concepts of men respecting themselves, their nature, or their destiny. Indeed, it has been no part of the evolution hypothesis to discuss teleological questions, or to travel in any direction beyond the region of fact and scientific deduction. The whole significance of the doctrine is its application to the visible *processes* of the natural world, with special reference to the tendencies and movements of organic life, by which the higher and more complex are derived from the simpler and more rudimentary forms of existence.

The first and greatest of the misconceptions which have popularly prevailed respecting the doctrine of evolution is that it has presumed to teach the origin of life. A belief has been disseminated

Evolution deals not with final causes or the origin of life.

that the new hypothesis proposes to account for the existence of life on our planet—to do so by the operation of the known laws of the natural world, and thus to refer all life to a purely material origin. This view of the doctrine is at once untrue and gratuitous. Perhaps a few biologists in their speculations have suggested the possibility of a purely material beginning for the vital phe-

to suggest the indissoluble union and interdependence of mind and matter; but the theory of evolution has not, as a theory, concerned itself with such inquiries. It has naught to do with teleology, but rather with the processes and modes of life. It considers life as a fact already existent in the world, and proposes no more than a rational explanation of the processes of differenti-



ORANGE-COLORED MONERON.—SHOWING THE SEEMINGLY AUTOMATIC PROCESSES OF GERM LIFE.

nomena of the world.<sup>1</sup> Some have spoken of the physical basis of life in a manner

<sup>1</sup>The foundation for such a view of the origin of organic forms is so slight as to be neglected. In a few instances vital phenomena have been observed in which it would seem that life begins in merely physical reactions; but the investigation of such facts is doubtless incomplete. In the case of the so-called orange-colored moneron we have an example of the alleged automatic or spontaneous processes of life (marked in the drawing A, B, C, D, E, F.), but it will no doubt be found that in this as in all other organic tendencies the *beginning* of life is—life.

ation and growth. It traces the correlations of life and organization, but does not presume to account for the beginning of the one or the ultimate purpose of the other. In a word, the notion of final causes does not enter into the doctrine of evolution, and is indeed foreign to the legitimate field of investigation which is the peculiar province of the new science of living forms.

It is doubtless true that the misconception here referred to has been the

fruitful source of the greater part of the animosity which the scholastic and ecclesiastical worlds have shown to the evolution hypothesis. The thought of mankind in the past ages has been greatly occupied with the notion of final causation. A great first cause has been demanded by the mind as the ultimate producing force and explanation of whatever is. This notion has included the creation of matter out of naught, but more particularly the creation of the specific prototypes of all the existing forms of life. The doctrine of evolution seemed at first glance to destroy the idea of a final cause as the efficient source of all things, and to substitute therefor the notion of one thing, namely, matter, with its potencies and laws.

There was thus a failure to perceive that the true doctrine of evolution, as it was propounded and illustrated by Darwin, Wallace, and their followers, did not include—as it does not now include—the consideration of final causes. On the contrary, the author of the doctrine succinctly and carefully disclaimed for the hypothesis of evolution any purpose of accounting for the origin of life or for the ultimate plan and purpose of organic being. He would from the first carefully limit the inquiry to the modes and processes by which the organic forms of life are evolved from their respective germs; but life itself as a principle and fact in material nature is always presupposed and granted.

A proper attention to this important feature of the doctrine of development must have gone far, had it been duly weighed, to abate, if not wholly remove, the deep-seated antagonism between the ancient theorem of life and the doctrine

of evolution. It must be understood, then, at the outset that this doctrine, instead of removing the notion of a final cause, instead of accounting for the origin of life, actually presupposes the existence of life and contents itself with an inquiry into the laws and processes by which living organisms are brought to their perfected development. The ultimate cause of vital phenomena remains as occult and inaccessible since the beginning of the prevalent theory of evolution as it was before.

The recent recognition of the fact that the doctrine of evolution does not preclude a final cause as the explanation and source of life has gone far toward a reconciliation of the two opinions which for a quarter of a century or more warred with each other for ascendancy over the beliefs of mankind. While from one point of view the evolutionists, by their ever-extending conquest, may claim the victory over the long-prevalent doctrine, from another station it is possible for the creationists, reconstructing their views out of scientific materials and by the tactics of right reason, to reassert their sway in this, that science does not account, can not account, for the origin of life, and is obliged to accept from the creative hypothesis its essential principle and doctrine, namely, that the germs of life from which all organic forms have proceeded to maturity by growth and law were not themselves the products of matter or of the material forces now operating in the natural world.

A second popular and widely prevalent error which has done much to prejudice the doctrine of evolution, and to postpone its acceptance by the civilized peoples of the world, has been the belief

Results of the misconception of the theory.

Originators of the hypothesis declare its true intent.

Antagonism has followed misconception of the doctrine.

Reconciliation of theories follows understanding them.

Mistaken belief that evolution teaches cross-descent of species.

that this doctrine teaches the descent of the higher animals, including man, from the lower animals; that is, from lower animals *different in kind*. For a long time after the hypothesis of evolution was formally given to the world by Darwin and Wallace, it was believed that the new doctrine included as its leading feature a belief that man is a descendant of the apes or monkeys. Human nature in its present refinement was scandalized with such a proposition, and without pausing to consider whether such a notion was really a part of the evolution hypothesis, rejected it with disdain. This is the more surprising when we remember that Darwin and all the great promoters of the new doctrine had carefully disclaimed the deduction of a cross-descent of man from existing species of animals. There was a failure in public opinion, and even on the part of scholars, to discriminate the true from the false intent in the proposed explanation of the origin of species. The belief became deeply fixed that evolution signified a degraded and bestial ancestry of the human race from those creatures for which, by acquaintance with their habits and characteristics, civilized people have conceived so deep a repugnance.

The theory of evolution, however, is not justly chargeable, as we shall hereafter see, with the crude, widely disseminated notion that the human species has been derived by descent from the anthropoid apes. True, the doctrine is that mankind are the lineal offspring of lower forms of life, not perhaps more highly developed than the simians of existing species, and these in their turn of others still lower in the scale of existence. But the idea of cross-descent which would make any one species of the higher animals to have been derived from some other existing species of a

different kind is not only foreign to the theory of evolution as set forth by its great advocates, but is positively contradictory of the leading principles of the doctrine.

The distinction here drawn between that cross-descent which evolution has been untruly charged with teaching, and the lineal derivation of every existing species from its *own* ancestral line backwards through the various grades of organic development from the simpler forms of a remote ancestry, or even from the remotest germ of life, is fundamental to any correct apprehension of the theory. The law of the specialization of living beings by departure from common types, instead of favoring the notion that one species of living organisms is deducible from another existing species, between which and itself a wide chasm has already been opened by the process of differentiation, positively forbids such cross-descent, and makes it impossible. It has long been known, indeed, that nature herself has put a bar, in the infertility of hybrids, against the amalgamation, cross-grafting, and confusion of the orders of life such as would be implied in the possible derivation of one species from another different in kind.

The principle here insisted on as fundamental to a correct understanding of the doctrine of evolution is world-wide in its manifestations. Upon this principle, as an example, the modern science of language is based. Without it we should possess at the present time no really scientific knowledge of human speech. All linguistic phenomena conform to laws precisely analogous to those which govern the evolution of living organisms. This indeed is no more than might be expected; for language is so

Distinction here drawn fundamental to the question.

Analogy of linguistic phenomena to living species.



distinctly correlated with the nervous and cerebral development of the highest and most perfect of the animals as to constitute an invariable index of the stages and modes of life through which that animal has passed.

If we take the most cursory survey of the science of language and of the history of that science since it began to be, we shall find a series of mistakes and misconceptions respecting it almost identical with those which have beset and perplexed the doctrine of evolution. Glancing for a moment at the six or seven principal families of Aryan speech, we find two of the divisions in Asia and the remainder in Europe. The former are the Indic and Iranic families, and the latter the Græco-Italic, the Celtic, the Teutonic, and Slavonic branches. Aforetime it was believed and taught that Latin was a derivative of Greek. Subsequently, within the current century it was concluded that both Greek and Latin were derivatives of Sanskrit, and it was sometimes in dispute whether Celtic was derived from a Græco-Latin original or the latter from it.

The whole idea of the species of language—if we may so name the different varieties of speech—was thus confused and blurred by a total misapprehension of the fundamental principle of linguistic descent. Even scholars seem to have had no notion of the origin of a given tongue except that it had been derived from some other given tongue. In a word, it did not occur to the early philologists that there might have been, and indeed was, out of the nature of the case, a prehistoric primitive language out of which, as from a common germ, all forms of Aryan speech had descended.

At length, however, the true concept

arose upon the understandings of scholars, and with it came the beginning of a true science of language. Henceforth the absurdity of supposing Latin or Celtic to have been derived from Greek, or Greek from Sanskrit, was manifest, and at the present time even the novice in linguistic study is too correct in his apprehension of the problem to admit the preposterous notion of the cross-descent of one language from another. What should be said of the attempt to derive French from Italian, Wallachian from Portuguese, Rhoetian from Spanish, Swedish from Dutch, Icelandic from Anglo-Saxon, English from German? The scholar knows that the six Romance languages have been produced by linguistic evolution and vicissitude out of an original Latin—produced by a process of natural selection and survival of the fittest. He also knows that Latin and Greek and Teutonic and Iranic and Indic speech are all the descendants of an ancient original which, though it exist only by hypothesis, is known as certainly to have existed as are the species of extinct animals whose fossil remains are preserved within the stony covers of the book of geology. The idea of cross-derivation among the languages has thus been eliminated by scientific investigation; and the derivation of one tongue from another by cross-descent is no more spoken of as a thing possible among the phenomena of human speech.

It is in this manner, or in a manner precisely analogous, that public opinion, and even the incorrect teachings of scholars, have had to be corrected respecting the hypothesis of evolution. It is surprising to open the earlier series of the many hundreds of controversial volumes produced in Europe and America

Languages not the result of cross-derivation.

True concept of relation of languages to their originals.

Mistake of philologists as to laws of language descent.

Erroneous opinions of scholars corrected in our day.

on the subject of evolution, and to find them pervaded in every part with the two gross misapprehensions to which we have referred; namely, first, that the doctrine presumes to explain the *origin* of life by the operation of existing physical laws; and secondly, and more particularly, that it teaches the descent of man from the apes and monkeys.

It may suffice in this connection to brush away once for all these erroneous views and misconceptions respecting the sense of the evolution hypothesis. That hypothesis does not presume, and has not presumed, to explain the origin of life, but beginning with the fact of life, it has aimed to explain the processes, laws, and modes by which the many varieties of organic being have been brought, by natural selection and adaptation to environment, up to their present perfected forms. And in the second place, the doctrine of evolution has not taught, but has on the other hand distinctly denied, the cross-descent of man from the higher primates, or of these from lower existing orders of animated nature different in kind.

After removing from the mind of the reader the foregoing misconceptions with regard to the theory of evolution, we might at once proceed to explain and elucidate affirmatively what that theory really is; but before doing so we may well pause to note historically the circumstances which preceded the announcement of the new doctrine of organic life. As has been said above, the hypothesis of evolution is itself an evolution out of antecedent conditions long operative in the minds of men, bringing them gradually to the formation of a new concept of universal nature, of our earth in particular, and of its inhabitants.

The great promoters of the new theory of the *modus operandi* of life were themselves prepared for their office and work by forces which were actively at work before their birth. In short, under the operation of those general laws by which the intellectual as well as the material life of man is conditioned, the time had arrived when the old anthropomorphic concept of nature was destined to be displaced by another and more rational explanation of the existing aspects of organic life, and in particular of the methods by which the specific germs of all things living had been developed into their present forms and powers. It can but prove of interest to sketch the intellectual preparation which preceded the announcement of the hypothesis of evolution.

In the first place, Descartes had formed and promulgated the conception that the material universe is divided into living and non-living matter, and that it has the nature of a mechanism. From these postulates he held that the universe is susceptible of interpretation in accordance with physical laws. In the second place, the age of observation and experiment had supervened in place of the age of dogmatism and authority. The introduction of the microscope and the profounder researches of chemistry had led to a knowledge of tissue and of structural forms which had never before been attained. Consequent upon these new excursions of science, the discovery was made that structure has a history reaching from a simple origin in germ life to the vast complexity of organic life. This history was found to be repeated in every form of vegetable and animal existence, thus furnishing the hints of larger laws than had ever been known hitherto.

Teachers of evolution themselves an evolution.

Descartes is followed by an age of observation and experiment.

Evolution seeks to explain the processes of organic life.

Circumstances preceding announcement of the new theory.

With the progress of observation, analogies were discovered between the individuals constituting varieties and species and between the species of correlated groups constituting the suborders and orders of creation; in every part there was the hint of law. The next stage in the coming scientific concept of nature was the observation that all species, even they of habits widely different, have a common fundamental structure or plan of organization, with only such departures therefrom as the particular environment and habit of the animal or plant may have suggested. This was followed with the discovery of certain parts in the structure of living beings for which the animal possessing them had, under its changed conditions and habits, cast off or lost the use, and which had shrunk from disuse into a rudimentary form merely suggestive of the lost functions—thus indicating the course of life which the given animal had pursued in its development. Still further, the observation was made and recorded that all living beings are subject to variation under changed conditions of environment and habit.

Finally, while these various branches of investigation were in progress, geology completed its work by classifying and arranging the extinct forms found in the crust of the earth, so that their succession from the lower to the higher orders was scientifically determined—thus establishing the fact that the prehistoric history of life in our planet was a history of progress, metamorphosis under changing conditions, and evolution. All of these forms and principles of knowledge, none of which antedate the seventeenth century, were modified and extended slowly and irregularly dur-

Discovery of analogies between individuals and species.

Geology determines the order of extinct species.

ing the eighteenth, but were not brought to a condition from which generalizations relative to the universal laws of life might be formed until about the middle of the current centennium. It does not require prescience, or even the greatest acumen to discover in the conditions here present—in the stage of discovery and observation respecting vital phenomena—the probability and necessity of the promulgation of a new concept of universal nature and of man.

Still another fact which strongly prevailed to substitute for anthropomorphism the new doctrine of evolution under law was the enlarged and corrected knowledge which had been gained in recent times of the life of the individual. It is here, indeed, that the theory of evolution really begins. The hint of the general law is furnished by the individual organism, by the method of its beginning, by the process of its development, and the conditions under which it reaches maturity and perfection. We have only to study with particularity the progress of the individual in order to gain an epitomized knowledge of the history of the species or variety of which the individual is the constituent unit.

A knowledge of evolution begins with the individual.

The ignorance of antiquity with respect to anatomical and physiological laws and phenomena, is a fact that may well surprise the understanding. When we consider, for instance, that the human body is to the faculties of the mind and to the consciousness the most immediate and tangible of all the facts of nature, we may well be surprised at the profound ignorance of even the greatest minds of antiquity with regard thereto. The scholars, statesmen, warriors, and poets of the Græco-Italic races, as well

Ignorance of antiquity respecting physiological laws.

as the old bards who sang the Vedas, the priests who formulated the cult of Osiris and Isis, the Chaldee sages who studied by night the planets and stars, and the venerable seers of Israel, were all alike ignorant of the simplest processes of organic life. The functions of bodily organs were unknown, or at least not understood. The body throughout was a mystery. Its structure had never been investigated. The relations and offices of its parts were totally misapprehended. The beginning of life was misconceived in its nature; and though the body seemed ever to invite to anatomical and physiological study, the notions of even the wisest on these subjects were crude in all particulars and preposterous in most.

It were hard to account for what seems to have been the indifference of the great thinkers of the ancient world to

Indifference of the ancients to the processes of organic life. the practical questions of organic life. It would seem that the mere accidents to which living beings have been subject in all time would have taught the scholars of the classical ages much more than they ever knew about the anatomy and physiology of living bodies. It is an amazing fact that all the learning of antiquity failed to note so simple a thing as the digestion of food or the circulation of the blood. The offices of the organs were as little known as though the body did not contain a brain, a heart, a spinal cord, an alimentary canal. Nor did this ignorance give place to light under the scholasticism of the Middle Ages. On the contrary, in the mediæval times superstition raised its hand against all that kind of investigation which now goes under the name of natural science, and the absurd beliefs of antiquity respecting the methods and phenomena of life were intensified by the general gloom which overhung the human mind.

It is to the present century that the great scientific discoveries must be referred by which the *modus operandi* of organic being has been revealed. We here speak of life in the individual, and refer thereto in order to show the tremendous influence which a knowledge of the laws of individual growth has exerted in the larger theory which explains varieties and species and orders and, indeed, universal nature, by the same principle which brings a single organic being from the germ to its perfected form. What, then, is the outline of evolution as deduced from the individual organism?

Each living thing has been evolved from a minute particle of matter in which the most critical tests of science are unable to discover the slightest resemblance, outline, or suggestion of the adult form which is to arise therefrom. This living particle, from which the complex organism is to proceed, is called a germ. It is simply, in its primordial state, a cell of living matter, endowed potentially with a principle of growth, expansion, and final maturity of organic structure; but no trace of such organic structure is discoverable in the germ itself. Indeed, it is not certainly known that a germ is actually alive. Perhaps it were better to define it in the first intent as potentially alive. In any event, neither the microscope nor chemical analysis is able to indicate the existence in a germ proper of any fact or quality by which it may be discriminated from other cells which have no power of growth or development.

The better view is that every germ capable of becoming an organic body is itself a detached portion of the substance of some living organism already existing. For a long time Harvey's biologi-

Knowledge proceeds from the individual to the species.

All organic life proceeds from germ cells having life.

cal aphorism, “*Omne vivum ex ovo*,” or “Every living thing from an egg,” was accepted as the correct expression for the beginning of the individual life, and the maxim has been but slightly modified by the more recent biology into the form of “Every living thing from something alive”—the distinction being that a cell may have all the qualities of a germ *except* the touch of life and yet remain incapable as any other not-living matter of becoming an organic body.

Scientific tests have been carefully applied to germs of many kinds, and their quality clearly determined. The living cell is found to be filled with the chemical compound called proteine, consisting under analysis of oxygen, hydrogen, carbon, and nitrogen, with traces of sulphur and phosphorus swimming in much water. It should be observed that proteine is not a natural product; that is, it is always, so far as known, a constituent of *living* organisms or a product thereof—a conclusion which strengthens the belief that without life life can not begin.

Such, then, is the germ from which every organic body takes its rise. From this the living individual begins to be. Henceforth the history of the individual life is a history of processes, changes, adaptations, and, in a word, evolution. The first of these changes and transformations is simple growth. The germ, or living cell, begins to increase in size. This is the first manifestation, indeed, that the particle of matter in question is a true germ. It expands by a force seemingly within itself; but at first without other modification in character. It

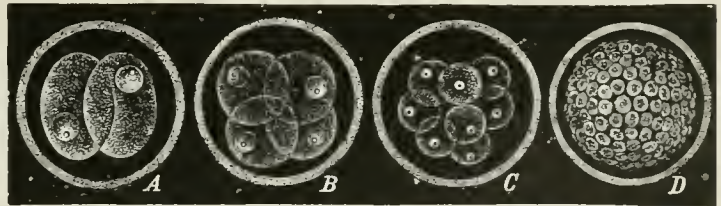
remains under the first expansion simple and homogeneous.

The second stage of the evolution is marked by the appearance of a stricture corresponding to the equator of the cell by which a division begins to be effected, and two cells produced instead of one. Each of the two parts assumes, in turn, the form and character of the original; but the division is not complete, the substance of the two cells continuing to flow in common under the line of stricture. Around each of the two lobes lines of division appear, and *four* parts are produced instead of two, and these four, by division, become *eight*, each of which retains the exact characteristics of the original germ. Thus is

Scientific aphorisms of the beginning of organism.

Nature and movements of the germ life.

In what manner the cell organizes by process of fission.



MANNER OF GERM DEVELOPMENT BY FISSION (SUCCESSIVE STAGES MARKED A, B, C, D).

produced what is known as a cell aggregate, which is the first stage in the advance from the germ toward complete organic being.

The question at once arises by what means this first enlargement of germ life is effected. Whence comes the material which the cell uses in its own enlargement? Certainly not out of nothing. The cell has the power of appropriation. It has this in virtue of the life-principle within. It draws to itself and absorbs the aliment whereby the increase in size and the other phenomena of division and multiplication are produced. The materials so gathered are not mechanically distributed as if they were packed

History of the individual a history of transformations.

How the materials of cell growth are gathered.

between the parts of the living cells, but are absorbed and assimilated with the substance thereof, or, in a word, digested.

The next stage in the evolution is the formation of what is called the *gastrula* out of the cell aggregate.

Formation of the *gastrula* and *archenterom*.

This is accomplished by a series of transformations such as the production of the *archenterom* and its transformation into an embryonic stomach. The cells composing the first aggregate take the form called the *planula*, which is next doubled in on one side, as if by external pressure. The processes are somewhat occult, and may be traced by the curious reader in the pages of any modern work on physiology. It is sufficient to say that with the formation of the *gastrula* the rudiments begin to appear of the different parts of the organism that is to be, namely, the epidermis, or outer skin, the intermediate tissue, the alimentary canal, and a system of nerves.

The process of organic life—the preparation for a complete individual—is now fully under way. Assimilation continues, the matter

Further evolution of organs and parts.

being drawn primarily from the body of the mother and ultimately from the nutritive substances of the proximate environment. Growth also continues, and the embryonic organism begins to manifest that distinction of parts and outline of organs which in the aggregate are to constitute the living being that is to be.

At length, after successive stages of growth and development, the new creature is ready for deliverance

Manner of delivering the new creature to its environment.

to the outer world. This process is effected by several methods. Some animals are oviparous, or egg-bearing; that is, the ova within the body of the mother are

developed to completeness, usually enclosed in a chalky shell, and deposited in a suitable situation for the secondary process of fecundation. This consists in subjecting the eggs to heat—generally derived from the mother's body—and to other favoring conditions during which the processes above described, reaching from germ life to organic life, are completed, the shell broken, and the new organism liberated into the same conditions as the adult parent. In the case of the viviparous animals, the whole process of embryonic development takes place in the body of the mother, until the offspring reaches the limit of its first stage of being, when it is delivered to the new arena of life independent of the mother's body.

It is not needed to dwell in extenso upon facts and modes of life which in the case of the individual are well understood.

Fundamental identity of method for all living forms.

The whole course of organic development, as the same is illustrated in the individual being, is well apprehended, and has been demonstrated by observation and made of record until hardly any feature of the process is any longer obscure. But it is only in recent times that the discovery has been made of the fundamental identity of the methods of development in the embryonic life of the different orders of animals. There has been found to be no discoverable difference in the process by which the germ expands into organism in the several species and orders of living beings. The process is the same in the sponge as in the *cœlentera*; in the worm as in the *echinoderm*; in the *tunicates* as in the *arthropods*; in the *mollusks* as in the *vertebrata*. Indeed, in all the forms of life, above the *protozoans*, the modes of development from the germ to the organism are fundamentally identical.

This fact is the first stage in the extension of the law of evolution, from the individual to the other orders of being, and finally to universal nature.

The next stage is like unto the first. This is reached in the discovery that not only are the processes of germinal and embryonic life identical in the individuals of the various species and orders of animate existence, but that the fundamental structure of the various kinds of animals is essentially the same throughout, with only such variations and modifications of the common pattern as have been produced by adaptation to certain conditions of life by the exigency of environment.

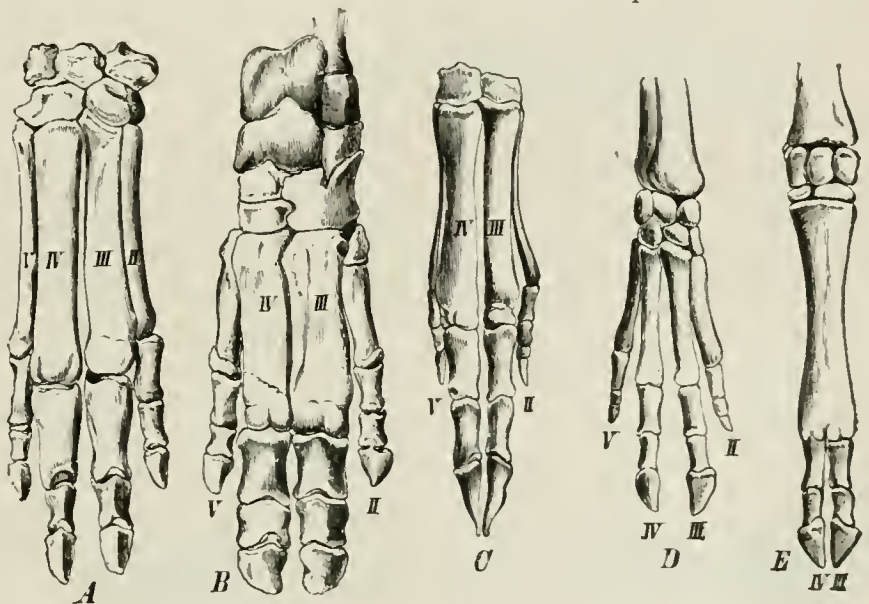
In the concept of general nature, the differences in the structure of the various orders of being were aforetime greatly exaggerated. Mere sense of

sight and touch were used as the basis of judgment respecting the degree of divergence between one kind of animal and another kind. Until in recent times no scientific tests were applied to measure by a truer standard the existing differences in the bottom plan of universal nature. To the eye the bird was sufficiently unlike the fish, and the fish unlike the mammal. What similarity might the unaided sight of an untaught man discover between a frog and a squirrel, between a lizard and a hawk?

The natural senses exaggerate differences of structure.

By the scientific method of observation, however, the likenesses in the framework and general structure of all the orders of living beings begin to appear, and the unlikenesses to disappear. It is found by the tests of science that the differences between animals are superficial, and it might almost be said fallacious, whereas the likenesses are fundamental and real. We here speak of the likenesses existing among the mature animals of different species and orders

Fundamental structural identity of all living forms.

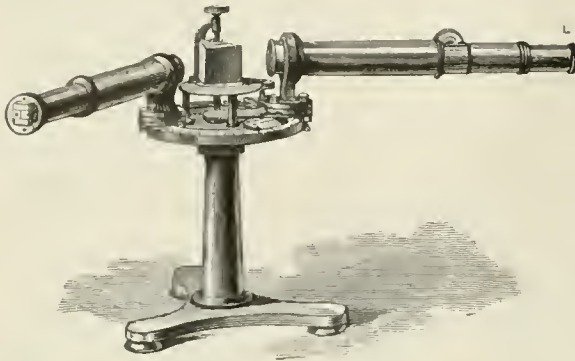


LOWER LIMBS OF UNGULATE ANIMALS.—SHOWING THE PROGRESSIVE DEVELOPMENT (MARKED A, B, C, D, E) OF ORGANS.

in the essentials of their structure and form. One not familiar with the fact must needs be astonished to note how, under the investigations of comparative anatomy, the fundamental parts of all living creatures more and more approximate a common type, from which the several species and varieties have been inflected to a certain limit only by the conditions of environment, including the operation of natural selection, or struggle for life, and the survival of the best. The skeletons of all vertebrates approximate a single pattern. This pattern in

turn approximates the basal structure of the invertebrata; and so on with the enlargement of the investigation all animate beings are seen to approach to one common rudimentary form, insomuch that the inquirer might be induced to believe

grade of the protozoa. In the third place, a scientific examination and classification of the completed structural parts of all animals shows an astonishing likeness amounting to virtual identity *for every kind of organism*, whether mammal, bird, or reptile, whether vertebrate or invertebrate, or mollusk, whether of the highest or lowest grade of animated existence. Everything approximates a common type, and indicates in terms not to be mistaken the fundamental unity of the plan on which all varieties of animal life have been produced.



THE SPECTROSCOPE.

It is doubtless true that certain other discoveries made in the domain of natural science have tended in recent times to promote and suggest one general law of uniformity for all

that nature has had but a single pattern in her laboratory of possibilities!

The effect of these discoveries in biology must needs be great in leading the mind toward a wider concept of uniformity. First, we have the actual demonstration of the modes and processes by which mature organism is reached in the

the processes of nature. The tendency of science in the nineteenth century has been toward what may be called the integration of universal nature. By means

The mind discovers the law of uniformity.

of the spectroscope a knowledge has been acquired of the constitution and character not only of the planetary worlds, but of the sidereal heavens. Reviewing the nature of these discoveries, it appears that the human mind was in expectancy of a different

kind of knowledge from that which came by the revelations of spectroscopic analysis. Instead of expecting to find the universe a unit in its fundamental characteristics, it would appear that expectation reached rather toward diversity,



SOLAR SPECTRUM.

case of the *individual*. In the next place, we discover that the same processes and methods of expansion and development take place in the individuals of *all the orders of life*. The *modus operandi* covering the progress of life and of living

forms from the germ through certain intermediate stages to complete organic structure is identical in all orders, species, and varieties of living being above the



SPECTRUM OF IODINE VAPOR.

novelty, incongruity, and in short a different order for the upper worlds from that established in our own.

All such anticipation was disappointed.



Instead of unlikeness, likeness was discovered; instead of heterogeneity, identity; instead of contradiction and novelty, one law and substance for the whole. Hydrogen and carbon and calcium and sodium were found above as well as beneath, in the distant stars as well as in our solar group of worlds. The phenomena of combustion, of transformation, the suggestions of growth, of life, of mutation, of maturity, and death were found everywhere, indicative of the substantial unity in character, aspects, and offices of all worlds with our own and the system to which it belongs.

In like manner chemical progress has tended to one thing out of many. The old chemistry has passed away, the new has taken its place. One of the most striking aspects in this transformation has been the discovery that the many elements formerly supposed to constitute the materials of nature are probably reducible to a few, and possibly to one. Of the sixty or seventy elementary substances which were accepted as such by the chemists at the beginning of the present century, all have been reduced to four or five principal modes of motion and sensation with the strong probability that the further reduction of these to a single one will be effected. This discovery that the substance of all nature is really but one substance, or at most but a few constituting those "permanent possibilities of sensation"<sup>1</sup> which we call matter, has conduced powerfully to bring in the concept of unity, not only in

<sup>1</sup> Matter may be defined as a permanent possibility of sensation.—*John Stuart Mill.*

material nature, but also in the realm of organic life under law.

Such in general were the scientific antecedents of the new doctrine of the origin of species by natural selection. The theory of evolution, however, came by observation and experiment. Darwin was a traveler, an observer of nature.

Evolution the product of observation and experiment.

Though thoroughly versed in the biological theories that had preceded his age, he nevertheless relied upon generalizations which he himself made from facts collected from the natural world. Though he owed to his grandfather a certain hereditary type of mind favorable to the formation of large theories respecting the laws of man and nature, he none the less pursued his lines of study as an independent inquirer and with no apparent predisposition for any class of opinions. In 1859, as already stated, he published his *Origin of Species by means of Natural Selection*, and two years afterwards his *Descent of Man*, in which the new doctrine of the order of life was fully set forth and defended by an extent and variety of observation and an acuteness of deduction which must ever remain a surprising event in the intellectual history of the nineteenth century. His studies included far-reaching excursions into both the animal and vegetable kingdoms, but more particularly the former. His research and industry were equaled by the lucidity of his reasoning. His conclusions reached up by steady approximations from the lower to the higher forms of life, including man himself as the highest of all, but under the dominion of the same laws which determine the character of the lower species.

## CHAPTER XII.—THE TRUE EVOLUTION.



WHAT then is the doctrine of evolution? First of all, it is the theory that the higher forms of living being, including man, are the descendants of some

ancient, lower, and extinct forms which have been lost in the struggle for life and replaced by the stronger and fitter of each respective kind until the present species have been produced. The process is in general what is called natural selection. The terms of this expression were chosen by Darwin after his study of the life of animals under domestica-

Darwin's discovery of the law of natural selection.

tion. He perceived that in these there is a *choice* by the stock-raiser of the best

of each kind and a rejection of the unfit; that by these means a given species is perpetuated and improved along certain lines of development which are desired in preference to others; and that, in short, the domestic animals are largely the result of the intelligent choice or selection of those who produce them. It is thus that certain qualities attractive and beneficial in given breeds are preserved, augmented, transmitted, and perfected by a law of adaptation, and in particular by the mating of the sexes so as to intensify the desirable qualities of the parents in the offspring.

These hints, gathered from a field of inquiry to which Darwin devoted a great amount of study, furnished

Survival of organic forms by natural selection.

the word selection; but the question was whether

living beings not under the dominion and intelligent choice of man are influenced in their development by the action

of a similar law. Of this law—of its existence and character—Darwin may be said to have been the discoverer. Making a wide excursion into the open field of nature, he found that a law of selection exists here also, by which, or in accordance with which, the character of each species of living beings has in the main been determined. In a word, he discovered that there is a *natural* selection prevailing in all parts of the domain of life by which the fittest of each kind of living creatures are chosen and the rest rejected, the criterion of fitness being determined by the nature of the environment. This is to say that every living organism is more or less fitted by its powers to its surrounding condition in the natural world; more or less able by its organs and faculties to secure for itself the means of subsistence; more or less fully equipped, as compared with its fellows of the same species, to gain place and footing in the somewhat slippery contest for the most advantageous situation—for the supply of its wants and the exercise of its natural appetites. Those creatures that are thus naturally or fortuitously best fitted for the struggle of life succeed in the competition, while the weaker of the same kind fall back in the race and disappear.

Such is one of the leading notions which enter into the doctrine of evolution. It is known as natural selection, or the survival of the fittest. Darwin says:

“Let it be borne in mind how infinitely complex and close-

Darwin's explanation of the law and its expression.

fitting are the mutual relations of all organic beings to each other and to their physical conditions of life; and consequently what in-

initely varied diversities of structure may be of use to each being under changing conditions of life. Can it then be thought improbable, seeing that variations useful to man have undoubtedly occurred, that other variations useful in some way to each being in the great and complex battle of life should sometimes occur in the course of thousands of generations? If such do occur, can we doubt (remembering that many more

It will be noted that this law involves the fact called variation. Unless variation be admitted, then there could be no such thing as selection, whether natural or artificial. But the fact so-called does exist universally in the domain of life.

The law proceeds by variation of form and function.

It exists naturally—in virtue of the very conditions under which organic forms are produced and developed. Living organisms, instead of being alike, are



VARIATION OF ANIMAL FORMS.—(1) UNDER NATURE—COMMON WOLF

individuals are born than can possibly survive) that individuals having any advantage, however slight, over others would have the best chance of surviving and procreating their kind? On the other hand, we may feel sure that any variation in the least degree injurious would be rigidly destroyed. This preservation of favorable variations and the destruction of injurious variations I call Natural Selection, or The Survival of the Fittest."

unlike. This is said not of the fundamental plan of their structure, but of the particular features which characterize each individual. The members of a given variety of living forms are discriminable the one from the other by differences which they bear. Perfect likeness is nowhere found. The discovery of two creatures however nearly related and produced under however nearly identical conditions, which are

indiscriminable by manifest differences in their structure, qualities, and physical features, is impossible. No likeness of parents, or careful preparation of antecedents, or accidental results of creative forces, or nurture and development, can produce two organisms which are the same in all particulars. It is doubtless true that in all the incalculable millions of bushels of wheat which the world has produced no two grains were ever precisely alike. Nature in all of her do-

ctrine of evolution. But they are only the beginning of the phenomena. Given the unequal capacities of living organisms in the arena of life, and we have the clue to the real variation which is to follow. The individuals of a given species begin their existence by gathering sustenance and fitting themselves to their environment. But those having the superior powers accomplish this work most successfully. In doing so



VARIATION OF ANIMAL FORMS.—(2) UNDER DOMESTICATION—ITALIAN GREYHOUND.

mainly avoids with everlasting persistency the exact repetition of any of her results. It therefore happens that when the living organisms which are to inhabit the world are projected into the arena of life they come with unequal powers and capacities, with differences which, though in many instances minute, are nevertheless appreciable in the contest which is to ensue, with fitnesses more or less complete for survival and the procreation of their kind.

These facts constitute the basis of that variation which is so fundamental to the

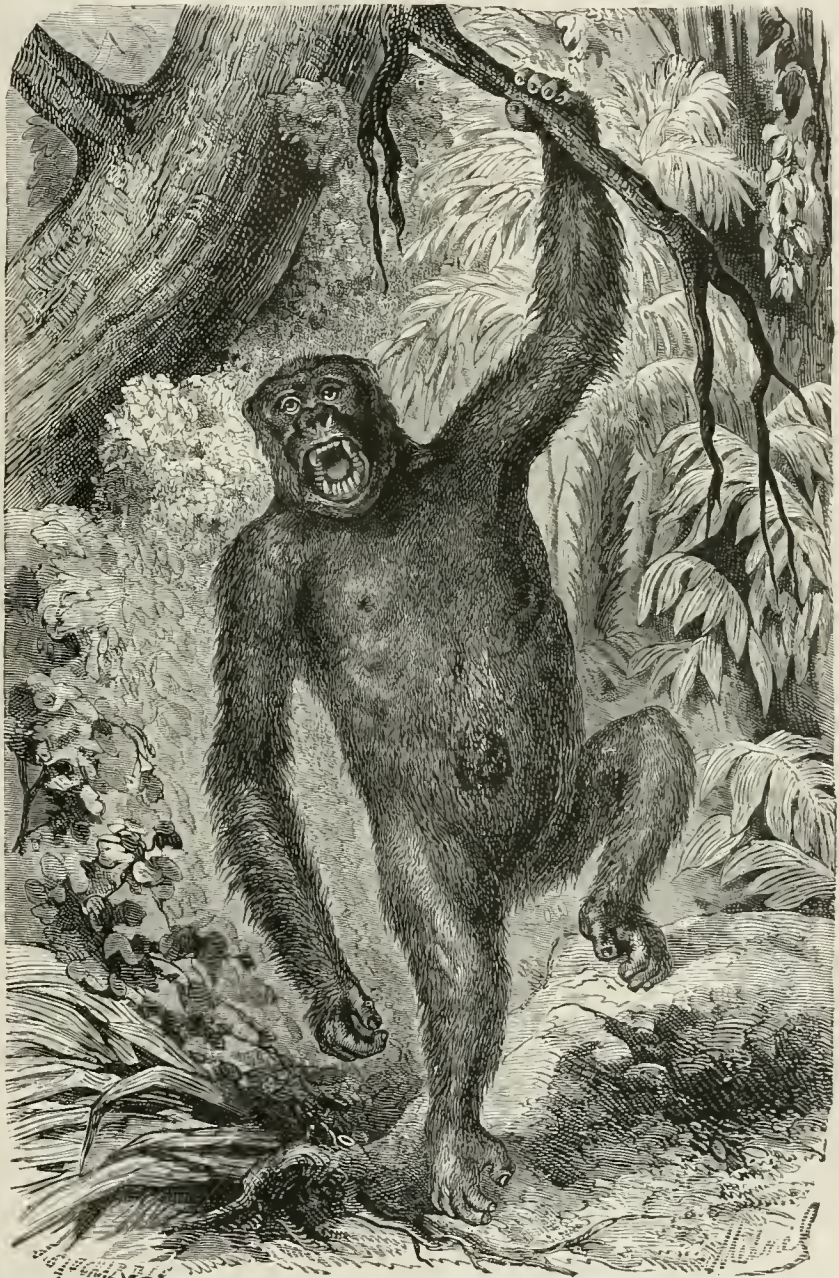
they augment and make permanent the very faculties and organs by which success is attained. The use of the organs with which they are endowed increases their development, and the offspring of these successful organic forms are born, not with the rudimentary powers which were possessed by their parents, but with the developed powers, instincts, and capabilities which their parents possessed and transmitted in procreation.

There is thus originated a series of forces culminative in their action and

tending to the perfection of organic life in a certain direction. Meanwhile, however, those original organisms which were not so well endowed have either wholly perished or have been crowded from the line of development taken by their successful competitors, into a deviating course of life where the conditions are somewhat, perhaps largely, different from those surrounding the lines followed by the first group.

It can but be of interest to note a few specific instances of the operation of the law of survival. Take, for example, the case of that large number of flowering plants which are perpetuated by the transfer of pollen. It is thus that fecundation is effected and the given species ex-

promotive of the welfare and rapid multiplication of the species. This work is usually effected by the agency of insects



GORILLA TAKING HOLD WITH FOREFOOT.

Specific examples of the law of survival. tended over wider and still wider areas of growth. Whatever favors the distribution of pollen will therefore be

traveling by wing from blossom to blossom and carrying with them *per accidens* the fecundating principle. It will be observed that the motive of this

work is, as it were, unknown to the insects themselves, they being busy with another instinct and appetite. This other impulse is the seeking of food. The cells of flowers contain many substances, notably honey, which attract the insects and thus bring them into contact with the pollen.

It is needless to say that that particular blossom, or particular species of blossoms, which, under given conditions, secretes the largest quantity of the most delicious sweets will draw the greater number of insects, and that the pollen thereof will be most widely distributed. If any particular plant, or variety of plants, through weakness, or semisterility, or any fortuitous circumstance, should be poorly supplied with the attractive nectar, that variety would be neglected. The general result would be that the favorite plant would, with the next season, secure a wider area of growth with all the better situations. The tendency thus started would increase in influence. Slowly, perhaps, but steadily the plants having the best supply of nectar would run ahead, preöccupy the best ground, overgrow their competitors, and, in short, become an example of the survival of the fittest.

If we pass up to the animal kingdom, we find this law still more strongly operative—still more powerfully determinative of given results. It is among animate beings that the struggle for existence has its widest and most important exemplification. It was here, indeed, that the first glimpses of the law were caught. It was in the closing years of the last century that Thomas Robert Malthus published that *Theory of Population* which has ever since borne his name. To him belongs the honor of having first formally devel-

oped the idea of the encroachment of the animals of the world upon the means of subsistence. He perceived that all animal life is procreated in a geometrical, not in an arithmetical, progression. However slow the rate of increase may be in any given case, the ratio is always a geometrical series. If a given species of animals reproduce in such a rate as to double the number in four years, then in eight years the number will be quadrupled, and in twelve years increased to eightfold the original number. If the number be not doubled for twenty-five years, then with fifty years it will be quadrupled, and so on in a geometrical ratio.

The animals of the world subsist ultimately on the products of vegetation. Plants, multiplying by their seeds, increase also in a geometrical ratio, so that at first glance it would appear that the increase of animal life and the increase of the means of subsistence are coördinate phenomena; but a moment's reflection will show that all plant-life is *fixed* in the earth or water. There is thus a natural limit to the extent of the increase of any given variety. A certain kind of plants may, indeed, multiply under the geometric law until a given space of producing soil, as of an acre, is occupied. After this limit is reached, all that the given species of vegetation can do is to occupy and fill to repletion another acre, and then another. But this process is addative, or simply arithmetical, and not geometrical. In a word, nature has provided in the limitations of the soil of the earth a law by which the rate of increase in all the vegetable products of the world is changed from a geometrical to an arithmetical series; but in the case of the

Blossoming plants flourish by secreting nectar.

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Explication of Malthusian theory of population.

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In what manner animals encroach on means of subsistence.

animals, they being not so fixed to the soil, the geometrical ratio of increase continues operative; which is to say that the animals, multiplying more rapidly than the means of subsistence can multiply, encroach with the force of the calculus on the food-supply which nature has provided for them. There is, therefore, only one thing remaining to equalize the two forces, and that is the introduction of another law, or laws, by which the effects of the geometrical ratio in the increase of animate beings shall be curtailed and limited in its operation, so that the means of subsistence may keep pace with the demands thereon.

The law whereby the geometrical ratio in the multiplication of animals is restricted to the means of subsistence is, in a word, the struggle for life—the survival of the fittest. Among the animals this struggle goes on forever. It assumes one of three forms:

1. The struggle of the individual with the individual of the same species.
2. The struggle of the individual of one species with the individual of another species.
3. The struggle of the individual or the species with the physical conditions of life, commonly called the environment.

The first kind of contest covers all the varieties of competition which one individual of any species has with another individual of like kind with itself. It is a well-known fact that nature is extremely prodigal in the provision which she makes for the procreation and distribution of the germs of every species of organic life. She always provides for much more than can exist. In the case of some plants the number of seeds produced is so incalculable that if it were not for the prodigious waste and the

countervailing laws by which the spread of that species is restricted, it must in a short time occupy the whole earth to the exclusion of all other forms of vegetation. Thus it is that the very seeds of life begin a competition which can only end with the death of the organic forms potential in them.

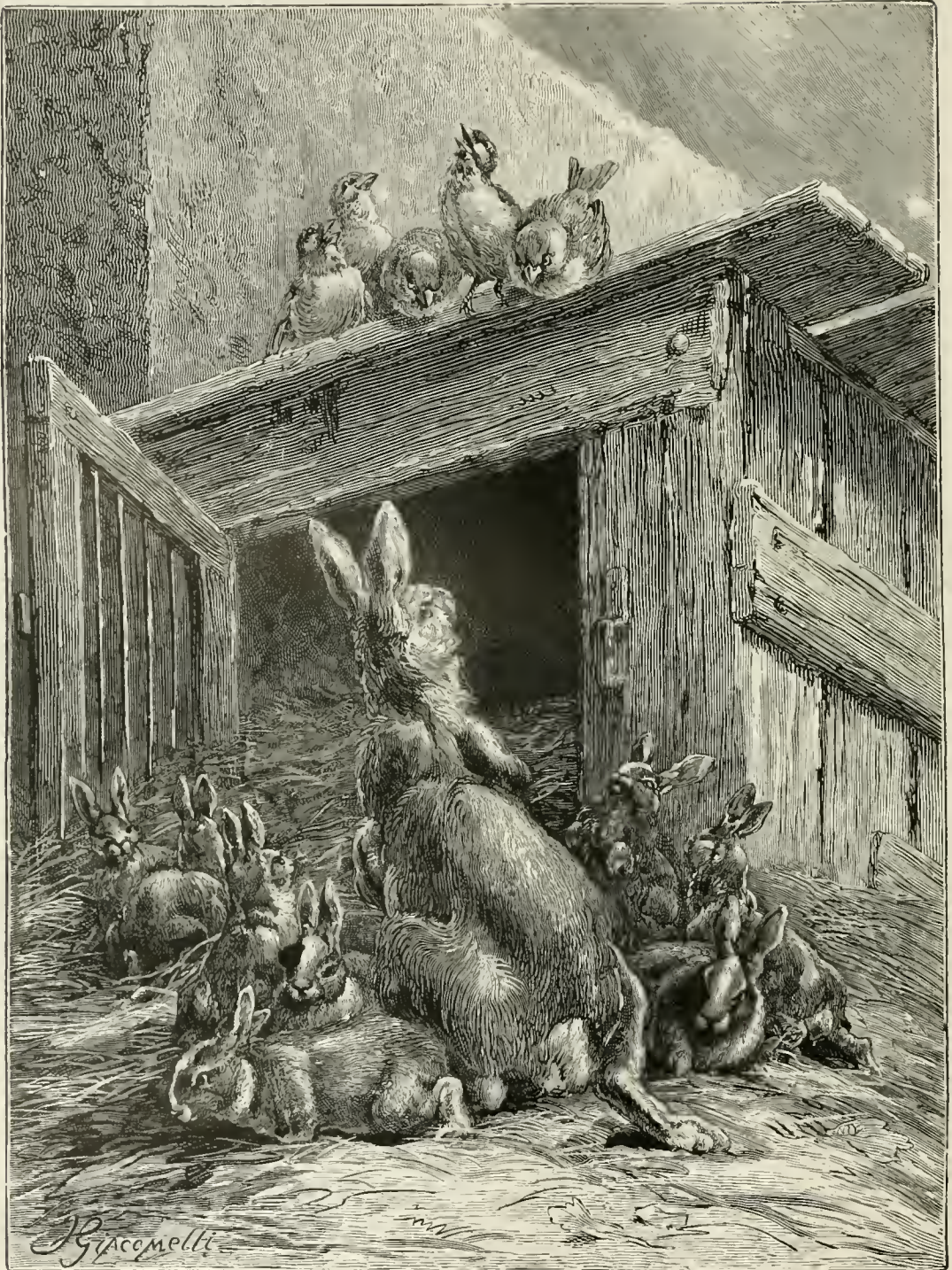
On the land and in the deep the same phenomenon constantly reappears in all the forms of existence. It is estimated that a single codfish will, under favoring conditions, in one season produce three million eggs! It is needless to point out the fact that at this rate of increase, were not the most efficient and active restraints imposed upon it—including competition for the means of subsistence—the whole Atlantic bed, from shore to shore, would in the course of a few years be filled to the surface with a solid mass of this superfecund species of fish. It can not be doubted that but for the action of very efficient countervailing agencies the quail of North America would in a short time multiply to the occupation of all fields and groves and valleys, from mountain to mountain and from sea to sea. So also of the rabbits and many other species of ground animals.

It may suffice to point out in this general way the rudiments of the great problem of life. Nor can it fail of interest to follow the investigation along the lines of those methods which are provided for the curtailment of life under the general law of natural selection. First of all, in the case of living creatures vastly greater numbers of eggs are provided than are necessary for the preservation of the species. Here the struggle begins in the destruction of the eggs of one species by the animals of another. Great and multifarious are the exigencies through

The three forms of the struggle for existence.

Exuberance of life restricted by opposing agencies.

Curtailement of life begins from the germ and seed.



EXAMPLE OF RAPID MULTIPLICATION.—BURROW OF RABBITS.—Drawn by Giacomelli.

which all eggs, as, for instance, the eggs of birds, must pass before they can come to the stage of life and organic development. Every nest is exposed to the vicissitudes of storm and flood. Every nest is a temptation as well as a seat of



hope and despair. The living enemy lurks on every hand. No eyrie is so inaccessible as not to be approached by the stealthy march of the foe. Then come the vicissitudes and hardships of climate. These bear alike on the germs of life and upon all stages of organic development. A single winter of unprecedented severity, like that of 1607-08, is sufficient to work havoc and decimation with the plant and animal life of large areas of the world. After such a disaster the species surviving from the ordeal must, as it were, begin anew, and in so doing only the hardier stocks are preserved as the progenitors of new races.

But we are here to speak more particularly of the contest of the individual with the fellow-individual of the same species. In this respect the struggle of life is perhaps the most remorseless fact which the student of nature is obliged to contemplate! It is a conflict of the strong with the weak, in which the strong always prevails and the weak always perishes. As a rule, the hungry animal seizes from his fellow the one portion of food which is not sufficient for both. The strong takes it; the weak loses the battle. There is neither remorse nor pity. True, to a certain extent the parent animal, the mother in particular, cares for her offspring; but this law holds only to a certain limit. Beyond that there is neither preference nor sympathy nor recognition. Even while the instinct of parental protection still prevails, it is counteracted by appetite, and, except in the case of the human species, the offspring itself is ruthlessly devoured by the parents. Even in our own kind this horrid circumstance in the struggle for life has been again and again repeated, as if to proclaim with a great voice over the whole arena

Struggle of the individual with others of its species.

of living being the one dominant law that the strongest shall live and the weakest go to the wall.

Passing to the war between individuals of different species, we find the conflict as wide and as universal as the domain of life. In the plant world the individuals of one species, stronger than the prevailing form in a given locality, obtrudes upon the existing kind, multiplies, and drives out the weaker species. The struggle goes on everywhere, from the conflict between one kind of cryptogamous plants, growing like a mold on the cellar wall, and another kind, its competitor, up to the struggle of one forest growth with another. The substitution of one entire forest for another kind is a common fact in the botanical history of the world.

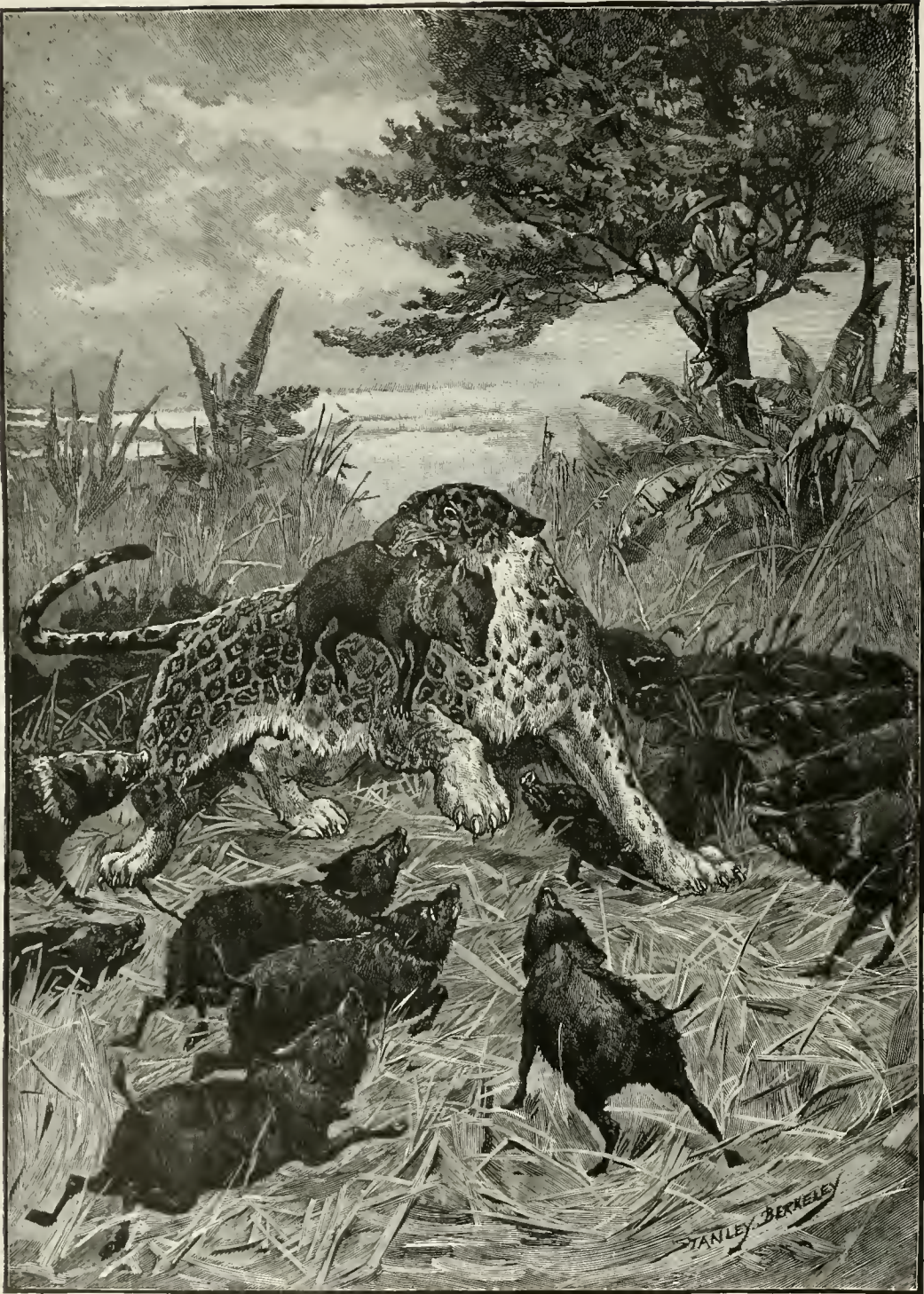
Plants of one species contend for place with those of another.

In the arena of animal life one species drives out another. The whole sea of animated nature is fluctuating along its entire surface from shore to shore with the varying vicissitudes of the conflict between the stronger and the weaker wave. Some of the waves follow the course of civilization. The black rat gives way to the brown, and the gray squirrel of the American woods retreats before his red rival. In other portions of the field the contest is waged between wide-apart orders of living beings. The carnivora devour the herbivora, fishing birds deplete the waters of their inhabitants, parasitic insects attack the strongest animals and reduce them to skeletons.

Battle for life between animals of different species.

Further and still further the vicissitudes of the battle extend, until all nature seems to be involved in one vast complication. In a given district of country cats are plentiful. They are of a strong breed, vigorous in procreation,

Illustration of the vicissitudes of the contest.



STRUGGLE OF LIFE--THE STRONG TAKES HIS PREY.—Drawn by Stanley Berkeley.

and eager in the pursuit of prey. They feed upon the ground mice of the dis- trict, and almost exterminate them. Everywhere, in meadow tuft or by the

roots of decaying stumps, or along the lines of fences, the mouse nests are hunted from their places. The parent and the young are alike devoured. With the disappearance of the mice the bumblebees greatly multiply; for the mouse is the great enemy of the bumblebee. The nest of the latter is constantly invaded and its contents destroyed or eaten by the enemy. With the destruction of that enemy the life of the bumblebee is liberated from danger; the nests are multiplied in all favoring localities, and with the hatching of the offspring the air is murmurous with their humdrum music.

Round about this scene spread the fields of red clover. It is by the agency of the bumblebee that the pollen of red clover is borne from blossom to blossom. Without such agency there can be no maturity of the seed, no germination, no preparation for an ensuing crop. It is a well-known fact that in a given season the first cutting of red clover finds no seed in the blossoms. It is only later in the year, when the bumblebees have gone abroad, that the seed crop is developed. Note, therefore, the extent of the correlation. Where cats are plentiful the mice are exterminated, the bumblebees abound, and red clover not only flourishes but prepares its seed for a more extended area of growth. Where cats do not exist ground mice flourish and multiply, the bumblebees are exterminated, and the red clover perishes for want of fecundation!

These lines of vibration and vicissitude extend in all directions through the whole domain of life. They include not only animated nature, but the vegetable world as well. They knit together all the forms of living organisms in mutual dependencies by which the relative advan-

tage and very existence of each are conditioned. They furnish the clues of a study which is world-wide in its extent and variety. He who runs may read the story of the unending warfare that goes on between the species of living beings—goes on from the insect battle on the under side of a leaf to the dropping of the tortoise from the eagle's claw; from the sting of the mosquito on baby's hand to the ferocious conflict of men with tigers in the Indian jungles; from the snap of the swallow's beak on the ephemeral gnat to the assault of the infuriated monster of the deep on the whaler's boat.

In the third place, the struggle for life is intensified by the resistance which the material world offers to the welfare and safety of every living creature. In some parts of the world, particularly toward the north, the vegetation and the power of nature to produce it are so limited that animal life of all kinds must be correspondingly sparse and barren. Certain regions of the globe become more and more bleak until vital phenomena first weaken, then sink to lower levels of development, and finally disappear. Besides this, nature, instead of being a safe, is everywhere a dangerous, arena. While she invites life, she opposes it and puts impediments in the way of its progress. Not infrequently she is a destroyer. The world has its cataclysms and physical commotions in which not only multitudes of individuals but whole races of living beings are swallowed up. Life stands always on the perilous edge of hazard.

The conditions not only of health but of disease are present in the world. Epidemics sweep away or decimate existing species.

Correlations of red clover with cats, mice, and bumblebees.

Environment offers resistance to all living forms.

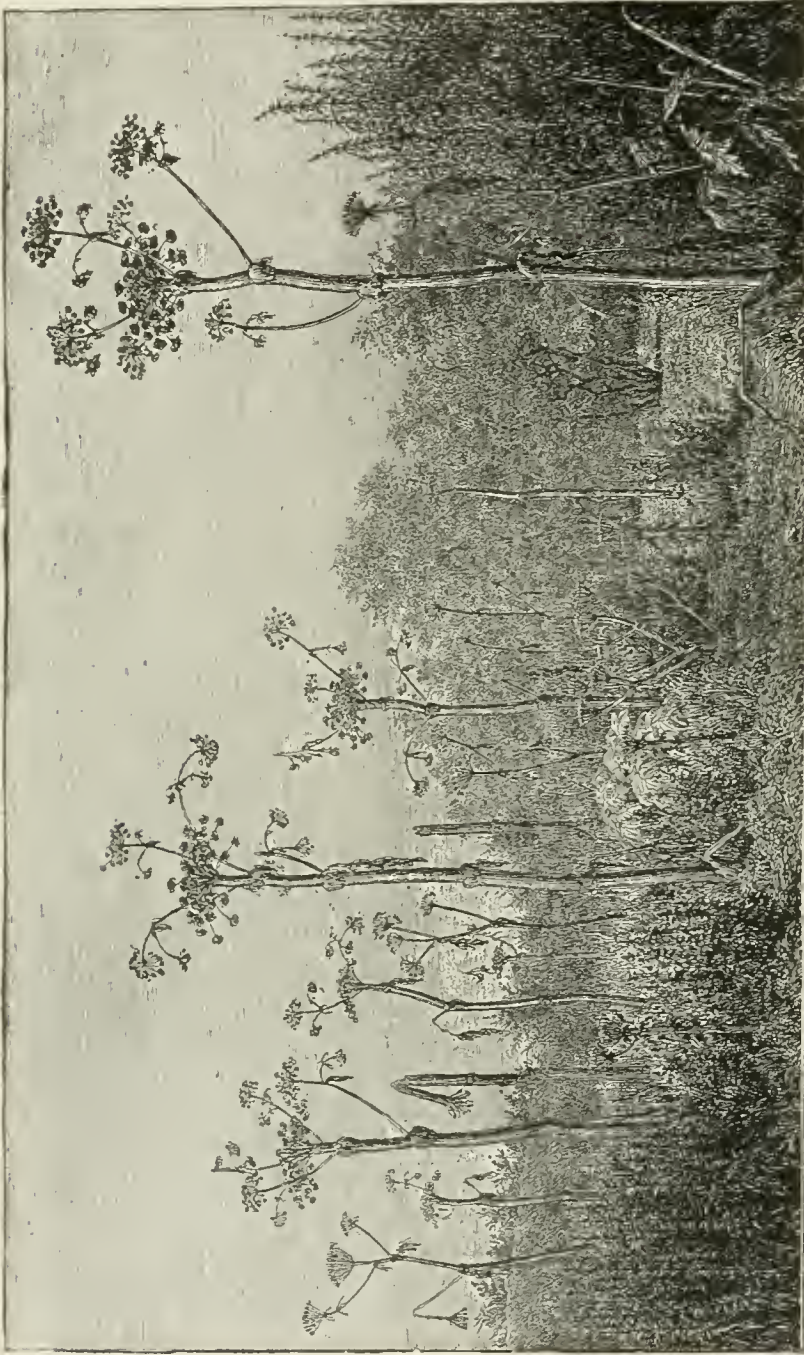
Law of conflict extends to the whole domain of life.

All living forms subject to disease and death.

The havoc of disease is seen not only where human kind has risen above the other orders of animated nature and

ture, is free from the ravages of disease —still greater to imagine that the lower orders of animated being are not visited by destructive epidemics. It might well appear to the calculating mind of Malthus that disease is one of the natural weapons by which the superabundance of life is beaten back into the dust.

The general fact called climate, with the changes which it involves, contributes largely to the struggle for life. It would appear that every species of living organism is carefully balanced in its climatic environment. All living beings are sensitive, most of them highly sensitive, to the influence of even slight changes among the cosmic forces in which they swing. Whenever the turn of the secular wheel



STUNTED VEGETATION OF KAMCHATKA.

civilized the world, but wherever life is found. It were a great error to suppose that the plant world, in a state of nature, brings around an altered condition of earth or sea or air, that alteration is the catastrophe of many species of animals

and plants. Many more species are seriously affected by the change, some favorably and others unfavorably. Some are aided by the alteration in natural conditions, and others crippled for life.

The geological history of organic forms preserved in the earth's crust shows conclusively that the metamorphosis of species has been coincident with the secular changes to which the

Secular changes produce catastrophes to living forms.

If we note with particularity the habits and vital capacity of any animal or species of animals in given zone and within a given area, we shall find the living being or beings in question to have been brought by natural selection into very careful adjustment with climatic conditions. The given animal is, for instance, capable of enduring the maximum cold of the winter in his lati-

Natural selection adjusts each living form to its environment.



MAN-LIFE LIMITED BY BATTLE WITH ANIMALS.

earth itself has been subjected. Life, in a word, makes a new departure when the general course of nature is disturbed. Animals are changed in their forms and habits, not indeed *per ictum*, but gradually from one mode and aspect of activity to another. The distribution of plants and all forms of animated existence departs on new lines with every cosmic change in the environment.

tude, but no more. He is fitted to bear the heat of the corresponding summer, but no excess thereover. He is in like manner balanced with the conditions of moisture and drought, and indeed with all the meteorological and cosmical forces that hold him in his place. Any disturbance among these forces must seriously affect his welfare. Any swelling or perturbation of the secular laws overwhelms him, or drives him forth

into a new condition of activity and a new form of specific development.

But these cosmical changes do occur. The islands and continents of our globe not only yield to the vicissitude of changing climate, but sink and emerge by turns from the sea. Terra contends, with Oceanus, and he with her. With

Cosmical crises are attended with destruction of species.

produce a general alteration in the aspects and tendencies of organic life; but for the most part the changes are so slow as to admit of a gradual life-adjustment to the altered conditions as they arise. But the fact of climatic and cosmical disturbance exists, and the law of natural selection depends thereon in part for its efficiency and ultimate results.



NORTHERN LIMIT OF MAN-LIFE.—KING WILLIAM LAND.

each subsidence and upcoming of the land from the sea a new environment is prepared—a new field for animal activities. True it is that since the days of Sir Charles Lyell, the notion of vast immediate cataclysms and reconstructions of the globe has given place to the concept of slow but ever-operative changes in the forces that balance the world. At certain times, no doubt, crises are passed in these secular movements which

Still another active force in the struggle for life is what is called sexual selection. Mr. Darwin in his later studies was led by observation and experiment to dwell much upon this circumstance in nature as an efficient cause of variation. Here also the study begins with the methods of reproduction in the case of animals in a state of domestication. It is clear that where the animals under

Struggle for life on lines of sexual selection.

observation are domesticated and thus subjected to the intelligence and purpose of man, the largest and most striking results are produced by the adaptations of sex in mating. It may well surprise the inquirer that a principle so widely known and acted upon, perhaps from antiquity, should not have suggested to the early biologists the extension of the law into the realm of untrammelled nature beyond the limits of man's agency. The principle in question has been so much employed that the leading aspects of animal life in a state of domestication have been produced by the skill of the breeder, by the knowledge and application of sexual selection.

Nearly every species of domestic creature has been brought to its present state by this method. Generation after generation the breeder and raiser have chosen to develop varieties on certain lines of excellence, and almost the single force which they have employed has been the mating of the sexes according to the criterion of the quality desired in the offspring. We may well be surprised to look around us in the arena of civilized life where domestic animals so much abound and to note how each creature and each variety of creatures have been perfected by this

Domestic animals brought to present forms by sexual matings.

easy and manifest method of sexual adaptation. The great breeds of Teeswater cattle have been produced by the systematic choice of favorite qualities in the male and female, and the mating of those animals in which the desirable qualities were most highly exemplified. So also of the Alderneys and the Holsteins. So also in the Polled Anguses, in which the variation has proceeded to the extent

of the absolute obliteration of horns and the rounding into smoothness and symmetry of the head over the part from which the horns once sprang!

The various breeds of domestic fowls have in like manner been brought to the wide differentiation which we see among them. And so indeed through the whole range of those creatures which man has



BRITISH ISLES AND SURROUNDING SEA—SHOWING HOW A RISE OF SIX HUNDRED FEET WOULD MAKE GREAT BRITAIN CONTINENTAL.

reduced from wild nature to domestication. Perhaps the different species of dogs illustrate the action of the law as well as any. Here it would seem that the very extremes of possibility have been reached by the simple process of sexual selection. From the minute and delicate poodle to the tall, muscular Irish staghound—perhaps the fleetest of all

Wide range of differences produced by domestication.

animals—and the tremendous mastiff and St. Bernard the work has been accomplished by simply selecting, generation after generation, the individuals in which the desirable qualities have begun to appear and by mating these individuals together, thus accumulating the peculiarities sought for, intensifying them, fixing them, and sending them down with an accelerated force to the next generation.

So powerful is the action of this principle of sexual selection, so general its application, and so universal its efficiency, that in the hands of man it can easily be reversed and made to undo its own results. It is only needed to adopt the method of mismating in order to obliterate in a few generations the peculiarities which have been developed through many. The crossing of breeds, as is well known, produces a mongrel midway in size, color, features, instincts, and modes of activity between the two mismated parents. The strong differentiation which sexual selection so easily sets up, perpetuates, and at length fixes in permanent varieties, may be easily smoothed out and leveled down by the reversal of the same principle.

With these well-known facts before us respecting the laws of animal development when the same are applied to creatures in domestication, it would seem that the extension of the principle to all animated nature ought to have been long since discovered. But such was not the case. Until the last half of the current century it appears not to have been suspected that the very instincts of animals themselves, in a state of nature, are as effective in producing differentiation and a development of varieties, though perhaps not so rapid and

tangible in results, as are the skill and persistency of the breeder. Investigation has shown that there is a *natural* as well as an artificial law of sexual selection; that, indeed, all animated nature is pervaded with an instinct which, under various forms of manifestation, works out at length the same or analogous results with those secured by intelligent breeding. The habits of animals in a state of nature have been so well observed and the results generalized that it is no longer to be doubted that many of the most striking differentiations and varieties in animal life have been produced by that form of adaptation between the male and female which goes by the name of sexual selection.

A few examples of this law and its results in the arena of wild nature may suffice. The stronger males of almost all species of animals beat back the weaker, and become the progenitors of the next generation. Sheer force is thus one of the primary elements in the problem. To this nature lends herself a willing servant. In the case of all the animals bearing deciduous horns there is a special preparation for the epoch and fact of mating. The horns are for battle, and the battle is for the possession of the female. The season of battle and of procreation having passed, the horns are cast, and for a while the males are hornless; but with the approach of the next season of struggle the horns reappear, expand, and harden for the fight.

Meanwhile, in many instances the female of the species in like manner make choice, sometimes most persistently, of certain males. In some cases the choice is determined by size and strength or fleetness; sometimes by color or form, and

Results of selection may be undone by reversal of process.

application, and so universal its efficiency, that in the hands of man it can

Examples of sexual selection and results therefrom.

Nature also selects; late discovery of the law.

opment when the same are applied to creatures in domestication, it would

Both sexes and all species choose in a state of nature.



sometimes by occult dispositions which it has been hard to discover. Among the birds, color and plumage have performed a large part in the work of sexual selection. Sometimes it is the male and sometimes the female—generally the former—which is the most highly adorned and developed in variety and extent of plumage and brilliancy of hues. But until the present age it was never suspected that these strong marks of peculiarity and attractiveness had themselves been produced through hundreds of generations by the preference of the females for the most beautiful among the males. Everywhere, from the hugest forms of life now existing on the earth down to the glowworm in the grass, the same principle of sexual selection exists and works out, slowly but surely, its cumulative results in the differentiation, establishment, and perpetuation of the varieties of animal life.

Still another circumstance should be noted as bearing a

Occasional sudden departures from ancestral types.

part in the production of species.

This is the occasionally sudden, or at least rapid, departure of offspring from the parental type. It sometimes happens (and by happening we do not mean a work of chance, but only that the causes of the phenomenon are unknown) that a newborn animal exhibits qualities, features, instincts, and modes of activity so widely divergent from not only the immediate parents, but from the whole ancestry as far as known, that it might well appear that a new species or variety had been produced *per saltum*.

It is not clearly known what the ultimate effects of these sudden departures

may be in the general economy of animal life. Some observers have concluded that such phenomena are anomalous, and that the peculiar progeny born in un-  
Question of the results of this phenomenon.
 likeness to the parental stock tends in succeeding generations to sink back to the type from which it is derived. Others are of opinion that, in some cases at least, the abnormal form perpetuates and fixes itself as a new variety, or at least tends to do so until it is counter-



(I) DEER HEAD WITH ANTLERS IN THE "VELVET."

acted and obliterated by the countervailing forces of breeding and environment.

Several other elements besides those enumerated in the preceding pages enter into the struggle for life, and help to constitute the general doctrine known as the survival of the fittest. This doctrine is the key of the theory of evolution. That theory we are now ready to apply to the general scheme of animated nature, and to show to what extent and in what way it explains the phenomena of organic life.

In the first place, the nomenclature of science should be noted as precedent to a clear apprehension of the subject. Nature is divided first of all into great groups of sensible facts called Kingdoms. There is a Mineral Kingdom, constituting the great mass of visible nature; a Vegetable Kingdom, rising therefrom and

Nomenclature of science; division from kingdom to the individual.

Varieties, and Varieties into Individuals. Besides this right line we have such words as Classes and Families to designate certain groups in the order of descent; but in general the analysis runs down in the order given above from Kingdoms, the highest, to Individuals, the lowest and last results in the classification of the forms of nature.



(2) DEER HEAD WITH MATURE ANTLERS.

fixed as we have seen to the earth as its basis of growth; an Animal Kingdom, including all those organic forms of being which rise above the somewhat indefinite horizon of plant-life.

Kingdoms are divided into Orders, or great groups of facts discriminated from each other by a few leading and general lines of demarkation. Orders are divided into Suborders; these into Genera: these into Species; Species into

In the foregoing examination we have seen in general how the law of evolution works in the production of the individual life. This part of the *modus operandi* has been determined and established by observation and experiment, and is, indeed, so amenable to the common experience of mankind as to admit no element of doubt or uncertainty. The history of every organic life in the world is common to the whole domain of nature. From the germ to the embryo, from the embryo to the living organism, from that to maturity—such is the one history which runs uniformly through the whole realm of organic being; that is, it is the one history of the individual life. The question, then, is to what extent the principles which govern the evolution of the individual life are applicable in the case of varieties, species, genera, orders, kingdoms, and finally of universal nature. Have or have not the various differentiations from common types upwards from individual to specific and then to generic life been produced by the operation of the same laws which have developed the individual from its germinal to the perfected form?

Law of the individual is the law of the species.

In the preceding discussion we have seen the hints and outlines of the widen-

ing of the law of evolution from the individual to the variety. We have seen how variation is produced in organic form, instinct, and mode of activity by the agency of natural and sexual selection. We have noted the manifest and indisputable evidences of the results of natural selection in domestic animals, and further on in the free arena of animated nature beyond the limits of man's agency. Science has recorded the results of the law in thousands of instances, showing unmistakably that the variations from individual types into varieties have been produced by the forces which are common to the whole natural world in the struggle for existence. The question arises whether the law extends still further and is sufficient to account for the difference by which species is discriminated from species and genus from genus.

It has been the particular excellence of biological inquiry in our age to answer this question with some degree of confidence.

All animate nature a variation from a common type.

The work was begun with an examination into the relations which one species of living organisms bears to another. It was noted by Darwin, and had indeed been known to his predecessors, that some of the so-called species of animals and plants lie much nearer together than others which seem to be separated by a wide chasm. Closer scrutiny showed that in many cases it was doubtful whether a certain species so defined should be classified by itself as such, or should rather be regarded as a variety of an approximate species. Again it was found that some of the so-called varieties had departed so widely the one from the other that they might, without straining the scheme of nature, or more properly violating the diagrams of sci-

ence, be classified as distinct species. Still further the inquiry was pressed, until the principle was revealed that in all probability the whole scheme of animated nature is only one vast variation from a common type.

This discovery was the flash of radiance that brought in the new concept of universal nature. Under its light species passed away; genera fled; orders and suborders disappeared, and nature was seen to be one vast and universal scheme, evolved from a few germs or one single germ, spreading out therefrom like a tremendous fan with widening radii, influenced in their course by the same laws and principles of development which govern the evolution of the individual from the life-cell of its origin.

The development of this new concept of organic life considered as a whole was largely the work of Darwin. In the hands of others, of a more philosophical

Obliteration of species and all fictitious divisions.  
Philosophy would supplement and extend the inquiry.

turn of mind, notably in the alembic of Herbert Spencer, the doctrine of evolution has been widened and applied to nature as a whole—has been systematized, illustrated, and confirmed by speculative thinking, until it has become the accepted theory not only underlying the modern science of biology, but supporting as it were the system of the universe.

In Darwin's hands, however, evolution was held with scientific fidelity to the facts of organic life. He produced and gave to the world, in his *Origin of Species*, a scheme of the evolutions and movements of life showing the tendency to variation and specialization of function upward from the generic pattern to complete individuality. As a matter of interest to the general reader, his

Darwin's method of illustrating results of natural selection.

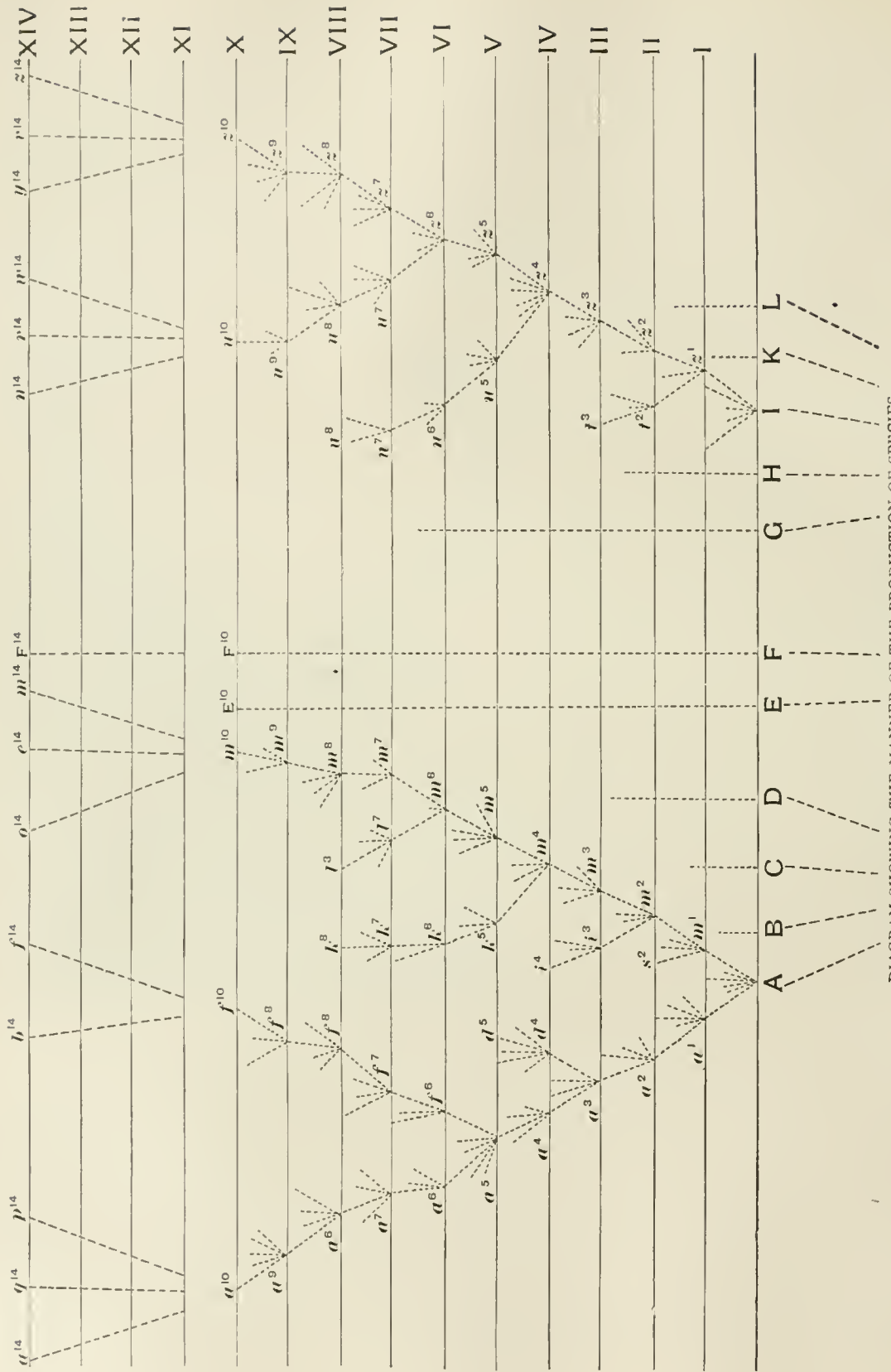


DIAGRAM SHOWING THE MANNER OF THE PRODUCTION OF SPECIES.  
From Darwin's *Origin of Species*.

diagram is here repeated, together with a summary of the accompanying explanation. The letters A, B, C, D, E, etc., to L, represent the species arising from a single genus of living organisms. Some of these, as for instance A, represent a widely diffused and varying species. The dotted lines arising from A represent the varieties of offspring produced by the laws of natural selection. Some of these are preserved as a' and m', in the struggle of life, while others perish. When the variations have risen as far as the horizontal line I, they have become sufficiently marked and permanent to produce what is defined as a variety.

These two varieties, a' and m', are now exposed to the same conditions and vicissitudes as was the common type from which they sprang, and they in turn begin to vary upward in the direction of the dotted lines. Some of these tentative efforts perish and some survive, until another horizontal line, marked II, is reached, by which time the departure between them has been greatly augmented. So on upwards and upwards until at last, after thousands of generations, the horizon of X is reached, when the forms a<sup>10</sup>, f<sup>10</sup>, and m<sup>10</sup> have become so widely differentiated as to constitute precisely identical facts in nature with those represented by A, B, C, etc., from which, under the name of *species*, the inquiry began; that is, varieties have become species.

It is not needed to enter here into the elucidation of the whole scheme, showing how in the struggle for life the evolution of varieties and species is now going on in the world of animated nature under the operation of laws which by fair inference are identical with those whereby the first species of living beings came into existence.

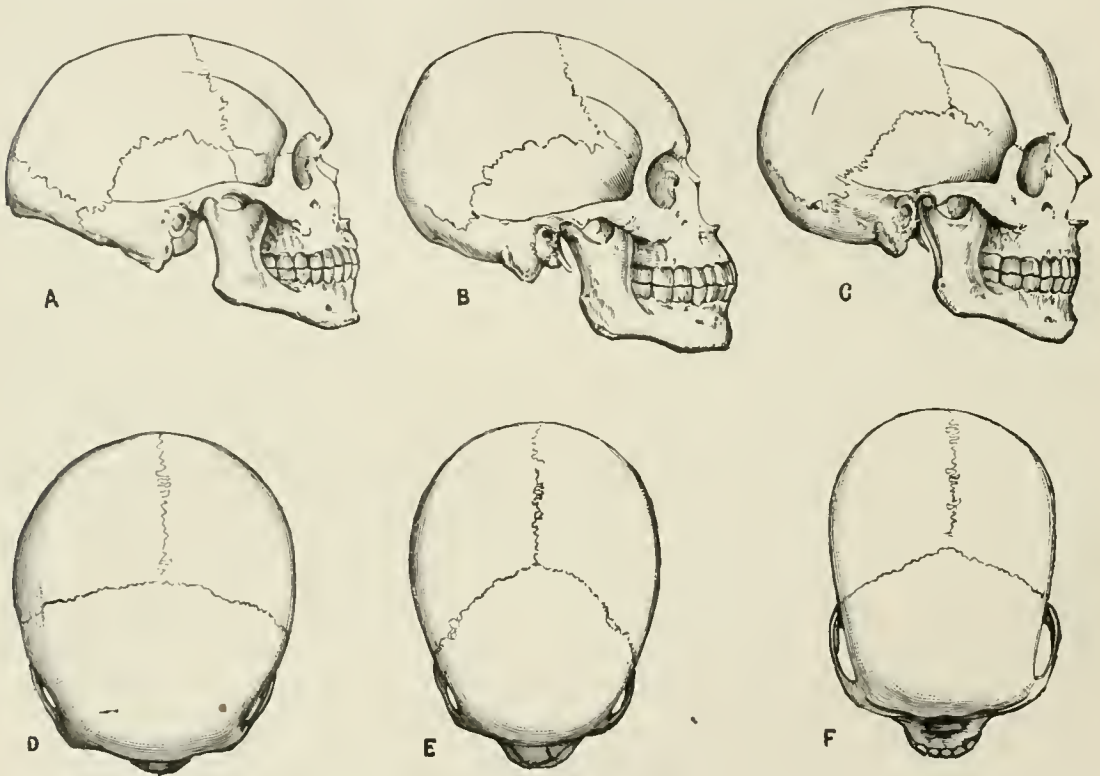
The first great principle, therefore, of the hypothesis of evolution, is that the life of any given species of living beings is epitomized in the life of the individual. Life of the species epitomized in life of the individual. composing the constituent unit in that species or variety. The sketch of the life of the individual from its germinal state to complete development has already been given and need not here be repeated. The principle is that the same scheme of life is applicable to the species. The doctrine includes the hypothesis of a specific germ from which a given variety of animated beings has proceeded. Whether these germs of species were already variations from other antecedent forms which were ultimately derivable from *one* point of origin, or from *several* points, is a question too difficult and obscure for the science of the present century. But the theory is that the lines of all life whatsoever converge backwards toward a common point of departure from which all varieties and species have sprung by differentiation under the laws of natural selection and the conditions of environment.

These deductions of biological inquiry include the human race in the common scheme with the rest of animated nature. It is for this reason that we have to so The human race included as a subject in natural history. considerable an extent enlarged upon the doctrine of evolution as explanatory of the beginning and development of man-life on the earth. The theme is so vast and furnishes so many suggestions of interesting inquiry that we may for a moment follow it to some of its most manifest conclusions and results. The life of man is at the very least *intimately associated* with the other forms of organic existence. The thread of humanity is interwoven—albeit a thread of gold—with the vast skein of animated nature.

and the human mind is so framed, and especially so disciplined in our age, as to find perpetual interest, if not delight, in the application of those general laws by which the race is bound in common destinies with the correlated forms of life.

In the first place, then, the theory of evolution teaches that man himself is the descendant, so far as his bodily organism is concerned, of a lower order of

along their own lines of evolution. The departure, therefore, between any existing species of the anthropoid apes and the human species is great; not indeed so great as the fancies of many controversialists and some alleged biologists have depicted, but yet great. The chasm between the two, or the full measure of departure, has been produced by the divergence of each from the common type of an unknown ancestry.



PROGRESSIVE DEVELOPMENT OF MAN.—(1) EVOLUTION ILLUSTRATED WITH SIX SKULLS IN ASCENDING ORDER.

being. This ancestral form from which the human kind arose is not to be conceived of as an ape or any other existing creature, but only as man, with lower capacities and manner of life than are now possessed by the race. It must be remembered that the higher primates next to man are themselves as much the work of evolution as man himself. They, too, have been developed and specialized

In the case of man the divergence from the common ancestral form has been ever in the manward direction, and in the case of the simian the divergence has with equal constancy been apeward in its course. Since the divergence of these two forms of life from the common type, there never could have been produced the one from the other. The ancestral form merely contained the po-

What evolution teaches respecting the descent of man.

Every species is evolved from its own proper original.

tency of each. In like manner we may follow backward the ancestral line of the anthropoids until we find it converging with the line representing the lemuroids or the carnivores, or both. We thus see the lines of the higher animal life coming together at some point in the remote past, at which time the ancestry of all these forms existed in a common type from which divergence, first into varie-

and unmistakable indications of science the whole vertebrate kingdom of organic forms approximating at the last to a common type. This is to say that a single ancestry of a given but unknown form at one time contained the potency and elements of all the multifarious developments which have since taken place in the widely distributed and greatly divergent vertebrate animals of the earth



PROGRESSIVE DEVELOPMENT OF MAN.—(2) EVOLUTION ILLUSTRATED WITH THE SIX CORRESPONDING LIVING FORMS.

ties, then into species, and finally into genera, occurred under the long-continued influence of natural selection and its correlated differentiating forces.

The scheme of life may, under the deductions and principles of the general law of evolution, be followed still further into the illimitable depths of the past. We see not only by the light of conjecture and hypothesis, but by the actual

Widening of the inquiry to embrace all vital phenomena.

and the waters. From this common form, through immeasurable lapses of time, the different varieties began to arise and to adjust themselves to their various environments in earth and air and sea.

Aye, more, the vertebrata and the invertebrata in the ultimate biological analysis approximate. The hint and suggestion are to the effect that these also arose from a common type; that the mollusk, too, was included in a common

ancestry with the rest. But whether this latter deduction is warranted by the facts—whether all the genera and finally the orders of animated nature may be deduced from one common ancestral type—is still a hypothetical question, as is also the still larger and more remote problem of the derivation of all animal and vegetable life from a common stem. It may be, or it may not be, that the specific beginnings of the various kinds of organic life in the world were derived from independent originals, each endowed with its own inherent powers of evolutionary development; or, on the other hand, it may be that that converging tendency which is so plainly discoverable and demonstrable in the nearer field of view is universal and final, bringing at the last to one common original *all* forms whatsoever of living organism belonging to the present and past history of our globe!

The problem in this particular is again in close analogy with that of the history of language. We know, Living species in analogy with the scheme of languages. for instance, that six of the great modern languages, inclusive of their slight dialectical developments, have all been derived from a common original under the influence of linguistic differentiation and adaptation to the thought, purpose, and vocal organs of the various peoples by whom these tongues are spoken. Time was when the potency of Italian, French, Provençal, Wallachian, Spanish, and Portuguese was all bound up in the Latin tongue of the classical ages. Thus much is historically and linguistically demonstrable beyond the adventure of denial or skepticism. Again it may be reasonably said that our knowledge is complete of the ultimate common derivation of all the Aryan tongues. It can not be doubted that Teutonic, Celtic, the Græco-Italic

languages, the Iranic tongues, and Sanskrit are ultimately derivable from some common ancestral speech lost below the horizon of tradition and history. So also we know that Hebrew, Arabic, and the Aramaic languages are the descendants of a common original.

At this point of the inquiry, however, we stand before the general problem just as the biologist does in his study of the origin of species and genera. Best scientific belief points to a unity of origin for all. Thus far the inquiries of each have led to the belief in a common origin for all the divergent forms which are the subjects of the investigation; but the linguist has not as yet been able to discover by philological inquiry a point of common departure for the Semitic and the Aryan languages. The tendency of the inquiry is wholly in the direction of a common linguistic original. But the student of language is obliged to supply by hypothesis the materials and laws of a study which he is able to pursue no further by the light of ascertained fact.

So also the biologist, though he find all species of a given order of animals approaching a common type in some prehistoric genus from which they all Probable derivation of all living forms from a few germs. probably arose, is obliged to follow otherwise untraceable lines by analogy and hypothesis. Still more fully is he under the dominion of these conditions when he attempts the ultimate derivation of all living things from one common original germ and type of life. The tendency of inquiry is to that conclusion; but the biologist does not presume to say, as of definite knowledge, that all living forms whatsoever are from one original ancestral form. He proceeds no further than to say that the indications of the whole visible field of inquiry are in that direction, and that the scien-



tific deductions which he is able to frame as if by parallax respecting the tendencies of life beyond the visible horizon tend to the same conclusion of a common original for all forms of organic being. Further than this, the applications of right reason to the ultimate problem are by hypothesis and conjecture; not, indeed, visionary and unreasoning conjecture, but such dim conjecture as a knowledge of the present and past history of life is able to afford.

We may thus in accordance with the theory of evolution contemplate a lowly ancestry for the human race. Exactly what kind of creature that may have been from which our species emanated on the organic side we may not know. At least in the present state of knowledge the an-

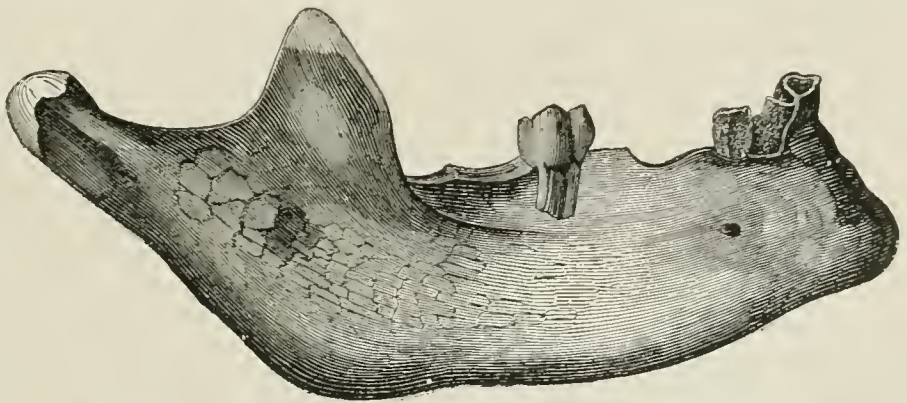
Theory indicates a lowly ancestry for mankind.

cestral type of our great and widely distributed humanity remains in the obscurity of dim conjecture. The hypothesis, however, is strictly agreeable to what we know from scientific data of the very first conditions and aspects of man-life on the earth. We are able to see by the light of scientific truth an ancestral type of mankind which, so far as we are able to discover, differed from the other higher primates in this, that the human creature was able to fashion a tool and to kindle a fire. These are the very first scientific indications of the presence of man-life on the earth, and they are strictly con-

firminatory of the belief of the emergence of the human kind from some lower form of ancestry approximate to the associated orders of the higher mammalia.

What is here said of the origin and descent of the human species may be repeated of all the other orders and varieties. The present work is not a biological inquiry into the origin and his evolution. It is not the purpose in this connection to dwell unnecessarily upon the history and descent of the various kinds of animal and plant-life on the globe. Our work is essentially human, and only incidentally concerned

Present inquiry looks to man and his evolution.



JAW BONE OF CAVE MAN, FOUND AT MOULIN BY BOUCHER DE PERTHES, 1863.—FROM THE ORIGINAL IN PARIS MUSEUM.

about the correlated varieties of life. But so much of the question as possesses a human interest we are at liberty to follow. The particular study before us is the manner of the beginning of man-life on the earth, and the aim is to set forth without prejudice or unwarranted advocacy of either the two general and hitherto conflicting opinions with regard to the genesis of man.

The one opinion is, as we have shown in a former part, the belief in an immediate and phenomenal creation of the specific originals of the various kinds of organic living beings on the earth. The other is the belief that the present as-

Restatement of the two views of human descent.

pects and forms of all things living have been produced by the operation of secondary laws, such as we now find efficient in the determination of other phenomena; that the several varieties and species of living organisms, including the human kind, have been evolved through great lapses of time from common ancestral types of a lower and simpler kind than those now existing in the descendent species; and that these lower and simpler forms were in turn derived from a few living cells, or possibly a single germinal origin in which were bound up all the possibilities and potencies of our living universe.

The question, as we have said and repeated and emphasized, is one of *modus operandi*. It is an issue relating wholly

to the *manner* of creative processes. Time was when living beings did not exist in our sphere. Time is when they do exist. Therefore time was when they *began* to exist. The whole question is *how* and *in what manner* the living beings inhabiting the globe began their career and have been brought to their present aspects. The difference between the two opinions is one of time and condition and circumstance rather than a difference of fact. These unmistakable and unquestionable principles relative to the great inquiry before us can not be too clearly stated or too much dwelt upon if we would form an intelligent and dispassionate view of the history of life and of the diverse opinions regarding it.

The question reaches only to the *modus operandi* of life.

### CHAPTER XIII.—APPLICATION OF THE DOCTRINE TO MAN AND NATURE.



UNDER the law of evolution we may proceed, in the next place, to account for the formation of the world. The earth is the habitat of man. Doubtless the

other worlds are in like manner the arenas and vast fields of conscious and intelligent activity. The laws and processes by which a world—our own world in particular—is formed and brought to the stage of habitability must ever be a matter of prime interest to every reflective mind.

The world *grew*. It did not spring into existence at once, but came to be through a long series of intermediate stages and gradual development. There was a time when the space now occupied

Our world the product of evolutionary processes.

by our solar system was doubtlessly filled by the sun and his concomitant gases. Such was the diffusion of matter, principally through the agency of high heat, that all was dispersed in a form of attenuated matter round and about the center of what was to constitute the sun of our system. From this point two great facts are to be considered, namely, cooling and condensation. With these two processes nuclei began to be formed in rings of matter at various distances from the center of the inchoate system of worlds.

The position of our own orb was indicated in the first place by one of these semigaseous, semifluid rings of matter. In course of time—in calculable time—the ring condensed in one part and became attenuated in another. It then

Primeval condition and growth of the earth.

broke and began to assume the globular form under the general laws which determine the shape of free matter in a fluid condition. Thus the process went on until the incipient globe became a plastic sphere, having a determinate orbit and drawing to itself the surrounding matter—a process which has not yet wholly ceased. Through long cycles of duration the formative work continued until the primeval world was fixed at last in its earliest geological conditions. What those conditions were the reader may discover by special study in that field of inquiry which relates to the formation of the earth's crust, the first appearance of life, and the orderly progress from the primordial to the present cosmic condition.

All this has been a process of evolution. The planet has been formed by progressive intermediate stages, by the action of secondary laws whereby the former nebulous matter composing the earth was gradually transformed into that fixed, and we may say organic, condition in which we now find it. The long-accepted opinion about the phenomenal creation of our globe within a limited period of time has given place to that vast and orderly concept which contemplates the growth of all worlds from primordial matter up to a completed stage of development.

We thus see that not only the animals and plants which, as it were, possess the surface of the earth, the air, and the waters, but the globe itself has come into its present form out of the past eternity by the action of those forces which go under the general name of natural law. Or, if we turn in the other direction and begin to consider the results of intelligence in our sphere, we shall find

that they also have followed analogous lines of development from a germinal to a completed and, as it were, organic being.

We have already seen how language, the product of reason, arising from the necessity of intercourse among intelligent beings, has presented in its history a complete evolutionary diagram. The history of human speech has been a history of ramifications and divergences. It is an astonishing fact that the biological diagram prepared by Darwin as the epitome and brief chronicle of all his study may be taken by the philologist and used to illustrate the spread and development of human speech without the alteration of a line! In it we have precisely the same phenomena which are everywhere repeated in the history of language. There is the same divergence from a simple radical into such varieties as in the case of language are called dialects; the same survival of some of these, that is, the stronger and better; the same extinction of other varieties; the same fixing of the better forms, and their development into special tongues.

Even among the existing languages of the world we find precisely the same struggle for life, the same natural selection on the lines of fitness and adaptation. The history of the English language from the times of King Alfred, a thousand years ago, to the present time presents a diagram precisely analogous in its relations to the other existing forms of speech as may be seen in any properly constructed scheme of biology.

The same is true of all those institutions of the human race which have reason, convenience, and interest as their original motives. One of the most strik-

Prevalence of secondary laws in planetary formation.

Linguistic growth the exact analogue of race evolution.

Languages struggle for life, and the best survive.

Animals and plants appear to have arisen by the same laws.

ing and conspicuous of these is the institution of government. Who can fail to discover in the history of the governmental forms adopted by the human race the outlines of an evolutionary process? Of a certainty there was a time in the history of mankind when no government existed. Equally certain is it that at the present time one of the most conspicuous facts in the history of the race is the governmental form of society. There was, therefore, a time between these two extremes when government *began* to be. It was not created phenomenally and at a stroke out of nothing, but rather arose from an almost undiscoverable origin. There was a seed of government—a germ; then an embryo, and at length a birth. Then there was an infancy, a childhood, an adolescence, a tentative and adventurous youth; at last a maturity—if indeed the mature form of this institution has as yet been reached or even approximated.

In any event, the progress and *modus operandi* of governmental evolution are facts clearly discernible among the elements of human history. True, it requires a high grade of intelligence and no mean measure of information to enable the possessor to analyze and follow the process by which the governmental institutions of mankind have been evolved. We must, in the first place, discover the origin and point of departure—the time and the conditions—from which the institution of government has sprung. We must note some primitive tribe rising gradually into the conscious state and discovering the advantages which might be gained from such rudimentary civil organization as the leaders of the tribe were able to effect. The work would begin with tentative expe-

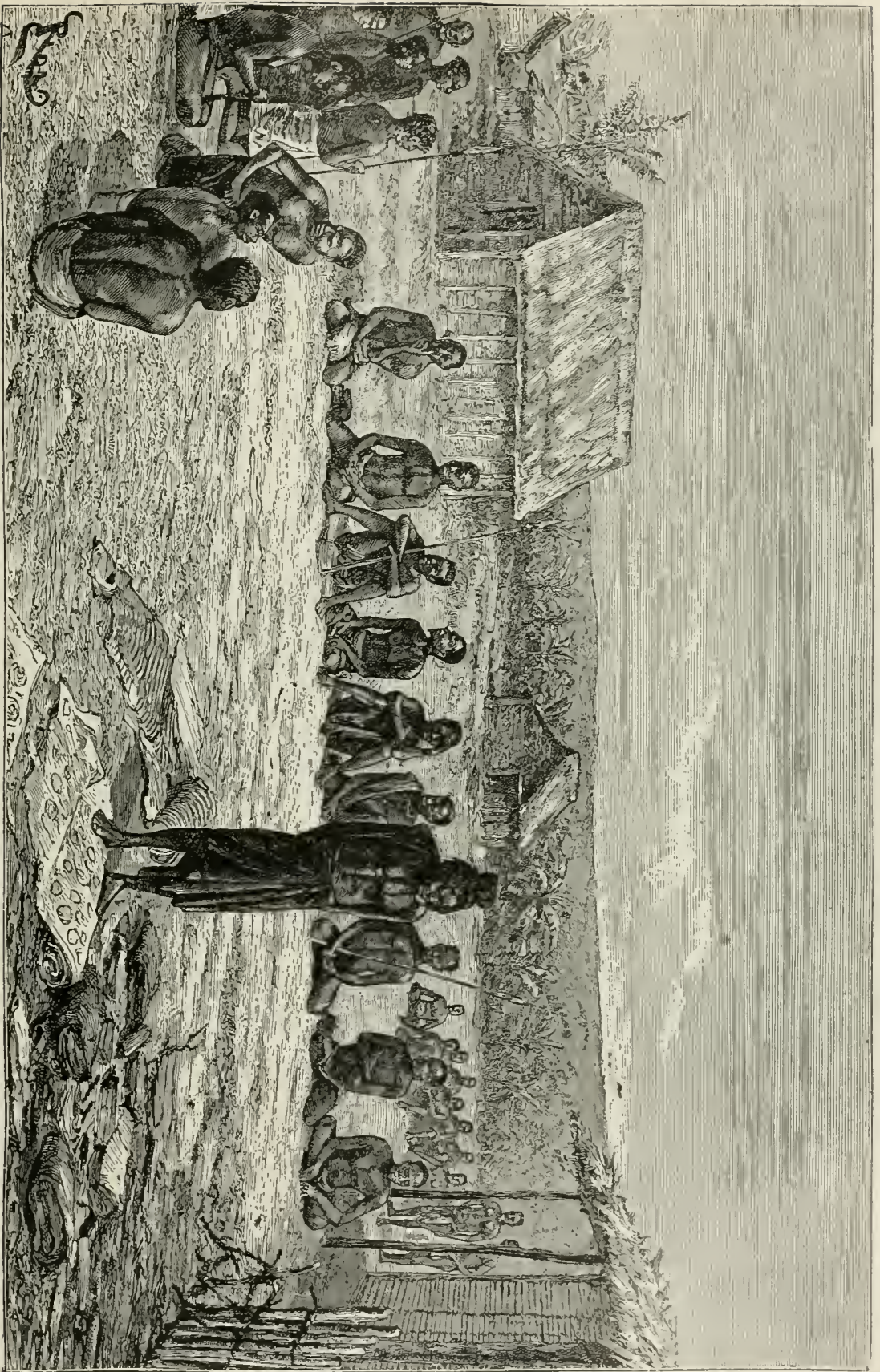
dients. There would be in it an element of force, an element of reason, and an element of authority. The last named would doubtless arise from the fact of fatherhood. The fatherhood of the family, a purely natural fact, would extend to the fatherhood of the tribe, or clan, a partly artificial fact. Force would arise from the mere material consideration of strength. The strongest would begin to rule. The strongest man would in the first place compel the weaker to bear his burden, to draw his cart, to do service at the door of his hut. The strongest of the strong men would do the same for the whole village. The element of reason would doubtless spring from the action of several minds in conspiracy against the strongest. The strongest would have force on his side. The weaker would countervail by reason. It may not be far from the truth to suggest that the first check and counterpoise in rudimentary government is the balance of reason and force.

After government had once been instituted, in however crude a form, it would begin to adapt itself to conditions. There would be an adjustment of the governing fact with the fact governed, similar in all particulars to the adjustment of a living organism to its environment. Many tentative efforts would perish. A few would survive. Those surviving would constitute varieties. In Egypt one of the varieties will become a hierarchy. In the valleys of the Euphrates and Tigris another variety will become a colossal personal despotism. In one part of Greece a third will become an oligarchy, and in another part a fourth will take the form of a democracy. There will be a struggle for existence, a survival of the fittest. Sometimes the fittest will appear in the form

Human institutions arise in like order of growth.

True nature of the evolution of government.

Governmental facts adjust themselves to environment.



GERMINAL GOVERNMENT ILLUSTRATED. HEADMEN OF TRIBE IN CONSULTATION.—DRAWN BY RICH. FROM A PHOTOGRAPH

of a military empire. This will break up in catastrophe, and a new order, half-chaotic, will supervene, in which the seeds of many things are present.

From this state ecclesiasticism will issue as one form, feudalism as another form, monarchy as a third. These in turn will struggle and be differentiated.

Some elements will perish wholly. Others will perish in part. Others will survive and flourish and bear unexpected results. The great fact called the People will appear as an intelligent force under the law of evolution. The people will itself endeavor to become governmental. It will struggle as a living force with monarchy and the expiring parts of feudalism. Out of the side of the people will spring by differentiation many distinct forces. One of them will be internationality; one will be communism.

So the struggle will go on, some for and some against the prevailing form.

The prevailing form will be promoted by some conditions and antagonized by others. It will shift and adapt itself somewhat to the forces which play upon it. It will, in a word, *vary* and take new forms and exercise new organs just as the individual varies, as the variety shifts, as the species assumes altered powers and fixes itself by adaptation and adjustment. The institution of government conforms, as language conforms, and as every kind of biological phenomenon conforms, to the one great law of evolution.

Take the case of that large fact called Law. We here refer to that aggregate of rules and principles which right reason discovers for the conduct of society. This also is what Lord Bacon might have called "a forthshowing instance" of the

evolutionary process. Law is not made. This is to say that it is not produced by the wit and reflection of men. Rather is it a productive force bringing the intellects and reasons of men into such activity as may improve and formulate the best of the existing codes of conduct into still higher expressions of authority. Take for instance the law of Rome. Who shall declare its generation? Who shall find its germs? Certainly they existed before Rome was Rome. The makers of the Ten Tables did not produce the Roman law. They wrote on tablets what already existed. They would fix it in a form for posterity; but the transcript would not hold. The Ten Tables became Twelve. The code of the primitive republic would not suffice for the great republic, nor the code of the latter for the empire. Behold Justinian's lawyers working at the problem. They were only interpreters, not makers. They were striving not indeed to make new rules for human conduct, but to restate and summarize those which were still vital and operative. It was a part of their work to distinguish between the rules which still existed and those which had perished; between those forms, those varieties which had survived, and the others which had become extinct. Law as well as government, of which it constitutes one of the elementary forces, is itself an evolution—the residue of a conflict between the different principles of civil action, embodying the survival of whatever has been found best adapted to the exigencies of human society.

This society is itself, with all of its powers and capacities, an evolutionary product. Who created society? Certainly not man. It has grown with his growth, strengthened with his strength,

Law also an evolution; growth of the Roman statutes.

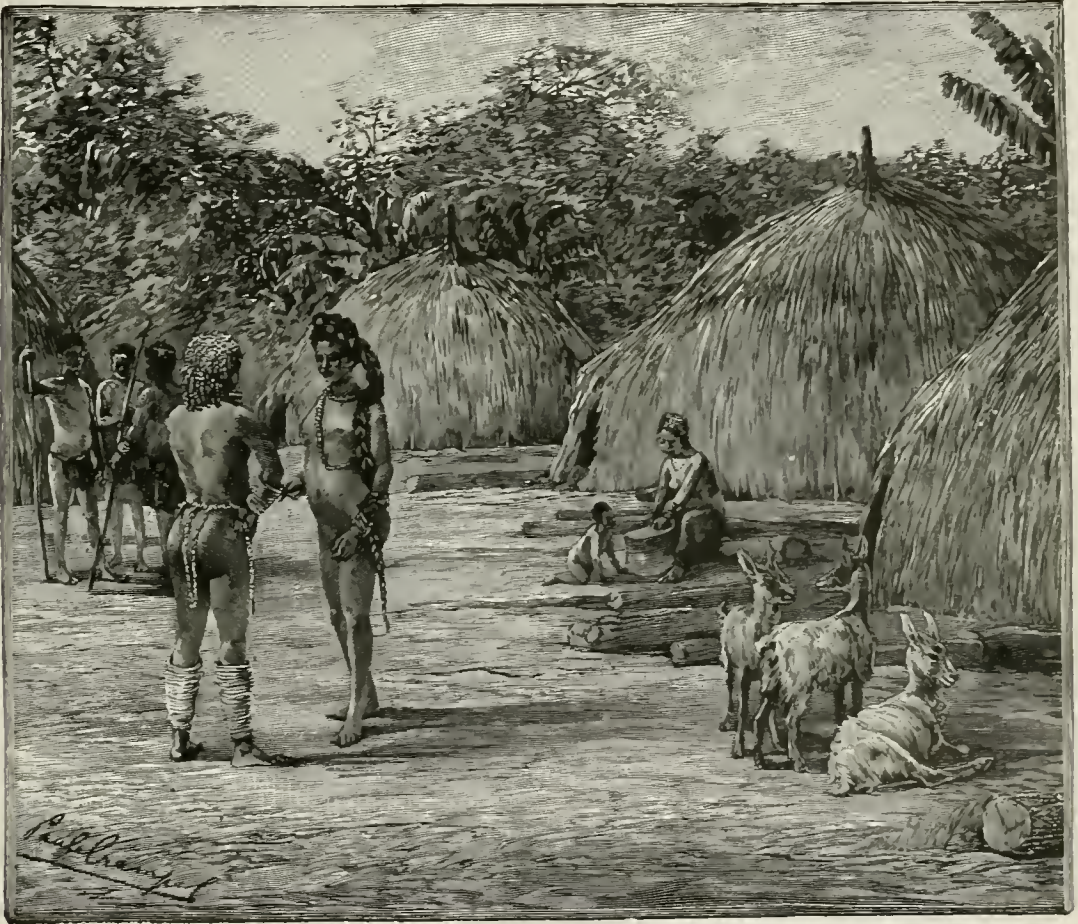
Stages and aspects in the development of government.

Government in its progress obeys the law of variation.

Society, like the plants and animals, grows and adapts itself.

and improved with his improvement. That society exists as a sort of framework and continent for the life of man and his activities is beyond denial. That there was a time in the past when it did not exist is certain. That there was therefore a time when the social germ appeared and began to present phenomena analogous to those of embryonic

the species. Like the latter, the primordial form of society put out many branches. Some of these displayed superior vitality and power of adaptation. Others, being weaker and ill-adapted to conditions, perished. The better forms survived and took specific features which were perpetuated with accumulating forces to succeeding times. There was



GERMINAL SOCIETY.—HOME OF AFRICAN CHIEF BEMBE.—Drawn by Madame Paule Crampel.

life can not be doubted. Henceforth the social evolution was in the likeness of growth as it is exhibited in the vegetable and animal worlds.

However intangible the general fact called society may be, it nevertheless has passed through successive stages of evolution identical with those which mark the progress of the individual and

an evolution in the true sense of the word in every part of the problem, a natural selection, a survival of the fittest.

Perhaps the fundamental fact in the organization of society is the method by which the sexes are joined for the increase and preservation of the race. Marriage is one of the most primitive

Marriage the evolutionary result of social instincts.

and occult forms with which the historian and ethnologist has to deal. At the present time marriage is a vast fundamental institution upon which society is in a considerable measure founded. But this element of the social structure is itself an evolution. The law of its production is not well understood. The line in general appears to have proceeded, in remote prehistoric times, from the miscellaneous mating of the sexes to the present form of monogamy prevailing among the most enlightened peoples. The intermediate stages seem to have been first polyandry, and afterwards polygamy. This is to say that the social instinct first attempted an organic development by the line of the female. She was made the central fact, and the ethnic descent was drawn by way of her for the whole tribe.

Around the woman and on either hand were arranged the men of the tribe. Either of these might be the father of her offspring. The offspring thus had the tribe for its father and the woman for its mother. Nearly all the races have passed through this stage of evolution. A rude code of marital principles was formulated at a very early stage in the history of every inchoate nation. As late as the times of the Hebrew patriarchs the remnants of this code were still operative, for it was not only the privilege but the duty of the brothers to take the widow of one of their number deceased and to raise up children by her line.

With the mutation of things another principle of sexual union appeared and encroached on the first. This was polygamy, or an attempt to establish the line of descent wholly by the male. Here the man was made the central figure, and many women were associated with him for the multiplication of the tribe. The

man was married to them all, or rather they to him. Their identity was lost in a single family stem having for its central principle the law of male descent. Thus the evolution proceeded to the establishment of monogamy, or single marriage. The affinity, or rather derivation, of the latter institution from polygamy is indicated by a certain predominance which the male still maintains in the organization of the family and the laws of descent. He it is who in general owns and controls the property. He it is who gives his name to the offspring. He it is who still constitutes the single line of descent from ancestor to posterity. The tendency in the present age to perpetuate the name of the woman in the offspring, and to establish in her line equal rights of inheritance and descent, are evidences that the law of variation and adaptation is still operative in determining the methods by which the family shall be constituted and its benefits conserved.

The law of evolution works also effectively in determining the products of the human mind. All of the arts have proceeded from this common source.

Artistic products of the mind arise by evolution.

Observe with care the exact correlation existing between the development of the plastic art and the general evolution of the civilized life of man. The growth of this species of artistic achievement may be completely illustrated in the history of a single human life. Note with care the first attempts of the child, close to the borders of infancy, to create the representative forms of animals and birds. The instinct is as natural as the bodily functions, such as breathing and the use of the senses. The child reproduces in clay or dough the form of his dog or cat. It is the infancy of art. We may see it far away among the

Successive stages in the development of sexual union.



broken pottery of Cush, or among the rubbish of the silver-bright halls of the Peruvian Incas. Note well the character of those rude figures on earthen vessels, those half-formed effigies of reptiles and birds and beasts and men and deities which the primitive races, in far apart quarters of the world, produced in the prehistoric ages. What are they but the works of the infancy of the race? What are they but the ancient ethnical prototypes of what is every day repeated by the children of the civilized life as with laughter and quaint conceit they build up in mud or dough the images of their fancy and set them in array in the goodly child-museum of the world?

But children soon arise from this level of infancy. They in whom the artistic instincts are strongest continue in more skillful ways to reproduce with model and plaster the objects of the ideal sense. There is thus in the individual life a youth of art, and after that an early manhood. Still later there is maturity, and at length the silent and august chambers of some great collection speak and coruscate with the splendors of achievement.

Precisely so in the progress of the race. There too was there a youth of artistic development rising slowly from the quaintness, absurdity, and grotesque outlines of the works of childhood. There too was there an evolution into the higher form. There too at last the survival of the fittest gave to the world an artistic age and an artistic people. What is true of plastic art is true also of the art of the brush and of all other arts soever. They have grown from germinal conditions. They have sprung not at once and phenomenally into full-blown proportions of truth and beauty, but have come to such state through

long intermediate stages and the torturous processes of natural selection.

So also of the correlated forms of literature. This, even as art, has a lineage as remote, an ancestry as olden, as the beginnings of human consciousness. The first slight excursion of human thought and its corresponding expression in some rude and half-ejaculatory form of speech marked the origin of all things possible in the subsequent ages of literary development. It is only in the present time that a true concept has been gained of the far-reaching lines of force which precede the delivery of every single literary product. A great poem or a great history has gathered up in it much of the vitality and reproductive energies of the preceding ages.

In a larger sense, each literary epoch is the product of an intellectual evolution which has been going on through centuries of time. The men of letters in a given age are only the abstracts and summaries of mental forces which were operative long before their birth. Moreover, the actual literature of any given epoch is but the better residue of a vast mental waste which has perished in oblivion. Could all the efforts of the mind to perpetuate its activities in the form of letters be recorded in a diagram, the student of that mental picture would be confounded with an alternate rush of admiration and of tears—admiration for the infinite outreachings of human thought, its upward struggle for expression in the realm of song and story, and tears for the incalculable waste and decay and death of intellectual endeavor.

Each national literature is in like manner the product of an evolutionary process. It does not appear at once and phenomenally as a dream-born blossom on a dream-planted tree. It comes rather

Childhood of art succeeded by youth and maturity.

artistic development rising slowly from the quaintness, absurdity, and grotesque outlines of the works of childhood. There too was there an evolution into the higher form. There too at last the survival of the fittest gave to the world an artistic age and an artistic people. What is true of plastic art is true also of the art of the brush and of all other arts soever. They have grown from germinal conditions. They have sprung not at once and phenomenally into full-blown proportions of truth and beauty, but have come to such state through

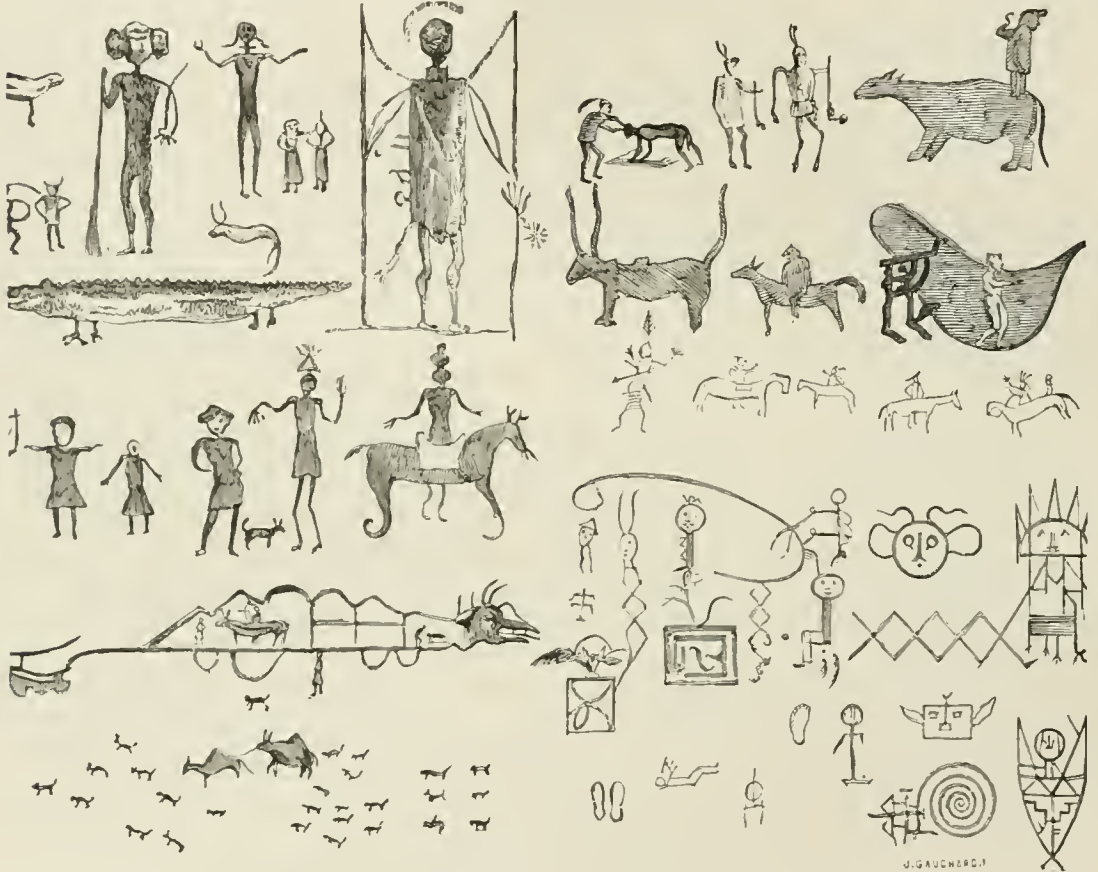
Literature, also, appears by growth and survival of the best.

after long ages of intellectual growth and adaptation. True it is that history has left but little record or hint of the centuries which precede the coming of letters. for history is dependent on literary expression for all or nearly all that she has been able to save from the wreck and desolation of time. But we know

Literary product of each race has its own evolution

tion of traits and transmission of qualities from age to age as are discovered in the history of organic life. The outline of the evolution of any particular species of literary composition, as for instance of the drama, is identical in its principal features with the diagram which represents the life-story of the vegetable and

Law of divergence and survival holds in letters as in life.



EVOLUTION OF WRITING.—HIEROGLYPHS FOUND IN CAVERN OF ROCKY DELL.

that the preceding ages of darkness and barbaric struggle did exist, and that letters came afterwards as the bloom and fruit of a tree which had been nurtured through many vicissitudes by the cruel but skillful hand of natural selection.

In the history of letters we find the same divergence from a common ancestral type, the same establishment of variation and species, the same accumula-

tion of traits and transmission of qualities from age to age as are discovered in the history of organic life.

In this progressive examination of human products we rise at length to history itself. The term is used in two great senses. The first includes the affairs of men; the events of which men have been the creators or at least the factors: the aspects and conditions which human

Two meanings of the term history.

life has assumed in the successive ages since the rise of mankind into the conscious state and the civilizing purpose;

The career of the human race from the beginning until now is the one supreme and essential history of which all

and finally, the causes and concomitants of this progress, the general trend and bearing of humanity in its course, and the results and probable destiny of the whole. The other sense in which the word history is used is the literary transcript of the manifold human phenomena just described. History is either the event or the account of the event, the thing done or the narrative thereof, the drama of the great arena as it is actually enacted or the written and as it were pictorial representation of the antecedents, aspects, and denouement of the struggle.

Of course, the important history is the real history; that is, it is the event itself—the event with its causes, conditions, and results.



THE FIRST HISTORIANS.  
Drawn by Emile Bayard.

the rest are but fragments and reflections. But in whatever sense we may consider the subject we shall find that this sublime result of human agency, this combina-

tion and concord as it were of reason and eternity which goes by the name of his-

Events in all their forms obey the evolutionary law. Evolutionary process. This is not said of the primal force with which all human things began. Here, as in the case of the origin of life, we are obliged to presuppose something antecedent to the beginning of the organic form. Time was when there was no history. Time is when history is the one great fact of the world. Time was, therefore, when history *began*. This is to say that there was an origin of events, a germ of potency out of which they sprang. The affairs of men out of such original point of departure have arisen like living organisms by differentiation and the struggle for life. What is an event but a survival? How many events have perished in the inchoate condition! What a prodigious, almost infinite, waste there has been of human life and endeavor in the work of discovering the fittest thing! How much despair and hardship and endless rebuff and suffering have attested by the criterion of failure the miscarriage and extinction of the fruitless stems of human purpose and ambition!

The real historical diagram, could the same be drawn in pictorial form, appreciable to the sense of sight as it is dimly appreciable to the understanding, would be but another example of the biological tree. Here at the beginning we should have a single line of departure containing the whole potency of the human endeavor. A little further on, the phenomena of variation and divergence would appear. Certain forms of human conduct would take outline corresponding to the varieties of living organisms; but these forms would mostly perish. Only a single form here and there would

survive and rise and expand into a higher development.

For a long time these growing and diverging lines representative of the progress of the race would wind and struggle through the darkness and oppositions of the prehistoric ages. At last a few lines stronger than the rest fitter than the rest, would rise as initial forms of national life above the horizon of recorded annals. One people would depart from another. One career stronger than the next would push it aside, overgrow it, supplant it. Some events would expand and enfold others, rise into new aspects, bear on to more conspicuous results. Nations would emerge into the open field of primitive history. They themselves would begin to struggle just as other species of living entities contest for place and perpetuity. Many under pressure of adverse environment and the competition of the stronger would dwindle to extinction. Others, by reason of strength and favorable situation, would as it were make for themselves nutriment out of the death and decay of the lesser sort, and thus rise to gigantic stature.

The historical vine creeps westward from the Euphrates to the Tiber. Nations and peoples are but the outbranchings of a common life. The Chaldees and the Assyrians are correlative arms thrust out left and right from the trunk which carried along the potency of the nations of Asia Minor. There is a Græco-Italic divergence from a stock which we call Aryan, and history begins to babble of Dorians, Æolians, and Ionians; further on, in clearer language, of Spartans, Athenians, and Macedonians. What is it all but the evolution of the historical life of peoples under the one common

Likeness of historical diagram to the biological tree.

Races and nations are the product of the human vine.

law which pervades alike the world of matter and the world of consciousness and reason?

Look at the environment. After the river valley the peninsula is more favorable, as the scene of historical evolution, than is the island or the continent. It has the advantages of soil and stream

Peninsula succeeds river valley as the habitat of man.

in the projecting parts of Western Europe. Britain itself is as much peninsular as insular. Denmark is a peninsula; so also Sweden and Norway. Aforetime Indian civilization was developed in the peninsula between the bay of Bengal and the Arabian sea. Environment aids the diverging forces of the human race in the struggle for existence. The peo-



PROGRESS FROM INSTINCT TO REASON.—THE FIRST POTTERS.—Drawn by Emile Bayard.

and forest growth and the proximity of the sea. Generally the peninsula is favored in mineral deposits. When tribes drift into such a locality they begin to flourish, grow strong. Further on they multiply and conquer. Society becomes organic. Law exists. Government is instituted. One such locality is Greece; another is Italy; another is the Iberian peninsula. The Celtic life develops best

ples thus promoted rise to historical importance, and the rest fail through impotency of ethnic energy or by conquest of the stronger.

To pursue the subject along the lines of its multifarious suggestions would be to fill a volume with illustrations of the one prevailing law. Human thought itself is an exemplification of the evolu-

Thought itself conforms to the evolutionary process.

tionary principle at work among the very highest forces of organic life. This is not to say that thought is the product of material energies, but only to offer an explanation of the modes of its operation and the processes in virtue of which its efficiency is attained and manifested. Here again the same formula applies. Time was when the ancestral fire-kindling, tool-shaping, pot-making progenitor of human kind can hardly be said to have thought at all. Time is when men think to the uttermost. The excursion of the intellectual powers is to all heights and depths. The borders of the universe are reached on airy wing. The empyrean is scaled as though it were but the dome of a cathedral. The profound abyss is fathomed. All worlds are traversed and all space explored with the steady and unerring flight of thought. Mystery is no mystery under its analysis. The unknown recedes before it and hides behind the outer curtains of infinitude.

But it was not so in the beginning of man-life as the same is revealed in its primordial condition by the explorations of science. Then the dreamless, visionless, and unaspiring creature containing within himself the potency of Hindu, Parsee, and Greek; of Roman, Gaul, and Saxon; of Mohammedan, Jew, and Catholic; of Frenchman, Briton, and American, thought not at all, or thought only in such sort as is common to the higher orders of speechless animals. Therefore the time came when men *began* to think. There was an origin of the excursive and reflective powers of mind. Not at once and in a marvelous manner did man become the animal that thinks. Not in a day did he become a seer, a poet, a philosopher. Not in a single age did he begin by his knowledge of things, his ap-

Reflection and reason spring by growth from sense and instinct.

primordial condition by the explorations of science.

Then the dreamless, vision-

prehension of the laws of causation and consequence, to rise to power and greatness in the arena of the world. Thought itself, the power to think, began to grow by differentiation, by struggle, by resistance, by success, by adaptation to condition and the survival of what was best.

The human mind, with all of its sublime powers and capacities, is a residue, a descendant, a survival.

We touch here upon the close correlation between

The present human mind a survival of the ages.

mind and organism. The manifestation of mind is by means of organic structure. So far as our present state is concerned we discover it only in connection with brain. So much brain, so much manifestation of intelligence, is the rule throughout animated nature. Men are graded up or graded down in the scale of being accordingly as they do or do not possess a highly organized nervous system and a heavy brain. The distance from the lowest to the highest is the distance from the brain of the Bushman to the brain of Cuvier. This is said of the *manifestation* of intelligence. How much hidden and unrevealed power there may be in man it is not our province to determine, but rather to note the forthshowing of his intellect and will and purpose in correlation with organic structure.

We have seen above how organism fits and adapts itself to environment; how it flourishes under some conditions and languishes under oth-

ers. So also of the mind. The intellect has its en-

Intellect varies according to environment and habit.

vironment. It varies and takes new forms of activity according to the conditions under which it is placed. The best forms of intellect survive, and the poorer forms become extinct. Mind is differentiated into varieties and species. There was aforesaid the mythological mind of antiquity. Closely allied to this

was the mirthful and artistic mind, such as we note in the case of the Greeks. Afterwards there was the mind of order, oppression, and authority. There have been ages in which the credulous and superstitious mind was the prevalent type, and other ages in which cruelty and animality were the prevailing mental characteristics of peoples and races. There have been periods of speculative activity, and last of all an age of scientific acquaintance with the phenomena and laws of the natural world.

Thus the mind has not only its individual peculiarities and dispositions, but also its varieties, its species, its genera. Like the bodily organism, the intellect has had to struggle with opposing forces, with the shadows of doubt and darkness, the trackless wilds of uncertainty and error, the battles of contingency and fact, with powers and dominions and systems, the wreckage of the past, and the visionary outlines of the future. Hope has supplied one motive and fear another. Happiness and hunger, suffering and ambition, the satiety of things present and the longing for things unseen, mystery, passion, dream-born phantom, syllogistic formula and life and death—all these have contributed to give to the mind not only its moods and current phases of activity, but also its permanent fashion, its fixed hereditary character, its outline, and even its pictorial details as the same are reflected on the magical screen of the world's literature and art.

We come thus to the border land of the moral nature of man. Such a nature exists within him. In different races and peoples it has a varying degree of development. There are tribes, such as those of Central Africa and they whom

Mind struggles with conflicting forces and is developed.

The moral nature obeys the law of fitness and survival.

Herndon discovered in the upper valleys of the Amazon, in whom the moral nature is scarcely more than a possibility. There are races in which this high sense is dominant over all the other human powers. The evolution of conscience has varied according to the endless fluctuation of conditions and circumstances. Among the lower races the moral nature gives but an uncertain sound. Its voice is but as the voice of the rain-maker, the conjurer, the snake-charmer, the medicine man of the savage state. With the higher peoples the moral harp is attuned to nobler harmonies. By these the laws of right and wrong have been discovered. Here the difference between turpitude and justice, between innocence and virtue, between crime and righteousness has been found and measured by a standard.

But how long and painful has been the conflict through which the moral nature of man has passed in its development! The evolution includes every variety of hardship and trial. Who can number the systems and codes of morality which have marked the various stages of human progress from savagery to civilization? As the condition has been, so has been the moral standard. Just as a given people has been evolved out of the barbarous condition, just as it has succeeded in reaching a higher and more salubrious plane of activity, just in that degree has the moral code unfolded into a newer and better life.

Conscience has, on the whole, been correlated with the other elements of civilization. Rectitude as a principle of human conduct has come with the emergence from the savage state. Justice has been established in proportion to the advancement of the other elements of the

Religions are evolved coincidentally with the races.

Conscience and virtue the residue of struggle and adaptation.



BEGINNING OF BARBARIC RELIGION.—THE TAM-TAM.—Drawn by Riou, from a photograph.



higher life of man. Honor and truth have been regarded according to the varying stages of physical and intellectual progress with which these ennobling qualities have been connected in time and dependency. There has been in the domain of the moral life, in the history of the moral nature of mankind, the same struggle and warfare, the same differentiation from common types and standards, the same phenomena of variation into specific forms as we discover among the living organisms of the natural world and in the purely intellectual progress of the race.

Finally, man himself considered as an entity—viewed not from the side of his organic being but more largely as a living, conscious agent, chief among the creatures inhabiting this visible sphere of activity—is a residue, a result, an evolution. This is said of man considered as a whole and apart from his particular faculties and modes of action. Under the old anthropomorphic system of belief it was natural, inevitable, that man should be regarded chiefly in his causative character. He was viewed as a cause—as an originator of forces and the creator of things. Such a judgment of his relations to the world in which he is appointed to act his part was natural, almost necessary, as the first opinion of human beings respecting themselves. Each viewed the other as an active producing agent. Each saw, or seemed to see, the affair, the event, arising from the human hand and will. It was natural to conclude that all the visible conditions of life were the results of the productive energies of men. They were causes, and all things else were the effects of their causation.

The man was thus placed first, and civilization afterwards. Cities and states

and kingdoms were made by men. Art and letters were produced by men. Great contests in the senate house and greater battles in the field were fought by men. Pyramids and temples and sculptured monuments were done by men. Imperial dominion was achieved by man. His were the ship and the poem, the catapult and the aqueduct, the paradise and the pantheon.

Relations of man the individual to progress and civilization.

It is only in recent times that a larger view of the principles of universal causation has been obtained. The understanding has at length taken precedence of mere sense, and man is seen in a different relation with the world which he inhabits. He is himself seen as a result of antecedents. Not that his power of causation is wholly taken away. Not that he is, under philosophical scrutiny, unable to influence the conditions under which he lives. Not that he may not deflect somewhat the lines of force which pass through him or by his side. But, on the whole, he has ceased to be regarded as the cause of the things that are and have been. He himself is rather the result of forces that were operative long before the beginning of his conscious existence.

These forces have conspired and cooperated to make man what he is. This is not to say that within the limits of his own consciousness he is not himself; not to say that he is deprived of spontaneity; not to say that his faculties are under control of a fatality above himself; not to say that his own direction through the intellectual and moral sphere is not determinable by a will and purpose of his own; but rather that the man is, in a general sense, the product of the age, the child of a larger destiny, the offspring of a paternity whose line of

Spontaneity of man not denied in new concept of his nature.

Man himself a resultant; anthropomorphism passes away.

descent is old as the birth of the human race.

These principles are true of the man as an individual. He is, on the whole, what he is by the conditions of birth, ancestry, association, discipline, and opportunity. No man can change his race. He is not consulted as to the ethnic family to which he will belong. He is not influential in determining the name and classification of his kindred. He is thrust into the world with as little power over his origin and over the particular conditions which shall determine his place and opportunity of survival as though he were the product of a seed transported across continents and seas and planted in strange regions. Here is the Esquiman in his hut, and yonder the native Australian sheltered by his half-formed tent. One is born in a palace, another in a hovel. One is taken to the bosom of a Turkish mother as she lies reclining on the rugs of a harem at Ispahan. Another is caught up and borne away by the swinging camel across the limitless desert. A third beholds the light from the heart of the roaring metropolis of the British nation, and a fourth begins to be in a cabin on the skirts of the clearing, where the corn is planted, and the robin builds her spring nest in the ash tree.

The after conditions of life are determined *for* the individual rather than made *by* him. It is said that great warriors are born; but none are born in other than a warlike age! The poet also is said to be born, not made; but if the epoch do not favor, what then? If the antecedent forces have not conspired to produce him, what then? If the materials of great song have not been supplied by his race and times and lan-

guage, what then? If his physical organism should fail—if malignant disease should invade or vice pervert the nature within him, what then? The orator, also, and the statesman, the philosopher and the man of letters, are each and all indebted to the combination of the forces of heredity with the forces of environment, to the temper of the age, and even to the opportunity of a great event, for the development of their powers and their intellectual mastery of the epoch in which they flourish.

As already intimated, it is not intended to press unduly and beyond the limits of demonstrable proof the argument for the production and shaping of the life of man by the operation of secondary causes. But that he is in large measure a result of conditions, a product of forces antecedent and superior to himself, is a proposition too plain and too well established by indubitable facts to be confuted. What is true of the individual is true in a larger sense of his kind. The different families of men, the races, the *species*—if so we call them—have in like manner come to be what they are by the action of extraneous forces; that is, by the coaction of extraneous forces with the inherent forces of life and growth.

Of a certainty a given variety of men can not be made exclusively by environment. A type can not be produced simply with a mold; albeit, there must be something to be cast into the mold! In every adaptation there is an extraneous state, condition, or fact, and another fact or force brought into contact and fitness therewith. It were too much to say that the Esquimaux are the product of the arctic regions; that the Turanians are the progeny of the Asiatic steppes; that the supple Malay is the

The individual bound from birth with fixed limitations.

what he is by the conditions of birth, ancestry, association, discipline, and opportunity.

As comes the man so also comes the species by growth.

Genius is born, but fashioned by environment.

are born in other than a warlike age!

Environment not all in the production of human kind.

offspring of the cocoa-groves and soft, warm air of Java; that the Patagonian is the product of the peculiar climate and country of his nativity. But it is true that all of these forms of human kind are typically what they are by the influence of the mold into which they were cast by ethnic distribution and by the forces which have played upon them in the long processes of tribal and national development.

All men are men; but the deflection from the common type is very great.

Man a resultant of ethnic heredity and environment.

The departure in any given case from the original pattern must be measured as a resultant from the combined forces of ethnic heredity and environment. The cranium of a Flathead Indian is still a human head, however much it has been made to depart from the normal type by pressure. Among savages many of the bodily organs have been distorted almost out of semblance to the normal parts which they represent; and yet they are essentially the same. Environment and special conditions have produced the abnormality, but nature gave the material of the product.

The differentiation of the races of men has been effected along certain lines of national preference and appetency.

Races differentiated by natural preference and appetency.

Aryan peoples have been the explorers of nature; the discoverers of causes. They have been the adventurers and conquerors of mankind. They have been the makers of the myth, the fable, and the song. Further on in the evolution they have been the wielders of great forces, the inventors of prodigies, the subduers of the natural world. From all this the Semitic line of departure is clearly drawn. To the Semites belonged the discovery of ancient religions, the recognition of almightiness behind the

cloud and shroud of nature, the formulation of systems of belief and ceremony. Later on we discover in the descendants of these the skill to gather—as quicksilver gathers—gold among the débris of the nations. The Hamites were the builders of the ancient world. Behold the pyramids, the tombs, and palaces of Egypt and Chaldæa!

Among modern peoples the law of specialization has worked out still more wonderful results. The different races are specialized, almost as so many organs, in one huge body, each having its function in the universal whole of the varied life of man. These divergences in powers, capacities, aptitudes, and accomplishments have been produced by the same law of variation which holds good in the domain of animated nature. The Greeks were the merchants of the classical ages, as the Tyrians and Sidonians had been before them. Observe in this fact the operation of two forces: ethnic energy and commercial situation. There was an adaptation of the race to the place—of the people to the opportunity.

Extent to which the various races are specialized.

So in the case of Great Britain. The English-speaking race has gone forth into many situations. The ethnic force is sufficient to account for the adventure, and adaptation to account for the results. The great problem of English civilization—the problem of holding in one imperial structure of society all divisions of the multiplied millions who speak the language of Alfred and Chaucer—is complicated to the last degree by the fact that the commercial and seafaring and warlike character which was so strongly impressed upon the original people has been specialized under the law of environment and circumstance

Differentiation of the English-speaking peoples considered.

into many wide-apart and diverse national characteristics. One of these English tribes holds Australia; another, seventy millions strong, occupies North America; another division, in rapid process of specialization, dominates and will at length populate Hindustan. They are surviving branches of a single ethnic tree.

There have thus arisen *varieties* or *species* of Englishmen. Specialization has done its work until the original British type is with difficulty discovered in the lumberman of Ontario, the miner

of the Colorado cañon, the ranchman of the Llano Estacado, the sheep-raiser of New South Wales, and the opium merchant of Allahabad. In all parts the law of differentiation and growth, with the survival of the best forms and the extinction of the weaker, has prevailed, until the races of mankind have become specialized at the extremes of the human distribution, even as the organs of a living body have been brought into existence and efficiency by their uses and adaptations.

#### CHAPTER XIV.—OBJECTIONS CONSIDERED.



WE have thus pursued the theory of evolution to the full limits of fitness in a work such as the present. We have viewed it as the *modus operandi* of universal nature and of man. We have seen it exemplified, first of all, in the laws and processes of individual growth, whereby each living organism in the great kingdom of life has been brought by struggle, fitness, and survival, by differentiation, growth, and exercise into the mature and perfected form. From this starting point in the career of the individual we have extended the study to varieties and species of living beings.

Summary of deductions to the present stage of the inquiry. We have observed among these the same principle of divergence, development, and adaptation as were found to govern the course of the individual organism from the germ to the perfection of its powers. We have considered the same law as illustrated in the growth of the world and our associated planets from a common solar mass of attenuated

matter. Further on we have applied the theory to the products of human intelligence, such as language, institutions, and laws. We have seen that these also spring out of primordial conditions; that they diverge and struggle, survive by fitness or perish by incongruity with conditions and circumstances.

We have noted, in the next place, how the law holds also in a wider and higher sense of the human mind itself and of the moral nature of man; and, last of all, we have observed the application of evolution to man himself. We have considered him as a living entity working his way through a thousand tentative efforts to the maturity of his powers. We have seen that in general the different forms of human life, as exhibited in races and kindreds—springing, as they did spring, from a common human type—have conformed in their movements and methods of development to the same principles which seem to prevail throughout the whole world of organic life, and indeed in universal nature. It now remains to note some of the objections which have been suggest-

ed, some of the reasons which have been urged, for the rejection of the theory of evolution considered as an explanation of the phenomena of life.

In the first place, it is said as a ground of disbelief in the hypothesis of evolution that it assigns to the human species a degraded origin. The doctrine places man in his genesis and development on a level, so to speak, with the beasts which nature has made prone and obedient to their appetites. Man, so far as the testimony of his consciousness is concerned, holds himself strongly aloof from the rest of animated nature. He is able to discover in himself certain mental and spiritual qualities which do not affiliate with any corresponding traits in the animals below him. He has hopes and fears, aspirations and ambitions, musings and speculative reveries, excursive fancy and the multiplication of knowledge, for none of which can he find a parallel in the mental habits of the living beings around him.

Man feels instinctively that his nobility as a conscious creature lies in the measure of his departure from the habitudes and nature of the beasts. Any approach to them in his thoughts and manners and instincts is recognized at once by himself as a degradation of his nature and the stultification of all his better parts. The assignment, therefore, of a common origin for his own species and the higher orders of lower animals appears revolting to his nobler sentiments. He feels that his race is scandalized by attributing thereto such a genesis. For this reason the theory of evolution has been strongly resisted as inconsistent with the high estimate which man discovers in his own consciousness of himself, of his origin, and his destiny.

Such a feeling in human nature is not to be put lightly aside. Observe with care that a sentiment of this kind must itself, according to the hypothesis of evolution, have been produced in man from an instinctive germ of belief developed through ages of growth and variation, and fixed at last by certain conditions as an immutable part of human nature. The existence of such a sentiment and belief must be overcome by right reason and irrefragable proofs before it can be given up and replaced with a totally different concept of the origin and primeval state of human kind.

Let us approach this problem with equanimity. What has history to do with the small prejudices and fluctuating opinions of the current age? She neither courts them nor rejects them. She views them simply as a part of that vast subject-matter with which her volumes of majestic lore are afterwhiles to be filled. History will not espouse a party or range her forces with any of the divisions of human society. Rather must she hold all things in even balance if thereby her own sublime purpose may be fulfilled; for she knows nothing but right and truth.

The antipathy of man to a lowly original for his kind is natural. We must examine the sentiment, however, and discover, if we may, whether such an opinion is really rational or only habitual. In pursuing such an inquiry we may find the best materials of the argument in the history of the individual life of man. This is, without doubt, sufficiently lowly. The beginning of an individual life is obscurely hid among the actions and coactions of matter and force. In what sense can it be said that the individual man is created? Certainly

Objected that evolution assigns a lowly origin to man.

Instinctive sentiment of men respecting their origin.

Such belief itself a result of evolutionary processes.

Is the repugnance to lowly origin rational or habitual?

not in the sense that he has been produced in an adult form and a phenomenal manner. On the contrary, every human life begins in obscurity, deep in the inscrutable recesses of a microscopic germ. Thus much is not theory, but demonstrable fact indubitably established by universal experience and attested by all the criteria of science.

Moreover, the first stages in the evolution of the individual life of man are in like manner obscure and obedient to

with the life of other living beings of a lower order.

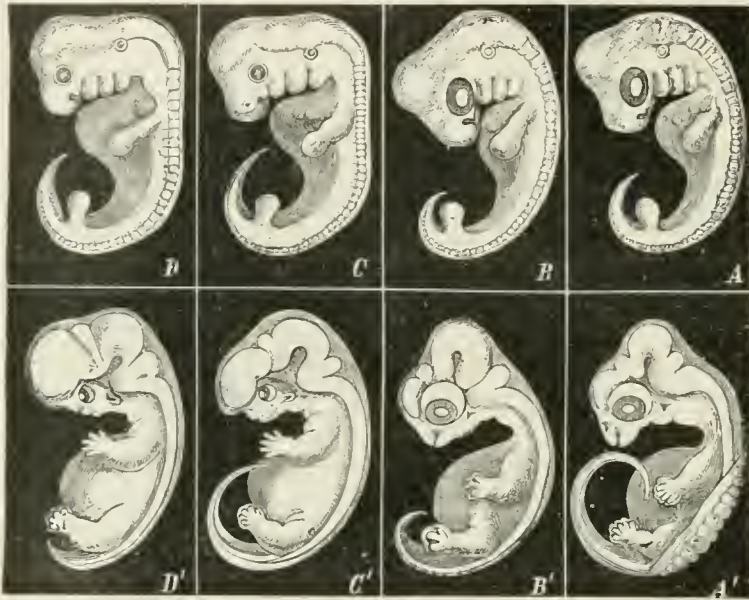
Nor do the evidences of difference rapidly and marvelously appear and multiply; but only slowly, tediously, and without manifest emphasis of purpose.

*Difference of human from other animals appears but slowly.*

The embryonic human being gradually departs somewhat from the common type, just as in the case of the unborn progeny of one of the lower animals. In the one case the development begins

to be manward; and in other instances horseward, kineward, dogward. It is only in the latter stages of prenatal existence that the creature containing within itself the possibility of man begins to show a marked difference from the unborn young of other species of animals.

Even at birth and after birth the immaturity and imperfection of the human creature are most conspicuous. His organs are, as it were, but potential suggestions of what they are to be-



FETI OF DIFFERENT ANIMALS—SHOWING THE COMMON PLAN OF NATURE. (A, A', of tortoise, at four and six weeks; B, B', of the chick, at four and eight days; C, C', of the dog, at four and six weeks; D, D', of the human being, at four and eight weeks.)

merely physical law. The pattern of the human creature that is to be is the same as that employed by nature in producing all the higher forms of animated being. The living creature that is to be is not discriminable by any test from the correlated orders of life, and is dependent for its future distinction wholly upon a differentiation which is not apparent at the beginning of existence. The physical life of man is thus at the first a series of phenomena identical, so far as science has been able to discover,

*Obscurity of the first stages in all animal life.*

come by growth and development. As to intelligence, the new-born being has none whatever, with the exception of those animal instincts which are necessary for the preservation of its life. Even these are by no means highly developed. Many of the lower animals come into the world with capacities and instincts of preservative activity far superior to any exhibited by the newborn of human kind. As to physical action, a like inferiority is observable. The infant of the human species can neither rise nor sit,

*Weakness and absolute helplessness of the child.*

neither stand nor walk. Perhaps of all things living the young of the human race are the most absolutely helpless and dependent.

Nor may the initial evidences of activity in infancy be regarded as indicative of a higher order of life. The infant left to itself sprawls in utter helplessness, moving its limbs in a lawless manner, showing no evidences of adaptation to the necessities of its being. The coming of intelligence, meanwhile, is exceedingly slow. How feeble are the first movements of brain-power and intellect! For many months language consists only of ejaculatory cries, in no manner differently vocalized or more significant than the cries of birds and beasts. Observe the beginnings of speech. First, the organs instinctively produce monosyllabic forms without significance—mere babbling repetitions of meaningless sound. Finally, there is the faint light of imitation. At last the utterance of *one word* is effected, and after a month of effort another! What a beginning for the rushing vocabularies of Shakespeare, Goethe, and Hugo!

Meanwhile the bodily functions remain under the dominion of instinct and animal law. The wonder of walking upright is at length accomplished. The child laughs and speaks, and (marvel of marvels!) loves! It begins to be rational; that is, human. Hitherto it has been irrational; that is, animal. Hereafter reason shall more and more arise and assert its sway. There will be the waywardness of childhood, the effervescence and folly of youth, the passion and power of coming manhood, and finally the maturity of power. But how few of human creatures ever reach completeness of individuality and the perfection

of reason! How many complete their career on a plane but one degree above that on which the higher orders of animals perform their instinctive and irrational parts in the drama of life!

What we are here to consider is this: The true estimate which every mature human being is obliged to form of his own individual antecedents and history. Man is constrained to accept for himself as a person the lowliest of lowly beginnings. He is obliged to recognize the fact that his own genesis as a living creature has been not only in close analogy with the history of animal life in general, but absolutely identical therewith. Every thoughtful man is constrained to consider himself as once existing potentially in a mass of half-organic protoplasmic cells. He is obliged to reflect upon his embryonic life, upon the fact of his birth into the world, and the insensate animal life which he must needs live during the first year or years of his existence in this strange arena. He must remember himself as prone and under the dominion of animal instincts—living only by the aid of the life and love of others. He must see himself in that far estate abased to a condition of intelligence not comparable for intelligence with that which characterizes the young of the beasts and birds.

But with what sentiment should he regard this antecedent and irrational portion of his career? Certainly not with shame or with a sense of humiliation. On the other hand, there are reasons which a reflective mind may discover in all this for a justifiable pride in the degree of departure and elevation which the mature and intelligent being has reached from the lowly and unconscious state of infancy. No man can be reason-

Irrationality of first stages in the life of infants.

left to itself sprawls in utter helplessness, moving its limbs in a lawless manner,

Estimate that man must form of his own individual history.

Estimate that man must form of his own individual history.

Evolution of the intellectual powers in childhood.

The wonder of walking upright is at length accomplished. The

With what sentiment mankind must consider itself.

With what sentiment mankind must consider itself.

ably scandalized with the thought that he was once a babe and once an embryo. Rather may he comfort and respect himself with the reflection that by the law of evolution, the beautiful processes of unfolding and growth, he has risen to his present sublime stature from so obscure an origin.

Man at his best estate walks abroad and surveys all nature. He knows the world and its mysteries. The outline of seas and continents is before his vision. The deeps are his. His are the clouds, the panoply of starry sky, the infinitude of systems and worlds beyond. Better than the material landscape is the world within him. Thought is his, and vision and will and purpose. Imagination, eagle-like, sits poised on the vast precipice overlooking the chasm of the universe, and with one bound springs forth on unfaltering wing, circling the profound abyss from shore to shore, from the boundless past to the endless future. But in the midst of this exaltation, this swift review of himself and his powers, he is constrained evermore—but without humiliation—to remember that his organic life began low down in the obscurity of an almost unknown world, amid the occult actions and coactions of matter and force, even as all other organic life begins from a mere material cell.

If such be the backward look of the individual life and consciousness, reviewing itself in the light of fact and discovering no shame or degradation in the low estate from which it sprang, what shall we say of that retrospect which surveys the life of the species? Shall any man feel shame on account of the origin of his species? Do scandal and humiliation hold of a remote and undiscoverable ancestry while they do

not hold of the origin of the individual? Shall any intelligent being feel himself degraded by the communal divergence of his kind from the great stem of life far away among the mysteries of the prehistoric world, and yet feel no degradation in the fact that he himself, during the first weeks of his organic life, was indiscriminable from the young of an alligator? If the puppy, the calf, and the kid have larger intelligence and freer use of faculties at a corresponding stage of development than have the children of men, shall he who, in full maturity of powers, reflects upon the fact feel a sense of disgrace and abasement under the belief that by remote ancestral descent, extending thousands of years before the dappled dawn of recorded history, the *species* to which he belongs came by differentiation out of the side of that great stem of life which contained the possibilities of all animated nature?

On the contrary, it is far more reasonable that man should disregard the remoter conditions of ethnic descent, and feel the deeper interest in his individual history and the history of his immediate ancestry. It is of more concern to man that his personal genesis should be a pleasing fact, as reviewed in consciousness under the light of memory and reflection, than that his ancestors, even within the limits of a few generations, should have been possessed of certain undesirable characteristics of body and mind. The nearer the fact, the greater its interest and importance. All things sink away and fade into shadow and cloud in the far horizon. But that which touches the present life hath more of vital interest.

The one great history to every human being is the history of himself. Next

Great capacity of the human mind to think and know.

The outline of seas and continents is before his vision.

More reasonable to disregard the low origin of our species.

No rational shame from contemplation of a lowly origin.

viewing itself in the light of fact and discovering no shame or degradation in



to this is the history of that immediate past which he may still see in retrospect or by parallax reflected in the pages of common information. Further on, and of less concern, is that remote past which must be recreated by the skill of the historian and the antiquary. Least of all in interest and attractiveness is that group of facts that lie far off, discoverable only with the glass and from the mountaintop, dimly defined in the morning of days and seasons. It is of less disgrace and harm to a man—a thousand times less shameful to him—that his prehistoric ancestor should have been one of the pithecanthropoids than that his grandfather should have been a robber or himself a villain!

It would appear, therefore, that the repugnance of enlightened and intelligent peoples to the notion of an ancestral descent of the human race common with that of the other orders of animated nature is habitual rather than rational. It is a matter of education and sentiment rather than a judgment or a valid deduction. Not to be scorned or contemned is this sentiment, so jealous of the honor and character of that primal stock from which our species is descended. Nevertheless, the suggestion that our origin was the common origin of all organic life is not good ground for the repugnance and disdain which many have shown for such a lowly genesis. The beginning of the human kind may have been as obscure and far removed among the hidden forces of physical nature as is the manifest beginning of all the individual forms of life. But for that reason such origin in neither case is just reason for disdain or for the sense of shame. So far as these sentiments exist respecting the descent of our species

from a lower and simpler order of animals than man, they are the result of views and beliefs which can not well endure critical analysis or the higher decisions of reason.

In the formation of the opinions which the men of the nineteenth century still hold, or hold in part, relative to the beginning and first estate of man, the tradition widely disseminated among many peoples of a Golden Age has largely contributed. Most of the civilized or half-civilized nations of antiquity entertained such a view with respect to the prehistoric epoch. It pleased the fancy of the pagan peoples of the Mediterranean to reconstruct a former condition of mankind more elevated and glorious than the current age of semibarbarism and unending war. This dream was one of the prevailing poetic visions with the bards of the Græco-Italic races. They depicted a primitive estate in which mankind were almost as the gods. The first men were taller and stronger than their degenerate descendants. The first men lived the life of peace and happiness. The first men were wise in their kind and virtuous in their lives. The first men tilled the earth and walked abroad as philosophers, gathering the fruits that ripened perennially and sitting at evening in the shade of cool arbors where they discoursed of the gods and instructed each other in the principles of duty and the obligations of fraternity. Such a dream hovered about the imagination of Greece, and even the heavier mind of Rome was invaded at intervals with the presence of this delightful vision of an immemorial past.

Doubtless such an opinion came to the Western peoples with their migrating ancestry out of the East. The Oriental nations also possessed traditions and

Greater importance attaching to individual life.

Belief in a Golden Age as affecting our opinions.

Repugnance to derivation from low orders not rational.



VISION OF THE GOLDEN AGE.

fables of the golden age. With the ascendancy of Rome such a notion in

Genesis of the belief in a past age of gold.

varying degrees of intensity was widely disseminated by her pagan conquests.

With the incoming of Christianity—with its acceptance as the religion of the state and the consequent incorporation of Hebrew story as a part, even the foundation, of the new theology—the belief in the antecedent greatness and perfection of mankind was still further extended and confirmed. As far as the new faith extended, so far was the current interpretation of the significance of the terrestrial paradise and its two perfect and exalted beings accepted as the condition from which the human race had descended.

The belief in question was further strengthened and confirmed by that un-

Effects of the belief in the decadence of man.

fortunate epoch in human history known as the Dark Ages. At that time all

things seemed returning to the primitive chaos. The Roman empire broke and fell. Barbarism came in. Society was disorganized and went to ruins. Darkness supervened over the face of Europe. A belief well calculated to destroy the remainder of hope arose and spread and took possession of all minds. This was the belief in the decadence of man. It became the prevalent opinion that all things were falling away, and that not only civilization but the world itself was doomed to perish.

For several centuries, as the first millennium of the Christian era drew to its

Mediævals affected by apprehension of a catastrophe.

close, this foreboding and gloomy spirit hovered over the human mind. Under

its influence men looked back afar to the primitive estate of the race as to a vision of glory and exaltation. The present woe was contrasted in the senses and

apprehensions of the people with that far-off and beautiful Eden from which the ancestor of mankind had been driven forth in exile to his death. All these circumstances tended most strongly to fix in the mind a deep-seated conviction of the early excellence and later decadence of the human race—to extend and perpetuate the pagan traditions which have prevailed in many parts of the world respecting a primitive golden age.

As the nightmare of the Middle Ages passed away, when it was seen that the world and the race of man

had *not* perished, but that on the other hand there were evidences of revival and restoration, the new and hopeful sentiments of mankind with respect to the present and the future came into contact with the old beliefs respecting the methods of creation and the primeval state of the human species. Meanwhile the creeds of the Church had taken a dogmatic and inflexible form. The interpretations which had been placed on the ancient oracles were held in all things to be literal and exact. When the new astronomy appeared it was confronted with a construction of the Scriptures which forbade its acceptance. The reading which had been adopted of the Book of Genesis made the world the center of our system and the sun and moon and stars its attendant satellites. To disturb this construction seemed to the men of the fifteenth and sixteenth centuries like a destruction of the moral order of the world.

Dogmatic interpretations impede scientific progress.

Every branch of natural science was met with like antagonism and resisted by the adherents of the ancient system. Geology in particular was assailed as unmistakably contradictory of the oracles of truth. The notion of an extended

duration for the world—of the vast eons of time which had been required for the orderly production of our globe—was denounced as a horrible assault upon the divine revelation and an attempt to substitute a bible of atheism for the true wisdom of the Almighty. For espousing and upholding the new belief many suffered and died. From the date of the first dawn of the revival of learning each new stage in the progress of scientific discovery, each new concept which man has gained of the order of the world, and in particular of the history of life, has been resisted and resented as an offense and an indignity done to those sublime standards which were established aforetime out of the literal construction of the ancient records of both the chosen people and the pagan nations of antiquity.

All of these circumstances must be weighed and estimated in making up a current judgment with respect to the value and acceptability of the theory of evolution. That this theory has been repugnant to many cherished sentiments and beliefs can not be denied, and ought not to be neglected in considering the general question at issue. On the other hand, the existence of such opinions, in so far as they are merely habitual and not the products of right reason, ought not by any means to prevail against the acceptance of a larger and more comprehensive concept of the history of life. Just as dogma should not have prevailed against the mathematics of Copernicus and the telescope of Galileo, just as the narrow, foolish, but long-established theory of the phenomenal creation of the earth in six days ought not to have prevailed against the new geology which fought its way through every kind of

All branches of natural science have been antagonized.

Current opinions derived from dogmatic antecedents.

opposition to final acceptance as the rational explanation of the order and development of the world, so a possibly mistaken notion about the existence of a golden age, in which the first of human kind walked and communed as the gods, ought not to prevail against the evidences of science, pointing as they do with unerring finger to the low estate and primitive savagery of the earliest creatures of the world worthy to take the name of man.

On the whole, the issue between those who hold the theory of phenomenal creation and those who accept evolution as the law of universal nature and of man is a question of *method* rather than a question of *fact*. Life has appeared on the earth at some *time* and some *place* and in some *manner*. Life did not always exist on the earth. It began to be, and it now is, in full aspect of development. The question, therefore, can be no more than this: *How* did life appear? *How* did it begin? *How* did it proceed from stage to stage? Was the apparition immediate and phenomenal, or was it by slow degrees and evolutionary processes? It is not the *fact* of creation but the *manner* of it that is involved in the whole controversy which has occupied at least three decades of the last half of the nineteenth century. All must concede that organic being has come to pass in some way. The divergence of opinion relates only to the manner and not to the essential fact of a beginning of something which before had no existence.

From these considerations it would appear that the controversy in question has been unduly exaggerated and fanned to an unwarrantable excess of heat. It is only a question as to how the term

Real issue a question of method and not of fact.

Some explanation of origin of species must be accepted.

creation, or the primary production of life, is to be understood. Men are constrained, in virtue of the cause-seeking instinct within them, to form *some* concept of the manner of the beginning. The mind demands an explanation. There is no satisfaction or mental rest without some reasonable apprehension of the methods and circumstances of the origin of life. More particularly the whole question seems to hang about the beginning of *species*. For some reason the obvious origin of the individual life has been overlooked, and the attention of the disputants in this great controversy fixed on the occult question of the beginning of species. Why it is that the manner of the origin of a specific variety of life, belonging as it must do to a remote epoch in the past, should be considered of greater importance in forming a correct theory of the world and of organic being than is the nearby and apprehensible origin of the individual life, is one of the strange circumstances in the intellectual history of our century.

As to the adequacy of the theory of evolution to account for the formation of the world and for the methods by which the individual is brought to maturity there can be no doubt. Between these two extremes of cosmogony, in a general sense on the one hand and the individual life on the other hand, lies the intermediate question of the genesis of species, and in particular the origin of human kind. The general tendency of scientific investigation has been to extend further and still further the law of evolution as the method and explanation of the phenomena of all living forms. To affirm that the inquiry is complete, and that evolution is the one sole explanation of all the varieties of

life, and of the stages and vicissitudes through which they have passed, is to affirm *more* than the present state of human knowledge would warrant or sustain. To affirm, on the other hand, that the law of evolution applies to so wide a cycle of phenomena as is manifestly the case—that in general it suffices to explain the *modus operandi* of creation respecting the manifold species of animals and plants which hold to the earth as the source of their vitality; but that the law breaks when it comes to the human species, and leaves the great fact of man-life as something unaccounted for and exceptional to an otherwise universal mode of action—is to affirm *less* than the present condition of human knowledge will attest and justify.

Thus much is certain, that the battle of dogmatic and scientific opinion respecting the manner of the beginning of life subsides into silence. It has already lost its clangor and sharpness. It sinks into a mild and conciliatory debate. The alarm which prevailed for a season among the timid folk of the ancient camping ground also subsides and is succeeded by returning confidence. It is seen that the world stands fast and that the moral order of the world is not disturbed. Perhaps the acerbity, the violence, of them who attack the existing interpretations of man and nature cools into a rational satisfaction over the changing concept of the beginning and development of organic life. The glowing coals of anger, fanned not a little by the agitation, cover themselves with the white ashes of peace. It has always been so in the intellectual warfare of mankind. It is not true, as many suppose, that the moral deeps are broken up by these disturbances of the intel-

Adequacy of the theory of evolution considered.

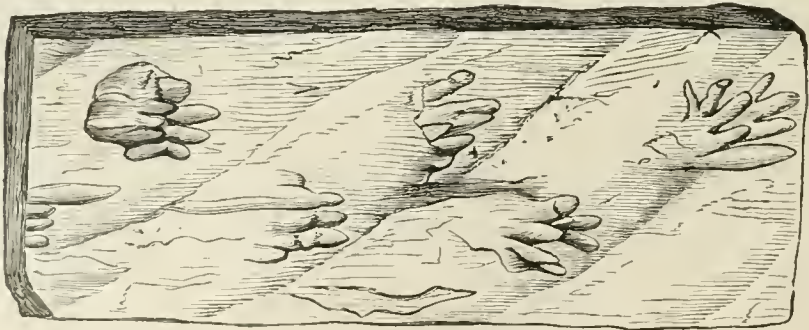
The conflict of scientific and dogmatic opinion subsides.

lectual world. After the conflict is over there is always the return of harmony, the blessings of sunshine, the betterment of mankind. There is a renewal of the hand-clasp of fidelity, and mutual congratulations of the contending parties that the inscriptions on the obelisks of truth and right are still clear and sharp as on the morning of the first day.

This better condition of the mind in our age comes of the gradual acceptance of the new truth and the gradual abandonment of the old error. It comes, in large measure, also, of concession and of the willingness of the human mind to be taught in things not known before. It comes of the necessary approximation of views to that common ground which, while it is not the ground occupied by mediæval scholasticism and mod-

ern dogma, is, on the other hand, not the ground of an atheistic materialism. It is rather that point of view which accepts an original creative power as the productive energy whereby the beginnings of all life are to be accounted for and explained, but at the same time recognizes the evolutionary processes which are manifestly at work among all existing forms as the *explanation* and *method* of growth whereby the living species of organisms have been brought from their germinal to their perfected state. Under these two general concepts the life of man may be assigned to its true place as the supreme fact connected with our sphere. For the present it suffices to say that creation is a fact, and evolution its universal method.

Approximation  
of the opposing  
opinions.







WEST ARYAN BARBARISM. Lake Dwelling of Switzerland.

DRAWN BY GROSZ.





Part Second.

PRIMITIVE ESTATE OF THE HUMAN RACE.

BOOK III.—PRIMEVAL MAN.

CHAPTER XV.—DIVERS ASPECTS OF BARBARIC LIFE.



T is the purpose in this book to present as much as is known relative to the primitive condition of mankind in several quarters of the earth. The

progress of historical science and archaeological research has now made us familiar with many aspects of the early life of man hitherto unknown. It is possible, with our present light, to make a tolerably accurate picture of the social phenomena of several peoples in those stages of their development which lie completely beyond the horizon of formal history. Nor can it be doubted that such reconstruction and revival of the

Essential interest of inquiry into barbaric conditions.

primeval conditions of our race, passing from the state of absolute unconsciousness into the semiwaking of the early dawn, will prove of the keenest interest if only the work be patiently and sympathetically performed.

It must be understood at the outset that the beginnings of civilization in different parts of the world are exceedingly diverse in their aspects and tendencies. Nothing can be more striking than the contrasts which the early races of men present to the student in their methods and peculiarities of development. Indeed, hardly any two of the primitive tribes of men wrought in the same manner or with the same results. Their work in attempting to construct their

Diverse aspects of the beginning of the conscious life of man.

social forms was as various as the conditions of the primeval world in which they struggled for existence.

From these considerations it will be necessary to an adequate understanding of the primitive condition of mankind to sketch, in the following chapters, several distinct phases of the social and economic life of man as we see the same

Varying activities of man in the struggle for existence.

forest, with his rude implements and utensils, and becomes a man of the woods, a roving hunter, traversing hill and thicket, eating the mast of the oak

Savages of the woods and sea-shores.

and the beech tree, living by the hazards of migration and tribal warfare. Still again, he gathers his little group around him on the shingly shore of the northern seas. He rakes from the sand,



MAN IN THE AGE OF THE CAVE BEAR.—Drawn by Emile Bayard.

obscurely outlined along the far horizon of traditional history. In one quarter of the world we shall see the newborn man take to the caverns for a habitation and defense. We shall see him, with huge clubs in his hands, fighting like a giant with wild beasts, sometimes crushing their skulls and sometimes himself torn to death by their tremendous fangs.

In another quarter man takes to the

where the receding wave has been, the shellfish left there by the tide. These he breaks and devours for his subsistence. He builds him a tent, and constructs simple implements for the gathering and preparation of his food. He heaps up around him the waste of his rude methods of life, the débris of his half-savage industry, until his tent is on a shell mound, mixed with broken frag-

ments of his utensils, and bearing thus to future ages the sole evidence of his existence and manner of life.

Still again we see the primitive man driving piles in the margin of the mountain lake and building a platform upon them, and on this platform, above the water, rearing rude huts, from which he reaches the shore by a flattened log or other simple means of transit. Here he

Primeval man builds for himself a home over the water.

herds driven from place to place on the plains of the East, as the spring line of verdure fluctuated over the landscape like the shadow of a cloud.

Again, we note those who built for themselves abodes of mud and bitumen. We see the low-lying plain with its cubical houses of clay or sun-dried bricks, and are surprised to observe that what some primitive tribes of the Orient did in

Barbarian abodes of clay or sun-baked bricks.



ASPECTS OF BARBARIC LIFE.—HUT OF OSTIAKS.—Drawn by Durand Brager.

is comparatively safe from the attacks of the wild beasts with which he finds himself otherwise unable to contend. Through the rude slabs in the floor in his dwelling he also drops into the water his broken implements of peace and war; and these vestiges of a primitive and peculiar form of life are taken from the mud in our own century to bear witness of one of the strangest aspects of primitive history. As to the so-called patriarchs of antiquity, their well-known method was that of keepers of flocks and

the dawn of their nationality thousands of years ago, the Arizonian races of Southwestern North America have reduplicated, in every particular, in their attempted emergence from barbarism. In all the central regions of the New World the Red Man will invite us with his wigwam to scrutinize his manners and customs and to note, not without sympathy, his hopes and aspirations.

Far to the north the frozen ice huts appear, with their stunted but resolute inhabitants braving the rigors of the

frigid zone, kindling the fires within them and without from the same heavy carbonaceous elements furnished by the monsters of the deep. All these and many more are the peculiarities of primeval life which will demand our attention in the the present book.

It can but be of interest in this con-

would, under the influence of instinct correlated with their environment, adopt almost identical methods in their struggle for existence and progress, and present a common type of development; but the facts are utterly at variance with this hypothesis. To the casual observer, indeed, it would seem that the

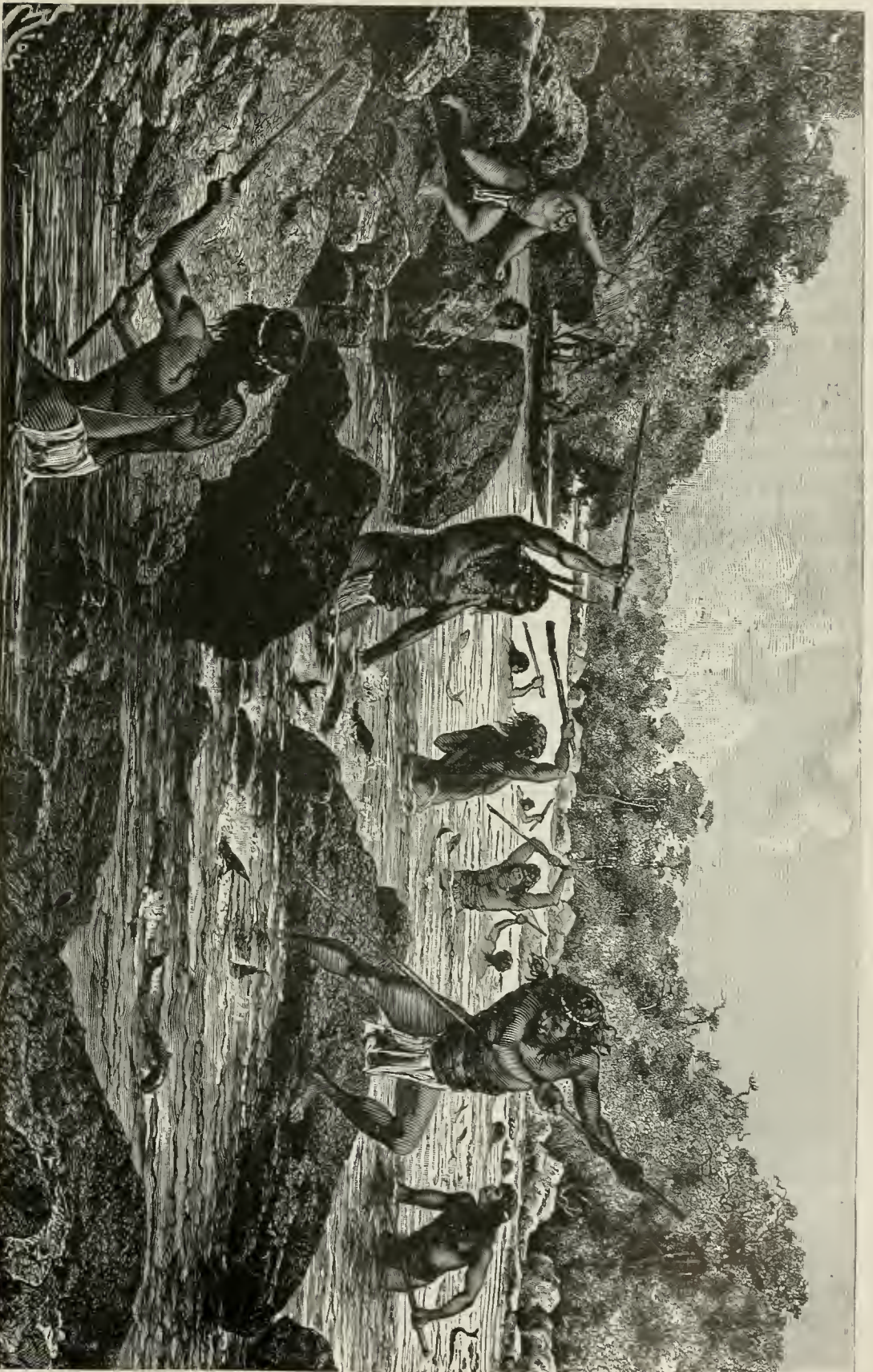


ASPECTS OF BARBARIC LIFE.—SEARCH FOR THE SKULLS.—Drawn by Riou.

nection to discuss briefly the question *why it is* that such radical differences existed among the primitive tribes of men in their methods of organizing themselves into societies. What were the causes of so great divergences in the early life of man? It would be inferred, *à priori*, that all semibarbarous peoples in their emergence from savagery

Why do savages thus differentiate in manner of life?

diverse methods, the opposing manners and customs, and the contradictory institutions of primitive mankind, were the work of caprice rather than of reason and order. A closer study of the problem, however, will doubtless show that in this also, as well as in all other elements of human history, law has been the dominant principle and reason the guiding light.



ASPECTS OF BARBARIC LIFE.—PATAGONIANS FISHING.—Drawn by Riou.

Doubtless the first great cause of the divergences noticeable in the beginnings of civilization between the methods of one tribe or family of men and those of another, is the varying influences of nature reacting upon the human frame and faculties. The aspects and conditions of the external world are far removed from regularity. Every region has its own climate, its own aspect of earth and sky. As to the earth itself, its surface is variable in the last degree. The soil has different potencies. The water distribution passes through all grades from scarcity to abundance, from the blistering desert to the dripping humidity of rainy islands. The surface in some parts spreads out on a dead level of valley or plain, and anon rises into hill and cliff and mountain. The running streams are equally irregular in their disposal. Some regions have the rivers as the basal fact in their constitution, while in others the range of highlands, the rocky ridge or snow peaks scattered at intervals, are the fundamental condition of geography. Greater still is the variation of heat and cold, from the rigor of the hyperborean regions to the furnace of the tropics; and, if possible, the differences in the electrical and magnetic forces that girdle the earth and impart a certain nervous tension to all animal existence are even more pronounced and remarkable.

Under these varying circumstances of the external world the plants on its surface and the living creatures that subsist thereby fluctuate and change in their instincts and manner of life. Particularly does that supreme animal called man fit by multifarious adjustments into his changeful environment. From his superior and more refined or-

First cause the reactions of nature on human faculties.

Man especially susceptible to influences of the natural world.

ganization he is especially susceptible to the influences of the external world. More than any beast of the field does he sway and bend and conform to the climatic exigencies under which he is placed. In him the sap of the world circulates almost as palpably and potently as in the plant that fixes its roots in the soil. In him every varying condition of the outer world is reflected; and in him the very tone and rhythm and pulsebeat of universal nature find a perpetual echo and response.

These considerations are fully borne out by an actual examination of the primitive life of man in process of development under the varying conditions of nature. Indeed, no stage of human growth is exempt from the domination of the natural world. Every part and filament of the garb which civilization wears has taken its form and color and substance in large measure from the material elements and conditions under which it is woven. It can not be doubted that all the aspects of the life and endeavor of man have in them, when closely scrutinized, the outline and semblance of physical conditions caught by reflection from the external forms and circumstances of his environment and home.

All parts of civilization tinged with envioning conditions.

So palpable and powerful have been these influences of the external world on the development and character of the human race that many authors have been disposed to make them the be-all and the end-all of the civilization of man. By such writers the theory of a physical basis for all things has been confidently adopted; and it is urged, without doubt or hesitation, that even the highest and most spiritual faculties and moods of the human mind are resolvable by easy

Theory of environment has been stretched too far.

process into elemental parts derivable from nature.

Under this hypothesis man is regarded simply as a plant with powers of locomotion and consciousness. True, his feet do not strike into the soil. He has no local attachment to the ground out of which he has sprung; but like those vegetable anomalies which grow freely in the open air or water without the formality of roots and tendrils, so man, in

to which it is applied. Nature has, indeed, done much to give form and fashion to the various and divergent aspects of human life; but there are many differences existing in the methods employed by primitive, and even by civilized, peoples which can not be so resolved and explained. Another general cause comes into the field of vision, and that is the influence of innate instincts and dispositions in mankind, working in some in-



VARIABILITY ILLUSTRATED IN MULTIPLE YOUNG OF SAME MOTHER.—GUINEA PIGS

this view of his genesis and nature, grows and develops into conscious life and powerful activity by the mere absorption, from his free surroundings, of all his elemental juices, his fibers, and his faculties.

But this view of the case is inadequate to the solution of the problem. The

Ethnic instincts also prevalent in forming mankind. theory of a physical basis of civilization is by no means to be rejected as a chimeria. It is simply insufficient of itself to explain and elucidate the phenomena

stances toward one end and in others to an opposite or diverse result. That such native and inherent differences do exist in human kind can not be doubted, and that the influence of the same has been largely potential in producing the various aspects of early civilization is, it is believed, susceptible of the clearest proof.

If we descend into the germinal conditions of the vegetable world we find that even the plants are, in virtue of their own nature, impressed with great

variations. The seeds taken from the same pod and planted in the same bed | tinct and unmistakable evidences of divergence and individuality. If we go



MIGRATORY BARBARISM.—CAMP OF THE KIRGHEEZ.—Drawn by Emile Bayard.

and nurtured under identical conditions | forward one stage and begin an exami-  
exhibit in growth and development dis- | nation of the phenomena of animal life,



we find the divergent principle still more active and emphatic. In the multiple young of the same mother we have the variability of nature illustrated in every element of organization. The color is different. Some are black, some are parti-colored, and some are white.

The law of variation independent of environment.

procreative act, developed in the same matrix, and thrust into the world under identical conditions, are more than approximately alike.

Take, for instance, the pointers and setters in which the hunter finds so great delight. Never yet, perhaps, have two of these animals, under the strictest dis-



SEDENTARY BARBARISM.—HOUSE OF GREENLAND ESQIMAU.

Similar variations, though perhaps less pronounced, will be discovered in form and function. One outgrows the other. One is of superior activity; one is hardier, and another has by nature a greater longevity. If we proceed to scrutinize the instincts and dispositions of the group the differences are still more marked. In fact, no two of these living creatures, produced by the same

discipline of the same master, been developed into identity of method and character. The law of animal life in this respect is susceptible of infinite illustration. Every species of living creatures is still in a state and process of differentiation under that primal law of evolution which tends to individualize all forms of life; and as we ascend in the

Animal life under like conditions shows divergences.

scale of being the action of this law is constantly increased in vigor and intensity.

In man the presence of the divergent and individualizing tendency has been especially powerful from the beginning. The primitive races had each its special instinct and individual character. No two of them were moved by the same innate impulses or the same conscious purposes. The ends of tribal endeavor were as diverse as the methods employed to reach them. And it is the existence, radically, in the human family of this difference of instinct and motive that, combined with the powerful influence of the natural world reacting upon the sensitive faculties of man, has produced the striking and peculiar differences, oppositions, even antagonisms, which we discover in the primitive history of mankind.

As an illustration of the working of these innate divergent tendencies in the human race, take the great fact of tribal migration. In the primitive history of the world no other fact, perhaps, has so great prominence as has the migratory disposition exhibited by the early races; but the working of this instinct was exhibited by them only in part. That is, there were conservative tribes and radical tribes in the primeval world, the former of which gave no sign of the migratory impulse, while the latter were swayed thereby to the extent of having no other history than that of removal.

A closer analysis will show that in the same tribe the migratory disposition would appear, seizing like an insupport-

able passion upon some members of the clan and household, while others would be exempt from its influence. A division of sentiment would appear among these unconscious folk leading to a radical difference of tribal action and policy. A break-up among the family would ensue, a part drifting away under the action of an instinct as natural and inevitable as that which drives the bee swarm from the parent colony to the distant forest. That is, in a given household some members, born under identical conditions with the rest, would feel the moving passion and go, while the rest, unswayed by any such instinctive motive, would remain in their native seats, unable even to appreciate the impulse and disposition which had separated their kinsmen from them. The Orient is to-day, in some sense, a residuum of those peoples over whom the migratory passion was never dominant, while all Europe and America, even to the shore line of the Pacific, is, in a like sense, the result of a certain innate radicalism which has forced the moving races further and further onward, until at last it threatens to leap the greatest of the oceans and precipitate itself again upon the East.

This division of mankind into a migratory and nonmigratory part must have been based, in its ultimate analysis, upon innate differences and unconscious, unreasoning impulses in those original tribes from which Asia and Europe have alike been peopled. Nor can it well be understood how the influence of the external world can adequately account for the true genesis and primal workings of this migratory habit.

In man and among races the law of diversity prevails.

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Migratory habit of tribes based on innate differences.

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A closer analysis will show that in the same tribe the migratory disposition would appear, seizing like an insupport-

The moving passion varies in the same community.

## CHAPTER XVI.—THE CAVE DWELLERS OF EUROPE.



LONG before the incoming of the first Aryan peoples into Europe tribes and races of men were already diffused over the country. Nor is it possible for us, in the present state of knowledge, to pierce the bottom of these human strata and

For the present, archæological and ethnical inquiry has reached down only to this epoch when the aborigines of Western Europe were contemporaneous with certain extinct species of animals. It is here that we must begin our inquiry relative to the primitive life of man in those parts of the world with which we are most familiar. It is well to repeat



IDEAL LANDSCAPE OF THE AGE OF REPTILES.—Drawn by Riou.

find the actual beginnings of the life of man on the European continent. It is now clear that the first men roaming about in a state of savagery through the forests of Denmark, of Germany, of France, and of Britain were contemporaneous with several races of animals that were extinct before the beginnings of authentic history.

Contemporaneity of man and certain extinct animals.

that the period here referred to is anterior to the time when the first Aryans—the Celts, the Italic tribes, and the Teutones—made their first inroads into the West.

It is only within the present century that our knowledge relative to primeval man in Western Europe has taken a somewhat definite form. Such inquiry has been impeded by many prejudices

and prepossessions of the human mind—many beliefs which are no longer tenable under the light of increasing knowledge. The labors of several eminent archaeologists and ethnologists, such as Sir Charles Lyell and Sir John Lubbock in England, Messieurs Tournal and Christol in France, Dr. P. C. Schmerling in Germany, and Professors Steenstrup and Nilsson of Sweden, have brought the resources of their genius to bear upon the problem of the antiquity and primitive life of man, and have succeeded in reconstructing the primeval conditions of civilization.

Modern leaders of archaeological inquiry.

the cave dwellers of Western Europe flourished. If we examine the crust of the earth *above* those strata which constitute the so-called age of reptiles, we shall find the same to be divided into two great layers, the lower of which is called the Tertiary and the upper the Post-Tertiary Period. The post-tertiary period is itself composed of two strata, the lower of which is called the Post-Pliocene and the upper the Recent, which latter embraces, in general terms, what is popularly called the surface of the earth. These two periods, the tertiary and post-tertiary, cover the geologic age of mammals. The mammalia are

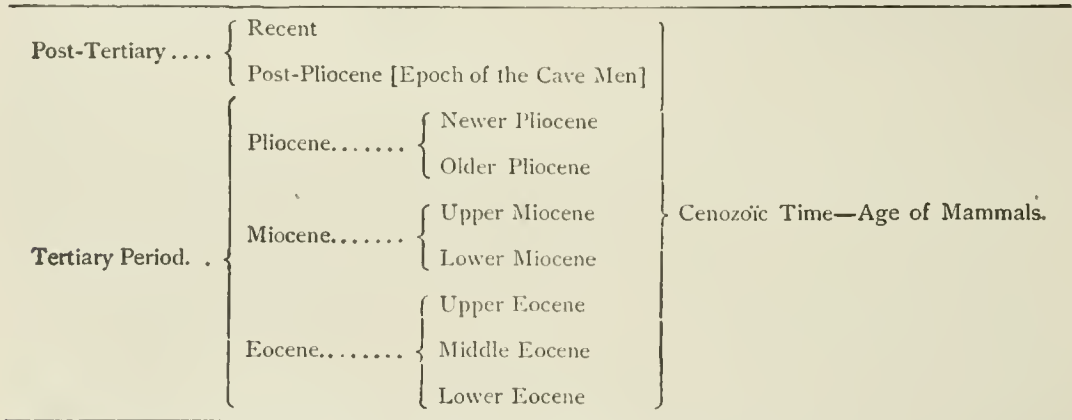


DIAGRAM OF THE TERTIARY AND POST-TERTIARY PERIODS, SHOWING THE GEOLOGICAL PLACE OF THE CAVE DWELLERS.

In the present chapter it will be the aim to present the leading features of tribal life as the same are illustrated in the story of the Cave Dwellers of Western Europe. There was, in prehistoric ages, in many parts of the western European states a race of men of a low grade of culture who chose the caverns which nature had hollowed out as their abodes, and within these dreary domiciles enacted the domestic drama of their lives.

It is desirable to note the geological epoch, now well determined, in which

conterminous with it, having first made their appearance in what is called the Lower Eocene and having a continuous existence through all the upper strata. Chronologically speaking, the period here referred to, beginning with the bottom of the tertiary and reaching to the present, is called Cenozoic time. The above diagram, drawn according to Sir Charles Lyell, will show the various relations of these strata and the place of the cave dwellers.

It must be understood with reference to the above diagram that all existing species of mammals and man himself

belong to what is called the recent, or quaternary, epoch. There were, however, several species of great animals formerly well known in Europe, whose existence as distinct varieties reached up from the pliocene period of the tertiary epoch into the post-pliocene era, and in that era ceased to exist. It appears that certain climatic changes took place in

Man belongs to the recent, or quaternary, epoch.

the extinct mammals above referred to that the demonstration of this early form of existence on the earth has been made. The proof that man was contemporaneous with several varieties of animal life no longer present in the countries where it formerly flourished, is clear and irrefragable, and it only remains in the following pages to determine as much as we may of the primi-



IDEAL LANDSCAPE OF THE CRETACEOUS PERIOD.—Drawn by Riou.

Europe, rendering the country untenable to these forms of life.

Now it is in this post-pliocene epoch that the cave dwellers had their career.

It was at the time when the species of animals just mentioned were still prevalent in the west of Europe that the cave man had his abode there. He was their companion and fellow of the woods and caverns; and it is by the commingling of the débris and ruins of his savage life with the relics and vestiges of

Extinct mammals coinhabitants with man in Europe.

tive condition in which the cave man held his barbarous fortunes.

The savage races of men, on their way from the low condition in which they are still found in absolute barbarity to civilized peoples, pass through four epochs of development. These are determined by archæologists chiefly by the character of the implements and utensils which are fabricated by primitive peoples in the different stages of their progress. It had been found that

Savages pass through definite stages toward civilization.

this progress is uniform in all parts of the world, and that when barbarians are discovered in a given stage of growth the next stage may always be inferred by the general law which governs the evolution. This movement forward proceeds from a grade of life but little above mere animality, and ends with the emergence of the tribe into full historical activity.

The various materials which the races

certain varieties of rock formation, and by simple modifications, or even, at the first, by no modification at all, converts them into implements.

The materials first chosen are generally flint and obsidian, and the primitive stage of workmanship consists in merely breaking the substance into shape. It is this fact of breakage into form, as distinguished from other methods of fabrication, that marks the very first stage of

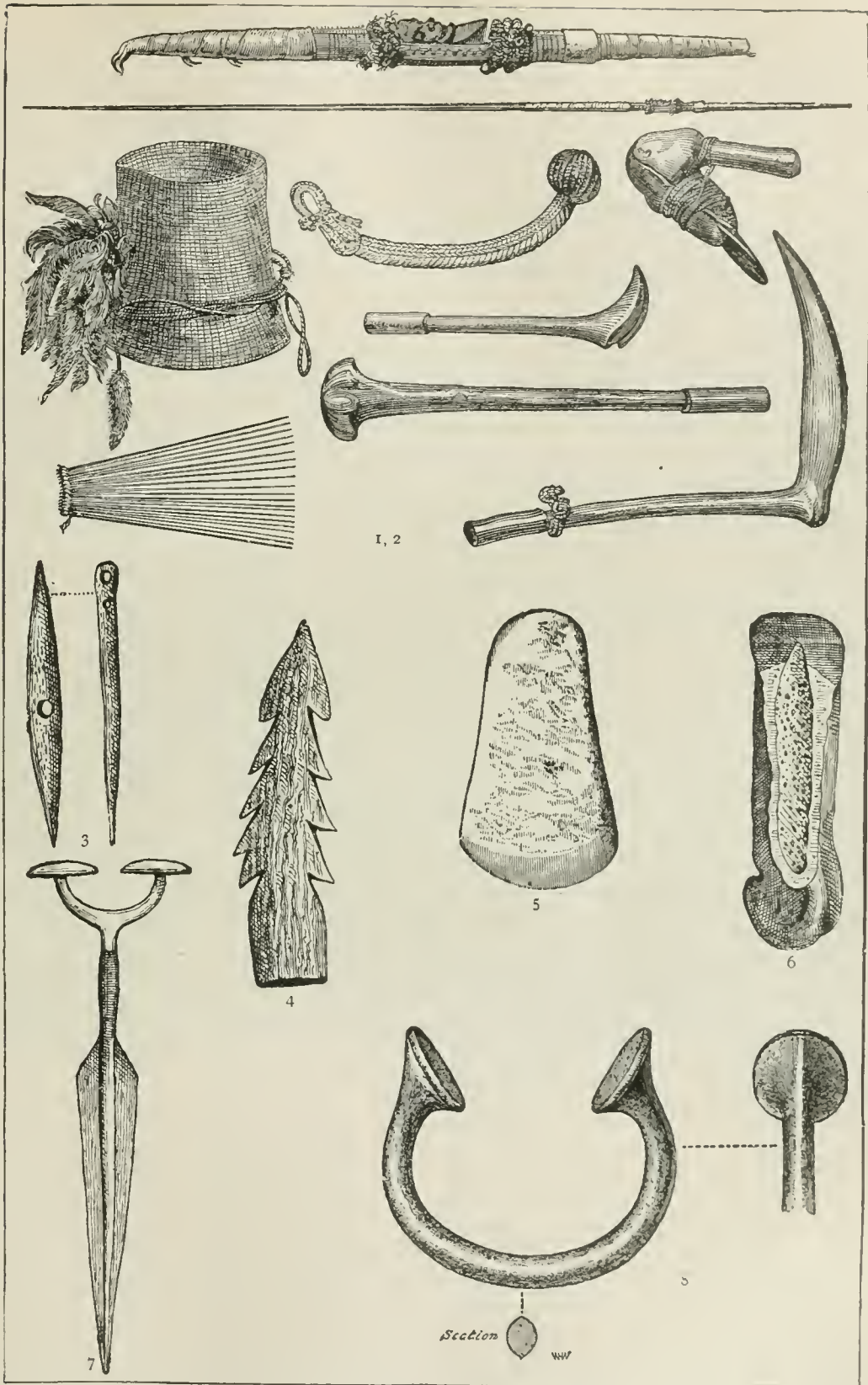


IDEAL LANDSCAPE OF THE PLEISTOCENE PERIOD (AGE OF MAN).—Drawn by Rion.

of men have employed in the fabrication of tools and utensils are principally stone, wood, bone, horn, copper, bronze, and iron—in the order named. Among civilized peoples the latter metal is refined into different forms of wrought iron, cast iron, and finally the various grades of steel. The primitive man, however, begins with stone. He takes from the ground, by a sort of natural selection,

Materials employed by barbarians in making implements.

man's development as a tool-making animal. Perhaps in no quarter of the world has a savage tribe emerged from barbarism without employing this very obvious method of producing implements. It is claimed by the most eminent naturalists that man, even in the most rudimentary stages of his evolution, has been a tool-making and tool-using animal, and that he is discriminated by this fact—strongly dis-



IMPLEMENTS AND ORNAMENTS USED BY PRIMEVAL MAN, IN THE ORDER OF THE MATERIALS EMPLOYED.  
 1, 2, Stone and wooden weapons of New Caledonians; 3, bone skewers; 4, harpoon of stag's horn; 5, copper celt; 6, carpenter's bronze chisel; 7, bronze dagger with iron handle; 8, iron ornaments of Africans.

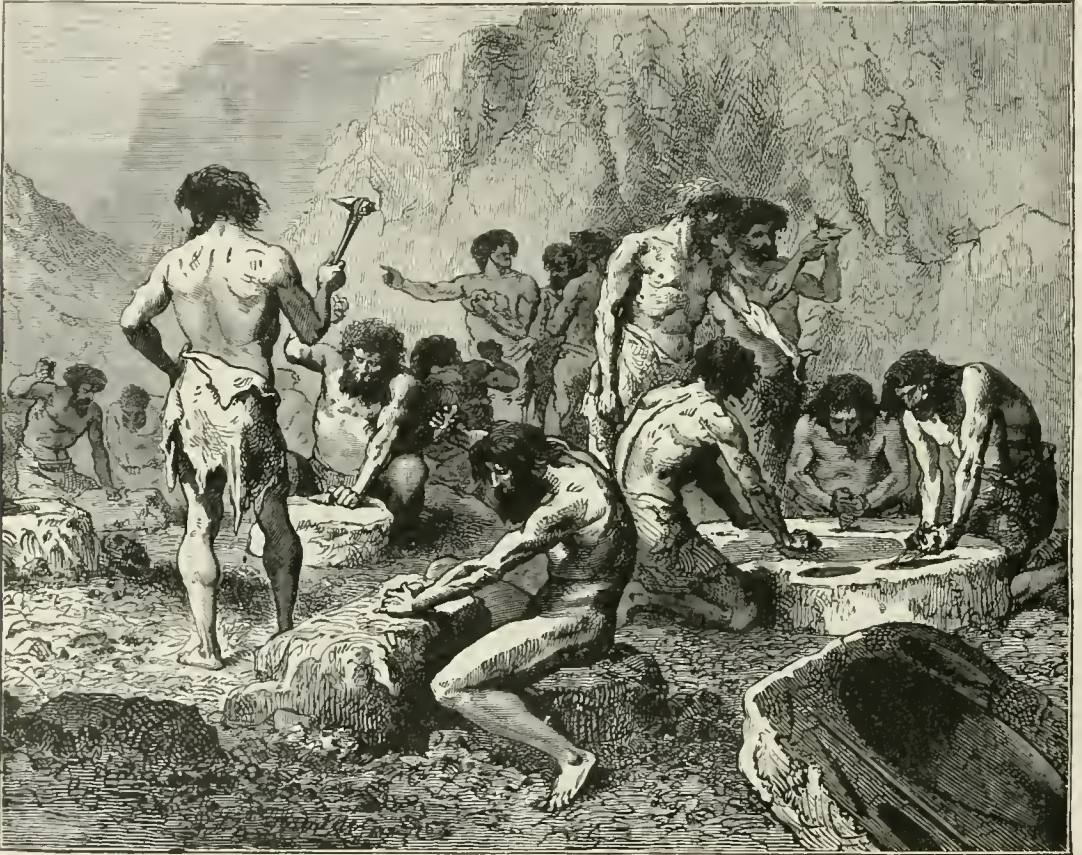
criminated—from the highest grades of living beings below him.

No animal except man has been known to make or to use a tool. That is, the conscious design of doing so has never been observed in the most superior specimens of the lower grades of animal intelligence. The monkey, the

Man the tool-making and club-throwing animal.

this accidental and instinctive employment of clubs and missiles and the conscious fabrication of a tool lies a great gap in intelligence—the gap between the instinct of the inferior and the conscious reason of the superior creature.

Man, then, begins his career as an artisan by the making of tools and implements from the flinty forms of rock.



MANUFACTURE OF FLINT IMPLEMENTS BY PREHISTORIC MAN.—Drawn by Emile Bayard.

ape, the ourang, the gorilla, and the chimpanzee are all in some sense club-using and club-throwing animals. They grip and swing missiles with obvious design to a certain end; but in doing so they merely seize what accident has placed within their reach, and there is no single instance recorded in which an animal has been known to *adapt* a stick or stone to any intended use. Between

He soon discovers that this substance, by a little skill, may be broken into forms approximately adapted to his wants. Progress begins—progress in the selection of materials and progress in the methods of forming his utensils. But for a long period breakage is the general method which he employs, and this fact of fracture in the fabrication of

Artisanship begins with the making of tools and weapons.



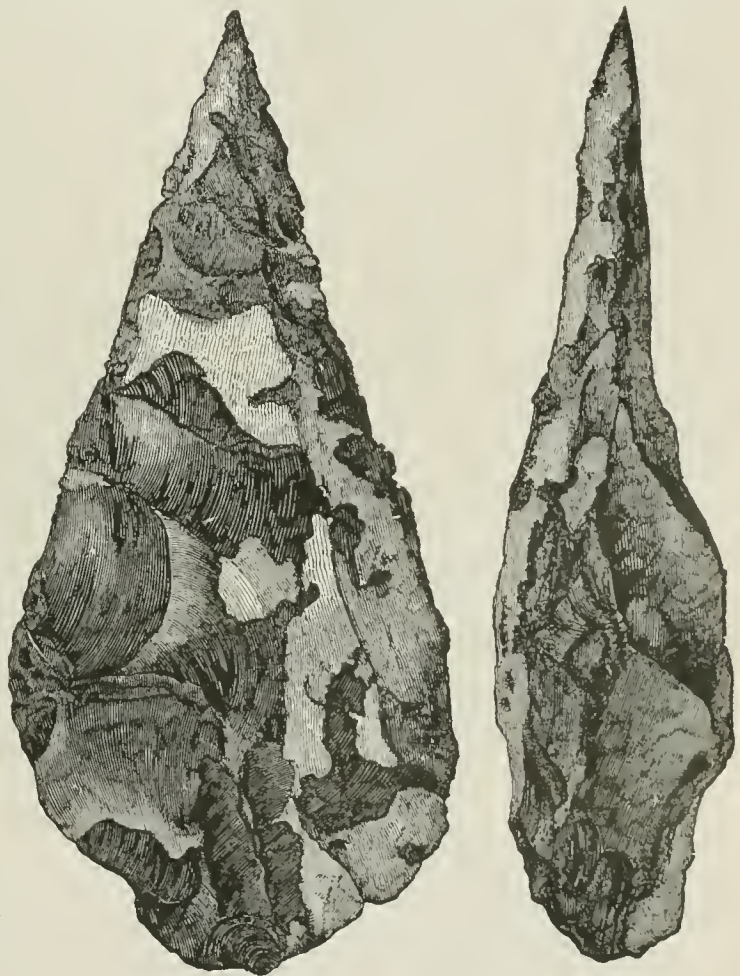
tools is the essential feature by which the first stage of human development is characterized.

This first epoch is called the old stone age, or, if we employ the scientific term given thereto by naturalists, the palæolithic age—a term derived from the Greek roots signifying the same thing. It is impossible to determine for how long a period a savage tribe will remain in this primitive stage of evolution. Doubtless the palæolithic era of development is never precisely the same in time in the case of any two barbarous tribes, but the process is the same. The time remains indeterminate. Another fact of great importance to be noted is that this primeval epoch of human growth has appeared at different times, in different quarters of the earth, as already said. It is highly likely—almost certain—that all existing peoples have, in their rudimentary condition, passed through the old stone age as the first phase of their growth into a national life; but at what era this occurred in the case of any given family of men it is impossible to determine.

The chronology of such a development can not be ascertained or adjusted. In one quarter of the earth a savage tribe will be found at the present day in the palæolithic state of growth. In another

Chronology of palæolithic epoch not determinable.

quarter this epoch of emergence from barbarism has been passed a century, even several centuries ago, and in others we must look back through many ages if we would discover even the hint of such a stage of evolution. This is to say that the development of savage life is never synchronous among the different



PALÆOLITHIC FLINT IMPLEMENTS, FROM HOXNE.

racés, but that such development is as various in time as it is in place. The process has been going on for many thousands of years and is still going on, under our own authentic observation, in many parts of the unreclaimed continents and barbarous islands of the seas.

While this want of contemporaneity is

an embarrassment in the construction of tribal history, it is a great advantage in the actual comprehension of the methods forward from one stage of his development to another. In the South Sea islands the natives have been watched



PRIMEVAL MAN—CHASE IN THE REINDEER PERIOD.

Drawn by Emile Bayard.

in the act of constructing old stone implements, and the process, withal, is very different from what might have been supposed. The savage takes a small block of flint between his naked feet and, pressing it into a certain position with his toes, drops upon it endwise a long pestle of wood in such way as to spall off a splinter from the side. The stroke is repeated, and another spall, or "flake," so called, is thrown off; and so on until, by careful chipping, the arrowhead or spearpoint or whatever it is is broken into shape. Doubtless this simple process has been practiced, with slight modifica-

of the primitive man. We are able today to scrutinize these methods and to observe and note the actual processes by which the tool-making animal goes

tions of method, by all the savage tribes of the world, and doubtless the same manner of fabrication will continue until,

Habits of primeval man discoverable in his materials and arts.

by the spread of civilization, this primitive stage of humanity shall disappear from the earth.

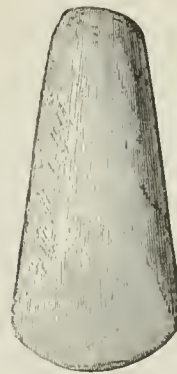
The palæolithic, or old stone, age at length gives place to a higher form of manufacture—a more elegant and useful method of making utensils and weapons. The primitive man, in course of time, discovers that by attrition or rubbing he can reduce his tools to a more elegant and satisfactory pattern.

The forms which he has hitherto attained by the process of breakage and chipping have been only approximate to the ideal forms which he has had in mind. In the second stage of his development he labors to reach a correct outline by reducing the substance on which he is working into proper form by rubbing or grinding against some other material. The time relations of this discovery also are unknown; but that such a transformation from the rough or broken stone implements of primeval man to the smooth tools and utensils of his secondary stage of development does exist—has existed in the case of every tribe—is clearly demonstrable. Every museum, or even small private collection, of ancient stone workmanship gathered from the valleys of the European rivers, from the peat bogs of Denmark, or turned up by the plow in the open fields of North America, will show unmistakable evidences of the change which has everywhere taken place from the age of broken or chipped-off fabrication to the age of smoothed or polished manufacture.

Neolithic workmanship marks second stage of the evolution.

To this second epoch of implement-making archæologists have given the name of the new stone, or neolithic, age. That it follows the older and ruder era is clearly proved, but its duration, as in the case of the preceding epoch of broken stonework, can never be more than approximately determined. The relative place of the neolithic era in the evolution of the civilized forms of life is as well known as that the age of mammals succeeds the age of reptiles in the geological history of the earth. Indeed, all of the stages of human evolution which we are here considering have a striking likeness and analogy to the successive eras in the

Relation of the stone epochs to eras in geology.



Stone axes, Ireland.

Stone celt with handle.

EXAMPLES OF NEOLITHIC WORKMANSHIP.

geological formation of our globe. The one is as fixed and certain in its laws of succession as the other, and we should no more expect to find a deviation from the orderly progress by which the savage man proceeded from the old stone to the new stone and from the new stone to the subsequent ages of his development than we should expect to find the coal measures of the carboniferous age on top of the chalk beds of the age of reptiles.

There are many extraneous proofs,

moreover, that the half-barbarous peoples of the world, after passing into the neolithic age, have, in other respects than that of implement-making, entered into a wider and more complex development. It is not only in the making of tools that the savage man on his way to larger and more rational activities dis-

Complex development coincident with new stone age.

the neolithic age, have, in other respects than that of implement-making, entered

Since most of the metals of the earth exist in the form of ores, which hide their actual contents from the unskilled eye of barbarism, it has happened among all the primitive races that the discovery and manufacture of stone implements has preceded by many long stages the production of metallic forms. In the

Great span between ages of stone and age of metals.



PRIMEVAL MAN.—FOUNDERS OF THE AGE OF BRONZE.—Drawn by Emile Bayard.

plays his increasing skill. All the elements of his progress are correlated and, in some sense, kept even with his rate of growth in the mere matter of manufacturing his wares and weapons. His expansion is in all directions, and it is easy to discover by evidences deduced from other sources the general course which he is pursuing toward the civilized conditions of life.

cases of silver and gold, which exist native in the earth—or at least the gold—they have never been found in sufficient quantities to justify the primitive man in the attempt to make implements therefrom. These, from the rarity of their distribution, have been precious metals from the first. They were so to all the savage races who first possessed the earth, and have continued so, even

in the powerful civilization and activities of the present. Among other metals copper, and even tin, also existed in the native form, and it is to these substances that the faculties and interest of the primeval man were directed when he came to the point of emergence from the neolithic age. He had now wrought, as much as might well be done, from the

faculties might find a freer exercise. This other substance, as the primitive history of man has now demonstrated, was copper—copper first, and then tin, or, more particularly, a mixture of the two, called *bronze*.

Nothing is known of the original discovery which seems to have been made in many quarters of the earth, of the



MANNERS OF PREHISTORIC PEOPLES.—FEAST IN THE AGE OF BRONZE.—Drawn by Emile Bayard.

stone materials under his hand by the processes of breakage and polishing. It is evident on reflection that mere stone, such as flint or sandstone, will only bear a certain amount of artisanship. Whoever would attempt to go beyond the natural limits existing in the nature of these materials would come to an impassable barrier. He must turn, perforce, to some other substance upon which, in virtue of its own nature, his

great advantage to be gained by commingling a certain percentage (about one tenth) of tin with native copper. Such a discovery, however, is very certain as a fact and very remote in its date. It is now known that the material of the weaponry of the Trojan warriors, called *chalchys* in the Homeric poems and tradition, was bronze and not iron, and the old word *as* of the primitive

Art of compounding metals; coming of the bronze age.

Latin race signified the same thing. At any rate, the succession of an age of bronze to the neolithic age is a fact well established in archæology. The barbarous and now warlike peoples of the prehistoric world made the great discovery of a hard and tenacious metallic compound, out of which they could manufacture at will substantial, effective, and even beautiful implements so greatly superior to those which they had hitherto employed as to constitute an epoch in their civilization. This discovery of bronze was accompanied with many advances in the life and manners of the people. New customs were introduced; the family was better organized, and we contemplate the beginnings of a rude society. So the third stage of the human evolution which we are here considering was that in which the half-barbarous peoples of the primitive world passed out of the new stone age into the age of bronze.

The inquiry naturally arises in this connection why it is that in nearly all parts of the earth the barbarous peoples seem to have passed directly from the neolithic into the bronze-making age of development. Why was it—why is it—that the primitive peoples did not pass through a clearly defined age of copper or an age of tin? Why should the great leap have been made from so primitive form of life as that exhibited in the new stone age into the comparatively complex and highly developed activities of the age of bronze? Bronze is a composite metal. We see from the perfect composition which we find in the implements which have come to us from the age of its early manufacture that the ancients understood perfectly the percentage of the different metals, and this knowledge would pre-

suppose a long series of trials and experiments. True it is that in some quarters of the world, particularly in the peat measures of Denmark and along the shores of the great lakes in North America, many copper implements have been discovered. But these finds have been so irregular as rather to disprove than to establish the existence of an age of copper. It would seem that the primitive man has only produced tools and utensils of copper when he could not procure the necessary tin to make the compound. In general, the fact remains, archæologically and historically, that in nearly all parts of the habitable globe the various races have leaped at one stride from the making of smooth stone implements to the manufacture and use of bronze. What theory may be advanced to account for this remarkable fact in the prehistoric development of mankind?

It has been suggested in answer, and with much show of probability, that the introduction of metals for tools and weapons is co-incident in tribal development with the beginning of the age of aggression and conquest. This is to say that when men have once discovered and used the metals they are at that stage of tribal life in which the lust of war and conquest begins to be felt as a dominant passion. As a result of this, when the discovery of bronze has once been made, and a knowledge diffused of its great superiority over either of the component metals of which it is constituted, a bronze-bearing soldiery would at once spring into existence. Owing to the higher development and aggressive instincts of this soldiery, conquest in foreign parts would very soon ensue, and with this conquest would be carried into distant regions a knowledge of

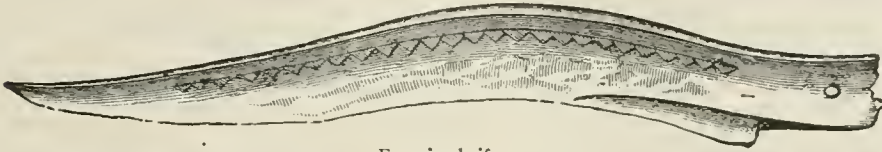
No intervening ages of copper or tin.

Reasons why the age of bronze succeeds the age of stone.

bronze and of the method of its manufacture. This rational, even probable, explanation has been offered for the immediate succession of the bronze age to the age of stone. Tribes and races still engaged in the fabrication and use of flint implements and weapons would be at so great disadvantage in compari-

glimpses of the actual historical movements of men. The heroic conflicts which we see in the far horizon, the sack and pillage of Troy, the early and shadowy movements of mankind in Asia Minor, in Hellas, and in Italy, bring us, at least in tradition, into the

Historical consciousness begins with the age of bronze.



Egyptian knife.



Bracelets, Switzerland.



Bronze hairpins, Switzerland.



Copper spearhead.

EXAMPLES OF BRONZE WORKMANSHIP.

son with a bronze-bearing nation as to be easily overrun, and with this conquest the knowledge and practice of bronze manufacture would immediately follow.

However this may be, the age of bronze has everywhere succeeded the neolithic age in the development of civilization. It is in this age that we generally catch the first authentic

age of bronze, and it is safe to regard this epoch in the evolution of man as the substratum of authentic history.

After a long period in bronze-making and bronze-using, the prehistoric tribes, or perhaps we should now say nations, pass into the age of iron. Iron, except in the form of meteorites, does not exist

The age of iron succeeds the epoch of bronze.

in the native state. For this reason its discovery as a metal happens late in the history of man. The extraction of iron from the ore is, moreover, exceedingly difficult even with the powerful appli-

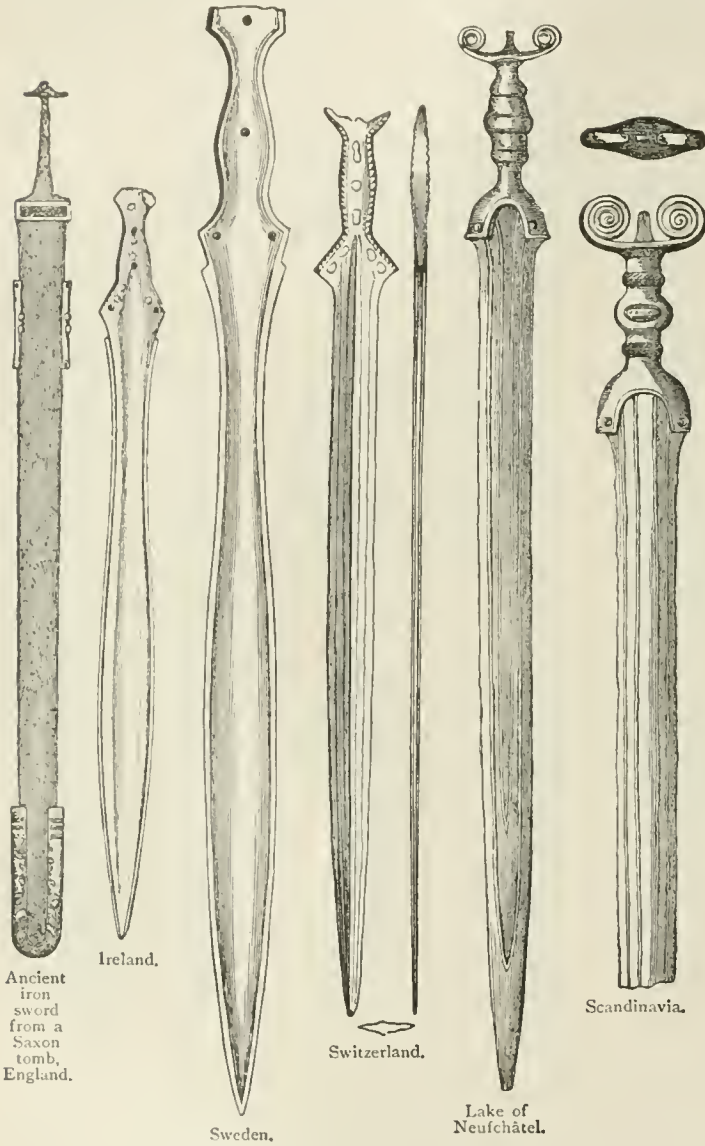
metallic iron might be expected to issue from the rust-colored stone constituting the ore.

Doubtless the discovery was accidental. Indeed, traditions exist to this effect. It

has been handed down that a European discovery of iron by smelt-

Evolution of ironwork in primeval Europe.

ing occurred in Bohemia within the historical period. However this may be, we have unmistakable proofs that somewhere in the early dawn of the Græco-Italic development in Southern Europe the discovery of the process of extracting iron was made and the fabrication of implements therefrom begun. The Greeks, at least of the post-Homeric epoch, had a soldiery bearing iron weapons, and it appears that the Romans from the first faint limnings of tradition armed themselves, for both offense and defense, with the same heavy and enduring metal. In short, the age of iron is, roughly speaking, the age of authentic history. Though the ancient Egyptians were unacquainted with iron, and though the extent of its use among the Assyrians and Babylonians has not been clearly determined, the fact remains that



EXAMPLES OF IRON WORKMANSHIP.

ances of modern metallurgy. The man of antiquity was unable to produce the requisite heat, and even had he been master of an adequate temperature he could not have conjectured by *à priori* reasoning that such a substance as

in general terms the manufacture of iron implements has been a circumstance coincident with the historic development of our race. We are now and have been for some three thousand years in the age of iron, and it would seem that we are



destined to continue in the same epoch until by a new evolution we shall pass into the age of aluminum.

This somewhat extended digressive study of the four principal eras of development through which the races of men have passed has been made necessary in order to a clear understanding of the true place of the cave dwellers of Western Europe. They were men of the old stone age. Their implements were all palæolithic. They flourished, or at least lived, in an age before the art of grinding and polishing utensils of stone had been discovered. This is to say that they present *the most primitive type* of mankind with which we are acquainted. Nor is it likely that ethnologists and antiquarians will ever be able to deduce from the prehistoric shadows a form of human life more nearly allied to the life of the lower animals than is that which we are now to examine.

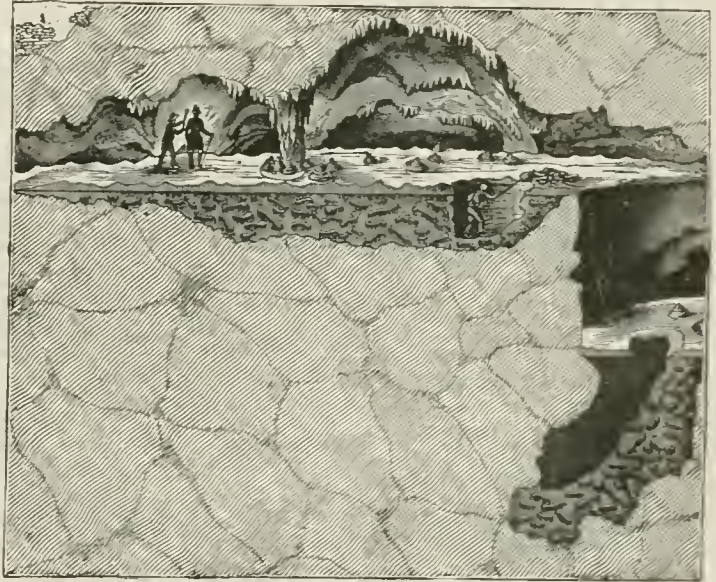
The story of the investigation of the cave dwellings in Europe is full of interest. The care and zeal with which the work has been carried forward will always elicit praise from those who are concerned to know the true story of the human race on the earth. As early as 1825 the attention of antiquaries began to be called to the fact of the mixed remains of men and animals in various caverns which had been explored for other than scientific purposes. It was not, however, until 1833 that the distinguished antiquary, Dr. P. C. Schmerling, of Belgium, forced

upon the consideration of scholars the unmistakable lessons which the caves had revealed to him and his colaborers.

The caverns in question exist in many parts of the Continent and of England. They abound in Southern France and along the borders of Belgium. They are dark grottoes in limestone rock, and seem in nearly all cases to have been selected by the cave men because of the narrowness and defensibility of the openings. In many instances the mouths

Cave dwellers the most primitive of the European races.

Character of the caves inhabited by primeval man.



MAN CAVERN IN GALEINREUTH, BAVARIA.

of the caverns have been found closed by the very stones which the rough inhabitants rolled and pushed into place as a barrier against their enemies. The floors are generally on a lower level than the openings, which fact has led to the accumulation of thick layers of mud and débris on the bottom. Over this collection of earthy materials, mixed as they are with the relics of the human and non-human occupants in former ages, is nearly always spread a layer of that calcareous substance called *stalagmite*, deposited there in the course of centuries

by the lime-saturated exudations from the roof of the cavern. This stalagmitic floor, holding its secrets underneath, is generally quite hard, and is in many cases two or three feet in thickness. The cavern here described is typical, but is subject in different localities to considerable modifications in its character and details.

It was such a cave dwelling as this, called the Cavern of Engis, that Dr. Schmerling entered and explored in 1832.

It was situated near Liege, at the junction of the Meuse and the Ourthe, in Belgium. The story of the exploration is as heroic as the results were novel and instructive. Schmerling had to be let down into the cavern by a rope tied to a tree outside. He was obliged to slide in order to gain an entrance. Within it was as dark as night. The explorer had to creep from one apartment to another through contracted and dangerous passages. Into these spectral vaults he introduced his workmen. Some held torches while the others worked. The floor of stalagmite was as hard as marble. The philosopher was obliged to stand hour after hour with his feet in the mud while the cold exudations from the roof of the cavern dripped on his head. Finally the stalagmitic crust was broken up and the materials underneath brought to exposure. Everything was done under Schmerling's personal direction, so that no false statement or untruth of any kind should mix with the results.

The results were marvelous. Human skulls and indeed whole skeletons were found in the clay and muck under the floor of stalagmite. And to make the discovery more astounding, the bones of several species of extinct animals were found intermingled with those of men!

Exploration of the Engis cavern by Dr. Schmerling.

Carefulness of the investigation; the deductions.

It was noted, moreover, and established to a demonstration that the human parts and the animal parts were in such juxtaposition and relation as to prove the coincident lodgment and preservation of the remains. Every fact tending to throw light on the discovery was carefully recorded by Schmerling, and in the following year he published a treatise announcing as a scientific truth the contemporaneous existence of man and the mammoth in Western Europe.

A second digression is here desirable, relating in this instance to some changes which have taken place in the fauna of the continent since the close of the pliocene era of geology. It appears that certain transformations have occurred in the climate of Europe which have made the country untenable to several species of animals formerly prevalent therein. About seventeen varieties of mammals have disappeared since the old stone age. These embrace several species of heavy pachyderms and quite a number of smaller animals, nearly all of which have their habitat either in the tropics or in regions much more tropical than any part of Europe. That these species formerly abounded on the continent is clearly demonstrable. That they could not possibly exist under present climatic conditions is also true; from which it seems clearly established that a great change toward frigid conditions has taken place in the European countries. This change, doubtless, is the very fact which has caused the extinction of the animals referred to and the perpetuation of the varieties now existing.<sup>1</sup>

Significance of the transformations of European climate.

<sup>1</sup>The theory of the existence of a tropical condition in the northern hemisphere in the age preceding the last glacial epoch of our planet may now be considered as a demonstrated scientific truth. See the discussion of the subject, p. ante 57.

The seventeen species of mammalia which have thus been extinguished by the vicissitude of climate are as follows:

Species of extinct animals associated with man.

The cave bear; a second variety called *Ursus priscus*, or the ancient bear; the

cave hyena; the cave lion; the mammoth; another species of the genus *Elephas*, called the old elephant; the hairy rhinoceros; two other species of rhinoceros; the hippopotamus; the musk ox; the Irish elk; the wild horse; the glutton; the reindeer; the aurochs, or European bison; and the urus, or primitive ox. It is thought by naturalists that some of the species here enumerated have perpetuated themselves in deflected varieties of the original until the present, but the rest are manifestly and indubitably extinct. Yet all of these animals were prevalent in the old stone age, and it is the testimony of the cave dwelling that man was their contemporary and competitor for occupancy.

Dr. Schmerling continued his investigations in other limestone caverns and

Evidence cumulative respecting the character of primeval man.

with the same general results. In at least four or five of the caves near Liege

he found unmistakable proofs that they had been used for dwellings in the prehistoric ages. Evidences of the manner of life of the primitive barbarians of Western Europe accumulated, and fact was added to fact in illustration of the conditions under which man contended with the laws of his environment before the first peoples of the Aryan race had found a footing in the countries this side of the Danube and the Rhine.

Before proceeding to note the particular contents of the various European cave dwellings, and to elucidate their significance, it will be proper to enumerate some of the principal caverns which have been explored. The Bel-

gian government finally undertook the work begun by Schmerling, and in 1867 sent out a party of sci-

Sketch of the most important cave dwellings of Europe.

tists under direction of the naturalist, Dupont, to carry forward the investigation. Several other caves like that of Engis were examined in the same region and the contents transmitted to museums. The cavern of Chaleux yielded in addition to its animal relics a vast number of implements, all belonging to the old stone age. That of Furfooz was almost equally rich in prehistoric materials. The cave called Frou du Frontal contained parts of thirteen skeletons. The opening of this vault was still closed with the block of stone which the cave men had used to barricade the entrance. The grotto of Aurignac, in the south of France, yielded seventeen prehistoric skeletons, but these were unfortunately lost through the ignorance of the mayor of the city. In the department of Dordogne, in Southwestern France, a number of cave dwellings have been explored with results confirmatory of those attained elsewhere; and in connection with these caverns the additional interesting fact was noted that artificial chambers connected with the natural vaults in the limestone had been excavated and used by the primitive occupants. In 1858 the philosopher, Schaaftenhausen, gave to the public an account of the discoveries recently made in the limestone cavern of Neanderthal, between Düsseldorf and Elberfeld, including a description of one of the most remarkable prehistoric skulls which scholars have had the fortune to examine.

Turning to England, one of the most important of the caverns

Exploration of the man caverns of England.

formerly inhabited by men is that known as Kent's Hole, near Torquay, in Devonshire.

This was first explored by the scholar, MacEnery, in the year 1825. No published account of the results, how-

and described by William Boyd Dawkins. Meanwhile the naturalist, Goodwin-Austen, had reëxamined the cavern of

Kent's Hole, and given the results in a memoir to the Geological Society. In 1858 Dr. Falconer informed the same learned body of the interesting discoveries made by himself in a cave dwelling at Brixham, also in Devonshire; and afterward a Professor Ramsay explored the grotto and verified the former conclusions respecting its contents.

Explorations were next carried into distant parts. In the grotto of Maccagnone, in Sicily, Dr. Falconer made discoveries in the same general line with those already recorded. The peculiarity in this instance was that many of the relics of men and animals were found aggluti-



GROTTO AND ROCK SHELTER OF BRUNIQUEL—AN ABODE OF PRIMEVAL MAN.

Drawn by Riou.

ever, was made until 1859, when the relics were classified by Mr. Vivian. In 1862, a remarkable hyena den called Wokey Hole, near Wells, was explored

nated to the *top*, or roof, of the cavern, where they had seemingly been held in place by the action of water until

Peculiar finds in the grotto of Maccagnone.

the precipitation of lime had cemented them to the ceiling! Some interesting caves have been explored at Gibraltar with results similar to those enumerated above.

It is thus that antiquaries and scholars have become acquainted with the conditions under which the cave dwellers of the prehistoric age passed their existence.

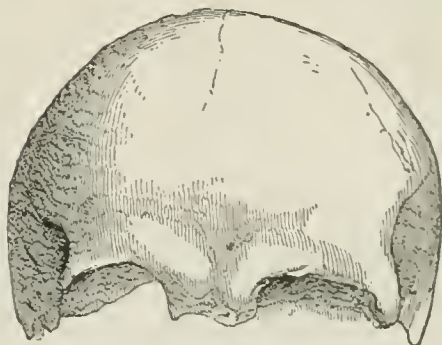
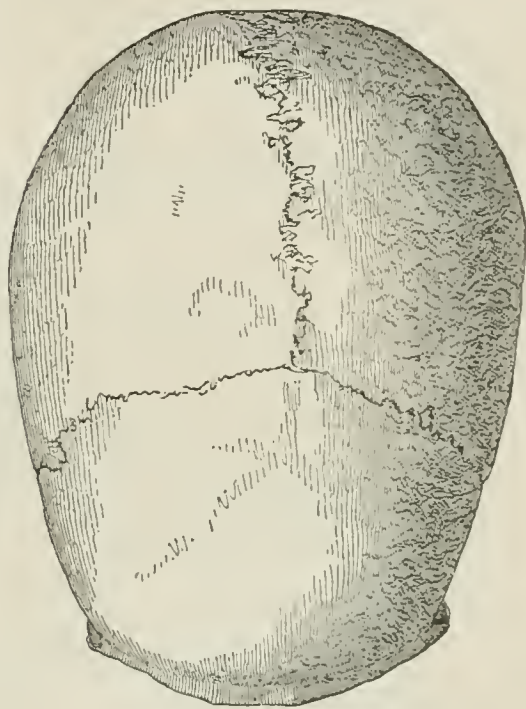
It will be seen at a glance that the illustrations of the life of these primitive barbarians are drawn first from the character of the human remains themselves; secondly, from our knowledge of the animals with the bones of which the human relics are found intermingled; and thirdly, from the character of the implements and utensils which the cave men left with their own skeletons in the clay beds of the caverns.—Let us look then, first, at the remains of the cave men themselves and compare these human relics of a prehistoric epoch and people with the like parts of existing races.

One of the most interesting skulls which has come to us from the time of the cave dwellers is that found by Dr. Schmerling in the limestone cavern of Engis.

Illustrations of cave life drawn from three sources.

Characteristics and suggestions of the Engis skull. A cast of this skull has been made and duplicates distributed to the leading museums of the world, and the most skillful naturalists have passed upon its character. On the whole, it is of smaller capacity and less symmetrical development than the average cranium of the civilized man of to-day. It is narrower in the forehead, and gives evident indications of weakness in other respects. But still it is of better capacity and much less forbidding than might be expected in a case of a prehistoric inhabitant of a cavern. The skull plate is not especially thick, and that part which is

supposed to indicate animality is not more protuberant than in the case of many skulls of existing races. Professor Huxley has candidly remarked that "It is a fair average human skull, which might have belonged to a philosopher,



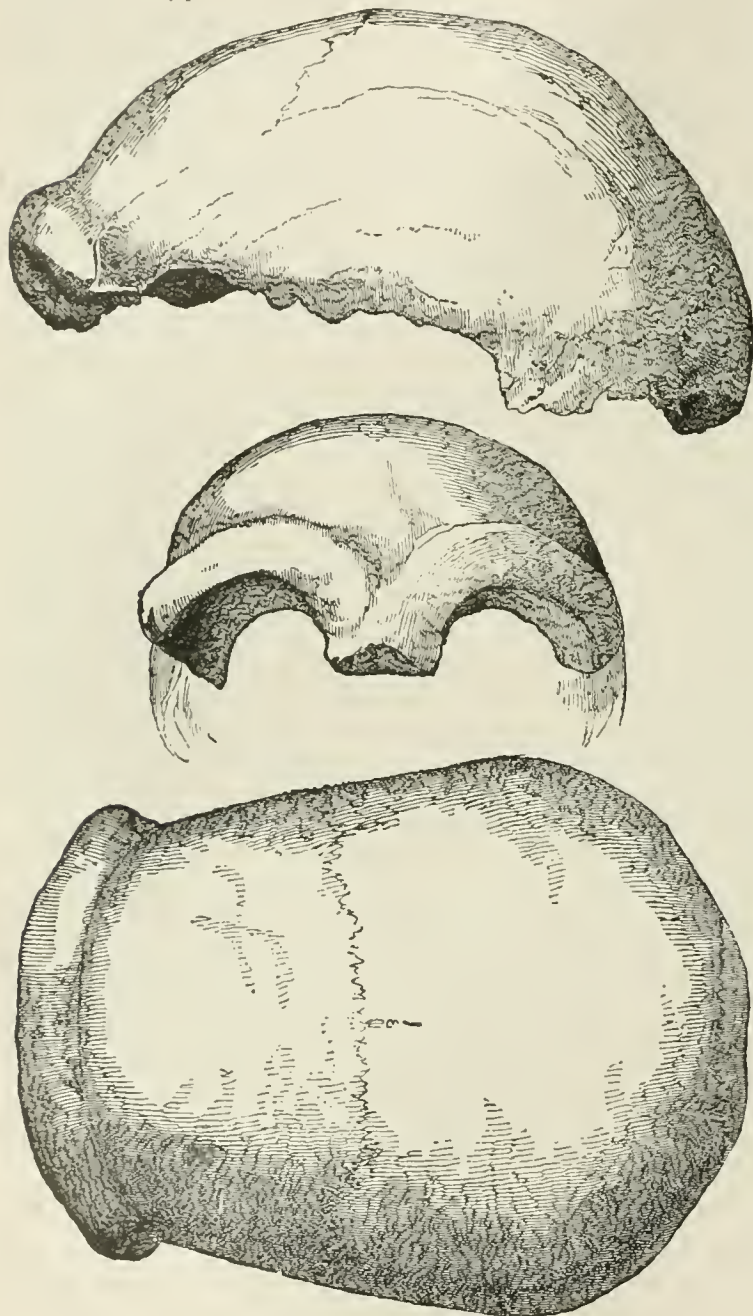
THE ENGIS SKULL.

or might have contained the thoughtless brains of a savage."

Very different from this, however, is the skull described by Schaafhausen, which was taken from the cave of Neanderthal, near Düsseldorf, in Rhenish Prussia. The latter is so exceedingly

gross in its form and structure as to suggest, almost with the force of demonstration, a type of life but little above

barous, has a skull at all comparable with the Neanderthal in its small capacity, outward-sloping occiput, and great



THE NEANDERTHAL SKULL.

that of the beasts of the field. The skull is almost as flat and thick and receding as that of a gorilla. No man of any existing race, even the most bar-

thickness of bone. The accompanying cut of an authentic cast will sufficiently illustrate the character of the skull under consideration.

Peculiar animal-ity indicated by the Neanderthal skull.

It is not needed in this connection to enter into details respecting the character of the other parts of the human skeletons which have been found in the cave dwellings of Europe. It is sufficient to note the fact that in general these remains depart somewhat from the highly developed and symmetrical forms of living

Other features of the skeletons of the cave dwellers.

types of men, and verge off unmistakably in some particulars toward the forms of the lower animals. The arms, for instance, of the cave men were longer than those of existing races. The hands also shared the elongation of the humerus and ulna, and appear to have had less of that lateral flexibility which distinguishes the human hand from the fore paw of the chimpanzee. The animal quality is again illustrated in the size and shape of the under jaws of the cave men. There is in this respect a consid-

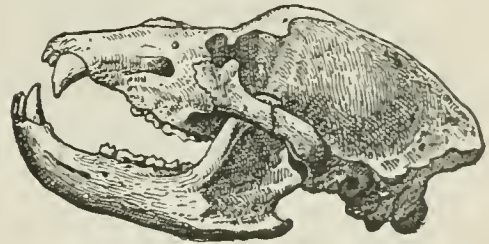
erable departure from the square, light, and symmetrical lower jaw of existing races. The teeth also of the cave dweller were, as a rule, larger and more canine than the human teeth of the present. The shape and armature of the mouth were more distinctly carnivorous than could be found in the case of any living species of men, and the bones of the body were, as a rule, stronger and redder and armed with higher processes for the attachment of muscles than we find in skeletons of the historical period. On the whole, the indications derived from the bones of the cave dwellers point convincingly to a type and manner of life considerably more approximated to the mere animal existence of the creatures with which these primitive savages contended than to the highly organized bodies and refined characteristics of living men.

Something has already been said of the character and place of the animals with which the prehistoric man was associated in Western Europe. It is now no longer doubted that he was a companion of the mammoth and the hairy rhinoceros at a time when these huge pachyderms still prevailed in the country. Of all the animal remains with which the bones and implements of man are associated in the cave dwellings the most numerous are those of the cave bear. Perhaps not a single cavern in which the relics of human life have been found has been explored without the discovery of the bones of this extinct animal. He seems to have roamed everywhere in the west of Europe, and to have had a special liking for those limestone vaults which the cave men chose for their dwellings. The bones of this *Ursus spelæus*, or cave bear, indicate that the possessor was sometimes killed and

eaten by the cave men, who dropped the inedible parts on the cavern floor. But in other instances the bear seems to have died a natural death in the cavern which had been inhabited in the same period by men.<sup>1</sup>

The second of the extinct animals with which the cave man was most associated was the cave hyena. The bones of this creature, mixed with those of man and with palæolithic implements, are plentifully distributed in the caverns which have been above described. The animal in question did not differ very greatly from the spotted hyena of Africa and Asia, and his habits, doubtless, were of the same kind as those of his prototypes.

Cave hyena and cave lion; their distribution.



HEAD OF CAVE BEAR.

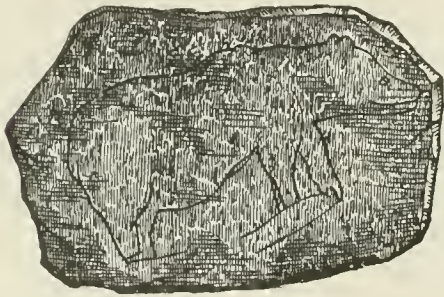
The cave lion, scientifically called *Felis spelæa*, is the third of the animals which were associated with the prehistoric man. This beast was much larger and stronger than modern lions, if we except the great beasts of Africa. The ancient animal was even more strongly discriminated from the tiger than is any existing variety of lion. The primitive beast roamed freely in France, in Ger-

<sup>1</sup> It is almost certain that the cave bear of the old stone age was the progenitor of the common brown bear of Europe and America. The skeleton of *Ursus spelæus* is somewhat larger and stronger than the bone-frame of his descendants, and his jaws and teeth had specific characteristics marking him as a different, or at least more primitive, type of animal; but in other respects the naturalist finds little to discriminate the ursus of the cavern from his modern representatives—little except the size.

many, in Italy, and in Sicily, and his remains have been known and classified since the seventeenth century. It is thought that the bones of the same animal have been found at Natchez, on the Mississippi, a fact which would seem to indicate a very wide distribution of this creature. Other varieties of the genus *Felis* also existed in the epoch of the cave dwellers, and their remains are found associated with those of men.

Reference has already been made to the contemporaneous existence of man and the mammoth. This creature seems to have been distributed over the whole of North America and the continent of Europe from Land's End to Siberia.

Great pachyderms; restoration of *Elephas primigenius*.



SKETCH OF CAVE BEAR, DRAWN ON A STONE FOUND IN THE CAVE OF MASSET.

From the north the mammoth crossed the Alps, and his remains are found as far south as Rome. But no traces of this pachyderm have been found south of the Pyrenees or in the Mediterranean islands. As a rule, and for very obvious reasons, the bones of the mammoth are infrequently found in the cave dwellings of Western Europe. As already noted, the entrance to these abodes were generally too narrow to admit so huge a beast; but there are instances in which the bones of man and the relics of the mammoth have been washed by water into a contemporaneous deposit in the bottom of caverns. In other localities the skeletons of the mammoth or parts

thereof have been found in close and frequent association with the skeletons of prehistoric men, and in such localities the age of the deposit can nearly always be determined by the presence of old stone implements. No fact in natural history seems to be better established than the coexistence of man and this so-called *Elephas primigenius* in most of the European countries. The story of the discovery of the hairy mammoth imbedded in a mass of frozen soil in Siberia is well known. At the beginning of the century this remarkable find was brought to the knowledge of scientific men, and a portion of the animal recovered from the dogs and wild beasts to which it had been abandoned. The mammoth was a huge pachyderm of the elephant order, with a dark colored skin, covered with reddish wool, mixed with long black bristles stronger and coarser than horsehair. A restoration, from strictly scientific data, of this great beast of primeval Europe has been effected by Professor Henry A. Ward, of the United States, and doubtless the monstrous effigy thus produced fitly represents the animal as he was in the days of the cave men of Western Europe.

The bones of the hairy rhinoceros are found in the caverns in juxtaposition with those of men. But Other animal remains found with those of man. like those of the mammoth, the locality best suited to such association of human and non-human relics are the drift formations and gravel beds of the open country. The remains of the musk ox, or more properly the musk sheep, now limited in its habitat to arctic America and Siberia, are also found in union with the relics of the prehistoric inhabitants of the Continent, and even of England. Bones of this animal have been discovered



in Kent, on the banks of the Severn, and in the gravel beds of Avon.

The hippopotamus also, that is, an extinct variety of the species, prevails within the human epoch, and the relics of this animal are associated with those of the cave dwellers. In at least four caverns in England bones of the ancient hippopotamus have been found. The caves of Durdham Down, Kirkdale, Kent's Hole, and Raven's Cliff, in Gower, have all yielded specimens of this extinct beast of the post-pliocene era.

The reindeer was also contemporary with the prehistoric tribes in the west of

The reindeer a former inhabitant of Central Europe.

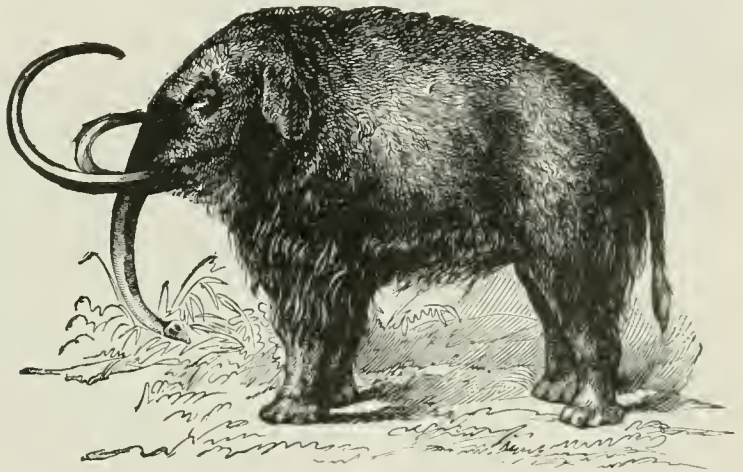
Europe. He belonged to the age of

bronze. At the present this animal ranges far to the north, being wellnigh limited in his habitat to Siberia and Lapland. In America also he beats far up to the arctic regions, but in the central parts of our continent the caribou is thought to be an inflected variety of this same species of rangerine stag that has left his remains with those of primeval man in France and England. In the caverns of Wales more than a thousand horns of the reindeer have been discovered, and traces of his existence are everywhere abundant as far south as the Alps and the Pyrenees. Of the extinct animals that have flourished since the appearance of man only the mammoth and the hairy rhinoceros seem to have been older species than the reindeer. The latter appears to have had great endurance, and as late as the time of the composition of Cæsar's *Gallic War* the animal still roamed in the Hercynian forest—at

least such was the information brought to Cæsar. The primitive man captured the reindeer, feasted on his flesh, took his horns for implements, and his hide for a cloak; but the animal was not domesticated in prehistoric times.

More noted still as a contemporary of the cave dwellers was the great stag called the Irish elk. This was, perhaps, the most magnificent animal of all that we are here considering. He grew to a stature of more than ten feet, and an existing pair of his antlers measures eleven feet from point to point! These

Size and characteristics of the Irish elk.



MAMMOTH, RESTORED.

tremendous horns were palmated like those of the American moose, and the huge creature dashing about the Irish peat bogs or through the oak woods of Britain must have been terrible, even sublime, in aspect. His remains are frequently found in the peat measures of Ireland and on the Continent, but still more abundantly in the lacustrine shell marl underlying the bog earth of the marsh lands.

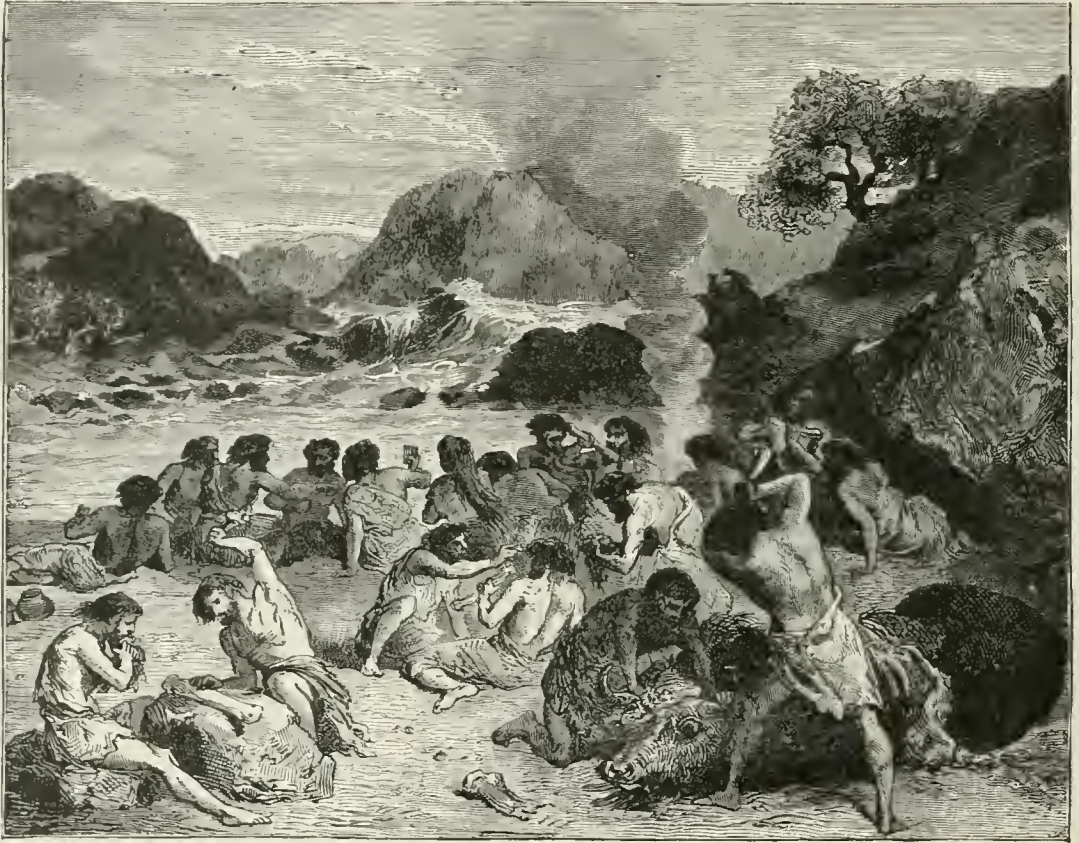
Next in order of these prehistoric animals is the glutton, called in America the wolverene. He appears to have been a contemporary of the creatures

above enumerated, and in many places to have had a particular association with man. But more important by far in such association was the aurochs, or European bison. This animal has been long extinct in France and England, and yet we have the remarkable fact of his survival in a cognate species in

The prehistoric bison of Europe and America.

gravel yields some relic of this heavy prehistoric animal. Oddly enough, his name is omitted from the interesting list which Cæsar has enumerated as inhabiting the Hercynian wood in the time of his invasion. But the tradition of the aurochs is given in the Niebelungen Lied and other ancient documents.

It seems that the extinction of this an-



FEAST DURING THE EPOCH OF THE REINDEER.—Drawn by Emile Bayard.

America. The bison *priscus*, or old buffalo of America, is now known to be a more ancient variety than the aurochs of Europe, and yet the latter was contemporary with man along with the mammoth and the reindeer. The aurochs was widely distributed. His remains are found in Scotland, England, France, Germany, Denmark, Sweden, Poland, Italy, and Russia. Nearly every bone cave and bed of river-drift

imal is traceable wholly to the aggressions of civilization and not to any vicissitude of climate. The European bison is said to have been seen in Northern Prussia as late as the latter part of the eighteenth century, and it is believed that a precarious existence is still maintained by the species in some uninhabited parts of Western Asia. An interesting episode is furnished in the fact that in

Late extinction of the European buffalo.

the Polish revolution of 1831 a herd of more than seven hundred bisons which had been preserved by the Emperor of Russia in the great forest of Lithuania was attacked by a body of the insurgents, and a hundred and fifteen of them slaughtered. A remnant of this herd exists to the present day in the same forest.

The urus, or primitive ox, seems to have been limited in his range to the

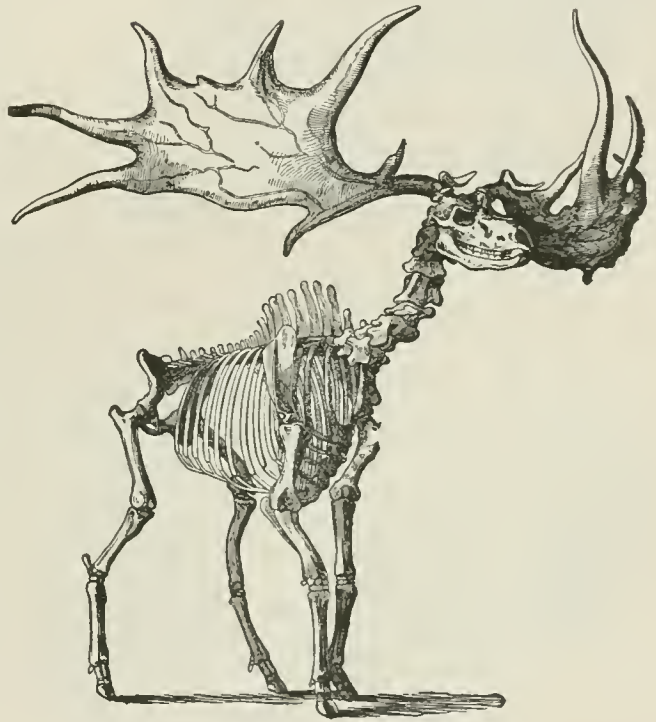
European continent. No traces of his existence have

Primitive ox of Europe; Cæsar's description.

been found in America and none in Asia, but remains of the animal are plentifully distributed in England, Scotland, Denmark, France, Germany, and Sweden. Bones of this species have been discovered in Northern Africa. In the museum of Lund a skeleton is preserved, in one of the vertebræ of which a wound, made, as is believed by Professor Nilsson, by a flint weapon, is plainly traceable. Cæsar, in the sixth book of the *Gallic War*, gives a full account of the urus as follows: "Of these animals, there is a third species which are called uri. They are in size only a little inferior to the elephants; in color and appearance and form they are bulls. Great is their strength and great their velocity. Nor do they stand in dread of either man or beast. The inhabitants take and slay them by skillful contrivance and pitfalls." The tradition of the urus is also preserved in the *Nibelungen*. The species has been like the aurochs, especially persistent, and has only given way before the invincible pressure of civilization. It is said that wandering groups of uri were

known in Germany as late as the sixteenth century, and there is little doubt that the wild bulls which ran at large in the neighborhood of London as late as the twelfth century were identical, at least in descent, with the uri of the Continent. Nor would it be possible to say to what extent the blood of the extinct animal courses in the various breeds of cattle at the present time.

Thus we see that while some of the



THE IRISH ELK (MEGACEROS HIBERNICUS).

prehistoric animals above enumerated are indubitably extinct, others have in some sense transmitted themselves into the historic era. The mammoth and the hairy rhinoceros long since ceased to exist in the countries which we are now considering. But the cave bear, not unlike the grizzly of the Yuba mountains, has doubtless left reduced varieties of himself to the present time. So also the reindeer, and, as we have

Some prehistoric animals survive in living species.

just seen, the aurochs and the primitive ox. This is to say that if we look at the current of prehistoric animal life in Western Europe, and consider it as a river flowing over a plain and dividing into multifarious streams as it flows, we shall see some of these streams sinking anon into the sand and disappearing forever, while others maintain for a while a straggling and reduced volume until they in turn disappear. A few currents flow still further and are found precariously wandering on the surface even to the present day. The main point to be borne constantly in mind in this connection is that far back in the midst of these branching currents of animal life primeval man held his career as contemporary even with the oldest divisions of the stream.

From the earliest appearance of man on the earth, he seems to have had a disposition to subordinate and use the various animals with which he has been associated. According to the sacred writers, he was to have "dominion over the beasts of the field and every creeping thing." Certainly he has shown a disposition to subdue and possess a great number of the wild creatures of his habitat. His success, however, has been but partial. Some of the animals have spurned his control and escaped from him. The struggle for mastery has gone on until an epoch in civilization has been reached in which man has given his energies to the subordination of the forces of nature rather than the forces of animal life.

The disposition to tame the wild creatures has been deflected into another form of activity. The present conflict of man with the animals tends to destroy rather than to domesticate. From the earliest ages of history and tradition, however,

some of the living creatures with which man has been associated have been tamed and brought under his control. Even the archæological and inferential sort of history which we have been developing in the preceding pages shows conclusively that in the most primitive condition of human life several of the animals were domesticated and used by primeval man at his will. It is interesting in this connection to note what these domesticated animals were under the dominion of the cave dwellers of Western Europe.

First of all, the men of the caverns had tamed the dog and associated him closely with their abodes.<sup>1</sup> It appears that wild dogs, to say nothing of wolves, abounded in some localities, but as a rule the canine bones which are found associated with those of men are of domesticated animals, and their abodes seem to indicate that the cave man was accompanied by large packs of

Early date of the practice of domestication.

The dog the first of the domesticated animals.

Disposition of man to domesticate wild animals.

<sup>1</sup>It will interest the reader and strengthen his confidence as well to know *how it is* that the naturalist is able to distinguish the bones of a wild animal from those of one domesticated. To the man of science the case is perfectly clear. The characteristics of the wild and the tame skeletons are so well marked as to leave no doubt whatever relative to their respective antecedents. The bone of the animal under domestication becomes smooth, and the channels on the surface through which the veins and arteries and nerves are distributed become so shallow as to be no longer traceable. The processes and spines which nature has provided for muscular attachments are at the same time reduced in height and size, and the whole appearance of the bone surface becomes as distinctly unlike that of the corresponding species of the wild animal as the living aspect of the domesticated variety is unlike the ferocity and vigor of his untamed kinsman. The accompanying cut of the vertebræ of a cow and of the corresponding part from the back of a buffalo will sufficiently illustrate the marked difference in the bone structure of wild and domesticated animals.

dogs. He used them not only in his contests with wild animals but also for food. The canine bones which are found in the caverns show conclusively that they were broken and sawed open for the marrow in the same manner with the bones of other species. The goat also was almost universally domesticated, but, contrary to what might have been expected, the sheep in many parts was still abroad with the wild animals.

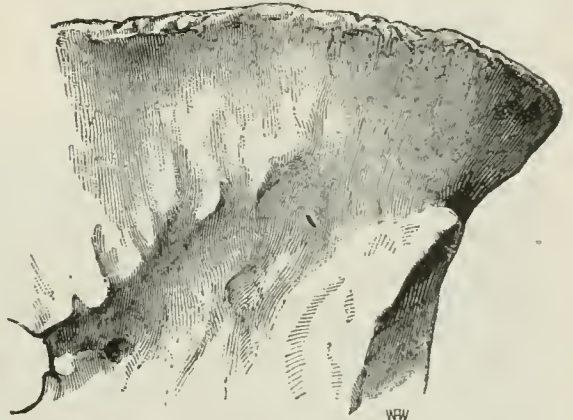
It is doubtful whether any inclosures, properly so called, were used by the cave dwellers, and it appears that sheep,

by their native instincts, are less disposed than goats to accept the control and protection of man—more disposed to straggle off and revert to the original type. The same remark may be applied to the cat in contradistinction to the dog. The former, though regarded as a special pet of the human family, seems, after all, to form only a strong local attachment for a given place, but very little attachment to human beings. The dog, on the contrary, attaches himself to his master, and not to any particular place. He follows his master to the end of the earth, and cares but little for his own kennel as compared with his master's company. It seems that the goat has much of this same instinct; and for this reason, doubtless, the prehistoric barbarians of Western Europe held the goat almost always in domestication. Though sheep were domesticated and used for both their flesh and their fleeces, they were nevertheless wild animals rather than tame.

The same classification must be applied to the primitive cattle. It appears that in some places kine were at least

partly domesticated, but, as a rule, they ran wild. This may be said also of the swine of the prehistoric age. It is in evidence that droves of domestic pigs were owned and driven from place to place by the barbarians; but for the most part the hog had his native lair in

Many beasts partly tamed by prehistoric races.



PART OF THE VERTEBRA OF A COW.



CORRESPONDING PART OF VERTEBRA OF THE BISON.

the forest, and was very little subject to domestication. These wild swine were frequently pursued and captured and used for food by the cave men, as is attested by the broken and sawed bones which are left in the caverns and gravel beds. As for the horse, he also ran wild, and it does not appear that in any part of Western Europe, at least in the

old stone age, this noble animal had been reduced to domestication. But his flesh was eaten in common with that of many other animals.

As a general fact the cave dwellers were exceedingly carnivorous in their habits. This is the one characteristic of their method of life which discriminates them so strongly from the Aryan household described in the preceding chapter.

Eating habits of the aborigines of Western Europe.

already remarked, the marrow of the bones was sought with avidity, and scarcely a single fragment was left unexplored for this delicacy. In the rude life of the cavern the bones were simply broken or crushed by some of the heavier stone implements employed by the cave dwellers. But the more approved method was to cut the bone longitudinally with a stone saw. Specimens of this work are plentifully preserved in



HUNT OF THE WILD BOAR.—Drawn by Emile Bayard.

It is doubtful whether by the ruder type of the cave men the soil was cultivated at all. They availed themselves of many vegetable growths, ate masts and roots and wild fruits of the woods, and even devoured the barks of trees; but it does not appear that the rational cultivation of the soil was practiced or even known by these rude barbarians. They lived for the most part on the flesh of animals, and this was generally torn from the skeleton and eaten raw. As

nearly all the principal museums of the world. The bones of the ox, the sheep, the goat, the reindeer, the fox, the wolf, and especially of the dog, are found treated in this manner in the débris of the caverns. Nor is there any mistaking the purpose and intent of the barbarians in this work.

We have now, in our consideration of this archaic type of man in Western Europe, arrived at the point where the implements and utensils of his household

may be appropriately considered. The one thing to be remembered and repeated

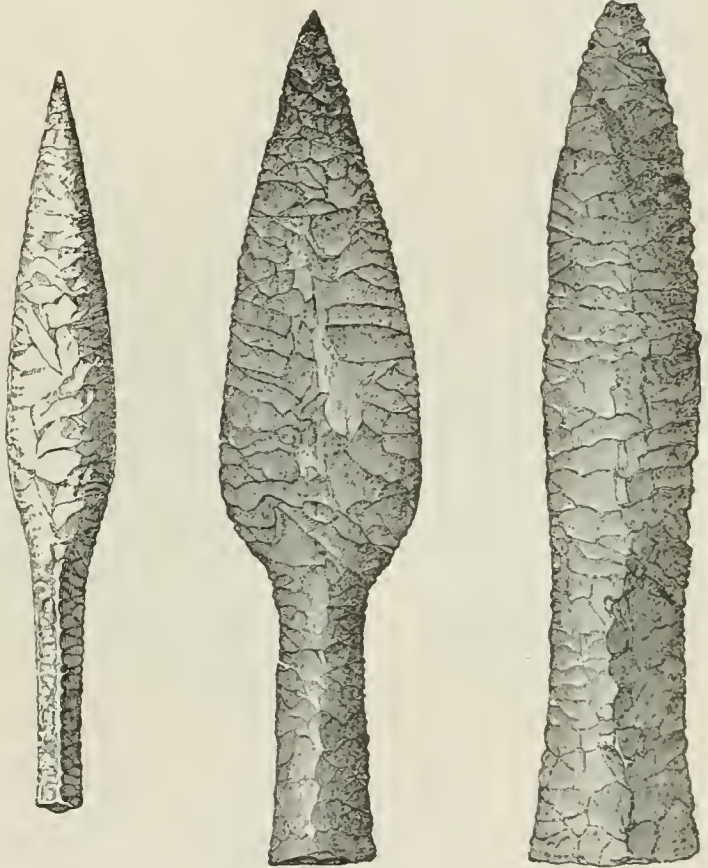
Place of the cave men zoologically and geologically.

with emphasis in this connection is that the cave dwellers flourished in the old stone age. Only in few instances and in peculiar localities does this primeval form of human life seem to have extended upward from the palæolithic into the new stone epoch, and still less frequently into the age of bronze. It must be constantly borne in mind that, on the zoological side of this inquiry, the primitive man of the western parts of Europe was allied with the extinct species of animals described in the preceding pages; that in his geological relations he held his career in what is called the post-pliocene, or quaternary period, and that in his archæological relations he was associated with the old stone era. We come, then, to consider some of the details of his implements and household apparatus.

The utensils and weapons of the cave men were made from flint and analogous varieties of stone. They were broken and chipped into form after the rude manner described on a former page.

Extent and variety of prehistoric implements in museums. Those who have given little attention to the subject and have seldom visited our museums of archæology can but be astonished at the great abundance of old stone implements which have been recovered from the age which we are here considering. In the museum of Copenhagen, for instance, there were,

in the year 1864, one thousand and seventy flint axes and wedges, two hundred and eighty-five broad chisels, two hundred and seventy hollow chisels, three hundred and sixty-five narrow chisels, thirty-three hollow narrow chisels, two hundred and fifty poniards, six hundred and fifty-six lanceheads, one hundred and seventy-one arrowheads,

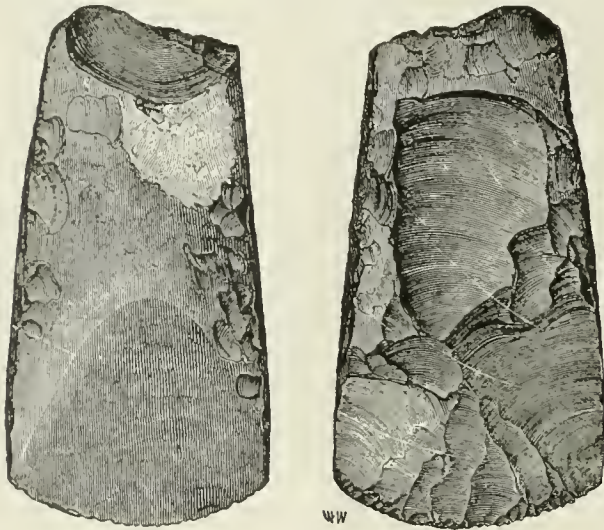


PALEOLITHIC DAGGERS.

two hundred and five half-moon shaped implements, seven hundred and forty-six pierced axes and ax hammers, three hundred flint flakes, four hundred and eighty-nine sundries, three thousand six hundred and seventy-eight rough stone implements from the shell mounds of Denmark, one hundred and seventy-one bone implements, one hundred and nine other bone articles from

the shell mounds, making in a single museum a total of eight thousand seven hundred and ninety-eight specimens illustrative of the age of stone.

The Danish museums contain an aggregate of about thirty thousand stone implements, and these are but a fragment of the great collections of other countries. The museum of the Royal Irish Academy contains seven hundred flint flakes, five hundred and twelve so-called "celts," or axes, more than four hundred arrowheads, fifty spearheads, seventy-five scrapers and



PALEOLITHIC AXES FROM THE SHELL MOUNDS.

many sling-stones, hammers, whetstones, grain-crushers, etc. The great museum of Stockholm contains upward of fifteen thousand specimens illustrative of the weaponry and utensils of the age of stone. Indeed, in all parts of the civilized world, in public and in private collections, vast numbers of a still vaster aggregate remaining in the earth of these stone-made relics of the prehistoric times have been gathered, and it is not to be doubted that other museums still more capacious could easily be filled with like materials.

Perhaps the most important single

implement used by the primitive inhabitants of Europe was the stone ax. This tool, even from the Stone axes, and the work accomplished with them. paleolithic era, had a certain rude approximation in

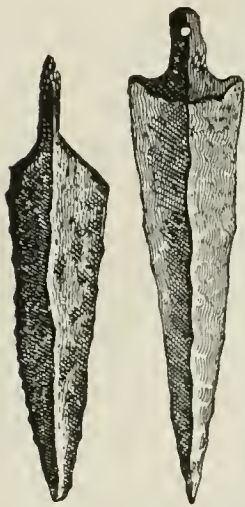
shape and character to the modern ax of steel. But the stone implement was generally fastened to the helve by a much more primitive method than that employed in the case of metallic axes. The stone ax, after having been chipped into proper form from a block of flint, was generally inserted in the limb of a tree, broken or cut off to the proper length. The blade was fastened in the opening by the binding around of strips of rawhide or the tendons of some strong animal. There was great variety in the size and shape of the implement and equally multifarious uses. The barbarian seems to have employed his ax for everything. When we consider the rudeness of the tool and the manner of its mounting, it seems almost incredible that it could have been so effective in the hands of those who used it. It is well known that these prehistoric people cut down large trees, sharpened heavy piles, and accomplished other

astonishing feats with their rude stone axes. Doubtless the time required to do such work was considerable, and it is known that in many cases fire was employed to assist the process. The barbarian used his ax, as already indicated, to split or burst the bones of the animals whose flesh he devoured and whose marrow was regarded as a morsel.

The cave dwellers and their contemporaries also manufactured Flint knives, and the manner of their production. and used a great variety of knives. The patterns of these were almost as variable as in the case of modern cutlery. Sometimes



the knife was double, having a blade fixed in either end of the handle. Generally it was single bladed, and in a great many cases had no handle at all. The



FLINT ARROWPOINTS FROM THE BONE CAVERNS.

blade was produced from a flake of flint or obsidian, and was chipped into form after the manner already described. It must ever be a matter of astonishment that the savage man of the prehistoric ages was able to produce such fine effects by the mere breakage and chipping of such material as flint.

Next among his implements may be mentioned the chisels which he used and which are also of various patterns—some narrow, some broad, some hollowed along the center of the shaft, and others convex. It was a general peculiarity of these stone implements that the cutting edge was curvilinear, either gibbous or semilunar in shape. This is true of the edges of the axes and chisels and adzes and knives, and indeed nearly all lithic implements and weapons.

Perhaps no complete enumeration can be made of the tools and utensils in

use among the prehistoric peoples whose manner of life is here delineated. The variety was wellnigh as great as that in the shop of a modern artisan. There were sledges and hammers and saws, wedges and celts, spearheads, arrow-

heads, javelinpoints, daggers, poniards, many varieties of cutting instruments after the general pattern of the knife, scrapers, picks, many kinds of hatchets, sling-stones, weight-stones for nets and fishing lines, harpoons, awls, lapstones, and an infinity of the so-called flakes. Nearly all the varieties here enumerated can be seen in any ordinary museum of antiquities, and the beholder, by their inspection, can but feel himself drawn near to the prehistoric race of men by whose hands these implements were wielded.

It is not intended in the present work to enter into the details of archæology. It is not even the purpose to give any elaborate account of the slow transformation by which the tribes of the old stone age passed by evolution into the new stone age and thence into the age of bronze. It is sufficient to note that the general manner of life of the cave men and their contemporaries was that of hunters and fishermen, men of

Manner of life without and within the man caverns.



FINE PALEOLITHIC ARROWPOINTS.

the woods and stream. Doubtless it would be improper to speak of the "social system" of a people that had no society at all. The cave dwelling would seem to indicate an exceedingly solitary life. It appears that in the case of the larger caverns quite a band of the barbarians

Great variety of prehistoric tools and weapons.

lived together. The abundance of bones and relics is much greater than we should expect in the case of a single family or tool was of so great importance than in a modern household where an implement can be immediately replaced.



PREHISTORIC MAN OF THE NEOLITHIC AGE.  
Drawn by Emile Bayard.

The care which these people bestowed upon their utensils is well illustrated in the distance to which they were carried in the case of migration. Nothing is more common than to find flint implements and weapons at a distance of hundreds of miles from the quarry whence the material was taken. The man of antiquity sought assiduously for the best quarries and ledges from which to take the materials of his manufacture, and the old pits which the prehistoric folk dug in the chalk beds, in order to get at the layers of flint underneath, are plentifully distributed in parts of England and France. There appear, moreover, to have been seats of man-

even five families in the same abode. Nor should we forget that what we may call the waste of implements would be much less among a people where a single manufacture, sometimes in connection with the quarries and sometimes in other places. This fact would indicate a rude sort of commerce in implements. But

over and above this circumstance the fact remains that the barbarians themselves clung to their tools and weapons with great tenacity, carried them to great distances, and only parted with them by the necessities of accident or death.

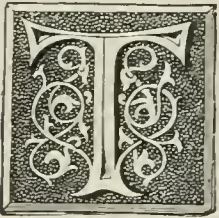
We are thus enabled to form a true concept of the prehistoric man of Western Europe. In stature, he is believed to have been considerably larger than the average man of to-day. His bones have greater length and strength, and his proportions indicate a rather gigantic form. Doubtless he was brutal in

appearance, with hair growing low upon his forehead and an animal leer on his features. Whether the day-dawn of the higher sentiments, the nobler aspirations, had as yet arisen in his spirit we can not know. But that he had in him the potency and germ of human greatness, the possibility of light and freedom and knowledge, can not be doubted or denied. He was the gross substratum of that human life which even in the present day is but half-refined from barbarism and half-redeemed from the heavy weight of brute passion and animality.

Care taken of utensils; places of manufacture.

Stature and personal characteristics of the cave man.

CHAPTER XVII.—LAKE DWELLERS OF SWITZERLAND.



HE delineation of primitive life given in the preceding chapter represents but one of several types of human existence in the prehistoric ages. The

men of the caverns were a single branch of the barbarians who inhabited Western Europe in the old stone age. It is not intended in the present work to describe all the aspects of half-savage life which present themselves to the antiquarian and ethnologist, but to discuss only a sufficient number of the primeval tribes and their methods of development to enable the reader to form an adequate idea of the whole. In the current chapter we shall turn to two or three other forms of aboriginal European life, and present them in the light of what is known or reasonably inferred concerning their career. First of all, attention will be called to the lake dwellers of Switzerland and other similar situations.

It must be known that the bodies of fresh water on the European continent have considerably diminished in area and volume since the age of the mammoth and the reindeer. The circumference of all the lakes has contracted, and the surface has sunk to a lower level. The extent of this diminution has been much greater in some localities than in others. The fall of a few feet in the level of a lake will sometimes, owing to the flatness of the shore, expose a considerable area of land that was hitherto submerged, whereas if the shores be precipitous, a fall even of many feet will make no perceptible difference in the position of the water line.

General contraction of the fresh-water areas of Europe.

Both of these conditions have occurred in different localities. In some places around the margin of lakes acres and even square miles of territory are now dry land that were formerly under water.

Character of the debatable margin around lakes.

More frequently this recently exposed strip exists in the form of marshland or bog, but half reclaimed from its ancient submergence. Wherever the lake is situated in a flat, open region, this condition of a fenland border exists to a greater or less extent. Lagoons and marshes, sometimes grown up with trees and sometimes covered with the reeds and grasses peculiar to the region of the bog, will be noted in close proximity to the lake itself, and the observer will readily note that the addition of a few feet to the water level would restore the lake to its primitive borders covering the lowlands.

In other places, particularly in the mountainous regions, the water line of the lakes has had less fluctuation. Here the waters are contained as in a cup of stone, and the rising and sinking of the lake surface has widened and contracted the border line but little. In almost every situation, however, some fluctuation has occurred, and even a single unusual season, whether it be of rain or aridity, will be clearly perceived in the narrower or wider limit of the lake. This is to say that around all of the fresh-water bodies is a debatable shore, of greater or less extent, which has been in turn submerged and uncovered according to the humidity or the dryness of the epoch. More particularly has the gradual recession of all superficial waters into the inner parts of the earth told upon the lakes, especially those of small extent, in reducing their area and depth.

The primitive European tribes, at least that portion of them which we are now to consider, were by instinct and preference led to establish themselves in proximity with great collections of water.

The advantages of such situations are obvious. If the water be fresh it fur-

nishes to man one of the prime essentials of his existence and many conveniences. It gives him, moreover, from the depths a multitude of fishes, easy of capture and good for food. If the water be salt, though its direct use by man is impracticable, it nevertheless yields him a great store of shellfish and many valuables besides. We are here to note what was done on the margin of the lakes.

The winter of 1853-54 was one of excessive rigor in Europe, but of small precipitation of rain or snow. This was followed the next summer by a season of unusual drought. Since the year 1674 no parallel had been furnished to the

Great subsidence of the Swiss lakes in 1853-54.

draft which was thus made upon the volume of the lakes and the paucity of the return which nature made thereto. As a result, the level of the mountain lakes in Switzerland fell off many feet, and quite an area of the bottom was exposed as terra firma. It was here that the discoveries were made by the antiquary, Dr. Keller, and other explorers which led to the reconstruction of that type of prehistoric communities called the Lake Dwellings and Villages.

In different ages and in different quarters of the world men have frequently adopted the plan of constructing their abodes above the surface of the water near the shore. The plan is to build a platform, supported by different methods, and on these to rear the huts in which the people lived. Between the platform and the shore communication is easily effected by some narrow structure which is defensible. In the fifth chapter of the book called *Tcrpsichore*, in Herodotus, we have the following paragraph descriptive of such dwelling places. The author is describing the manners and customs of the

Situation of the lake dwellings; account of Herodotus.

Certain primitive tribes chose the lake shores for residence.

ancient Pæonians: "Their dwellings are contrived after this manner: planks fitted on lofty piles are placed in the middle of the lake, with a narrow entrance from the main land by a single bridge. These piles that support the planks all the citizens anciently placed there at the public charge; but afterward they established a law to the following effect: whenever a man marries, for each wife he sinks three piles, bringing wood from a mountain called Orbelus: but every man has several wives. They live in the following manner: every man has a hut on the planks, in which he dwells, with a trapdoor closely fitted in the planks and leading down to the lake. They tie the young children with a cord round the foot, fearing lest they should fall into the lake beneath. To their horses and beasts of burden they give fish for fodder; of which there is such an abundance that when a man has opened his trapdoor he lets down an empty basket by a cord into the lake, and, after waiting a short time, draws it up full of fish."

But we have no occasion to seek for evidence in the ancient world of the existence of such structures as are here ascribed to the Pæonians. Dwellings over the water are constructed and inhabited by existing tribes of men. The fishermen on lake Prasias, in European Turkey, build their cottages over the water, and the town of Tcherkask is constructed above the current of the Don. In analogy with such structures we might cite the buildings of the people of India, which, though not over the water, are set on piles several feet above the earth. The same kind of abodes are found in South America and in the East Indian islands. The city of Borneo is so founded and built. The Dyaks

have their houses on an elevated platform twenty or thirty feet high, in a long row above the edge of the river, and the floors are so constructed that all refuse and waste materials fall through into the water.

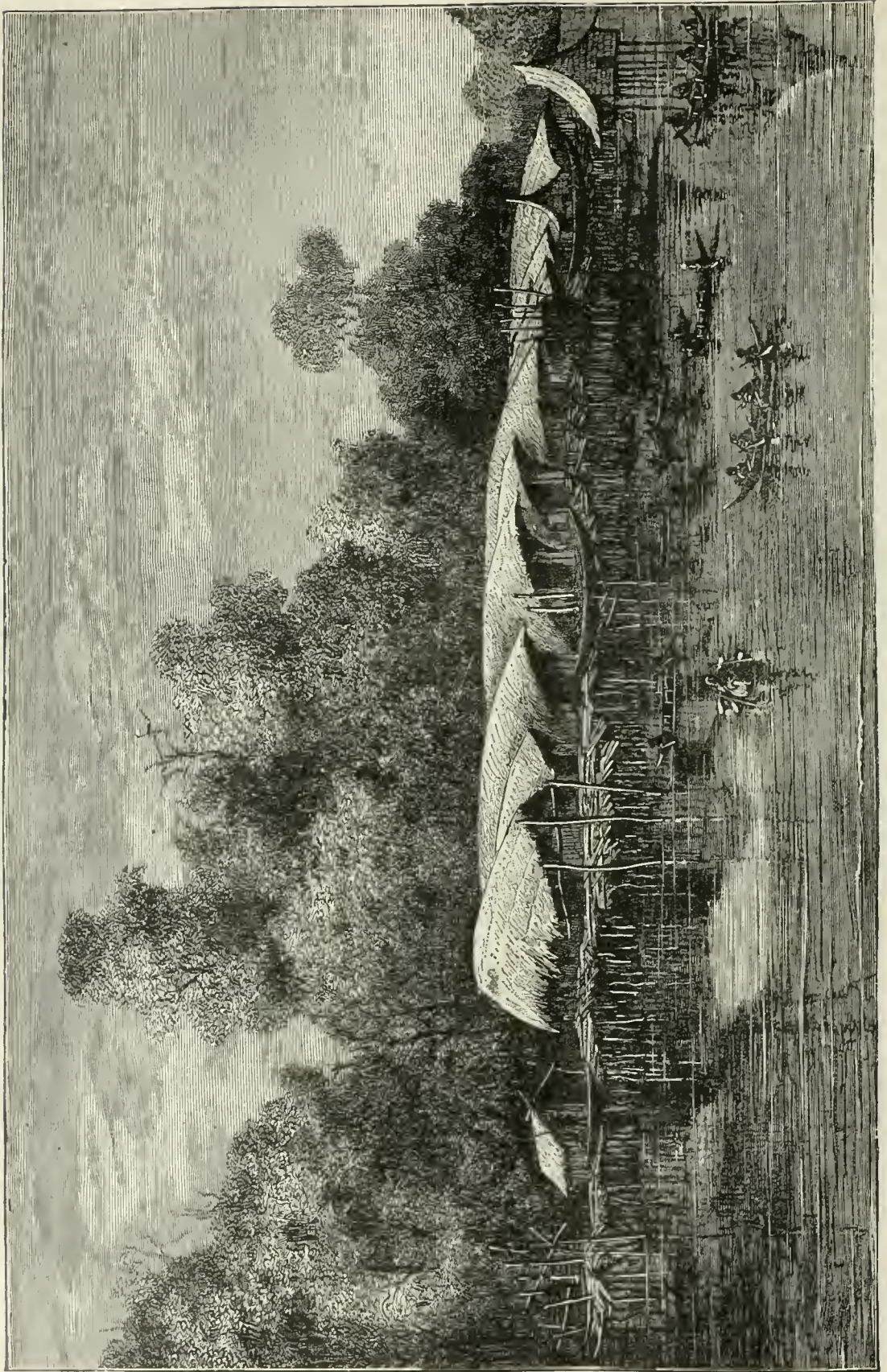
Switzerland is a locality specially fitted in its geographical structure for the duplication of the dwellings described above by the Father of History. The lakes in this mountainous region have fluctuated in the manner already described, and it was on the borders of the lake of Zurich that the first important discoveries were made. But at a later date explorations around the marshes of lakes Constance, Geneva, Neufchâtel, Bienne, Morat, Sempach, Inkwyl, Moosseedorf, and others have led to like results. A very ample demonstration has thus been obtained of the manner of life of the primitive lake people. The sites of *more than two hundred settlements* constructed as above over the water have been determined and described. No fewer than twenty prehistoric villages have been found on the shores of lake Bienne; twenty-four along the margin of lake Geneva; thirty-two on lake Constance; and forty-nine on lake Neufchâtel.

It was between Ober-Meilen and Dollikon, on the banks of lake Zurich, that the inhabitants, taking advantage of the low water following the dry season of 1854, extended their gardens down to the margin along the new water line. They built a wall and then filled the space to landward by dredging up mud out of the bottom of the lake on the water side. While doing so they were surprised to draw up vast numbers of piles, or at least the lower ends of the same, which had in some prehistoric

Lake dwellings of various countries in the present age.

Switzerland favorably situated for such settlements.

Discoveries on lake Zurich: the crannoges of Ireland.

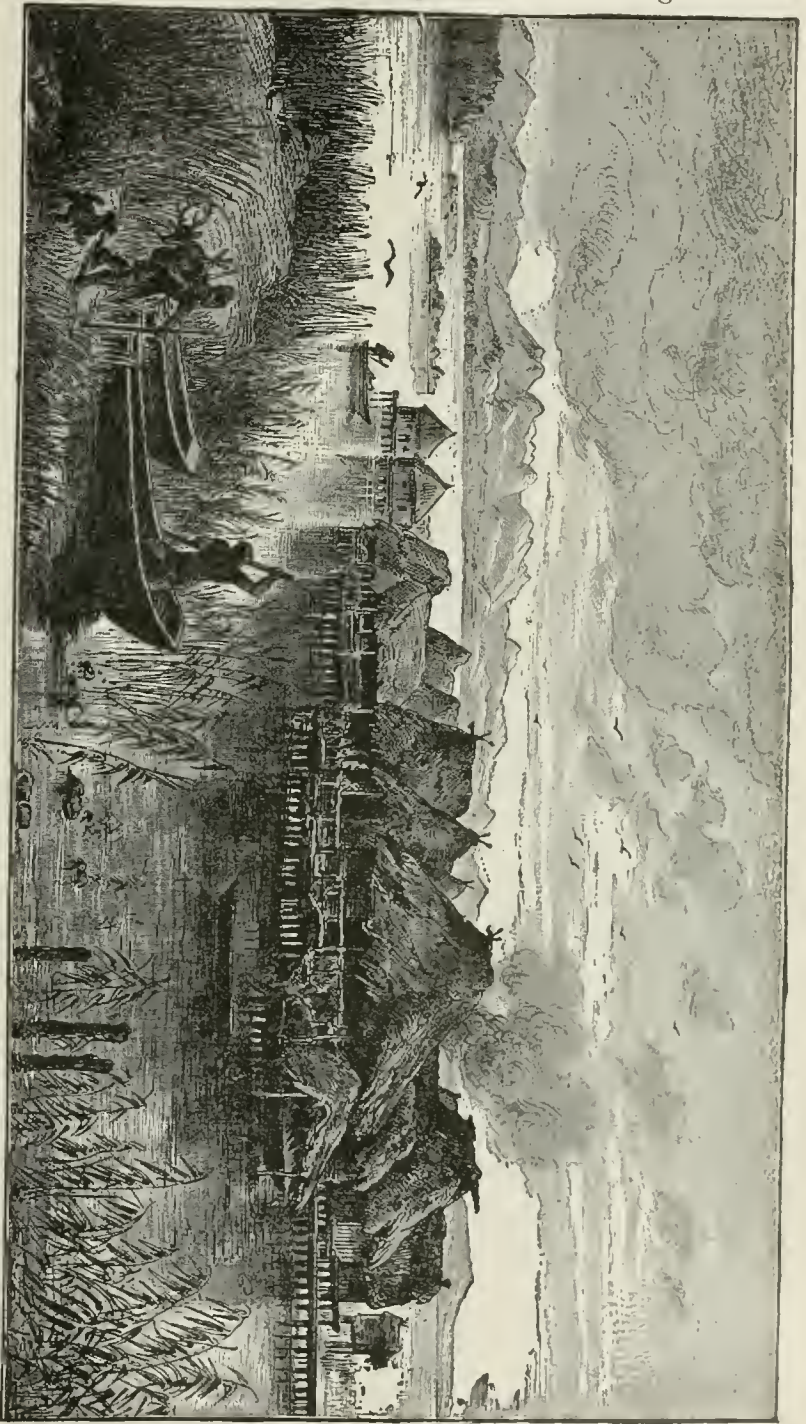


MODERN LAKE VILLAGE, AT SOWEK.—Drawn by E. Mesples.

epoch been driven down through the water. Along with these points of trees came up a large variety of deer horn and stone implements of primitive workmanship. The fact that some aboriginal people had inhabited this shore was thus made clear, and scientific explorations, under the direction of Dr. Keller and other antiquaries, soon extended and verified the discoveries.

Before proceeding to describe the utensils and weapons revealed in the lake bottoms of Switzerland, it is proper to note the analogous results attained in Ireland. The manner of over-water building is here somewhat different from that practiced by the prehistoric mountaineers. Among the primitive people inhabiting the Irish lake coun-

SWISS LAKE VILLAGE, RESTORED.—Drawn by Riou.



try the plan was to construct a platform on the water, and on this platform to create a sort of artificial island upon which houses and defenses were erected. The name given to this floating residence was *Cranmoge*, and the remnants of such structures are easily discoverable to the present time

The crannoges were the strongholds of the primitive Irish chiefs, to which they betook themselves in war, as the Highlanders of a later day to their castles. These prehistoric seats are very rich in implements and weapons and other works of the clans by which they were inhabited. But it is in evidence from the discoveries made in the crannoges that they are of a much later date than the cave dwellings of the Continent or even the lake dwellings of Switzerland. There are instances in which the contents of the Irish crannoge, as for instance that of Dunshaughlin, have been dugged up by the wagon load and distributed on the shore to enrich the soil.

In the support of the platform above the water on which the habitations of the Swiss lake people were built, two methods were employed. The first was to cut down trees, lop the branches from the trunks, sharpen one end of the same, and drive them, with many others of like sort, into the water after the manner of a modern pile work. On the upper end of these, above the surface of the lake, the platform was laid and extended according to the demands of the village. The other method was to heap up from the bottom of the lake a sort of rude stone walls, running here and there, rising to the surface, and furnishing support for the platform. But this method was only employed in the more sequestered waters, for the exposure to storms rendered this variety of building precarious.

There is little doubt that the bottom motive in selecting such a site and in building a village or even a single house above the water and at a distance from the bank was the prospect of gaining a

**Likeness to Highland refugees; the crannoge findings.**

**Methods of supporting the Swiss village platforms.**

**Fear of wild beasts determined the choice of such sites.**

vantage against ravenous beasts. In the primeval world this was always a serious question. For long ages the beast had the advantage of the man in the struggle for existence. Heroes whose fame is coëxtensive with the traditions of mankind became such by their successful warfare with wild beasts. Such was Nimrod and such was Hercules. After the hero, the next best thing was an artifice. Building over the water was an artifice. A single flattened trunk reaching from the platform to the shore, or at most a narrow causeway, was easily defended, and bears and wolves would hardly swim to the attack of men.

It appears that the lake villages were numerous and extensive. An estimate has been made by the antiquary, Troyon, as to the extent and population of these settlements. The largest village on lake Geneva appears to have been twelve hundred feet in length and a hundred and fifty feet in breadth. Giving to each hut a diameter of fifteen feet and allowing one half the space to be covered, the village would contain three hundred and eleven houses, and with an estimate of four persons to the cabin, we should have a population in this settlement of twelve hundred and forty-four. The same calculations give for the village on lake Neufchâtel a population of nearly five thousand. Carrying out the same estimates, M. Troyon thinks that the lake population in this region was more than thirty thousand at the time when the villages flourished in the age of stone.

By the backward look we may still, in the mind's eye, observe the process of constructing these lake habitations. The first thing would be, of course, the selection of a suitable site on the water's edge. The shore must be accessible

**Number and extent of the Swiss lake villages.**

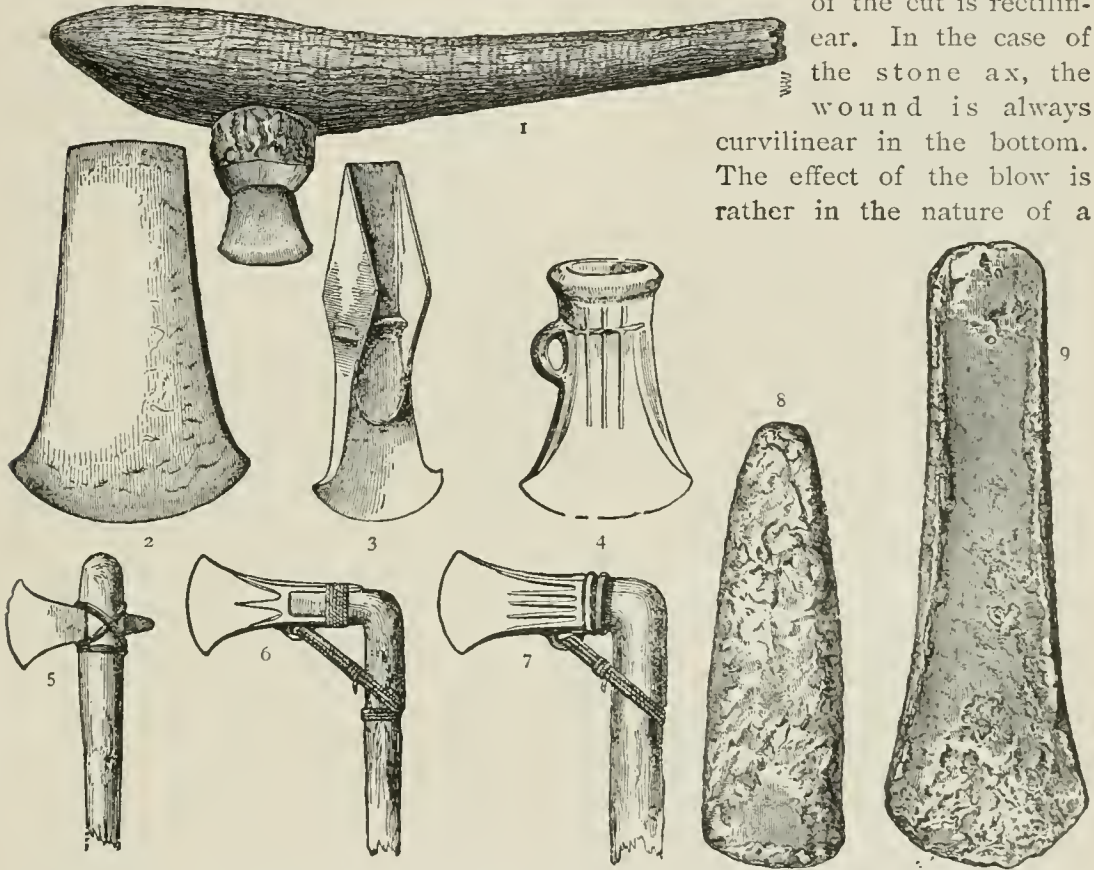


from the lake and the lake from the shore. A forest must stand near by, from which the trees are felled, with almost infinite labor, by the strokes of stone axes and the assistance of fire. It appears that these primeval men would attack the tree at the base and cut it

Materials employed in such structures by the builders.

It should be remarked in this connection that the stroke of a stone ax in wood is easily distinguishable from that of the metallic blade. The modern steel ax struck against the side of a tree, even at an angle, makes a straight wound. That is, the bottom of the cut is rectilinear. In the case of the stone ax, the wound is always curvilinear in the bottom. The effect of the blow is rather in the nature of a

Distinction in the work done by stone and metallic axes.



AXES OF PREHISTORIC MAN, SHOWING STAGES OF IMPROVEMENT FROM STONE TO BRONZE. 1, Swiss stone ax with handle; 2, copper celt, from Waterford; 3, winged celt, from Ireland; 4, socketed celt, from Ireland; 5, 6, 7, celts with handles of different patterns; 8, bronze ax, from Naples; 9, bronze ax, from Le Puy.

around as much as possible, and then burn the wounded part down to the solid body. Scraping away the charred portions, they would then cut again, until finally the tree came down. Similar methods were employed in sharpening the trunk. Here also the axes were employed and fire by turns until a rude point was obtained suitable for driving in the mud.

bruise, the wood where the ax falls being scooped out in a furrow, deeper in the bottom than at the edges of the cut.' In nearly all cases the piles supporting the platforms of the Swiss

<sup>1</sup> It is claimed that no measure of sharpness which may be imparted to a stone blade will secure a rectilinear cut—like that so easily produced with metallic axes—in the wood struck with such blade at an angle; but the reason for such difference is not clear.

lake dwellings bear the marks of stone and not metallic axes, and in nearly all cases the process of sharpening the trunks has been assisted by the application of fire.

How it was that the primitive tribes adopting this kind of structure succeeded in raising their piles on end and driving them into the lake has not been ascertained. But the unmistakable evidence furnished by the stumps of the piles themselves shows that they were raised in some way and driven down. The work appears not to have been truly done, as many of the piles stand in the mud at an angle and others appear to have been bent somewhat from their original position by the weight of the superstructure. As to the platform, it was made of split timbers, rudely framed together on the top of the piles, and no doubt tolerably firm for the reception of houses. The latter appear to have been circular in form, made somewhat after the manner of Celtic huts.<sup>1</sup> They were chinked between the cracks with small branches of trees and moss, and were pointed within with mud. As compared with the cave dwellings described in the preceding chapter, it can not be doubted that the lake houses were a great advance, superior in comfort and safety, and not wanting in a certain picturesqueness of situation and aspect.

We come now to consider the evidences of ancient life which have been discovered in the lake bottoms and peat beds over which the villages were erected. In general, these settlements belong to the old stone age. This is clearly shown by the preponderance of rough stone implements which are found under them.

<sup>1</sup> See the colored Plate at the beginning of the present book.

It appears, however, that the lake dwellers continued to hold to their position until progress was made into the new stone age, and even into the age of bronze. In several places it has been demonstrated by the plentiful discovery of utensils and weapons of bronze that the lake villagers had advanced to the manufacture and use of this metal. In any event, all of these stages of development were anterior to the epoch of the Romans, and therefore to the daydawn of history.

If we glance at the old stone implements found in the margin of the Swiss lakes and in the peat bogs where the over-water villages were built, we find them to be of the same general pattern as those already described in connection with the cave dwellings. It has been noted that the Swiss prehistoric implements, as a general rule, are smaller than those used by the cave men. This is true of the arrowheads, the spearpoints, and the axes. The material employed in the manufacture of these tools and weapons was, for the most part, flint, but in some cases rock crystal. It has been noted that spindle-whirls of earthenware coëxist in the same layer with the rough stone implements. Other evidences of spinning and weaving have been discovered in the same situation, and to this should be added the presence of stone mortars and balls for crushing corn. Sir John Lubbock has recapitulated the articles found under a lake village in the peat measure of Wauwyl as follows: Stone axes, forty-three; flint arrowheads, thirty-six; flakes, two hundred; corn crushers, sixteen; hammers, twenty; whetstones, twenty-six; slingstones, eighty-five; making a total of four hundred and twenty-six articles of stone recovered from a single bed.

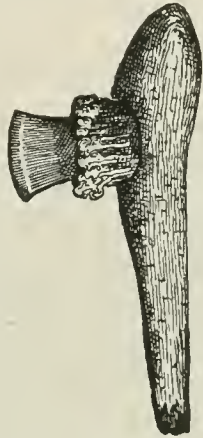
Question of setting the piles; form of the houses.

Variety of the implements; the materials employed.

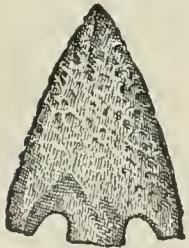
In examining these relics we are again impressed with the fact that rude commercial relations, at least the beginnings of traffic, existed in the age of which we speak. Many of the implements found around the Swiss lakes were brought, at least as to their material, from distant localities. Many of the flint implements are known to have been taken from the quarries of *France!* Some are found that were imported from the shores of the Mediterranean. It is impossible to tell, however, whether these weapons and utensils were carried by trade or by the migration of tribes to the mountain lakes of Switzerland.

By examination of the animal remains found under the lake dwellings, the inquirer discovers again the relations which the primitive people here held to the lower orders of life. As a rule, the prehistoric men ate nearly all kinds of animals with which they were associated. The skins of beasts were the principal articles of clothing, and the flesh was invariably stripped away for food. We note in the case of the lake dwellers the same appetite for marrow which we have already noted in the men of the caverns. They picked out of the hollow bones every particle of the contents, and evidently regarded the marrow as the principal delicacy. The harder and better bones were made into

Signs in the findings of interchange and commerce.



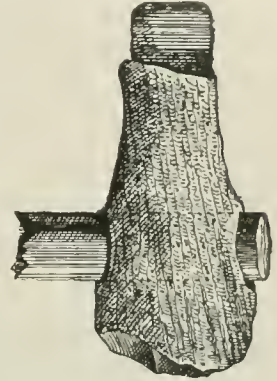
STONE HATCHET WITH SOCKET AND HANDLE.



CHIPPED FLINT ARROWHEAD.

implements, but the horns of the deer were the principal resource in this line. From these were made the handles of a great number of other implements, and also picks and awls and scrapers.

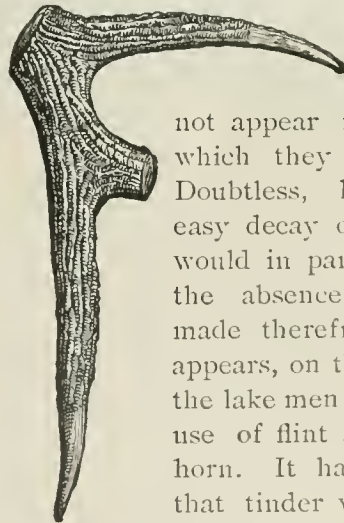
In some cases the attempt was made to produce a cutting edge from bone. But from the nature of the substance this could not succeed. Chisels were also attempted, but the material lacked strength and solidity, and the tool so formed could only



FLINT HATCHET FITTED WITH STAG'S HORN HANDLE.

be applied to the softer substances. The bone scraper was much used in the dressing of hides, in which it appears that all of the primitive Europeans had considerable skill. If the lake dwellers attempt-

Use of bone in the fabrication of tools and weapons.



PICKAX OF STAG'S HORN.

ed the manufacture of wood, it does not appear in the relics which they left behind. Doubtless, however, the easy decay of wood fiber would in part account for the absence of utensils made therefrom. But it appears, on the whole, that the lake men preferred the use of flint and bone and horn. It has been noted that tinder was employed by the lake villagers in the production of fire.

The appearance of broken fragments of pottery in the lake margins and peat beds shows conclusively that the people of the age which we are here consid-

ering understood at least the rudiments of that kind of manufacture. Very few vessels have been discovered whole, but many in pieces. These all indicate the rudest kind of work. The vessels were evidently misshapen and unsymmetrical in design. It is thought that the potter's wheel was unknown. Nor has any evidence of furnace heat been discovered in the imperfect burning to which the fragments seem to have been subjected. Perhaps an open fire produced the highest heat with which these peo-

Pottery of the lake dwellers; rudeness of the relics.

the situation has been much less favorable for the preservation of human skeletons, in whole or in part, than the mud beds under the stalagmite in the cave dwellings. The free action of water, the access of fishes to any bodies that may have dropped into the lake, the movement which would take place under the wave, and the change of temperature, very great as it is in the situation, would account for the destruction and decay of any bodies that might have gone to the bottom through the village platforms. It is likely, moreover, that



EXTINCT MANUFACTORY OF POTTERY, IN THE GLACIER GARDEN, AT LUCERNE.

ple were acquainted. The forms of a few vases have been determined which, viewed from an artistic point, are clumsy in the last degree. It is noticeable that the earthenware of these villagers is without feet or other support than the unfinished bottom of the vessel. It appears that the utensils were set upon the floor or on the soft earth where there was little danger of breakage.

Of human remains, strictly so called, only a few have been discovered under the lake villages. Nor might it be reasonably expected that many would be found. It will be seen at a glance that

Scarcity of human remains in the lake margins.

the lake dwellers had regular methods of sepulture. As has been already seen, they were considerably more advanced in the human evolution than the cave men, and care for the bodies of the dead is one of the symptoms which marks the

progressive people from the barbarians.

Some remains of men, however, have been found in the mud of the lake margin in such relation with prehistoric relics as to identify them with the age of stone. Perhaps a half dozen skeletons, including the skulls, have been recovered, and from these a fair idea of the stature, form, and characteristics of the lake people have been determined. On the whole, they were not as tall as the Europeans of to-day, but the skeleton does not indicate that strong animal affiliation which we have noted in the men of the cavern. The proportions

Bodily forms of lake dwellers determined from skeletons.

of the lake dwellers were fairly good, and the skull shows a medium capacity. Nor is the configuration specially different from that of the mountaineers of the present time. As to the personal aspect of these people there is nothing better than conjecture to guide us. We know by their manner of life that their intellectual horizon was exceedingly limited; that they had the carnivorous habit, though not in that intense degree peculiar to the cave dwellers; that the social instinct was in some measure developed, as is shown in their aggregation in village communities, and that the beginnings of agriculture among them were sufficient to show the upward tendency toward a higher level of existence.

As in the case of the cave men, much light may be thrown on the life and manners of the people of the lake villages by noting the animals with which they were associated and some productions of the soil which are known to have been economized. A large list of the beasts and birds and fishes peculiar to the era which we are here discussing has been determined by naturalists, and much valuable information therefrom deduced. The prevalent wild animals were the brown bear, the badger, the marten, the wolf, the fox, the wildcat, the beaver, the elk, the urus, the aurochs, the European bison, the stag, the deer, the wild boar, the marsh boar, the polecat. The domestic animals were the horse, the ox, the goat, the sheep, the dog, and the common swine. In the case of the horse, his domestication was but partial, and the demonstration of the existence of tame swine is not complete. It will be noticed at a glance that the wild animals here enumerated are of a somewhat later epoch than those associated with the cave dwellers. The

Animals with which lake villagers were associated.

mammoth, the cave bear, the cave hyena seem to have disappeared. Perhaps the Irish elk and the reindeer at no time held this region as a habitat.

Much may be inferred by a little clear thought relative to the condition of the villagers from the consideration of their domestic animals. Such creatures must be cared for, especially in winter. They must be fed, not to say housed against the rigors of the season. Provisions and shelter would, therefore, be necessary, and people who make such provision and provide such shelter could not be wholly barbarous. Closely allied with this consideration is another drawn from the discovery of various grains that were used by the villagers. Many specimens of charred cereals have been found with other relics of this ancient life. Grains of wheat have been recovered from the finds at Meilan, Moosseedorf, and Wangen. At the last named place the antiquary had the good fortune to discover several bushels of wheat pressed together in a lump, the grains adhering in a mass. The appearance of the wheat is almost identical with that of modern varieties of the same grain. Many specimens of what is known as six-rowed barley have been recovered from like situations, and it will interest the reader to be informed that this variety of cereal was still under cultivation in the primitive days of Greece and Rome. Altogether, three kinds of wheat have been found under the lake dwellings, two varieties of barley, and two of millet. It appears that rye and oats were as yet unknown.

Manner of lake life may be drawn from manifest data.

Reverting to the animals of the lake regions in prehistoric times we note two species of wild cattle, namely, the urus and the bison. The former seems to have been reduced to partial domestica-

tion as early as the neolithic period, but no indication of such a fact has been found in the old stone age. The largest of the animals prevalent around the Swiss lakes were these two varieties of wild oxen, the elk and the stag. The rhinoceros had disappeared and the urus had been much reduced from the

Deductions from the animal life of the lake-dwelling age.

served in the forests of Germany. It is noticeable that the list of domestic animals has been extended and confirmed. The horse has certainly become, in some measure, the servant of man, and sheep have been more positively reclaimed from the wild condition. It is thus evident that the mere barbarous life of hunters and flesh-eaters was giving way



SWISS LAKE VILLAGE OF THE AGE OF BRONZE.—Drawn by Riou.

great proportions which he bore in the times of the cave men. Looking back from our own point of view we note that elks have not existed in Switzerland during the historical period, though they still maintained an existence in the lowland forests as late as the Roman period. The ibex has also disappeared. The smaller of the wild animals enumerated above still prevail in their ancient habitat, and even the wild boar has been pre-

to a higher and more rational mode of existence among these villagers of the Swiss lakes.

It will be of interest to add a few words relative to the birds which came by water or by air to the habitations of the lake men. The golden eagle circled above them. The bones of at least four varieties of hawk have been discovered. Two kinds of owl were known, and two

Species of birds belonging to the same epoch.

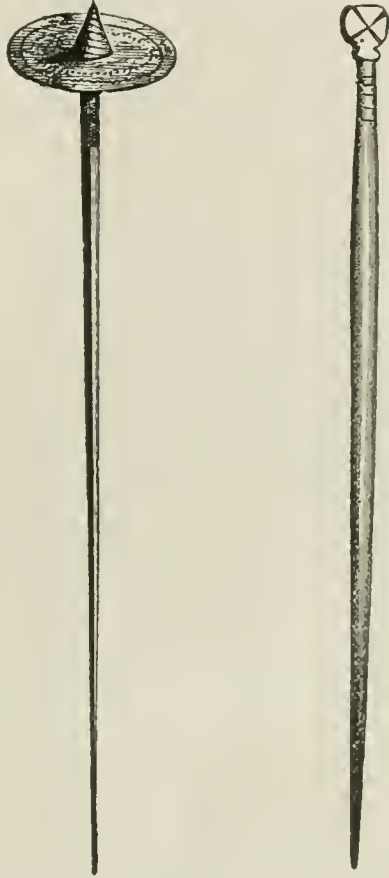
varieties of crow. The common starling was present, and the wood pigeon. There were two kinds of heath cock, also the white stork, the ashy heron, the dun gronse, the black coot, two varieties of meü, one kind of swan, one species of goose, two kinds of duck, one kind of diver. Of fishes and reptiles, the remains of as many as ten species have been recovered and identified.

Mention has been made of the finding of the cereals under the lake dwellings.

It appears from the discoveries that the grains were roasted for food. Beyond this primitive method of preparing kernels, it is known that the lake dwellers used bread. Cakes, hard, flat, circular, unleavened, have been found just as they were prepared for the board at a date more remote than the founding of Rome! Of the methods of cultivation employed in this far time nothing is known. No agricultural implements or apparatus have been recovered, but tools for the preparation of grain, such as mortars and stones for grinding the kernels, are plentiful. Specimens of dried fruit, such as carbonized apples cut into halves or quarters, have been found at both Wangen and on lake Neufchâtel. Such fruits appear to have been of wild varieties, resembling the crab apple of modern times. The vine had not yet made its appearance. The walnut, the cherry, and the damson plum were unknown, but seeds of the wild plum have been discovered. Shells of the hazelnut and beechnut are frequently found in the mud, and sometimes the seeds of the raspberry and blackberry. Beans have been discovered, but only in the later relics of the age of bronze, while peas are found farther back, among the remains of the new stone age. From a consideration of all

Significant traces of the prehistoric agricultural life.

these elements we are able to make out a tolerably fair schedule of the daily subsistence, the means of supply, and the method of preparation peculiar to the prehistoric villagers of the Swiss lakes.



Bronze hairpin found in Swiss lake. Bronze pin from a Scotch shell mound.

SPECIMENS OF FINE WORKMANSHIP IN BRONZE.

Mention has already been made of the fact that the lake dwellers continued to hold their situation until their implements of stone were succeeded by the manufacture and use of bronze. The villages belonging to the age of bronze are not so widely distributed as those of the stone period. The former were built, for the most part, on the lakes of Geneva, Neufchâtel, Bienne, and Sempach. In Eastern Switzerland very few

Lake dwellings extend into the age of bronze.

evidences of the age of bronze have been discovered. It appears that for some reason a kind of primitive conservatism prevailed on lake Constance which led to the continuance of stone manufacture long after the introduction of bronze in the western settlements. It is in evidence that other improvements besides the introduction of metal in workmanship appeared in the bronze-making villages. The platforms were more substantially constructed and the houses larger and of a more permanent character. It seems, moreover, that the villages of the age of bronze were built farther from the shore than those of the age of stone. At least the bronze relics are nearly always taken out from a greater depth of water and farther out than the stone implements peculiar to the older age.

By examining the bronze implements their superiority in design and workmanship to those of the periods preceding are quickly noted. The swords, daggers, axes, spearheads, knives, sickles,

Evidences of the emergence of the race from barbarism.

fishhooks, and articles of personal adornment are all of a pattern which may be called well formed, if not artistic. Bracelets, brooches, and finger rings are found which, though they may hardly be described as beautiful, are not devoid of tastefulness in design and elegance in execution. It is noticeable, moreover, that the supply of implements, weapons, and personal decorations is far more abundant in the case of the bronze-bearing villages than under those of the stone epoch. Many museums have been replenished from the resources here referred to, and a single collection cited by Sir John Lubbock contains four thousand three hundred and forty-six specimens; and it is an evidence of what may be called the personal pride of the villagers of the bronze age that of the list of articles here enumerated more than two thousand are hairpins and rings. In the age of bronze the human race entered upon its career of strength and variety, but did not yet enter upon the career of ambition and vain delusion which it was to pursue in the age of iron.

## CHAPTER XVIII.—COAST PEOPLE OF THE NORTH.



Now turn to another aspect of primitive life quite different from those discussed in the preceding chapters. We have reconstructed as far as practicable the conditions of the old Aryan household of India; of the cave dwellers of Western Europe, and of the lake dwellers who took advantage of the water surface as a means of protection and convenience. We now come to consider a mode of prehistoric existence which

was developed along the seacoast, especially in the northern and northwestern parts of Europe.

Of the forms of primeval life already presented, the most barbarous was that of the cave men; the most elevated, the house people of the East; and the most progressive, the lake dwellers of Switzerland and other like localities. In entering upon a review of the people of the seashore, we shall again be carried back to an exceedingly rude and aboriginal type of human existence, perhaps not

Relative savagery of several prehistoric conditions.



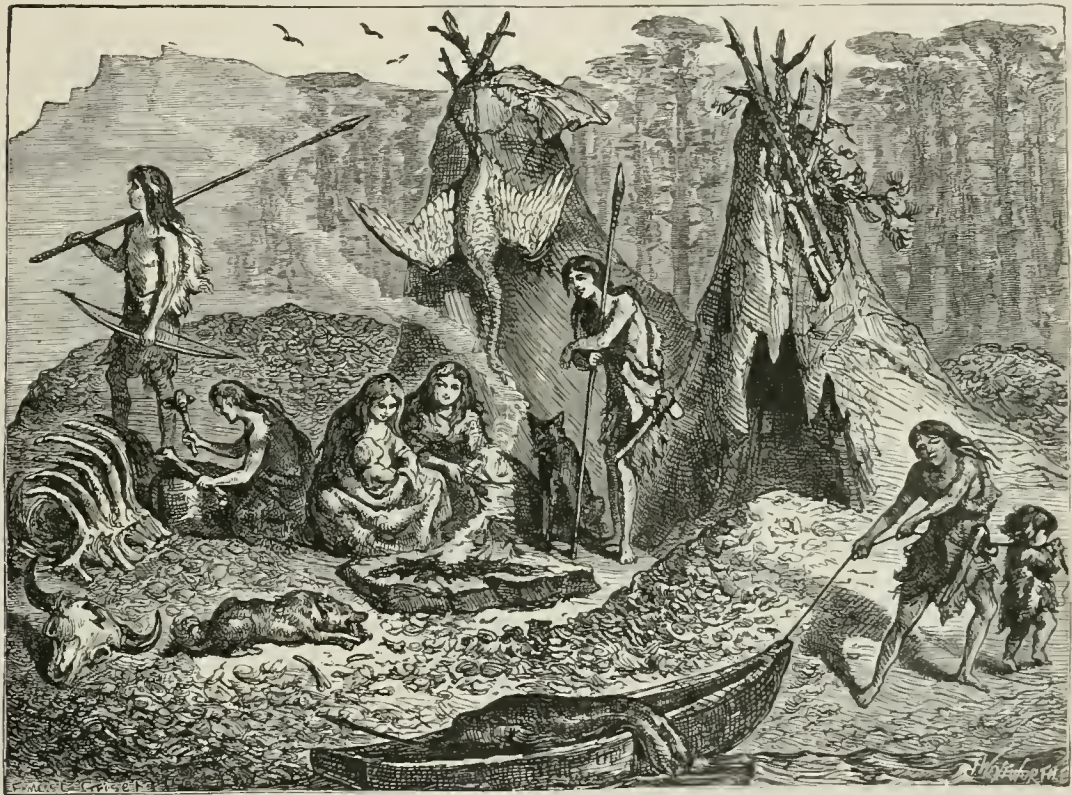
quite so gross, but equally primitive with that of the cave dwellers.

About the time that the really scientific investigation of archæological remains began in the second quarter of this century, it was noticed that on the coast of Denmark and in other similar situations long, low dunes were thrown up. Sometimes the elevations were

were too far from the surge to have been thrown up by the action of the water first drew the attention of archæologists and naturalists to their peculiarities. It was found that those of the mounds which lay within reach of the tide were made up in part of sand, but the larger portion of the material was shells. In the case of those dunes that

Discovery of the shell dunes on the coast of Denmark.

Mound contents; investigations of Streenstrup.



KITCHEN MIDDENERS AND THEIR DWELLINGS.

nearly circular, sometimes they were ring-shaped, having a crater-like depression in the center. But more frequently they were elongated elevations, from one hundred to three hundred yards in length, perhaps two hundred feet in breadth, and from two to ten feet in height. The situation was along the surf line of the sea, but generally outside of the reach of the tide.

The fact that these dunes and mounds

were in the higher situations, beyond the reach of the water, they were composed almost entirely of shells, and a very casual examination showed that the mollusks inhabiting them had belonged to another age. Such was the beginning of the discoveries.

The Danish naturalists led the way in examining these strange formations; and it was at once observed that the shells were intermixed with the débris

of human life. Here, then, was a new class of relics of prehistoric existence, and a new field of inquiry opened before the antiquary. Professor Steenstrup was again in the van in the exploration of the shell mounds. He gave them, in the first place, the name which they have ever since borne, of Kitchen middens. In his own language the

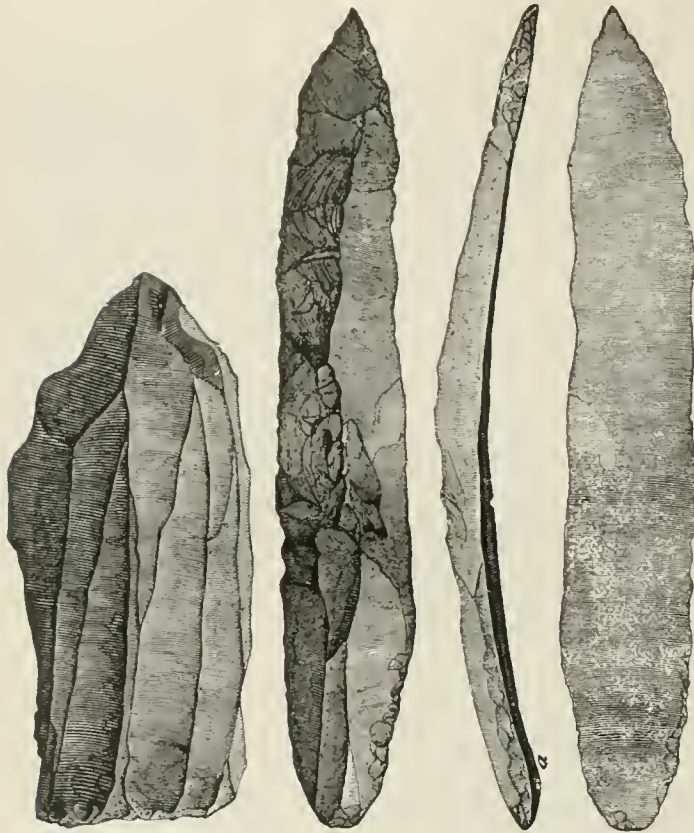
prehistoric people had chosen the shore of this northern sea as the best vantage ground which they could procure in their struggle to preserve life and perpetuate their tribes.

The shell mounds are by no means isolated phenomena. They are rarely found singly, but in groups, covering a considerable extent of coast. This is to

say that the primitive people dwelling here lived in aggregations, or The kitchen middens indicate village communities. villages of huts on the beach.

Sometimes a principal mound will appear, and around this others of smaller proportions. The contents are abundant, and the vast heap of shells is in many cases carted away by the inhabitants and used to replenish the soil.

What strikes the beholder in opening one of these mounds is the fact that the *whole contents*, or The heaps made up of the débris of human life. the materials of the elevation, are the débris of human life. Hardly any merely natural substance is found intermixed with the shells and other refuse of the kitchen and the hut. Doubtless the kitchen was the hut and the



Flint core or nucleus.

Flint flakes, Denmark.

WORKMANSHIP OF THE KITCHEN MIDDENERS.

word is *Kjökkenmöddings*, which signifies "kitchen refuse heaps." The idea of the learned Dane was that these mounds were the refuse of the food and waste material of a people who had built their huts on the seashore, and had manifestly subsisted for the most part on shellfish. This primary hypothesis of the naturalist was borne out by all subsequent investigations, and it was soon established beyond doubt that a

hut was the kitchen. In a few instances some gravel and other unmodified natural products are found in thin layers or scattered among the waste of the hovel. But for the most part everything has had its use in the hands and mouths of the primitive tribes inhabiting this coast. The people appear to have subsisted almost exclusively upon oysters and mussels, and to have flung the shells out of the hut until they ac-

cumulated to a depth of several feet. It would seem that in many instances the hut itself would be half buried by the accumulation around, and doubtless the site of the dwelling is the crater which is noticed in a dune here and there.

If we examine the implements and weapons which the coast people lost or broke or cast aside with the other débris of their villages, we shall find them to be of the most primitive pattern and rudest workmanship. They are nearly or quite all of the old stone age, and the method of fracture employed in making them seems to have been less skillful than that of the oldest lake villagers, and fully as rude as the workmanship of the cave men. Great quantities of flint flakes, rough axes, lanceheads, arrow-points, weights for fishing nets, sling-stones, and awls have been recovered from the mounds, and they are, without exception, of the primitive pattern and finish above described. From the shell mound of Meilgaard, which was visited and examined by Sir John Lubbock in person, nineteen axes, a hundred and thirty-nine flint flakes, six bone pins, six horns, four pieces of rude pottery, one stone hammer, and twenty sling-stones were recovered. This mound is merely specimental of scores of others that existed and still exist along the coast of Denmark. These, like the lake villages and the cave dwellings, have contributed thousands of specimens to the European museums, and these have been arranged and classified with respect to their antiquity, so that he that runs may read the story of a prehistoric age.

The extreme simplicity, not to say barbarity, of the method of life of the shell-mound people has already been indicated. As compared with the lake

villagers of Switzerland, even of the old stone age, they were far behind. The lake men were acquainted with wheat and barley, and even with the manufacture of bread. But in the shell mounds no traces of grain have been discovered, nor have any relics of vegetables such as men would use for food been found in the débris around the huts. The people seem to have subsisted altogether upon the shellfish which they gathered along the shore, either by digging in the sand with the recession of the tide, or by rude nets which they dragged in shoal water. These mollusks, together with certain birds and wild animals which they were able to capture, constituted the only food of the hut dwellers.

The four principal varieties of sea mollusks which the mound builders ate, and which indeed constituted their chief supply, were the oyster, the cockle, the mussel, and the periwinkle. All of these, as is indicated by the shells, were of larger size than those now found on the same coasts. The oyster has wholly disappeared from these waters, and doubtless the other species were of different varieties from those now existing. It must not be understood, however, that the bones of birds and mammals are wanting in the mounds. On the contrary, these are rather plentiful. Professor Steenstrup has estimated that each cubic foot of the shell material contains on the average ten or twelve bones. The mound at Havelse has yielded about three thousand five hundred specimens of the bones of mammals, and more than two hundred of birds. Fish bones other than those of the sea mollusks are also found intermixed in the mounds. The remains of the herring, the dorse, the dab, and the eel have

Character of the kitchen midden tools and utensils.

Deduction of a low grade of barbaric life.

Nature of the animal remains found in the heaps.

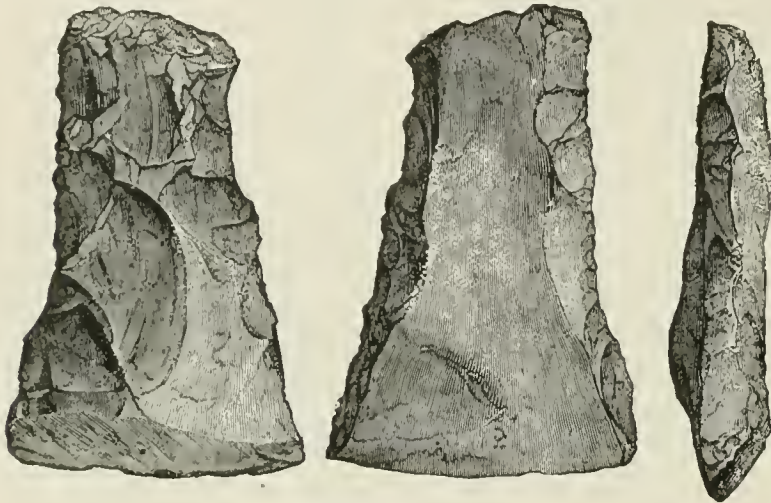
been plentifully recovered in several localities.

Of the relics of mammalia, the most common are of the stag, the roedeer, and the wild boar. In addition to these, bones of the urus, the bear, the dog, the fox, the wolf, the marten, the otter, the porpoise, the seal, the water rat, the beaver, the lynx, the wild cat, the hedgehog, and the mouse have been found in the shell mounds, but sparsely distributed. It will be at once observed from these facts that the animals which the

Wild beasts known to the kitchen middeners.

or consumption of the animals with which the shore people came in contact is illustrated by the absence of entire skeletons and the miscellaneous distribution of the bones. It is generally the long bones that are found scattered among the shells. The heads of these have been broken off and reduced to edible conditions, or else have decayed in the course of ages. In all cases the bone shaft has been opened for the marrow; from which it appears that the coast people had the same appetite for this delicacy as did the cave dwellers. From the absence of skeletons, or even large parts thereof, it has been more difficult for naturalists to reconstruct the animals of the Danish coast than of any other situations; but enough has been gathered to justify the foregoing statement relative to the wild creatures with which the shell-

Inferences as to the eating habits and customs of the race.



DANISH SHELL-MOUND AXES.

coast people were able to take and kill were generally of the smaller species. The extreme scarcity of the bones of the heavier and fiercer beasts might well beget a doubt as to whether the prehistoric man of this coast dared to meet them in combat at all. Another striking feature revealed by the exploration of the shell mound is that all of the animals here enumerated were wild. It appears very doubtful whether even the dog had become the friend of the dwellers in these seashore huts. At any rate, his bones have the same aspect as those of the creatures of the woods.

The fact of the complete destruction

mound people were familiar.

An interesting illustration of the skill of antiquaries in looking into the past is furnished in their method of determining the habits of the prehistoric tribes of Denmark. It is known, for instance, that they were not migratory, but that they held their abode in the same huts the year around. This fact was ascertained from an examination of the bones of the birds upon which these people in part subsisted. Some of these birds, as for instance the singing swan, visit this coast only in the winter. In the month of March they leave for the

Methods of determining the habits of the shell mounds.

South, and return late in November, but the distribution of wild swan bones is frequent in the shell mounds. It appears certain, therefore, that they were taken in winter. Therefore the coast people had their residence here in winter. Again, the horns of stags are cast at certain seasons of the year, and one or two other animal phenomena of like sort have a periodical significance. From the collation of these facts it is proved that the hut dwellers in the localities here described remained in their place throughout the year, and were not merely fishermen of the summer season.

We thus see on the Danish coast another type of primitive life quite distinct from those which we have hitherto considered. It is likely, withal, that their manner of existence was not very different from that of certain tribes still living in the extreme of South America. The Terra del Fuegians subsist in a manner very analogous to that ascribed above to the prehistoric tribes of Denmark. They have no domestic animals except the dog. They live almost exclusively on shellfish, and their huts along the coast, if continuing undisturbed for a sufficient period, would doubtless be surrounded by a collection of waste materials almost identical with those of the remote age of the shell-mound people of the North. The great naturalist, Charles Darwin, says of these tribes: "The inhabitants, living chiefly upon shellfish, are obliged constantly to change their place of residence; but they return at intervals to the same spots, as is evident from the pile of old shells, which must often amount to some tons in weight. These heaps can be distinguished at a long distance by the bright green color of certain plants which invariably grow on them. . . . The

Fuegian wigwam resembles, in size and dimensions, a haycock. It merely consists of a few broken branches stuck in the ground, and very imperfectly thatched on one side with a few tufts of grass and rushes. . . . Viewing such men, one can hardly make oneself believe they are fellow-creatures and inhabitants of the same world. . . . At night five or six human beings, naked and scarcely protected from the wind and rain of this tempestuous climate, sleep on the wet ground coiled up like animals. Whenever it is low water they

Analogue of the Fuegians; description by Darwin.



Bone harpoon of the Stone Age of Denmark.



Arrowhead of reindeer horn.

FINDS FROM THE KITCHEN MIDDENS.

must rise to pick shellfish from the rocks; and the women, winter and summer, either dive to collect sea eggs or sit patiently in their canoes, and, with a baited hair line, jerk out small fish. If a seal is killed, or the floating carcass of a putrid whale discovered, it is a feast; such miserable food is assisted by a few tasteless berries and fungi."

All attempts to construct an authentic chronology for the age of the coast people whose rude life is here depicted are futile. The fact that such modes of

tribal evolution exist in different ages has already been dwelt upon. We have

Not possible to fix chronology of the shell-mound tribes. just seen that the Fuegian tribes in the extreme of South America are still in

this aboriginal state of development; and we know that in the north of Denmark the shell-mound people had passed away before the beginnings of history. The evidence of this is complete and irrefragable. It is known, moreover, that not only were these tribes prehistoric, but that they held their rude career at a very remote period, even archæologically considered.

We are able in part to measure the distance of the epoch of the coast men by certain transformations which we know to have taken place in the vegetable

Botanical indications of their remote antiquity. kingdom. Since the earliest references in the works of the Roman naturalists the countries of Northern Europe have been heavily covered with a forest of beech. This has been the prevailing growth of these regions since about the time when iron began to be used for implements and weapons. It is well known in the botanical history of the world that the forest of beech is preceded in the plant-cycle of nature by a forest of oak, which in its turn has a long period of duration as the prevalent growth. That is, before the beginnings of the present beech forest of Northern Europe an oak forest prevailed in the same countries for indefinite ages. It is also known that in like manner the pine precedes the oak. That is, the order of nature is, first, so far as we are able to discover, a forest of pine, which at length falls into decrepitude and is succeeded by a forest of oak. This, in its turn, and after a long cycle, grows old, maintains for a while a precarious existence, then gives place to a forest of beech. At the present time

the beech forest is growing old, and will at length give place to some other. But we know that the present prevailing woods in Denmark and other regions of the North have existed there since a time long before the age of Pliny—even before the founding of Rome.

Now an examination of the bones of the birds which were taken and eaten by the coast people and shell-mound era shows conclusively that some of the birds in question were of species which are known to feed upon the berries of

Bird-life bears witness to the same conclusion.

the pine tree! So slight a fact is one of many sufficient indications that point unmistakably to the conclusion of the extreme antiquity of the age which we are here considering. It is by this kind of patient research that our knowledge of prehistoric peoples has been widened and developed into its present amplitude; and though it is by no means complete and satisfactory, it is nevertheless sufficient to enlighten the present races inhabiting the earth with respect to the manners and customs of those who slumber in its bosom.

Coincident with the discoveries which have led to the reconstruction of primitive life in the manner hitherto described, have been others quite analogous. Not only did primeval tribes inhabit the shores of the sea and build thereon their rude huts, scattering around the waste and refuse of their daily life, but others like them in habit and character chose the river banks. It is well known that the currents of rivers vary somewhat in their place and direction. The bed of a running stream is by no means a constant feature in geography. Though in general it traverses a valley, it will be found in one age against the hills on one side, and in the

Over-water habitations established on river banks also.

next age on the other. Moreover, the volume of water is much greater in some epochs than in others. As a general fact, the streams and rivers of the early ages of the world were much fuller and stronger than they are to-day. As a world grows older its streams grow weaker, until they finally disappear, and the epoch of life is at an end. The primeval age was one of humidity and plentiful rainfall and full volume in the rivers.

One of the principal concomitant circumstances of the river flow is the formation of sand and gravel. Ledges of

Physical conditions antecedent to formation of gravel beds.

rock are broken off and the fragments divided

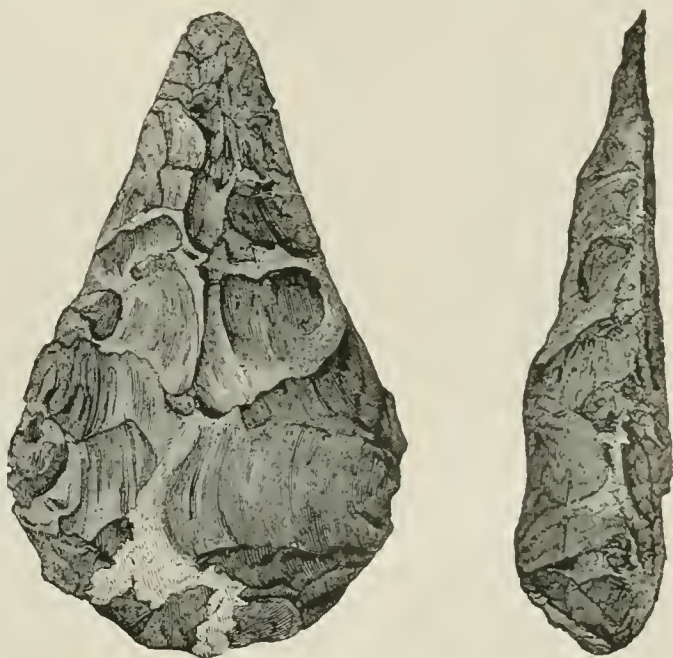
into smaller parts. These are rolled over and over by the stream until they are worn into pebbles and gravel and sand. Vast accumulations of these materials are deposited here and there in the river elbows and bends and curves, in the valley to the right hand and into the left, and especially about the débouchure of the stream near the mouth. While

this process is going on the banks of the river on this side and on that are worn away and carried along with the current. Sometimes a whole valley, by a change in the course of the stream, is swept out and deposited somewhere below. These circumstances must be borne in mind if we would apprehend clearly the nature of the discoveries to which attention will now be called.

As early as the beginning of this century implements and weapons were known to have been gathered from river-drift gravel beds, but the significance of such discoveries was unnoticed

or ignored. There has been a strange disposition, even on the part of scholars, to maintain old traditional views about the age of man on the earth. Every new fact tending to show the antiquity of the human race has been resisted and resented as a sort of intrigue against the integrity of existing beliefs.

In geological science this tendency has been especially noticeable. Geolo-



PALÆOLITHIC RIVER-DRIFT SPEARHEADS.

gists themselves have for a long time shut their eyes to the most palpable facts, patent to their own senses. It was from this supposable salutary conservatism that the first discoveries of prehistoric relics in the gravel beds, as well as in other situations, were ignored and denied. Those who were determined to maintain the old views respecting the chronology of the earth and its inhabitants put forward all sorts of ridiculous hypotheses to account for that which was unaccountable under their own theory. They even published

Dogmatism confronts geology respecting river-drift findings.

treatises in which it was boldly alleged that the old stone implements which had been found in prehistoric situations were *forgeries* which had been perpetrated against authentic science—that those who were trying to disturb the current beliefs of mankind had *invented* the alleged discoveries to produce a new hypothesis respecting the antiquity of the human race!

Gradually, however, light dawned and the truth was acknowledged. One naturalist after another became convinced that the weapons and uten-

Careful examination of the fluvial deposits.

sils found in the gravel beds were in such relation with geological facts as to compel a belief in their remote antiquity. Many of the men most eminent for learning in Europe visited distant localities and conducted personal explorations in order to establish the truth or falsity of the new view of the antiquity of man. The result has been corroborative of that deduced from other fields of inquiry; and it is now as well known that prehistoric races dwelt in Europe in the time of the mammoth, and wrought rough implements of flint in the post-pliocene era of geology, as it is known that the Assyrians flourished on the Tigris and that Cæsar led Roman legions across the Rhine.

The evidences of the existence of primitive tribes along the river valleys of Western Europe have been discovered more abundantly in France than in any other country; but the river banks of England have also yielded their testimony. Before the beginning of the eighteenth century a British weapon had been found in a gravel bed in connection with an elephant's tooth, in a situation described as being "opposite to Black Mary's, near Graye's Inn

Such findings extend to the British Isles.

Lane." This weapon is described as a large black flint, shaped into the figure of a spearpoint. It is known to have been engraved as early as 1715, and a print of it has been preserved in Leland's *Collectanea*. Since the science of antiquities has been developed in our own day, this ancient implement has been shown to be of the same pattern, workmanship, and quality with those found in like situations on the Continent.

Several of the rivers of France have been specially rich in their yield of prehistoric relics. The principal of these are the Somme, the Seine, and the Oise.

River valleys of France especially rich in human relics.

In the valley of the first of these streams the explorations have been conducted with scientific skill, and the discoveries made have been fortified as to their verity with all the care and penetration which the best scholars of Europe have been able to bring to the question. It will be of interest in this connection, therefore, to look briefly at the geological character of the Somme valley, and the position in which human relics have been found therein, to the end that the reader may have before him a clear statement of the situation and proof of the results.

The discoveries on the Somme have been made for the most part in the neighborhood of Amiens and Abbeville. At these places the valley, from hill to hill, is about a mile in breadth. The main geological formation of the country is chalk. Through this, in the glacial period, the valley of the river was plowed out, and in this wide, low trough the stream still makes its way to the sea. But in the course of ages many secondary formations have taken place in connection with the river. What is properly called the river bottom is filled up in

Character of the valley and deposits of the Somme.



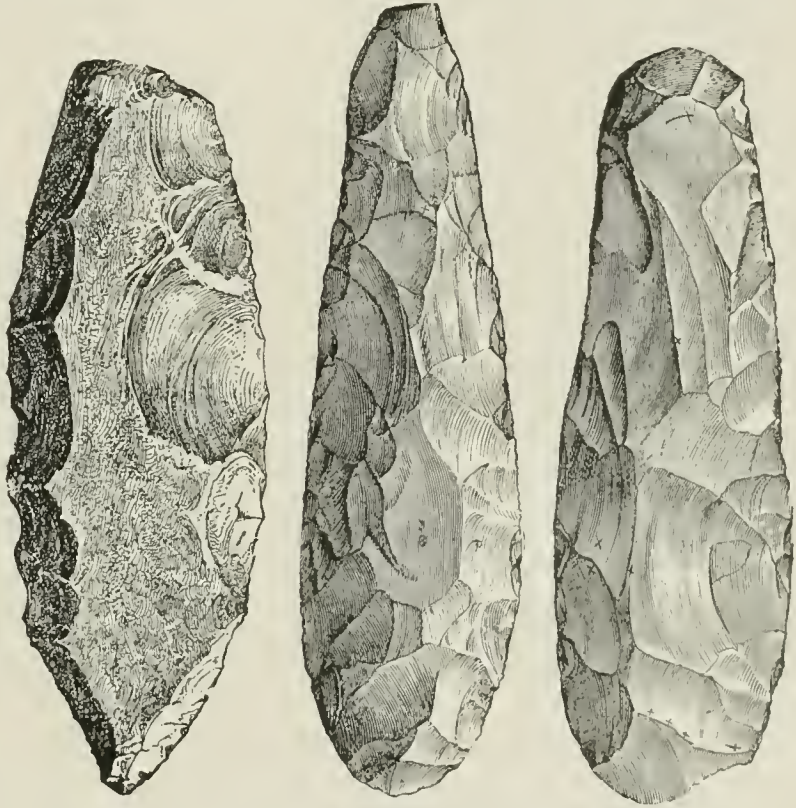
this neighborhood with a broad, deep bed of peat. This is in some places thirty feet in depth and more than a third of a mile in breadth. In this peat bed, which has been slowly forming for many centuries, at a great depth therein, stone implements and other relics of a prehistoric people have been found. The bones of extinct mammalia are here associated with the works of man in such relation as to establish their contemporaneity.

The peat formation in the Somme valley, however, is one of the newer accretions peculiar to the situation. If the observer take his stand on the low peat bog near the margin of the stream and look to the hills on either side he shall find, at two or three levels in the chalk formation which rises to the height of two or three hundred feet, beds of gravel cropping out of the banks. Through these beds, which were mani-

Time relations of the peat beds to the chalk formations.

festly formed by the river in the older ages of the tertiary epoch, the stream has gradually worked its way down, by attrition, to lower and lower levels, leaving the gravel beds far above the present position of the stream. Above the outcroppings of these beds the old chalky walls which constitute the barriers of the valley are seen rising to the general level of the country above, which is a

plateau spreading off in slight undulations. Even the novice in geology is able to perceive that the peat bogs in the bottom of the valley are of recent origin as compared with the old gravel beds lying far above the present level of the river. Yet it is in these gravel beds that the discoveries of some of the most ancient specimens of human workmanship in the world have been made: and



PALÆOLITHIC RIVER-DRIFT LANCEHEADS AND AX OF ARCHAÏC PATTERNS.

the situation in which they have been found has been scanned with so much care, and the explorations conducted with such scientific accuracy, as to preclude all doubt relative to the verity and significance of the facts in question.

Sir Charles Lyell estimates that more than a thousand implements have been taken from the gravel beds in the neighborhood of Amiens. They are all of a common type, and belong to the **oldest**

epoch known to archæology. They have been classified under three heads, the first of which includes the spearpoints; the second, a sort of almond-shaped implements which appear to have been used as axes for general purposes, such as breaking bones and cracking holes in the ice; and thirdly, flint flakes and arrowheads. All of these are produced by mere fracture, not a single specimen bearing the marks of grinding or polishing. The forms are rude, but the workmanship unmistakably human. In many instances the prehistoric artisan has taken advantage of the natural form of the flint, and merely modified it by breaking *one part* into a cutting form. It has been noted that between the spearheads and the almond-shaped axes several intermediate grades of implements exist, which would seem to show that the end in view was not clearly defined in the minds of the makers. Yet in the midst of the manifest barbarity of the epoch in which these implements were created there has been found a single evidence of taste in certain small globular bodies, with a tubular cavity in the center, which appear to have been used for ornamentation.

Notwithstanding the abundant proof that the weapons and tools above described are the relics of human activity in a prehistoric age, very few human remains, properly so called, have been found in the river-drift gravel beds. Only an occasional underjaw, or some other of the harder parts of the frame of man have been recovered in these situations. The bones of animals are much more frequent, and are easily defined; but a moment's reflection will show that these facts would be indicated by right reason. As for the animal remains

Character of the findings in the Amiens deposits.

Reasons for scarcity of human remains in the river-drift.

found in the gravel, they are evidently the fragments of mammals that were drowned by ordinary accident or in times of flood. In such emergencies man is more expert and cautious than the lower orders. Even in his lowest estate he has some measure of foresight, and escapes from a dangerous situation. The gravel pits were not the places of burial. They do not mark the exact sites of human dwellings. They represent materials that were carried to their present place by the action of water. In many cases these materials have been brought from considerable distances. Even an occasional human skeleton given to the river would be tossed and broken and worn, in its course onward, being ground against stones and pebbles into elementary fragments. Moreover, decay does its work. The hardest bone will not survive forever, even under conditions favorable to its preservation.

The paucity of human remains in the gravel beds is in close analogy with the like fact in the shell mounds of Denmark. They, too, have yielded in but rarest instances any actual fragments of the human frame, and it is easy to see that more might be expected from the kitchen middens, with their abundant detritus of man's habitation and localized association with his life, than in the case of river-drift heaped up at long distances from the place where he had his abode.

Not only in the gravel pits of the valley of the Somme, not only in like situations along the banks of the Seine and the Oise, have these relics of the prehistoric life of man been discovered. Like revelations have been made in the river bottoms and sandpits of Great Britain. In a gravel bed at Hoxne, in Suffolk,

Shell mounds also have but few of the remains of men.

Extent of the findings in the gravel beds of England.

specimens of human workmanship like those above described were found as early as the beginning of this century. In similar formations between Guildford and Godalming, flint implements of the old stone age have been found and preserved. It must be borne in mind that the special significance of such discoveries lies in the fact of the association in the gravel beds of these human remains with the bones of the mammoth and other extinct species belonging to the post-tertiary period of geology. In various other localities like revelations have been made by explorations of gravel beds, such, for instance, as those at Icklingham, at Herne Bay, at Abbot's-Langley, and at Green Street Green, in Kent. In a layer of river-drift, near Bedford, bones of the mammoth, the rhinoceros, the hippopotamus, the primitive ox, the horse, and the deer have been found in prehistoric relations with flint implements belonging to the old stone age. In short, the discoveries made in the gravel beds of Great Britain have fully corroborated and verified those made in the valley of the Somme and on other parts of the Continent.

We thus see that along the river val-

leys of Europe, at a time before the incoming of the first Aryan tribes, primeval races had possession of the country in various parts, and had begun those rude activities out of which the civilized condition was ultimately to spring. The relics described in these last paragraphs are of the most primitive pattern and workmanship. They indicate, indeed, the very first emergence of men from the state of absolute nature and barbarity. The tool-making and tool-using instinct marks, perhaps, the very earliest stages of human development. Whatever may have been the origin of man in these western parts of Europe, we see him, in these far prehistoric times, either an absolute savage or a barbarian, but slightly elevated above the savage state. Perhaps if our knowledge were more complete we should be able to delineate many other circumstances relative to these hard beginnings of civilized life in Europe. The future may still contribute something to our further enlightenment relative to the habits and manners of prehistoric peoples, but for the present we must remain satisfied with an approximate view of their condition.

Deductions respecting the races of the river-drift epoch.

## CHAPTER XIX.—MEN OF THE TUMULI.



BEFORE dismissing the subject of the prehistoric life of man on the continent of Europe, still another field of inquiry remains to be considered. In all parts of the European countries, from the Baltic to the Mediterranean and from the British Isles to the Ural mountains, another class of facts, bearing unmistakable evi-

dence of the ancient activities of men, are plentifully distributed. These are the mounds which the tribes builded, in burial and for other purposes, generally called Tumuli: standing stone structures of several varieties, known as Menhirs, Cromlechs, and Dolmens; barrows, camps, fortifications, dykes, and perhaps altars of sacrifice, besides many other kinds of rude

Tumuli and other memorials of primeval man in Europe.

architecture and memorials. Such remains, hardly of sufficient dignity to be known as ruins, are found not only in Europe but everywhere in the world.



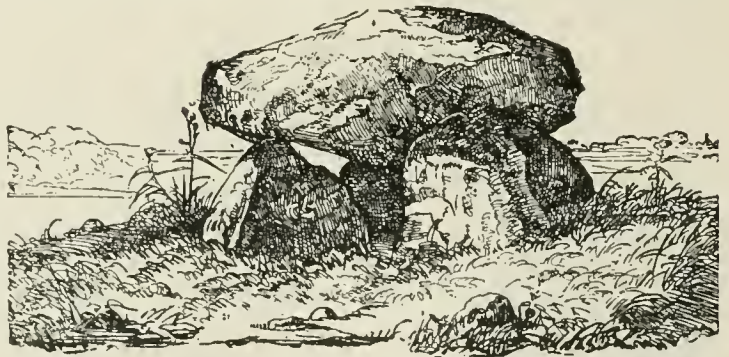
MENHIR, AT CROISIE, FRANCE.

Perhaps no country, great or small, is without such manifest evidences and illustrations of the long dead activities of races and tribes unknown to history. Everywhere this substratum of human life, more aboriginal than the aborigines, existed. Traces of it are found on every hand. America, as well as the older lands, abounds in astonishing proofs of nations that existed here, even in strength, between whom and the Indian races that held the continent on its opening to civilization as wide a space of time and character exists as that between the rudest of the Red men and their Saxon conquerors. The mound builders have been abroad; and the long, serpentine mole of earth, or conical hill, of artificial construction, standing here and there in the civilized countries of to-day, bear mute, but everlasting testimony of the ancient and undiscoverable peoples who have gone down to dust.

It is said by Sir John Lubbock that in

the Orkney islands more than a thousand of these tumuli and stone heaps are found. In the Danish peninsula the number is still greater, and it would be safe to say that in America more than ten thousand such monuments of prehistoric times exist. The variety exhibited in these relics of a past age is almost as great as their number. Perhaps a majority of all were intended as monuments to the dead, but the details are different, and many volumes could not contain an elaborate description of all. We know from history that even from the daydawn of authentic story men were disposed to mark the resting place of the dead with a trophy. Pillars were set up as the tangible evidence of important transactions. In general, every crisis in life, as well as its termination, demanded a testimonial. It is said in the Assyrian annals that Semiramis buried her husband under a mound of earth. A stone heap was made over the tomb of the father of *Cedipus*. In the heroic age the building of mounds over the dead was the custom of the time. *Patroclus*, friend of the crested *Achilles*, was buried under a tumulus a

Meaning of the tumuli and stone monuments.



DANISH DOLMEN.

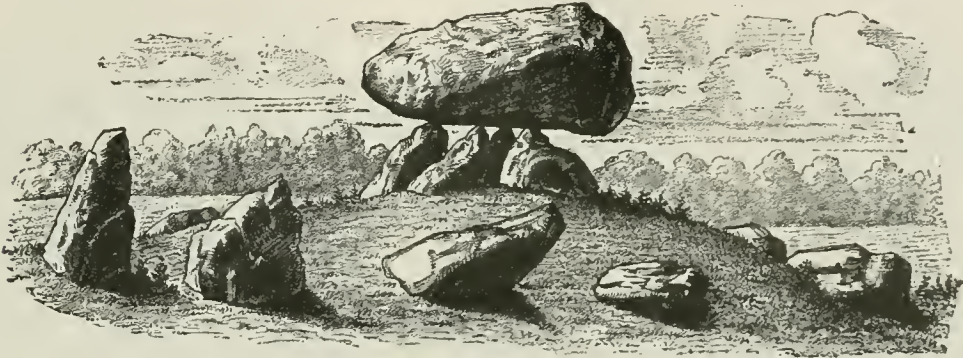
hundred feet in height; and it has been reported in tradition that *Alyattes*, father of *Croesus*, had a stone-and-earthen tomb more than a mile in circumference.

The mounds of which we are here to speak belong to a remoter and ruder age than that of the Trojan War or the conquest of Canaan by the Hebrews. And yet they are not of so great antiquity as those prehistoric memorials which we

The mounds generally belong to the age of bronze.

situated in Salisbury Plain, Wiltshire, England. It is the most striking relic of its kind in the world, and has been many times described by travelers and antiquaries. It consists of two great circles of upright stones, one exterior to

Ruin of Stonehenge; its aspect and traditions.



CROMLECH OF HALSKOV, DENMARK.

have examined in the preceding chapter. In general, the tumuli of Europe were built in the age of bronze, and therefore are posterior by a long epoch to the times of the cave dwellers and coast people. This is plainly evidenced in the utensils and weapons which are recovered from the mounds, and which are almost invariably of bronze material. The workmanship, moreover, is of that half-elegant design and execution which belong to an age subsequent, by many centuries, even to the neolithic, or new stone, epoch. It now remains for us to examine, at least casually, some of the existing monuments belonging to the age of the mound builders in Western Europe.

One of the most striking of these memorials is the great megalithic ruin known by the name of Stonehenge,

the other. The outer circle is about three hundred feet in circumference, and the stones in this row are as much as sixteen feet in height and six feet in diameter. On the tops of the rude pillars are laid other stones, horizontally.



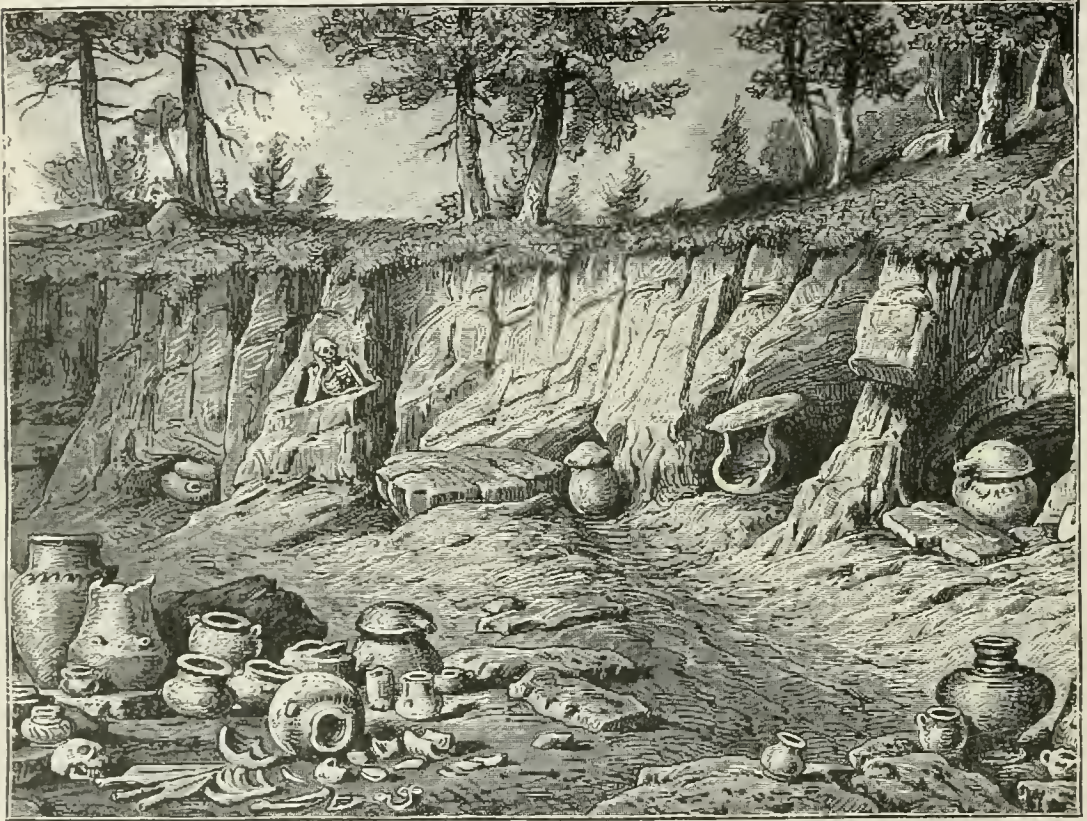
DANISH TUMULUS.

The inner circle is nine feet distant from the outer. The stones composing it are of smaller dimensions than the others, and are in the native condition, while those of the outer circle have been

roughly hewn. The capstones also bear the marks of having been rudely cut into their present shape.

Originally the outer colonnade contained thirty of these great pillars, with their capstones, or imposts. Only seventeen of them now remain in position. The inner circle consisted at first of forty pillars, only a part of

approach to the structure. Traces of smaller avenues are also to be found, and in the vicinity of the ruin are various stones which seem to have constituted originally a part of the general design. The whole aspect of the ruin as seen to-day is weird and spectral in the last degree, and the beholder can but be impressed with the strangeness,



PREHISTORIC GRAVEYARD OF QUATERNARY PERIOD, NEAR LITTAI, IN CARNIOLA, AUSTRIA.

which are now standing. Within the inner circle another series of pillars, oval in character, and originally nineteen in number, are found, which rise in height toward the center. Around the outside rim was drawn a moat and a rampart about three hundred and seventy yards in circumference. On the northeast of the great circle and running out for a distance of about six hundred yards, there are evidences of

as well as the antiquity of the monument before him.

Stonehenge has long been a fertile topic in tradition. The oldest story of all is that given by Nennius, in the ninth century. He declares that the structure was erected by Aurelianus Ambrosius, in memory of four hundred British chieftains who were slain there by Hengist and his Saxon barbarians, in 472. At

Stories of Nennius and Cambrensis.

the close of the twelfth century, Giraldus Cambrensis. another annalist, tells a long story of a great pile of stones called the Giant's Dance, anciently found



BURIAL URNS (ENLARGED FROM PRECEDING CUT).

in Ireland. He narrates that the stones in question were brought to Ireland by a company of Titans out of Africa, who

Britons, procured Merlin, by supernatural means, to bring from Ireland into Britain. And that he might leave some famous monument of so great a treason to future ages, in the same order and art as they stood formerly, set them up where the flower of the British nation fell by the cutthroat practice of the Saxons, and where, under the pretence of peace, the ill-secured youth of the kingdom, by murderous designs, were slain."

This story happily illustrates the compass and authenticity of mediæval history. It is well known that the pillars composing the ruin of Stonehenge were

Authenticity of mediæval history illustrated hereby.

taken from stone quarries in the neighborhood, so that no African giants were needed to bring them across the sea. It is also well established by an examination of the mounds in the vicinity that the structure belongs to a period not only earlier than the invasion of Hengist and his Saxon marauders, but long anterior to the conquest by the Romans at the beginning of our era. It is true that no mention is made



VIEW OF STONEHENGE.

set them up on the plains of Kildare, not far from the castle of Naas. "These stones," continues the story-teller, "Aurelianus Ambrosius, King of the

of Stonehenge, by name, in the Latin authors, but Heataëus, a Greek historian, who flourished at Miletus about 550 B. C., describes a magnificent cir-

cular temple, situated in what he calls "The island of the Hyperboreans, over against Celtica," and the description is of a kind to warrant the conclusion that the edifice in question was no other than Stonehenge.

Clustered around this great ruin of prehistoric times are many tumuli, containing the dead and the relics which were buried with them. No fewer than three hundred burial mounds are found within a radius of three miles from the stone pillars marking the site of what was doubtless a primitive temple. From

Extent of burial mounds in connection with Stonehenge.

this it would appear that the whole area round about was an ancient cemetery, with some sort of barbaric temple in the center. The tumuli are manifestly tombs. In every case, on opening one of these mounds, the remains of the dead are found. In the great majority of cases the interment has been by cremation, and the evidences show that the manner of sepulture was identical with that generally employed in the age of bronze.

If we open one of the tumuli—and hundreds of them have been explored—we shall find invariably the remains of one or more human beings. Here again we discover that difference of instinct in method which has always characterized the doings of men. The dead are placed in two postures, one sitting and the other prone, after the manner employed in modern burial. There seem to have been pains taken in the adjustment of the body in a posture befitting repose; and in determining what this should be,



GROUND PLAN OF DANISH CROMLECH.



GROUND PLAN OF DANISH DOLMEN.

some of the prehistoric tribes chose one position and some another. The same variety has been noticed in the case of our Indian aborigines in America, many of whom arrange the bodies of the dead in a sitting posture. In the prehistoric burial mounds which we are now considering, utensils and food were placed



SEPULCHRAL STONE CIRCLE.

about the body as if to serve the dead in the land of the hereafter. It is here that the best revelation of the manner of life peculiar to these people has been made, and the best evidence afforded of the epoch to which they belonged.

As already said, the implements exhumed from the tumuli are almost invariably of bronze. In a few instances iron weapons have been discovered, but it has been invariably found on closer scrutiny that the same have resulted from a subsequent burial in an old grave. Not a single instance is known of the re-

The mounds belong certainly to the age of bronze.



POSITION OF SKELETONS IN A TOMB OF THE STONE AGE.

covery from a tumulus, either in Western France or Great Britain, of implements or other relics belonging to the period



of the Roman ascendancy, and in only a few cases have the discoveries carried the antiquary back to a period more remote than that of the age of bronze.

We may for a moment consider the facts before us from a higher point of view. The tumuli of the British Isles are only one of several kinds of receptacle for the prehistoric dead. The palæolithic and neolithic ages, as well as the age of

Diverse methods of races respecting death and burial.

view. The tumuli of the British Isles are only one of several kinds of receptacle

life the fact of death impressed the living more seriously than any other phenomenon whatsoever. This led, even in the lowest stages of barbarism, to the institution of rites and ceremonies connected with the final putting away of the body. It was one of the points at which the primitive tribes easily diverged in their customs and methods. There was from the first a contest of belief as to the best manner of disposing of the dead. One



FUNERAL IN THE PALEOLITHIC AGE.—Drawn by Emile Bayard.

bronze, had their burial places, funerals, and rude theories of death. Barbarism developed into several forms of burial method according to the locality and the situation. The manner of disposing of the dead was, indeed, one of the most striking features of the barbaric life. It would appear that from the earliest emergence of man into the conscious

plan was to reduce the body to ashes, and another was to preserve it in some situation where it might be protected from disturbance and, we might say, sacrilege; for we may well believe that among the primal instincts of savages one of the first of those sentiments which tend to the elevation of mankind was respect for the body.

Throughout primitive Europe the evidences of aboriginal burial are discoverable in hundreds of localities. These

Burial grounds of different ages may be distinguished.

have been studied with diligence by antiquaries, and the results of the inquiry generalized. We are able to distinguish the older places of sepulture from the newer—the palæolithic cavern from the

pare for the funeral. Generally, after rude pagan ceremonies, a procession was formed and the body was borne away to be either burned with loud lamentation or deposited in some tomb which nature had prepared in the rocks. Could the observer from a distant and civilized age have been lifted up over Western Europe in the epochs of aboriginal barba-



FUNERAL IN THE NEOLITHIC AGE.—Drawn by Emile Bayard.

more recent neolithic burial place, and still more distinctly from the burial places of the age of bronze. The conditions of savage life in the respective periods are sufficiently well known to furnish the materials for the reconstruction of that primeval half-savage society which prevailed for many ages.

It was the custom of the tribesmen when one of their number died to assemble at the scene of death and pre-

pare for the funeral. Generally, after rude pagan ceremonies, a procession was formed and the body was borne away to be either burned with loud lamentation or deposited in some tomb which nature had prepared in the rocks. Could the observer from a distant and civilized age have been lifted up over Western Europe in the epochs of aboriginal barba-

they—though barbarians—had already discovered to be without return.

The next point of interest to be noted in our examination of the prehistoric burial places is the character of the remains in such situations. As in the case of the cave dwellers, we may here learn much about the stature, form, and general character of the aborigines of Europe.

Funeral processions and rites of sepulture.

type between the two extremes, called orthocephalic, or medium-headed. The orthocephalic skull is most nearly like the skull of civilized peoples, whereas the other two types depart very much from the common standard. As far as we are able to discover, the two extreme varieties of crania belonged to very primitive peoples, while the intermediate form is of more recent develop-



FUNERAL FEAST IN THE AGE OF BRONZE.—Drawn by Emile Bayard.

The most striking fact in connection with the skeletons of the people buried in the tumuli of the British Isles is the variation presented in the skulls. There seem to be three distinct types of skull revealed by an examination of the tombs. These are what are called long skulls, or dolichocephalic crania; short skulls, or those defined as brachycephalic; and a

The three types of skulls discovered in the tombs.

ment as well as more symmetrical character.

The long skull, such as has been found in many of the tumuli of Great Britain, has almost as great a measurement as that of the Neanderthal head described in a previous chapter. Not that the long and narrow skulls of the tumuli are so distinctly animal as the

Character of dolichocephalic and brachycephalic crania.

one to which reference has just been made, but their striking feature is the long suture and great measurement from front to rear. The brachycephalic crania discovered in the mounds are exactly the opposite of this. They are peculiarly short from front to back, and in many cases suggest to the antiquary that they have been squeezed up into unnatural dimensions. It seems, however, that no marks of artificial pressure have been discovered, and doubtless the short skulls are just as nature produced them.

Another circumstance well calculated to excite the keenest interest is now to be noted. *There is a constant and curious relation between the shape of the skulls and the shape of the tumuli in which they are buried.* There are two kinds of mounds: a circular tumulus and an elongated barrow; and it is found on examination that the dolichocephalic heads are invariably in the long barrows, while the short heads are in the circular mounds! The evidence is conclusive that this arrangement could not have been accidental, and it is almost equally clear that two races, belonging perhaps to different prehistoric epochs, are represented in these tombs. Very careful explorations have been made by skillful antiquaries. Dr. Thurnam, of England, has made accurate measurements of a hundred and thirty-seven skulls just as they were taken from the British mounds. Of these, sixty-seven were exhumed from long barrows and seventy from circular tumuli. Not a single long skull was found in a round tumulus, or a single short skull in an elongated barrow; from which it appears conclusive that the long-headed tribes buried their dead in the elongated tumuli, while the circular mounds were used for the burial of the short-headed

Coincidence in shape of skulls and burial mounds.

be noted. *There is a constant and curious relation between the shape of the skulls and*

people. It would be pressing the argument too far to say that these prehistoric inhabitants of Great Britain made the long barrows which they raised over their dead in imitation of the shape of their heads, but the fact remains that such queer analogy does exist and remains to be accounted for.

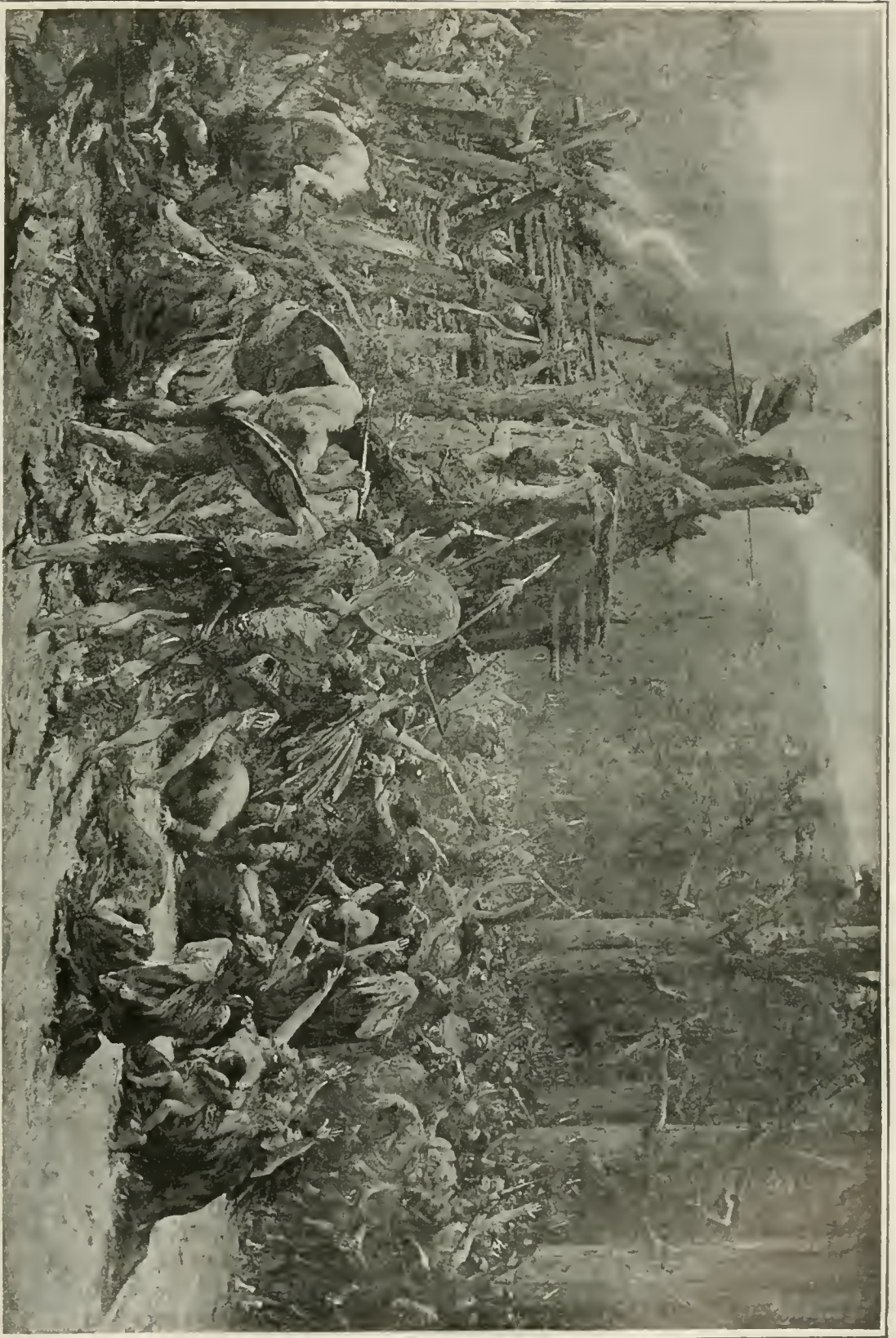
The tumuli contain almost invariably a sort of stone sarcophagus in which the human remains are deposited. In the cases where cremation has been employed, the ashes of the dead are put into a rude urn and the latter buried in the place of the body. In the stone box are found the implements and utensils which were left with the dead, and this fact, as already indicated, points to a belief in a hereafter. It is perceived that these rude people had hopes of a continuous existence or a revival of existence beyond the event of death. This does not, however, imply any belief in what is called the doctrine of the immortality of the soul. The evidences about the dead in these mounds all point to the confidence which the living then had of the continued material existence of the person buried. Every article found in connection with the body is clearly related to the ordinary daily wants and conveniences of the deceased, and the significance of such association of his implements, and even of food, with the person deceased, points only to the belief that the dead would continue as he had been, or at least revive at some time, in his former state of being.

Sarcophagi and contents; provisions for the dead.

It must not be supposed that all of the facts here referred to are deduced from the mounds locally associated with the old ruin of Stonehenge. They have been gathered rather from many sources.

General distribution of burial mounds in Western Europe.

FUNERAL OF A CHIEFTAIN IN THE AGE OF IRON.—From the *Magazine of Art*.



and are typical of all. This species of burial under mounds was practiced in all parts of Great Britain and nearly everywhere on the Continent. The peninsula of Denmark is almost picturesque with tumuli, and under them all are the remains of a prehistoric people. Perhaps not a single county in England is without its monuments of this kind. Not only in Wiltshire, but in Gloucestershire and Berkshire, and, indeed, everywhere on the island such evidences of a primitive people are discovered. In Ireland, also, and in Scotland, the tumuli are plentifully scattered over the country, and are indeed in some places so abun-



TUMULUS WITH STONE ENTRANCE, NEAR UBI, DENMARK.

dant as to suggest the frequent burial grounds of modern nations.

The suggestion has been made above that two or three races contributed to people these ancient sepulchers. This belief has well-nigh passed from theory into fact. It has been noticed that all the stone implements discoverable in the burial mounds have been associated with the long heads, whereas no weapon or utensil of stone has been found in any sarcophagus where the short-headed tribes put away their dead. In the vaults of the latter, on the contrary, the implements are all of bronze, and the workmanship indicates a very great advance toward civilization as compared with that of the utensils found in the long-

Evidence that several races were concerned in the tumuli.

people these ancient sepulchers. This belief has well-nigh passed from theory

head tombs. It should be said, moreover, that the stone tools and weapons in connection with dolichocephalic skeletons are not by any means of so primitive a pattern as those found in the shell mounds or the cave dwellings of the Continent. They are, on the contrary, neolithic, or new stone, implements, which shows that the long-headed tribes flourished in the epoch before, but approximate to, the age of bronze. It might not be hazardous to infer that the round heads came into the island as a bronze-bearing soldiery, overcame the long heads, or amalgamated with them, and then adopted like methods of bur-

ial. It has been remarked that the Lapps and Finns and several other existing races in the north of Europe are brachycephalic, and the hypothesis of an invasion from this region and a conquest of the pre-

historic Britons is by no means beyond the limits of right reason.

After Stonehenge, perhaps one of the most interesting monuments in the west of Europe is that of Carnac, in Bretagne. It consists of eleven rows of unhewn stones, set up after the manner already described, but not in circles. Some of the pillars are as much as twenty-two feet in height. But in their present state they differ greatly in dimensions, some being scarcely discoverable above the level of the plain. As far as the antiquary has been able to trace a design for the ruin, it appears to have been a series of avenues several miles in length. At the present time, however, it is difficult to make out the entire area or the

Megalithic ruin of Carnac in Bretagne.

complete idea of the builders. The adjacent farms have encroached upon what was doubtless sacred ground, and many of the stones, even whole sections of the avenues, have been cleared away. In other parts it is still easy to note the direction and course of the rows of columns, the width and character of the intervening spaces, and something of the general design.

It is believed by scholars best informed on the subject that this ruin of Carnac has an origin somewhat more remote than that of Stonehenge. Around the latter the tumuli belong, for the most part, to the age of bronze. But the mounds of Bretagne, and it is thought Carnac itself, are relics and monuments of the neolithic age of an earlier date.

The fact has been mentioned that in many of the tumuli more bodies than one have been deposited. It appears, however, that in most cases these multiple burials in the same vault

took place at different times. The primary burial, perhaps, included but a single person, but at a subsequent time another body would be deposited in the same rude sarcophagus which held the first. This would involve the opening of the mound. The stone box in the bottom was generally large enough to contain the remains of several persons, especially when the sitting posture had been adopted in sepulture. The prehistoric people had the same respect for the bodies of the dead that modern races have cherished. It appears that only in rare instances were the original remains displaced from the sarcophagus to make room for a new occupant. In case of second burial, there was merely a re-

arrangement of the old skeleton to make room for the new.

It has already been mentioned that cremation was practiced at the same time with the common mode of burial. The coëxistence of these two methods of disposing of the bodies of the dead has been noted in the case of many peoples, ancient and modern. The Eastern nations employed both. The Greeks sometimes buried their dead and sometimes burned them to ashes. So also the Romans, and even at the present time we note the reëppearance of cremation and its contest for the mastery as a

Coïncident  
usage of earth  
burial and cre-  
mation.



RUINS OF CARNAC, BRETAGNE.

scientific method opposed to the unscientific, and even superstitious, disposition of dead bodies in the earth.

In the case of the tumuli we know, from the examination of the other relics left in connection with the burial urns, that the latter belonged to the same epoch

Imperfect incineration of prehistoric remains.

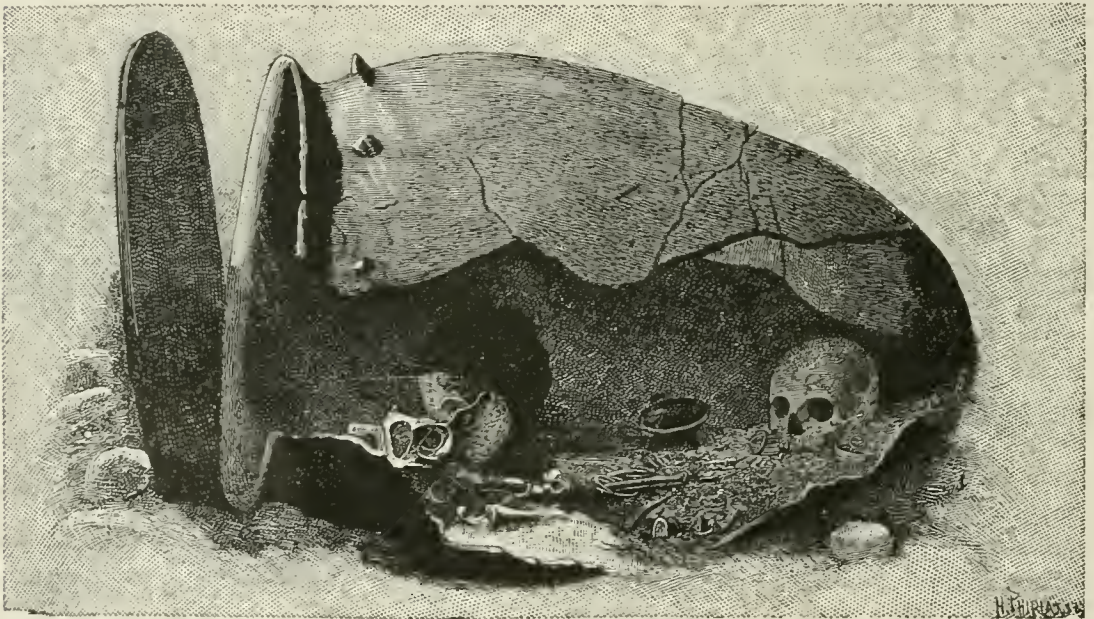
as the commoner method of sepulture. It must be noted in this connection that incineration of the dead was by no means so complete in the times of which we speak as by the superior processes of modern times. The ancients, especially the barbarian ancients, were unable to produce a high degree of artificial heat. The bodies of the dead were simply exposed to the action of an open

fire, and there was a larger residuum to be put into the urn than the mere handful of ashes left from the cremation furnace of the present time. In general, the larger and heavier bones were merely charred, and these, together with the ashes, were put into the rude urn and set in the stone box in the bottom of the tumulus.

Another fact of much interest is that the relics of human life and human need, so many times referred to in the preceding pages as accompanying the remains of the dead, are by no means

Deposition of gifts and provisions for dead not universal.

buried them. Doubtless it is improper to use the words *rich* and *poor* in this connection; but even in the reduced stages of human evolution distinctions in property and respect begin to appear, and it was no doubt on this basis that the distribution of relics in prehistoric graves was made. The wealthy, if we may use the term, had more respect and more emblems of that respect in the day of burial. The poor, as in all ages, went down to the potter's field without such tokens of esteem. It is to be presumed that the articles deposited generally belonged aforesaid to the per-



BROKEN SEPULCHRAL URN, SHOWING INCINERATED REMAINS.

always found in the tumuli. In very many, even a majority of cases, nothing at all is found except the skeleton or skeletons of them that were buried. A gradation is noticed in the number and character of the weapons, utensils, and articles of food deposited with the body. Sometimes they are plentiful and sometimes scarce. This indicates a difference in rank and station among those deceased and among their friends who

son buried, and inasmuch as one would have many things and his less enterprising fellow have nothing but a spear or an ax, the first would be buried with many relics and the other with few or none.

The two English naturalists, Bateman and Greenwell, have given us the results of their observations in about four hundred tombs belonging to the prehistoric age. Of the two hundred and ninety-

Classification of skeletons and implements in the mounds.



seven examined by Mr. Bateman fully one hundred had no relics of any sort other than the bare skeletons of the persons buried. In forty of the tumuli he found drinking vessels and food vases. A hundred and five had implements and weapons in connection with the skeletons, and in thirty-five instances articles of pottery were found. Of the one hundred and two mounds opened by Mr. Greenwell only thirty contained implements or weapons, and the other seventy-two were devoid of relics. In all the tombs which this naturalist examined the skeletons were found in a sitting posture; never recumbent.

In some of the mounds there are evidences of what may be called the beginnings of ideal-

ity. Instead of actual weapons and im-  
 Deposition of models; what the findings signify.  
 plements, *models* of the same are sometimes buried with the dead. It has been noticed in modern times, particularly among the Esquimaux, that this usage prevails. A mock

weapon is put in the place of the real one in the tomb. Another fact must be borne in mind in this connection, and that is that the presence of implements and weapons in the graves of these an-



INCINERATION OF THE DEAD, IN THE AGE OF THE TUMULI.  
 Drawn by Emile Bayard.

cient peoples does not indicate positively their belief that the dead would revive to need and use their weapons again. The symbolical idea, the idea of commemoration, and the influence of tradition may all combine to give another significance to the presence of these

relics in the grave. Doubtless at the first they must have been buried with the dead in the belief that they would be useful to them in another life analogous to the present. Custom in this respect would soon grow into habit, and habit would presently have the force of law. The usage would perpetuate itself after the belief had perished. To the present day, and even among the most civilized peoples of the world, many usages obtain with respect to the dead, the significance of which could not be deduced from the literal facts present in the inquiry. Nothing is more common than to deposit with the dead various articles which have simply an affectional and commemorative signification. The marriage ring remains upon the finger. Favorite ornaments are carefully adjusted as the owner was wont to wear them. Particularly are the regalia and insignia of rank put into the tomb with the departed. The priest is buried with his cross, the sailor with his compass, and the warrior with his sword. None of these things signify an existing

belief in the further usefulness of these articles to the dead. They are commemorative merely, conventional marks of rank, of association, and affection on the part of the living.

To a certain extent these principles no doubt operated with the prehistoric peoples; and all inferences relative to the meaning of the articles found in the barbaric tombs of extinct races must be checked and corrected by what we know to be the general laws and tendencies of human nature. Opinions and beliefs pass through many mutations, and custom is known to be more persistent than either. Long after the fervid conviction of the truth of a certain doctrine and theory of human life and death has passed away or given place to a mild and inoperative assent of the mind, the ancient usages which were based on that belief in the epoch of its pristine vigor continue to be observed, and these might well convey to distant ages an erroneous impression of the current opinions of the people.

Meaning of articles must be inferred from human nature.

## CHAPTER XX.—PREHISTORIC RACES OF AMERICA.



VESTIGES of prehistoric races of men are by no means limited to Europe and the countries of the East. In the three Americas also such traces of peoples unknown to history are abundantly distributed. It remains to note in the present chapter at least the prominent features of the ancient monuments of our own country and of the continent south of the isthmus of Panama. It is the intention merely to sketch the out-

line of our primitive monuments, and to deduce therefrom a few general conclusions relative to the peoples by whom they were built and the ages in which they flourished.

In all parts of North America, from the Alleghanies to the far West, and from the great lakes to the gulf of Mexico, a class of monumental remains may be observed by the traveler and antiquary sufficiently impressive in their extent and variety, and strikingly suggestive of a remote antiquity. Even

Abundance of mounds in the three Americas.

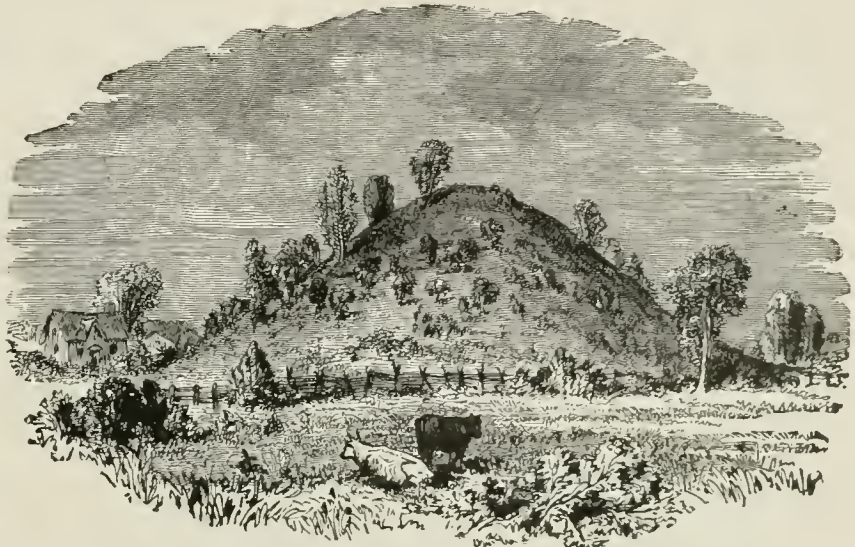
in the countries east of the Appalachians many such monuments are found. They were noted on the first arrival of the civilized races on this continent, but their significance was long ignored. It was supposed at the first that they were the works of the then existing tribes inhabiting the New World. In fact, many of the remains which are now the subjects of antiquarian research were the products of the barbarous peoples of North America and the semicivilized races of Mexico, the Central Isthmus, and Peru. It requires some degree of acumen at the present day to distinguish between those monumental remains which are referable to the peoples possessing this continent in the times of the discovery of America and subsequent, and those other more monumental trophies of the ages long before.

Modern inquiry, however, has easily sifted this question to the bottom, and the scholar of to-day is no longer perplexed by the confusion of the later with the earlier monuments.

Perhaps at the beginning of the inquiry it may be well to note the extreme antiquity of the tumuli and earthworks of America as indicated by their geological relations. On this continent, as well as in Europe, the great rivers were aforetime much vaster in breadth and volume than at the present day. They

filled the valleys from hill to hill with great floods, sweeping on to the sea. In the long course of ages the rivers shrank to comparatively their present dimensions, and in doing so withdrew their waters from the hills which constituted their barrier on either side, and sought a narrower valley and a lower level. There have thus been formed what may be called the first or lower river bottom and the second plateau above.

It is, perhaps, impossible to determine at what remote period this retreat from



GREAT MOUND NEAR MIAMISBURG, OHIO.

the higher to the lower level and from the broad floods of the earlier geologic epoch to the modern streams which traverse the continent at the present time occurred; but such is the history of the change which has taken place. In no single instance has one of the prehistoric mounds of our country been discovered on the lower terraces formed by the river. They are found in many places on the higher plateaus and on uplands round about, but never on the present or recent levels of an existing stream. From this it has been clearly inferred that the mon-

Prehistoric earthworks not found on lower river levels.

Antiquity of the mounds indicated by their situation.

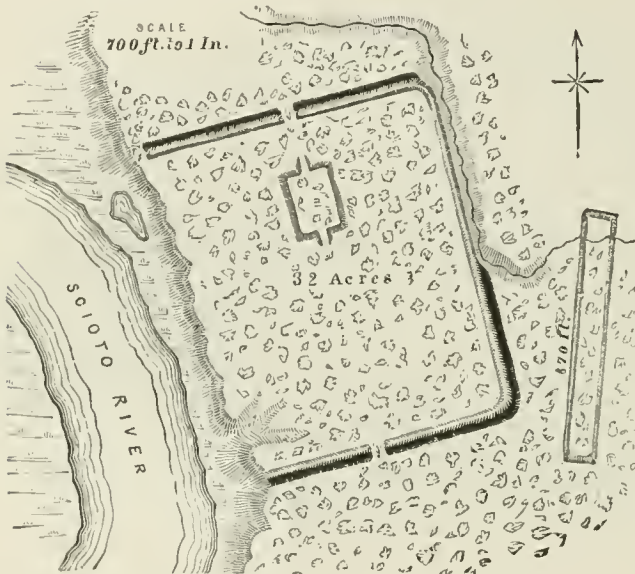
uments in question were built before the recession of the rivers into their present channels; and it can hardly be doubted that the races who flourished in that primeval age looked down from a humid atmosphere on a world abounding in turbid waters.

The frequency of the American tumuli has already been remarked. They abound. In all parts of the Mississippi valley the outlines of earthworks and burial mounds may be discovered.

General mystery and interest excited by the mounds.

mulis are much more frequent and important than in others. In general, the upper terraces along the great streams which contribute to the Father of Waters are the sites of the most striking and instructive of these monuments. But beyond the limits of our own country, in Central America, in Mexico, and in Peru, and other parts of the southern continent, these evidences of extinct civilizations are plentiful.

The valley of the Ohio seems to have been a favorite seat and stronghold of



EARTHWORKS AT CEDAR BANK, OHIO.

the prehistoric people by whom these monuments were reared. One of the most famous of them all is on the banks of the Little Miami river, and from its evident character is called Fort Hill. Another work of great importance is at Newark, Ohio. One of the greatest of the mounds is situated on the plain of Cahokia, Illinois, opposite the city of St. Louis. Another of striking character is found on Grave Creek, near Wheeling, in West Virginia, and still another at Miamisburg, in Ohio. One of the most striking of all is in the same State, at Cedar Bank, on the Scioto, and

Ohio valley a favorite seat of prehistoric works.

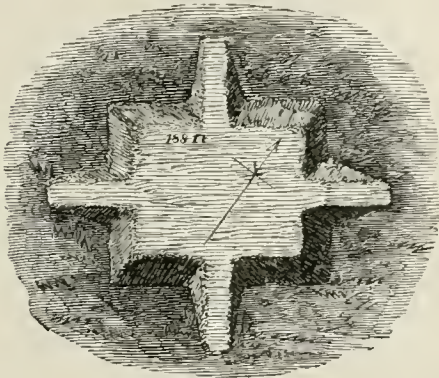
Their numbers reach easily into thousands, and their importance was such long ago as to constitute the subject-matter of the first volume of the Smithsonian *Contributions to Knowledge*. They have demanded the attention of scholars and antiquaries during a great part of the present century. Though vast stores of information have been gathered from their exploration, the mystery of their ultimate origin and design remains as impenetrable as when they first drew the attention of the pioneers.

In some localities the mounds and tu-

in various parts of Ohio, Indiana, and Illinois such remains are found, even at random. Far to the northwest, in Wisconsin and Iowa, the primeval race left its imperishable vestiges; and some of the most interesting mounds of the kind are discovered in those States. South of the river Ohio, also, such remains of primeval man are plentiful. Tennessee abounds in mounds, and Alabama and Mississippi have many such remarkable monuments. Indeed, it would be easier to specify in what parts of the great valley of the Mississippi

such remains of an extinct race are *not* to be found, than to note all the localities where they exist.

The American monuments, like those



PLAN OF SQUARE MOUND, NEAR MARIETTA.

of Europe, differ greatly in dimensions, importance, and general character. The most striking of them all were manifestly military fortifications. These are laid off and executed as if by an engineer of modern times, though the design is greatly different from any that would now be used in military operations. Great is the extent and area covered by some of these works. The remarkable monument at Fort Hill, Ohio, has a circumvallation of nearly four miles, and the height of the mole, or *agger*, is from ten to twenty feet. Outside of this is a ditch, and the whole arrangement was manifestly one of defense against a powerful enemy. In the first place, an exact circle of great

extent is drawn upon the hill; and around the circumference the earthworks are constructed. The circle is not quite closed on one side, but has a protected entrance, flanked with long lines of earthworks branching to the right and left. These, in their turn, are defended by other lines running out nearly in the form of a great rectangle in front of the entrance to the circle. Even beyond this rectangle, at two of the corners and in other positions, are smaller circles and long mounds of earth of peculiar form. No one can view the situation and consider its extent, and even the skill with which the fortifications were planned, without being amazed at the strength, capacity, and even genius of the people by whom they were constructed.

The great fortifications at Newark, Ohio, are fully two miles square. More than twelve miles of embankment, ranging from two to twenty feet in height,

Ohio fortifications; the mound of Cahokia.

mark the outline and nature of the de-



EARTHWORKS AT HOPETON, OHIO.

fenses. The mound on the plain of Cahokia is seven hundred feet long and five hundred feet in breadth. Its height is

The mound on the plain of Cahokia is seven hundred feet long and five hundred feet in breadth. Its height is

ninety feet, the superficial area about eight acres, and the contents nearly twenty millions of cubic feet. The mound on Grave creek, in West Virginia, has an elevation of seventy feet, and the one at Miamisburg, Ohio, is nearly as great in elevation and extent.

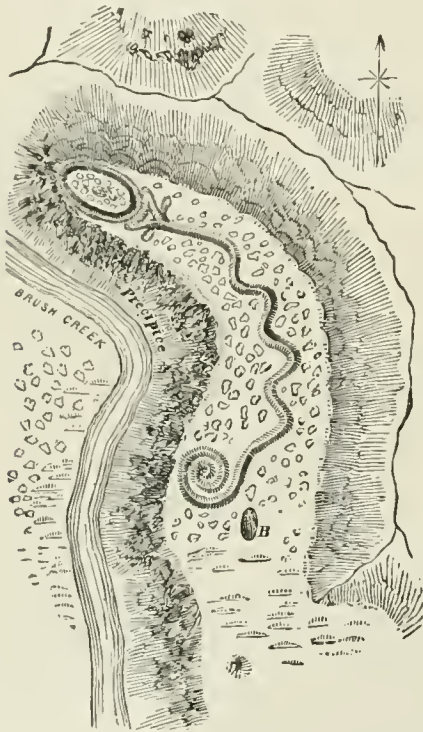
We come now to consider some of the strangest monuments which the human race has left in its track. It has been discovered that many of the embankments and outer works under consideration have the form of men or animals.

Earthworks in the form of beasts and serpents.

the ground. Still more astonishing is the great serpentine mound on the banks of Brush creek, in Ohio.

The mole of earth representing the serpent is, from head to tail, over a thousand feet in length. The figure is five or six feet in height and nearly thirty feet in width at the base, diminishing gradually toward the tail. At the sides of the neck are two flat, or ear-like, projections, and the mouth stands wide open. Right in front of the mouth, and placed as if issuing therefrom, is a large circular elevation four feet in height, in the shape of an egg. It is as though the serpent had either ejected or was about to swallow the great body partly inserted in its jaws! The long line of the work representing the serpent's body is arranged on the curvilinear crest of a natural elevation, parallel with the stream, and the whole may well be regarded as one of the most astonishing relics of human caprice.

The serpentine mound of Brush creek, Ohio.



GREAT SERPENT MOUND, IN ADAMS COUNTY, OHIO.

It is not uncommon in the States of Wisconsin and Iowa to come upon one of these ancient works which, considered in its entirety, presents a huge effigy of man or beast. There is no mistaking the design. It was manifestly intended to represent a living creature, laid prone or in profile on the earth. The effect is that of a huge bas-relief, developed from

In connection with these mounds and earthworks are the remains of the dead. The circular mounds when opened generally reveal skeletons of a prehistoric race, and in connection with these are found the implements and utensils peculiar to the epoch in which the mounds were erected. Another fact of interest in connection with the greater works which we are considering is the association of what appear to be religious structures and designs. Within the circumvallation of what was manifestly a military defense, will generally be found what has been thought by antiquarians to be the outlines of a sacred edifice or, at any rate, a sacred site where the religious ceremonial of the people was doubtlessly celebrated. Many marks of the significance and purpose of this

Religious purpose manifested as well as the military.

part of the works have been discovered and explained, from which it is inferred that there was something more permanent about the fortifications than would be expected in the case of transient defenses thrown up against an enemy. These earthworks appear to mark the sites and strongholds of the people, to which they rallied in the times of national tumult, and which constituted a sort of military capital for the country.

The American antiquities under consideration have given rise to many theories and speculations. Ever and anon some new and empirical view has been put forth as to the origin of the mounds and fortifications and the people by whom they were reared. It is surprising to what extent these speculations have been carried. Those who have theorized on the subject have in many instances been entirely unscrupulous in regard to the means by which their theory was to be substantiated. Forgeries innumerable have been perpetrated with a view to bolstering up some preposterous theory about the mound builders. Inscriptions have been made to order, in Greek and Hebrew and Celtic, and even in the Runic characters of the Northmen, to substantiate what the forgers had given out as an explanation of the mounds. But meanwhile a truer interpretation has been going forward under the care of scientific antiquaries, and the foolish stories which have been invented relative to the prehistoric earthworks of America will find no further credence among intelligent people.

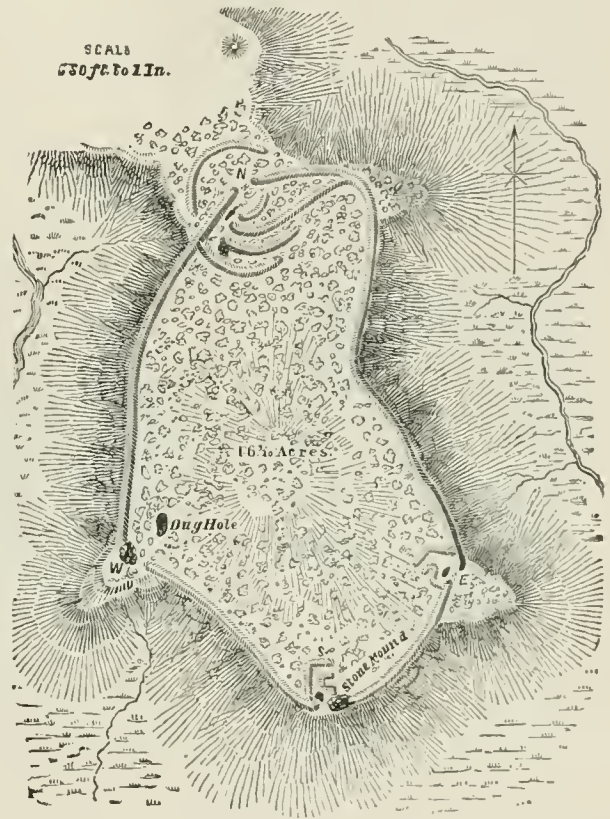
Forgery substituted for scientific investigation.

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Many are the legitimate inferences which may be drawn relative to the life

and manners of the people by whom the American prehistoric monuments were built. In the first place, there are evidences of a vast and far-reaching intercourse among them. The relics that are found in the mounds are drawn from different and distant localities, and their character indicates, in general, a social

Far-reaching intercourse; the mound potteries.



FORT HILL, BUTLER COUNTY, OHIO.

and industrial state, in a tolerable stage of development.

In the tumuli and earthworks we find many articles of pottery, greatly superior to the corresponding relics in the primitive tombs of Great Britain and the Continent. The American articles are frequently of elegant design. Many carved works in stone are found in the same situations, and ornaments of silver and copper, almost worthy of a modern jew-

eler, are taken from their resting places alongside of ancient skeletons.

The materials of these utensils and articles of adornment are derived from many and distant places. The source of the silver is not known, but the native copper has evidently been brought from the mines of lake Superior. The mica, of which other ornaments are made, is from the Alleghanies. Beautiful shells are found in the same situations, which had their home in the gulf of Mexico. Implements of obsidian and porphyry, of Mexican origin, are frequently discovered with the other relics. As to such

Materials deposited have been brought from great distances.

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VASES FROM MOUNDS.

implements and specimens of art of European origin as have occasionally been found in the sepulchral mounds of the New World, they are to be traced unmistakably to later burials in the ancient tombs.

Another deduction of much importance is that which relates to the extent of these prehistoric populations and the nature of their industries. It must have been a populous nation out of whose activities sprang these great mounds and fortifications. The amount of labor expended on such a monument as that in the plain of Cahokia is like the sum of the toil which reared the pyramid of Cheops.

The mounds constructed by populous races.

It must have been a populous nation out of whose activities sprang these great mounds and fortifications. The amount of labor expended on such a monument as that in the plain of Cahokia is like the sum of the toil which reared the pyramid of Cheops.

Here we have a mass of twenty millions of cubic feet of earthy material heaped up in regular form and with a definite design. The labor of many thousands was required to do it; and when we reflect upon the imperfect facilities which the old races possessed for the execution of such works, we are still further astonished at the magnitude of the enterprise.

It is known to all that tribes inhabiting a country in the character of hunters and fishermen are always sparsely distributed. The most abundant natural supplies are only sufficient for a small

Mound builders had passed the hunting stage in development.

population. The hunting stage of society is, therefore, always limited to a small and widely scattered population. It requires the agricultural stage of development to produce and maintain a thickly settled people. The artificial resources of the soil must be added to the native resources of the woods before a great population can be created or maintained. Therefore, these

prehistoric races who built the American mounds and forts must have come out of a primitive stage of barbarian life and entered upon the agricultural epoch. Their industrial life must have been large and regular to support and foster such enterprises as we have before us; and the methods and economy and distribution employed by them must have resembled, if they did not approximate, the methods and facilities of the historical era.

Still a third consideration is clearly deducible from the evidence of the mounds. A great fortification laid out with geometric precision and executed as if by regular engineering implies not



only a *defensive* array of the means by which a people would protect itself from attack and destruction; it also implies an *offensive and opposing power*, an enemy, numerous and dangerous to be combated and warded off. It does not imply such an enemy as would be encountered in the hunting or nomadic stages of tribal development. That is, the means of defense would, under the common law of reason, be proportioned to the resources, aggressiveness, and skill of the foe.

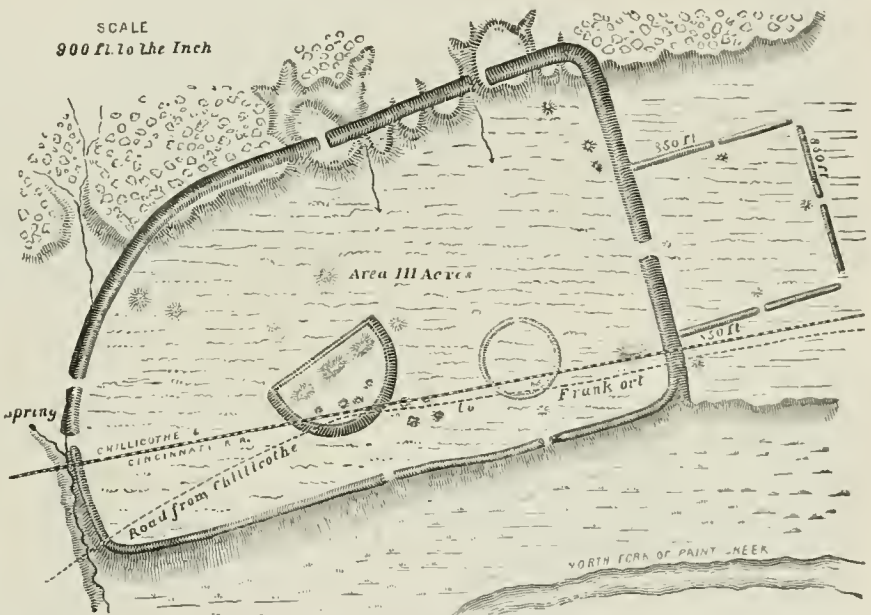
We can easily see, in these considerations at least, the outline of great nations contending for the mastery of the Mississippi valley. No other hypothesis will explain the facts. There must have been in these regions, in an epoch long antedating the era of the Red men,

great agricultural peoples, with institutions of religion and war. There must have been intercourse and relations with other peoples like themselves, and these must sometimes have been relations of hostility. Indeed, it would appear from the strong military character of the greatest and most important of the monuments that war was, even in these prehistoric times, the most marked and vehement activity of the human race.

A comparison of the skeletons found

in the earth mounds of the New World with those discovered in the tumuli of Great Britain indicates clearly the greater antiquity of the former. The earth surrounding the bones and other human relics in the American mounds is exceedingly dry and compact. The situation is generally favorable in the last degree to the preservation of human remains. Below the level of frost and entirely impervious to water, the dry earth surrounding and covering the vaults

Evidences of greater antiquity in the American mounds.



MILITARY WORKS ON PAINT CREEK, OHIO.

seems to have been untouched by any natural force for ages. And yet the skeletons in the American tumuli are nearly always far gone in decay. It is difficult to preserve them after their exposure to the air. They generally crumble as soon as they are taken from their long resting place. Even the skull bones generally turn to a white powder with a few days exposure to the atmosphere. In the British mounds the human remains are generally well preserved. Notwithstanding the moisture to which they have been

exposed in the earth and the humidity of the air of England, the skeletons stand well on being exhumed, and are safely transferred to their places in museums. In some instances this may be done with the mound builders of America, but not often. The naturalist will not fail to discover in the conditions and

common type, but those taken from remote tumuli show strong marks of ethnic divergence and peculiarity. As a rule, the crania and arm bones are strictly human in their development. They conform to the ordinary standards of measurement and proportion, but the skulls are foreign, not to say aboriginal,



POTTERY OF THE MOUND BUILDERS.—From *Magazine of Art*.

facts before him the evidences of a greater antiquity in the case of the American remains.

Considerable variety of race has been remarked among the skeletons exhumed from the American mounds. They differ much in form and stature. Those in a given locality generally belong to a

Indications of race variety; character of prehistoric crania.

in their form and structure. They do not correspond with the crania of any existing race of people. On the whole, they are more in analogy with the skulls of those Oriental peoples who inhabit the eastern shores of the Pacific and the outlying islands. Some well-preserved skulls, taken from prehistoric mounds in Indiana and preserved in the museum of

that State, have a striking likeness to the heads of the Japanese, but are smaller in capacity than the crania of that people

On the whole, the prehistoric races of North America were rather under the average stature of the Red men or the civilized peoples of our continent. Sometimes remains are found which are really diminutive. Nor are the cases of this kind isolated or peculiar. On the Cumberland river, in Tennessee, several prehistoric cemeteries have been examined, in which the remains are uniformly of a small race. So marked is this peculiarity that some have supposed that the skeletons in question are those of infants and children. But a closer examination has proved them to be adult. The region in which these pygmy cemeteries are located is very favorable for the preservation of the dead. The soil is dry and sandy. The remains are invariably found in small stone boxes, and the observer can hardly believe that they are the skeletons of a full-grown, adult people.

On thrusting down from the surface a sharp iron rod the stone lid of one of these small crypts may be found, and on excavating the earth the box can be examined in its undisturbed condition. The graves have been constructed originally by excavating small, oblong vaults and placing thin, undressed slabs of sandstone at the bottom, sides, and ends. After the burial a flat capstone was placed on top, thus completing the box. The inside of one of these miniature sarcophagi measures from ten to fourteen inches in width, ten to twelve inches in depth, and from fourteen inches to two feet in length. The space is so small that no well-grown person of

The Little Men of the Cumberland and Tennessee valleys.

Character of the graves; the sarcophagi, and the remains therein.

an existing race, unless it should be a native Australian, could be buried in it, even in a contracted position. But the prehistoric skeleton which is found inclosed has, generally, room enough, though the parts are frequently flexed and sometimes doubled back. The mounds covering the prehistoric pygmies are thickly strewn in favorable positions along the banks of the Cumberland.

The manner and epoch of the disappearance of the mound builders from North America remains conjectural. Nor is it likely that the ingenuity and adroitness of human scholarship will ever be able to exhume from the past the manner and time of their disappearance. On the whole, they would seem to have been a people worthy of a history; but their extinction was so complete that whatever may have been the extent and variety of their national life, all has gone out together. Philosophers have devoted volumes to the causes of national decline, and the question is still open for rational solution.

Manner of the extinction of prehistoric races unknown.

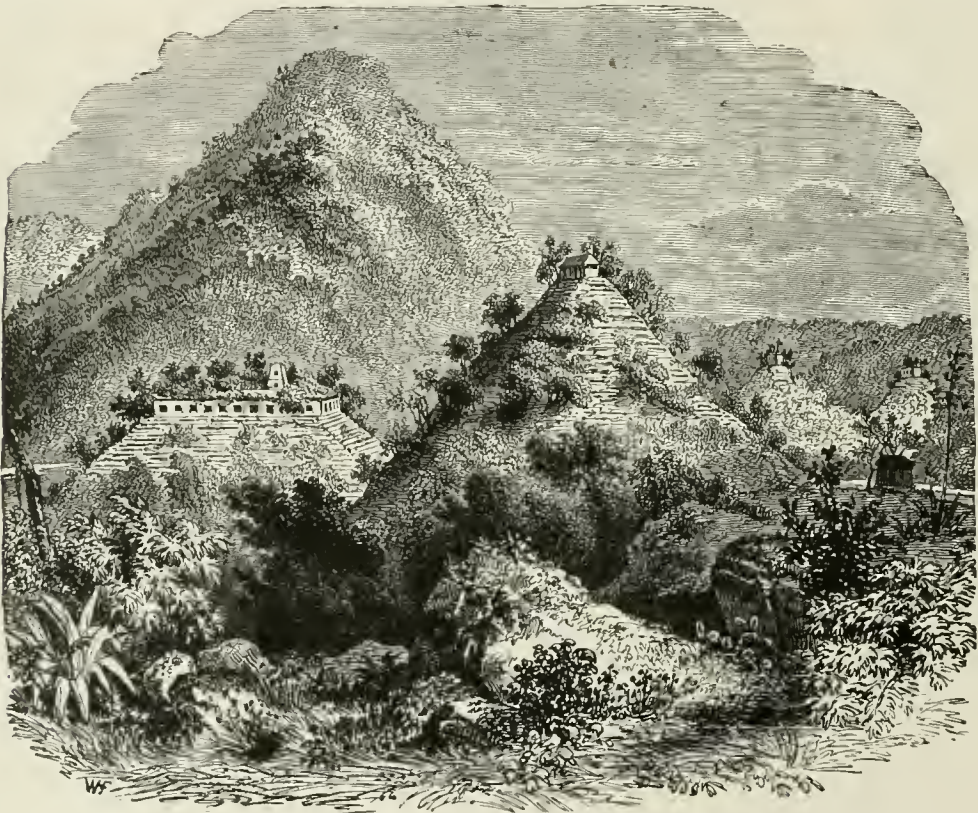
It may be truthfully urged that the seeds of ethnic decay exist in certain peoples in virtue of their own constitutions and the nature of their activities. Whether races grow old and die as the individual; whether different families of men are deflected by evolutionary processes from one phase of existence to another; whether sudden metamorphoses take place, in obedience to natural laws, such as are alleged to occur at rare intervals in the animal kingdom, are philosophical questions which the inquirer of the future must solve, if indeed they are soluble at all.

Certain circumstances, however, may be cited which are at least effective as assisting forces in the extinction of races. The prevalence of vicious and

luxurious habits, gradually supplanting the early and robust virtues of a people, tend unmistakably to national overthrow. The external forces of war and the great cataclysms of nature may also account for the destruction and disappearance of peoples. It is doubtless true that in prehistoric ages great submergences of peopled islands and continents

Forces that tend to the extermination of races.

been threatened by the rage of epidemics. Among uncivilized peoples the accumulation of stores for the future is but little attended to. That prudence and foresight which keeps up the resources of life against the day of calamity are but little practiced by barbarians, or even by races half emerged from barbarism. For these reasons prehistoric peoples have been greatly exposed to the ravages of



AZTEC RUINS AT PALENQUE, IN CHIAPAS, MEXICO.

have taken place, while others have risen, dripping, from the deep. Earthquakes and volcanic disturbances of the great crust of the globe have terrified and driven away what they have not engulfed. Finally, famine and pestilence have done their work on prehistoric as well as historic races. There are times within the recorded story of national life when not only the depopulation of great districts, but the extinction of whole nations has

famine. At intervals the earth has unaccountably withheld her gifts. A few seasons of want in succession would be sufficient to exterminate an isolated and uncommercial nation, and that such calamities have actually fallen upon peoples like the mound builders of America can not be doubted.

Beyond the limits of the United States the tumuli and other evidences of bygone races are generally secondary. In

one sense they are prehistoric, but in another they fall, for the most part,

Extinct peoples of Central America nearer to the present.

within the activities of peoples who have been known within the historical epoch.

The Mexican races that flourished in the days of the Spanish invasions, at the beginning of the sixteenth century, may well be considered as the remote extreme of the people by whom the monuments of Mexico were erected. The same is true of the peoples of Central America and of the Peruvians. The Aztecs, the Coztecs, the Guatemalian tribes, and the Peruvians, though much more advanced than the Red men of North America, are collateral with them in time and national development. In the case of our North American Indians, we know that they belonged to a different race from the mound builders, and that they flourished in an age long subsequent to the prevalence of the former on this continent. We have not the same clear evidence of the existence of a people back of the Mexicans, the Central Americans, and the Peruvians. Such a people may have existed, and there are evidences here and there of a truly prehistoric basis for that type of national life which was encountered by the Spanish invaders under Cortez and Pizarro.

The ancient monuments of Mexico are among the most imposing of primitive ruins. They have a

Mexican monuments indicate the religious purpose.

solidity and grandeur suggestive of the vast structures which the antiquarian encounters

in the valleys of the Nile and the Euphrates. They differ fundamentally in their character from the mounds and fortifications of Central North America in this, that the latter were military structures in their first intent, while those of Mexico are based upon religion

and its ceremonials. In the case of the North American tumuli, the long moles and circumvallations were created under the warlike purpose of the race that reared them, and the religious part of the monuments are only secondary to the dominant ideas of warfare. In the Mexican tumuli and pyramids the exact reverse is true. Evidence is not wanting that they at times subserved a military purpose—that within their ramparts the nation retreated and defended itself against the foe. But the general idea of all the monumental remains in the region under consideration is that of religion and priestly ceremonial. A general sketch of the character and purpose of the Mexican monuments can not fail to prove of interest.

The structures in question have all, with very few exceptions, a common plan. A great square is laid off on the earth, with its four sides to the cardinal

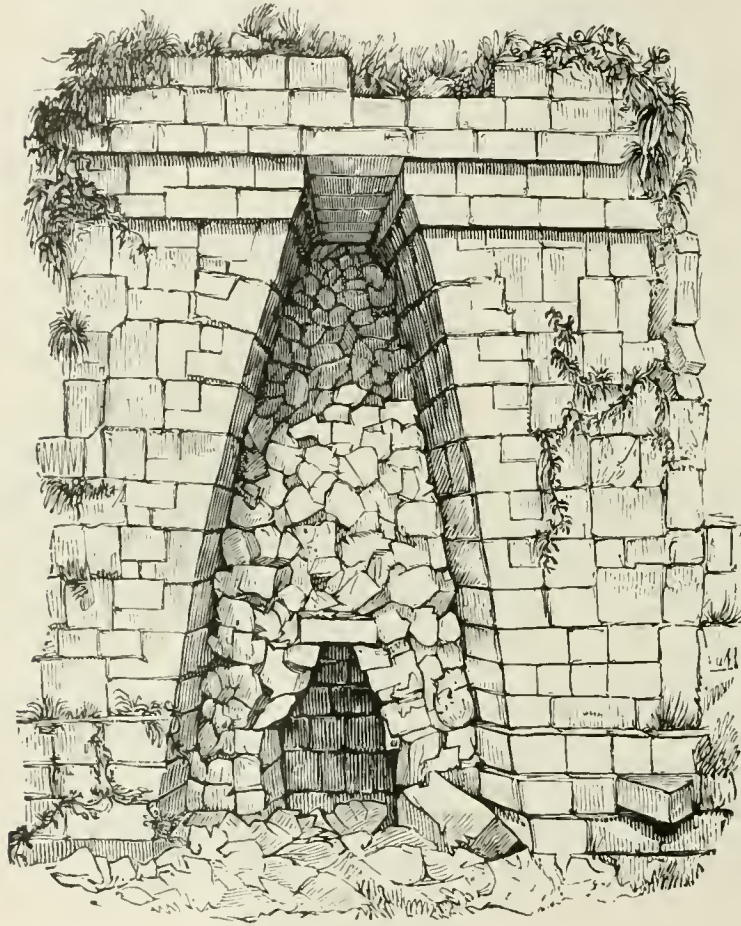
Plan and materials of the pyramidal temples.

points of the compass. This square is surrounded with walls strong and high. The structure of the same is sun-dried bricks, or even in some cases stone. Centrally located within the great rectangle thus inclosed is the site of the temple. A square foundation of solid masonry is laid, extending to two hundred, three hundred, or even five hundred feet on each side. From this foundation a great structure like a pyramid is carried up in a succession of terraces. The design is almost identical with some of the oldest monuments of the human race found in the valley of the lower Euphrates and attributed to the ancient Chaldæans. In both instances the successive platforms of masonry grow smaller toward the top, and in both there is generally a deflection of the work toward one side, so that the pyramid does not stand centrally over the

foundation, but nearer, as a rule, to the western edge. The eastern side of the pyramid, facing the morning sun, is ascended by a flight of steps to the upper square. The structure is truncated; that is, cut off above without being carried to an apex. On the upper platform is built the temple proper,

he found fully four hundred of them in the state of Cholula. Doubtless the number within the more important state of Anahuac, embracing the plateau of the Mexican capital, was still greater. Torquemada estimates the number in the empire of Montezuma at forty thousand!

Plentiful distribution of such structures in Cholula.



AZTEC STRUCTURE—ARCH OF LAS MONJAS.

which also faces the east. Sometimes on the terrace more temples than one are reared. It is in evidence that several deities were worshiped from the same platform. Each had his own fane and ceremonial.

Temples of the kind here described were plentiful at the time of the Spanish invasion of Mexico. Cortez declares that

Particular features of the Aztec temples of Mexico. he found fully four hundred of them in the state of Cholula. Doubtless the number within the more important state of Anahuac, embracing the plateau of the Mexican capital, was still greater. Torquemada estimates the number in the empire of Montezuma at forty thousand! Bernal Diaz, the old Spanish historian of the times, and Cortez himself in his letters to Charles V, have given us full descriptions of the striking religious edifices and ceremonials with which they came into contact. Perhaps the most elaborate structure in all Mexico at the beginning of the sixteenth century was that which Cortez describes from the capital. It was in the center of the ancient city. The inclosure of the outer walls was so great that Cortez estimates the interior capacity as sufficient for five hundred houses. Another estimate made by Solis is that the space inside of the walls and between them and the pyramidal foundation in the center was sufficient to accommodate ten thousand dancers on days of solemn ceremonies. This whole space was paved with dressed stone, and so smooth was the work that as Bernal Diaz declares, "the horses of the Spaniards could not walk upon it for slipping." All the area within was sacred territory. It was the central institution of the state, religiously, educationally,

Particular features of the Aztec temples of Mexico.

and politically. Here the priests had their abode. Here the soothsayers and scribes of the ancient epoch congregated; and here the emperor himself was admitted only with a ceremonial. The terraces constituting the pyramid were five in number. The broadest platform was three hundred feet square, and the height of the whole to the upper terrace was a hundred and twenty feet. On the top were two shrines, or towers, which were dedicated to the gods of preservation and destruction.

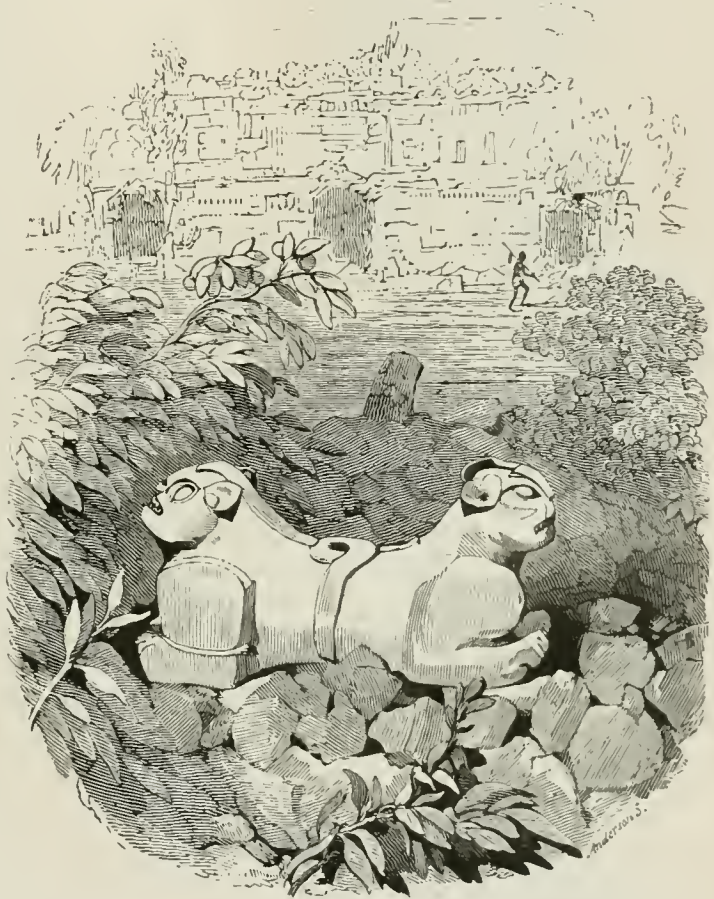
Central America, as well as Mexico and the countries

of the North,  
abounds in  
ruins and

monumental evidences of primitive peoples. The style of building was here the same as on the Mexican plateau, but there is a greater display of art. The Central American pyramids are generally smaller than the Mexican structures, but the temples on the upper terraces were larger in proportion. Great massiveness and strength are the characteristics of the masonry. The exterior of the temples were stuccoed and covered with carved figures and ornaments. It appears that the symbolical imagination ran rampant among the priests and architects. Within the temples were corridors and chambers with arched roofs of stone.

The antiquary in examining these ruins can but be impressed with their striking analogy to the earliest monuments of the human race in the valleys

of Western Asia. The corridors and walls of the inner chambers are covered with sculptures and hieroglyphics. It is not impossible that a truer understanding of the significance of these inscriptions may make the world better acquainted with the character and activities of the aboriginal races of our continent.



CENTRAL AMERICAN ANTIQUITIES—DOUBLE-HEADED FIGURE OF THE  
CASA DEL GOBERNADOR.

In Honduras, also, many monuments of the same nature have been discovered and described. Here, too, the carving is elaborate and elegant. At Copan one of the most striking monolithic effigies ever recovered from the ancient world has been found and preserved. Around the shores of lake

Monumental remains of Honduras and Colombia.

Nicaragua abundant evidences of extinct peoples are scattered, and wherever these occur they are found to be covered with inscriptions. It is be-

upon some relic of human workmanship of unknown origin. The ruins of a few edifices and monuments have also been examined in this land, but have not added materially to our knowledge of their builders.

Passing southward into the highlands of Peru, we come upon additional evidences of the activity and genius of an extinct people. Perhaps the city of Cuzco affords one of the best fields for antiquarian research that may be found in the world. Hererra declares that there were aforetime in this city as many as three hundred temples, and from the nature and extent of the ruins the assertion seems to be well grounded.

As a general fact, it appears that the religious ceremonies of the peoples whom we are here considering—Mexican, Central American, Peruvian—were a form of that sun worship which has constituted the most rational idolatry of the human race. Nearly all the temples seem to have been built with respect to the sunrise; and in so far as the ceremonial of these ancient peoples has been recovered, it reveals the same features which belonged originally to the worship of the Chaldæans and Assyrians, primarily to the Zoroastrians of the Iranian plateau, and in a considerable degree to the primitive peoples of India. There can be no doubt that the rising sun, coming up majestically after the red dawn of day and ascending the eastern arch of heaven, triumphing over mist and shadow, and fleecy cloud and rainstorm, constituted the one tremendous object of adoration which impressed itself upon the imagination of the early races of men.

It must not be understood that the ruined monuments which we are here considering are the only memorials left



SCULPTURE OF THE TOLTECS—FROM THE RUINS OF COPAN.

lieved that those in the vicinity of Copan are the oldest monuments that have yet been found south of the Rio Grande del Norte. In Colombia, also, the traveler ever and anon stumbles

Temples of Cuzco; sun worship of the prehistoric races.



by the Southern races of the New World. The outlines of great cities are discoverable here and there. Some of these have survived to within the historical period. Others have gone down to indiscriminate dust. In connection with these ruins the outlines of public works are found in many parts. Not infrequently the antiquary is able to trace the course of a great aqueduct or of some other evidence of the labor and skill of a prehistoric people endeavoring to supply its common wants.

It appears clear from an examination of all that we are able to discover in the regions here

Sad estate of the people in prehistoric America.

named, that man himself in his primitive estate

was as much subordinated to ecclesiastical domination and political despotism as in the better-known countries of the East. It appears that the common lot was as hard and ignoble in Mexico and Central America, in Colombia and Peru, as on the Babylonian plain or in the stone quarries of Egypt. Even as late as the times of the Spanish invasion the condition of the common people was pitiable in the last degree. The life of the individual man had no splendor or renown. Cortez and the Spanish story-tellers who accompanied him on his expedition speak of the miserable houses in which the people lived. They were mere huts built of bamboo and covered with thatch, temporary protections against a climate never severe and always inviting to outdoor methods of life. All vestiges of such lowly abodes have long since passed

away. Nor are there other means of discovering the daily life of the common people whom the merciless and bloody waves of Spanish conquest totally engulfed.

If we again turn our attention to the regions north of the Rio Grande, we



CENTRAL AMERICAN STRUCTURE—CIRCULAR EDIFICE AT MAYAPAN.

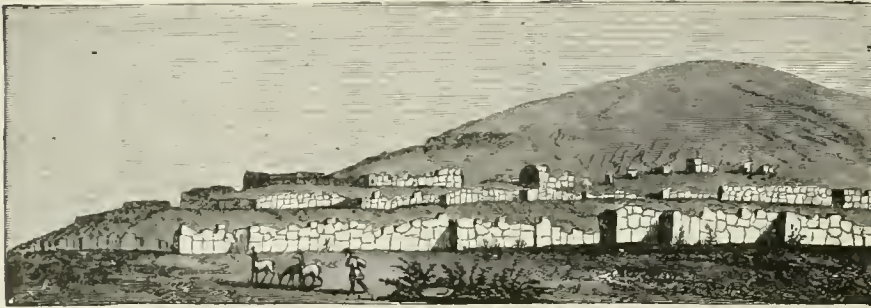
shall find in Arizona one of the best fields of exploration for the relics of a prehistoric people. This is not said of the ruins which the Spaniards and their descendants left in this region after the beginning of the sixteenth century, but of prehistoric memorials found in several localities. On the Colorado plateau

Extinct cities of the Colorado plateau.

there are traces of extinct cities, reservoirs, terraces, and aqueducts. Still more notable, in the valley of the Gila are scattered the monumental vestiges of a vanished race. Along the river banks are the outlines and actual débris of stone houses and military fortifications which belonged to a people long anterior to the European conquerors who came with Cortez and his successors. There are in many places, in a sort of fastnesses which seem to have been selected with not a little care, the remains of human habitations in great numbers cut from the native ledges, and constituting a species of abodes which are in good measure without an analogue among the habitations built by men. In other

decide what proportion of them are referable to the activities of the races inhabiting the Western conti-  
Chronological relations of the ruins of the Southwest.  
 was revealed to the European nations, and what part are the work of the prehistoric races which preceded them, we shall be likely, from the imperfect data in our possession, to fall into error and misinterpretation. Enough is known, however, to determine the general proposition that some of the monuments in question are the work of primitive peoples long anterior to the epoch of Spanish conquest.

It is probable that Peru, or what was anciently Upper Peru, but is now included in the state of Bolivia, furnishes



QUICHUAN ARCHITECTURE—REMAINS OF FORTRESS WALLS, AT CUZCO.

the best basis for the study of the truly prehistoric memorials in the regions which we have been considering. Since 1864, when the monuments of this

places walls of solid masonry, generally rectangular in form, may be traced; and the foundations of buildings which are thought to have been two or three stories in height are plainly discernible in many localities. It can not be doubted, indeed, that along the river Gila in past ages, as well as in many other parts of the territory of the United States, of Mexico, and of South America, a great and even flourishing prehistoric population existed, of which the only record is in the crumbling monumental remains which are left behind.

If we attempt to discriminate among the ruins of Southwestern North America, of Central America, and of Peru, and to

country were explored and described by the American archaeologist Ephraim George Squier, it has been settled that the relics of man's work in the high places of Upper Peru are traceable in their origin to a race that flourished in the country long before the era of the Incas.

The monuments in question are situated on the Andean plateau, high up in Bolivia, on the shore of lake Titicaca. The early Spanish invaders  
Remains on lake Titicaca; character of the region.  
 were greatly surprised at the character and extent of

these remains. At the time of the invasion of Pizarro, they differed little from their aspect at the present time.

The region is a broad, open, arid plain. During the wet season the weather is cold, and becomes still more so as the dry season of the year approaches. No fruits or grain will grow in this vicinity. It is said that nothing edible has been produced in the region except a small variety of bitter potato. It is, perhaps, the only region in the world where great monumental remains are found in a situation wholly unproductive, and many conjectures have been advanced to explain the anomaly. It has been

The monuments in question consist of stonework and moles of earth. The stones are either rudely hewn into shape or selected and set up with-  
Stone and earth-work; the monolithic doorways.  
 out dressing. The inquirer can not long have examined what is before him without discovering the analogy of the ruins to the great Druidical remains of England, and notably to Stonehenge. The stones are set erect in many places on the great terrace, but others are built into walls with the most exact workmanship. One



PUEBLO STRUCTURE.—RUINS IN THE VALLEY OF THE GILA.

thought that perhaps the great people by whom the monuments which we are now to examine were created had profound superstitions or religious ceremonies which they celebrated on this almost desert plateau. It has even been suggested that the site of these monumental remains may have been determined by augury—as the site of Rome was fixed—and that superstition thus determined the place where vast structures were created against the laws and suggestions of the natural world.

of the most peculiar of the discoveries is that of heavy monolithic doorways. That is, large slabs of stone have been taken, and through these the temple entrances have been cut, with an arch above, while on the front, and even reverse, of the block are carved a multitude of symbolical characters. All over the plain are scattered, even for miles around, the relics of vast structures and battlements, the position of which can be plainly traced on the earth.

Among the monuments on this high

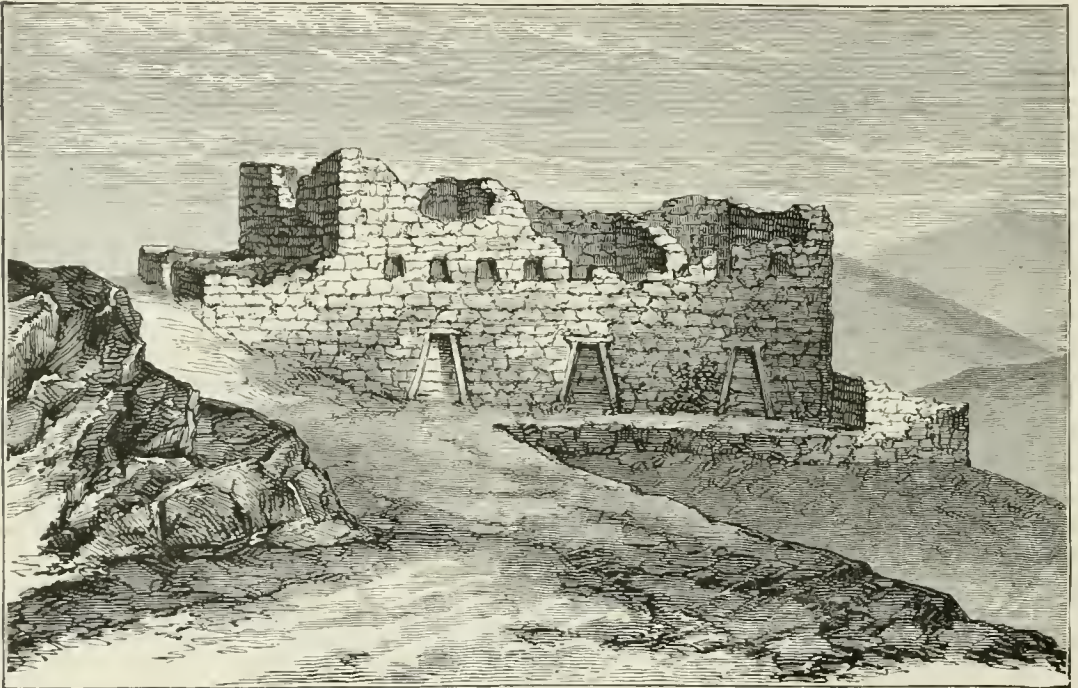
plain of the Andes four principal structures, or at least the foundations of them, have been developed from the ground. They are known to antiquaries by the names of the Fortress, the Temple, the Palace, and the Hall of Justice—from the purposes which conjecture has assigned to them respectively. The greatest of the ruins is the Fortress. It rises in the center of the

Astonishing character of the ruin called the Fortress.

substantial as that in the faces of the terrace.

If the traveler takes his stand on the summit of this tremendous monument and looks to the north, he finds at a short distance another rectangular mound, measuring at the base four hundred and forty-five by three hundred and eighty-eight feet. The outline of the structure is marked by rows of stones set erect in

Features of the Temple, the Palace, and the Hall of Justice.



OLD PERUVIAN STRUCTURE.—RUINS OF FORTRESS, ON TITICACA ISLAND.

plain, terrace on terrace, to the height of fifty feet. The mound is rectangular, having a base measurement of six hundred and fifty feet in length and four hundred and fifty feet in width. The faces of the terraces are laid with massive stones, which are carefully and skillfully cut and dovetailed the one into the other in such a way as to make them immovable for ages and ages. On each side, running out from the base, is a vast stone platform, known in architecture as an "apron," in which the masonry is as

the earth, some of them as rude as those of Stonehenge, and others carved with skill. These are the outer supports of the structures which were reared within. Some of the monoliths are as much as fourteen feet above the earth, and are something more than two by four feet in their other dimensions. This is the structure to which antiquaries have given the name of the Temple. The Palace next attracts the attention, and is specially noted for the excellence of the stone cutting which is observed in its

foundations. No masons of ancient or of modern times have, perhaps, excelled what was done on this arid plateau before the dawn of history, and is still preserved in the foundations of the monument under consideration.

It is not far from the outer limits of the Palace, so called, that the Hall of Justice is situated. It also is rectangular in its ground plan, being four hundred and twenty feet by three hundred and seventy feet in dimensions. Within this inclosure has been developed the foundation of still another structure, called the Sanctum Sanctorum, one hundred and thirty-one by twenty-three feet in measurement, which presents the finest stonework of all. For the excellence of the cutting and fitting it may well be compared with the ruins of Baälbec. Some of the stones are twenty-five and a half feet long, fourteen feet broad, and six and a half feet in thickness. They are fitted by the best rules of geometric art, and are held in place by bronze clamps that may well be compared with the like devices found in the ruins of ancient Egypt.

In the current chapter we have done no more than glance at the monumental remains of the three Americas. It is

believed, however, that the fragmentary sketches of these memorials will be sufficient to convey to the reader a fair apprehension of the times and the people in

Purpose of this treatise and of the sketch to follow.

which and by whom they were created. The present volume is by no means a work devoted to antiquarian research. It is merely intended in the present book to present so much of the primitive history of mankind as shall furnish a satisfactory basis for the consideration of the great tribal migrations which are to occupy our attention hereafter. We have in the preceding chapters reviewed the conditions of aboriginal life as they have presented themselves in the caverns and wilds of Western Europe, along the shores of the Baltic, in the tumuli of Great Britain, and in the mounds and among the monuments of the New World. We shall now conclude this book with a brief sketch of the general conditions of savagery as the same are presented among the barbarous and half-barbarous races of the present time. It is believed that the prehistoric man will thus be better *realised* in his far-off career by being seen in a reflected form of activity among the savage tribes and nations of the modern world.

## CHAPTER XXI.—GENERAL CONDITIONS OF SAVAGE LIFE.



TRUE understanding of the prehistoric condition of mankind depends in good measure upon a knowledge of the manners and customs of the existing savage nations. These nations are to be looked upon as the remnants and repre-

sentatives of an ancestry like themselves. Doubtless the existing tribes have been much deflected in the course of ages from the original types to which they belonged. But it is also true that they have preserved many of the leading features of the original barbarism which has prevailed in all parts of the earth.

Viewed from the animal side of exist-

ence, the barbarians of to-day hold exactly the same relation to the dead races that have preceded them as do many of

todons and the hairy rhinoceros have their living representatives in the elephant, the Asiatic rhinoceros, and even

the common swine. There has been an evolutionary descent by which the tides of life have been turned aside into new channels. The living creatures are not the same in stature, in habit, in aspect or mode of life as the extinct types from which they have been derived. But the essential nature of the original species has been, in large measure, preserved.

So also of the different varieties of men, aboriginal, intermediate, and modern. Sir John Lubbock has declared with great force that the inhabitants of Van Diemen's Land and Terra del Fuego are to the prehistoric races of the age of stone what the opossum and the sloth and the kangaroo are to the extinct mar-



MAN AND WOMAN OF THE REINDEER EPOCH.  
Drawn by Emile Bayard.

the living species of animals to the extinct varieties from which they are descended. The mammoth and the mas-

supials, known only to the geologist. The flint weapon in the hands of a living savage is to an antiquary precisely

what the horn-crowned nose of a rhinoceros or the projecting tusks of a boar are to a naturalist. The first carries the mind back to prehistoric implements found in the peat bogs of Denmark, and the other reminds the inquirer of the hairy rhinoceros and the tremendous tusks of *Elephas primigenius*.

ducible to two general considerations which are easily apprehended. The first of these is what may be called the appearance of national consciousness among a people. Whenever this happens—whenever a given tribe begins to be conscious of itself—the national tongue will for the first time find utterance, and this utterance will take the



BEGINNINGS OF METALLURGY.—A PRIMITIVE SMITHY.—Drawn by Emile Bayard.

One of the first inquiries with which we have here to deal is the fixing of a line between the prehistoric and the historic races of men. What is it to have been a truly prehistoric people? and what is it to lie distinctly within the historic era? The answers to these questions involve several matters of much importance and interest, but they are all re-

form of narrative. The narrative may be in the form of epic poetry. It may be a half-formed anthropology or cosmology, or it may be rude annals, reciting fragments of tradition and filling up the spaces from imaginary materials. At any rate, it is *History*. It is the earliest development in the form of language of a nation's concept of itself and of its own past

Relations of existing races to their barbarian ancestry.

Demarcation between prehistoric and historic races.

History may thus be regarded as the first rational transcript of the national consciousness of a people. There is that in the mind, whether of the individual or of the tribe, which on coming into the conscious state immediately demands some kind of narrative of its own origin and previous development. When this stage in the human evolution is reached, written records appear as a concomitant and inseparable incident of that particular epoch of growth. Henceforth we have the beginnings, at least, of those annals and early chronicles and traditional forms of literature which constitute the fundamentals of formal history. This circumstance may be taken as the first great point of division between civilization and its antecedent barbarism.

The second point has already been alluded to in the preceding chapters. It is the *use of metals*. So much stress would not be laid upon this fact in the progress and development of mankind were it not for the coincidence of the use of metals in the practical arts with the beginnings of history referred to above. It is a part of the general scheme of the civilization of mankind that this fact of the appearance and first expression of a national consciousness in the form of annals and recorded traditions shall be associated under law with the earliest discovery and application of the metals to the purposes of human life. The metallic age, if we may so express it, is coincident with the dawn of epic poetry and the first records of legend and tradition. When the primeval man emerges from the shadows of barbarism he begins to sing and to carry a metallic battle-ax. Thus it appears that the manufacture of the metals by rational or empirical processes, and their use

instead of the ruder materials employed in the age of savagery, is the second circumstance which determines the line of demarkation between the civilized forms of life and the preceding barbaric ages. In other words, the line which is drawn between the savage and unconscious state of the human race and its conscious and enlightened activities has history as one of its points of departure and the use of the metals for the other.

The question will at once arise whether savage nations have no traditional forms of expression. Undoubtedly they have. All tribes of men, in however low a condition of development, cultivate legend and tradition. They are fond of reciting stories about themselves and the other races with whom they have come in contact. They are even as children telling unthinkable things about wolves and bears and giants. But the point to be observed is the *impermanence of the traditions of barbarism*. Contrary to the popular apprehension, the legends and stories of really prehistoric peoples are exceedingly evanescent. They generally pass away with the current generation, or at least take a new form with the succeeding one. The absence of a record to preserve and crystallize the myths and imaginations of primeval man is the circumstance which prevents their perpetuity. Each age among barbarians has its own cycle of traditions, but they have no continuance or fixed form. All the legends of savagery combined would be no other than the babblings of the living generation, or at most the transmitted form of the babblings of their fathers and grandfathers. It is now a well-ascertained fact that the most apocryphal stories told by savages pretending to give an account of past events in which their own people have

The conscious man requires an explanation of the past.

Use of metals coincident with historical consciousness.

Evanescent character of barbarian traditions.



borne a part, are only the current expression in a magnified and distorted form of things that have happened within easy reach of the memories of men.

Many instructive and even amusing illustrations may be given from the annals of current savagery of the valueless and short-lived character of barbarian traditions. In November of 1642 Abel Janssen Tasman discovered the island which now bears the name of Tasmania, southeast of Australia. The people passed under the dominion of the Dutch, and the vicissitude was as great as could possibly happen to a barbarian race. In 1770, a hundred and twenty-eight years after the discovery of the island, the great navigator James Cook visited the Tasmanians and acquainted himself with their traditional knowledge. He found nowhere in the island the slightest evidence of a recollection of Tasman's visit. Every trace of that great event had lapsed into oblivion. Another instance of like sort is furnished in the great inland voyage and exploration of De Soto through the gulf region of the United States. Long before the Revolution all remembrance and tradition of this event had passed from the minds of the Red men. On being questioned, the most intelligent chiefs in the region through which De Soto had passed were found to be totally ignorant of the romantic expedition which had laid their own country open to the aggressions of another race.<sup>1</sup>

<sup>1</sup>The impermanence of the traditions of savages is strongly contrasted with the persistency of tradition *after* a race has once entered the conscious stage of development. When a tribe has reached the epoch of race consciousness and has begun to employ the metals in manufacture and art, then its traditions become permanent and of high historical interest.

It is clear that three or four generations constitute the limit to which a knowledge of even great national catastrophes is transmitted among savage peoples. Even during the continuance of a tradition in barbarism it takes on constantly new and exaggerated forms, rendering it totally unfit for historical purposes. The imagination of the aborigines adds to and modifies the narrative until it is distorted out of all semblance to the original. It is narrated by Sir Alexander Mackenzie that during his travels among the Esquimaux they were wont to describe the English to him as giants with wings. They said that the English soldiers could kill men by looking at them, and that one of them could swallow a whole beaver at a mouthful! The traveler Mansfield Parkyns, in his account of the traditions of the Abyssinians, relates one of their stories to the effect that some German missionaries had in the course of a few days made a tunnel from Adowa to Massowah, on the Red sea, a distance of more than a hundred and fifty miles! In fact, all of the traditions and myths of savage tribes are apocryphal in the last degree; and this fact, taken in connection with their impermanence, destroys all value that they might otherwise possess for the antiquary and historian.

While it is true that barbarous traditions are thus useless for purposes of history, and misleading if depended on to throw light upon the general conditions of savage races, it is also true that the manners and customs of these same races are among the most persistent facts which the student of human life will ever encounter. A tradition or legend will change its form like the figments of the kaleidoscope. It will vanish with a

Transformation and early extinction of barbaric legends.

brief lapse of time and never reappear. But the manners of even wild and roving tribes hold their form through every vicissitude and long generations.

Nothing is better calculated to astonish the inquirer than the persistency and integrity of customs. They can hardly be destroyed. They pass through the severest crises, and come up after great catastrophes in all their pristine vigor

Persistency and integrity of customs and habits.

shocks and revolutions, through migration and famine, through the ravages of pestilence and the horrors of war, and is indeed coëxistent with the race of which it is a part. A trivial custom easily outlasts the life of man. It survives the mountain oak which has braved the storms of a millennium. It outlasts the granite obelisk which the conceit of a mistaken people has reared as the most permanent memorial of its greatness.



PERSISTENCY OF ETHNIC FEATURES.—(1) ANCIENT HEBREW SHEPHERD WITH SLING.—Drawn by H. A. Harper.

and definiteness of outline. Even the trivial circumstance of a peculiarity of tribal speech will be perpetuated from generation to generation, and the more substantial elements of custom seem to endure forever. Habit is, if possible, more unchangeable with a tribe or people than with the individual. It seems to be a part of the blood and nerve of national existence. It goes through

There are still present in human society forms and customs and peculiarities—modes of action and ceremonial habits—that have been transmitted to the modern world from the shadow and obscurity of the unknowable ages that lie below the daydawn of civilization; and in like manner the present will contribute to the coming ages its customs, its methods, and its ceremonials.

If we would see a striking illustration of the persistency of manners and customs, we have only to glance at some of

Examples of the preservation of Semitic manners.

the modern descendants of ancient nations. The Semitic race, for instance, presents us in modern times with two striking race developments. The Jews and the Arabs still stand as the typical representatives of a family of men already old at the birth of most of the ancient kingdoms. In the case of the Jews, their dispersion among other peoples has to a considerable extent conformed them in the practical affairs of life to the methods and manners of those among whom they drift, but with whom they are by no means amalgamated. So we may look to the Arabs of the present time as the living expression of those ethnic forces which were dominant in the seed of Abraham. No one who acquaints himself with Arabian manners and customs, and is at the same time conversant with the manners and customs of the Israelitish nation of antiquity, can fail to notice that the forms of life among the Arabians of to-day are identical with those of the Hebrews fifteen centuries before the Christian era. The very garments which the Arabs wear

might have been stripped from the bodies of the patriarchs. Their fashion is the same, and the material and its method of manufacture are to all intents and purposes identical. The ceremonial of the house and the tent are just as they were in Canaan before the Egyptian bondage. An Arab sheik meeting another clad and mounted like

himself and each followed by his retinue across the deserts and valleys of Arabia, might be photographed and the matter and the manner of the interview repeated, and both would be a faithful transcript of the meeting and compact between Lot and Abraham.

If we descend into the particulars of speech and the manners of daily life



PERSISTENCY OF ETHNIC FEATURES—(2) MODERN ARAB WEARING THE ABA.

Drawn by Paul Hardy.

among the Arabs we shall find the ancient ceremonial faithfully duplicated. The forms of salutation and of farewell have persisted in their integrity for more than three thousand years. The same views of life—of its origin, its nature, and its destiny—the same ideas of duty and obligation, of the nature and

Daily life of the Arabs a transcript of that of the Hebrews.

immediate presence of a personal deity interfering with the affairs of the common lot and directing even the details of all events, are to-day in the Arabian mind and on his tongue and in his actions with all the realism and vitality and distinctness which those same ideas possessed in the minds of the great military leaders and prophets of primitive Israel. The Elohim of the Hebrew is the Allah of the Arab. The appeal to the one for the protection of his tribe and victory over the enemy is as constant and confident in the camp of the Arabian chieftain as was the appeal to the other in the tent of Joshua or Saul.

To the ancient Hebrew and to the modern Arab alike this Allah, this almighty personal God, directs everything. He brings pestilence, and is the giver of health. He blesses and curses according to the righteousness or the wickedness of his people. He speaks to the sleeper in dreams. The dream is only the voice of God in the darkness. Years of plenty and years of drought are both from his hand. He ripens the grain to a perfect harvest or blasts the fields with mildew. He sends the early and the latter rain when the people have been obedient, or the murrain and the locusts when they have disobeyed. All this and ten thousand other things which, taken in their entirety, constitute the tangible outer garment of Arabian life, are in manner and substance virtually the same at the present day as they were among the captives who sat down and wept by the rivers of Babylon, or among the strong soldiery who followed the banners of the Maccabees in their last struggle for independence through the wilderness of Judæa.

Were we equally well acquainted with the tribal history of other races the same

phenomena—the same repetition in modern life of the manners and customs of remote antiquity—Primitive Teutonic manners have survived to present day. could be discovered and pointed out. Had we at

the present a record of the boisterous manners and hilarious barbarism of the Teutones who hovered darkly in the forests beyond the Danube and the Rhine in the days of the early republic of Rome, we should be able to note the repetition and persistence of these customs among the Ostrogothic and Visigothic invaders who, many centuries later, devastated the empire. And were we well acquainted, as we are acquainted in part, with the primitive barbarians who inhabited the lowlands of Holland in the north, we should find their manners and customs preserved, not only in outline, but in detail and circumstance, among the broad-shouldered and florid Saxons who followed Egbert and Alfred in their battles with the Danes, and upon whose rugged nature still rests the superstructure of British greatness. The clatter of their ale-horns, the ring of their battle-axes, their barbarian laughter, and their snatches of savage song would be heard repeated in the jocular hilarity and boisterous mirth of Chaucer's bantering pilgrims, in the wild uproar and vulgarity of Shakespeare's taverns and battle-fields, and even faintly echoed through the mist and gauze of the refined and beautiful epics of the late Laureate of England.

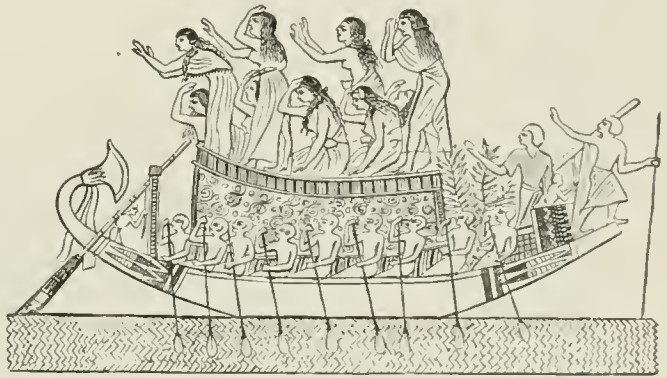
By carefully weighing the foregoing considerations we are able to see the means by which the Monumental remains the certain evidence of prehistoric conditions. character and methods of life of prehistoric peoples may be in some measure comprehended. The inquirer will, of course, in the first place examine all the existing remains

which the peoples of antiquity have left behind. A monument, unless misjudged as to its design and character, constitutes the fundamental evidence with regard to the men who reared it. It gives the only primary testimony, and may be relied upon with absolute faith as to its verity and significance.

Monumental remains are even more certain in their testimony, more absolute in their fidelity to the facts which they represent, than are the best historical writings produced by man. The latter are always in some sense warped from the image of truth. They bear the impress of the annalist or historian from whose brain they were evolved. They are tinged with a thousand prejudices of the passing age. But the monument is unconscious. It has no prejudices or passions. It belongs to no sect or party, and is unbiased in its evidence by any personal equation. No conscious force of human caprice has been impressed upon it. It stands in naked austerity a solemn witness of the purposes and genius of the people who reared it.

In the second place the inquirer may, as we have seen, depend in large measure upon the fidelity of manners and customs. These have been perpetuated from age to age, and there is no doubt that the earliest, even the unconscious, movements of mankind on the earth are to a considerable extent reflected and portrayed in the existing habits of barbarians. Allowance must be made for the deflection of human nature under the influences of time and circumstance. It must always be remembered that the evidence in this case is not absolute and

indubitable as in the testimony deduced from monumental remains. But manners and customs are, nevertheless, trustworthy indications of the past condition of the human race. Mere tradition may not be trusted. We have seen the absurdity and brevity of the legendary part of barbarian history. Traditional forms of thought, as they are passed from tongue to tongue among the barbarous tribes of men, have an independent interest of their own, just as the fictions and extravagant imaginations of



PERSISTENCY OF CUSTOMS—MOURNING WOMEN OF OLD EGYPT.  
From the entablature found in the tomb of Ptah-Hotep, at Thebes.

children may prove of interest to the metaphysician and philosopher. But the story told by the child must not be accepted in the court of higher reason as an evidence of its own origin or the methods of its previous life. We are thus virtually limited in our inquiry concerning the prehistoric condition of men to the two general conditions here indicated, namely, the monumental remains which are preserved on the surface of the earth as evidences of the men who produced them, and the persistency of manners and customs among the peoples now inhabiting the world.

Another consideration here presents itself and demands a brief inquiry. It is the source or primary origin of barbarity. There is no doubt that in the remotest antiquity which we are able to

Deductions  
drawn from fidelity  
of manners  
and customs.

discover by means of ethnic, linguistic, and archæological study, tribes of men struggled for a precarious existence on the earth in a condition of the profoundest savagery. Nor is there any doubt that similar races still possess a considerable portion of the surface of our planet, living thereon in a condition of animality which must be seen in order to be realized in its profound abasement and savage degradation. But what is the origin of this degradation? How has it happened that men have come into such relations of depravity and gloom? In what way may the degrading barbarism of the ancient world or the equally low condition of the outlying savage races of the present time be rationally accounted for and explained?

Two principal theories have been advanced in answer to these questions.

Two explanatory theories of the source of the barbaric state.

They are diametrically opposed in the views which they present of the history of the human race. The first is the theory of the descent of mankind from a primitive high estate to the fenlands of barbarism. In this view of the case the first condition of the human family was one of elevation, of refinement, of knowledge, of power. But from this high plane of primitive purity, excellence, and greatness mankind has descended to lower and lower grades of being until, in remote antiquity where the ethnologist first discovers the primeval peoples, they wallowed in savagery and degradation. The first age was the age of gold. Then came the lapse from the noble estate with which the race was started, the swift decline of the dispersed and broken fugitives, the loss of former reason and spirituality, until the gloom of barbarism settled around all the horizon of human life, and naked savages were seen

by the river banks and in the shadows of the forest.

All the evidences of barbarism—the hypothesis continues—which the historian and archæologist discover in existing and extinct races are but the results of this lapse and ruin of the human family. All the efforts which have been put forth for the elevation of mankind are only the broken and half-hopeless struggle to restore the human race to its pristine glory; and the heavy forces which impede the progress and the higher development of men are but the residual poison and malevolent habits which they have acquired, as they would acquire the infection of disease, in the course of their descent and the groveling of their low estate. Such in brief is the general view which has long prevailed relative to the origin of savagery in the human family.

Hypothesis of the descent of mankind from an age of gold.

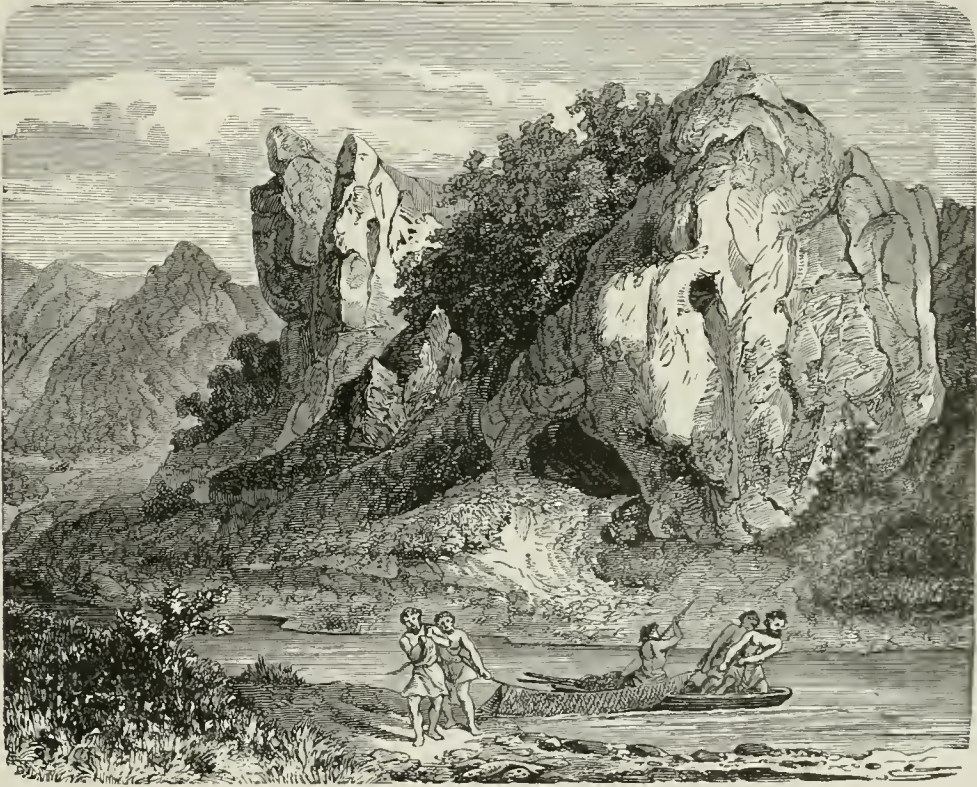
Directly opposed to this hypothesis is the theory that the true original condition of men in the world was one of a low grade of animality, and that all subsequent movements of mankind have been along the lines of an evolution which is gradually lifting the human race through hard and tortuous processes to a higher plane. In some favored situations this evolutionary force has already, in different ages, brought certain peoples out of barbarism into the light of reason and at least the beginnings of civilization. In other places and under less favorable conditions the primitive state still abounds, and men have grown but little from the merely animal life with which they were projected into the world. All the movements of history, according to this hypothesis, have a common trend toward the production of a complete man and a perfect society.

Belief that the beginning of man-life was in savagery.

In the struggle to reach this end some peoples go to the front, others lag, and still others drop into nonentity. Some become self-conscious and display those high and generous activities which in the aggregate go by the name of civilization, and others remain on lower levels, or even in the original sloughs of barbarism. The civilized forms of life, ac-

stone, or half-naked fishermen dragging their nets and boats to shore on solitary coasts. The further the lines of human life are traced backward the more profoundly do they penetrate a world where reason is absent and bestiality prevails.

Out of this primitive state the more vigorous of the savage peoples, by toilsome ascent and painful struggles,



BARBARISM ILLUSTRATED—ANCIENT FISHING SCENE.—Drawn by Riou.

According to this view of human history, are merely the survival and development of those better activities which have been found to be of benefit to the race.

It thus happens that when the ethnologist and the historian begin an examination of the past they find savagery as the bottom fact. The first discoverable men are rude hunters smiting wild beasts with weapons of

Elaboration of this view; arguments in its support.

gradually emerge into conscious existence. They expand in their intellectual powers, invent superior forms of utterance and a pictorial representation of thought, write their words by means of symbols, record the story of their own deeds, mass themselves into strong communities, begin to reason about the origin of the world and the course of nature, and finally take up the chant of epic poetry. Which, then, of these two contradictory theories will better ex-

plain the existence and origin of barbarism?

Many arguments may be sincerely advanced in favor of each hypothesis. It is the duty of history to deal candidly with all questions, to have no prejudice and no fear. The time has arrived in the course of human events when the great problems of the past may be considered with calmness and courage. No blind fanaticism for one or the other of antagonistic theories should any longer sway the decision of an inquiry which is of so great an interest, and the solution of which in one way or the other can hardly change the great movement of mankind toward the higher developments and grander activities of the future. In behalf of the hypothesis of the descent of mankind from an original high estate into conditions of savagery, several facts and arguments may be truthfully advanced:

1. In the first place, the traditions of nations, especially in that part of their career when they have themselves just emerged from the barbarous condition, generally recount an original age of gold

Race traditions generally point to an age of gold. which their fathers enjoyed and in which they were the great participants. Nearly

all the vigorous races of antiquity that played important parts in the ancient world had traditional beliefs of this kind. They looked back through the mists and obscurities of their own age and the ages immediately preceding to an epoch of splendor and renown in which their heroic fathers were seen afar as tall trees walking. All the early theogony and cosmogony of the ancients as depicted in their philosophical systems, their myths, their epic and dramatic poetry, were touched and flecked in every part with the traces of this belief.

It can not be well explained why the

greatest peoples of the ancient world should have held and propagated such opinions respecting their ancestry and the state of society out of which they

Difficulty of accounting for the prevalence of such a belief.

were descended, unless there had been some ground for such belief. Looked at as an abstract question, it appears more rational that the bards and myth-makers of the primitive world should have chosen to glorify themselves and the passing age by representing their descent as issuing from darkness and barbarism, rather than to picture themselves as degraded from a godlike ancestry. It is not certain in which way the half-conscious intellect of the primitive man would work or by what laws it would be guided in the development of traditional beliefs. But the fact remains that the greater part of the best teachers of antiquity *believed* themselves the offspring of a great paternity, and that back of the barbarities of their own age and the immediate ages of their fathers lay a resplendent age of gold, from whose heights and heroic activities men had descended by gradations into a low estate.

2. In the next place, it may be well urged that many nations within the historical era have actually declined from higher into lower conditions. In fact,

Actual examples of the decline and extinction of races.

all the great nations once in possession of the better parts of the world, once organized into tremendous communities, once filling the streets of magnificent cities, once directing the commerce, cultivating the arts and controlling the energies of mankind, once gathering into vast treasure-houses the resources of the world and sending forth invincible armies for the conquest of Gentiles and barbarians, have now disappeared from among the powers, and are known



only by annals and memorials. It is also true that these great nations have, as a rule, not gone out by sudden eclipse and extinction, but they have rather fallen away by degrees, relaxed, insensibly at first and sensibly afterwards, their hold of power, and crumbled away until attack from without and feebleness from within have joined their forces to complete an inevitable downfall.

It is hardly needed to recite examples of national decay. It is almost superfluous to recount the tremendous domination once established in the valley of the Nile, now represented by Arab sheiks, miserable collections of degenerate Copts in squalid villages, and a few degraded fellahs plowing with oxen in the glebe by the river banks. The early Chaldæan empire at the mouth of the Euphrates has left only scattered monumental traces. The glory of the Assyrians and of the later Babylonians has passed forever from the valley of the two great rivers.

The tremendous Turcomans, iron forgers at the first from the mines of the Altai, who came as conquerors

into Western Asia, surrounded the city of Constantine and made it their capital, are now degenerated into the opium



EXAMPLE OF RACE DETERIORATION—RUBBISH-BEARER OF EGYPT.

Drawn by Gustave Richter.

smokers and harem builders of the Bosphorus. The splendor of Athens and the glory of the Athenian intellect have

given way, through long ages, to foreign domination, and the traveler stands sad-hearted among the ruins of the Acropolis, or marks with astonishment

name, has shrunk from her ancient circuit of the hills to a commonplace city, the throne of superstition and conservatism, and haunt of beggary.



EXAMPLE OF RACE DETERIORATION—ROMAN BEGGARS.

the miserable goat houses built over the oracle of Delphi. The Rome of antiquity, whose solid walls of stone and tremendous legions clanking their armor on the stone slabs of the Appian Way have become only a tradition and a

Maxima at Rome, the great military mounds and fortifications in North America, and particularly the Peruvian ruins on the plateau of the Andes, mark and emphasize the activities of races of

3. The careful reader of the preceding pages will not have failed to note that many of the monumental remains of antiquity betoken unmistakably the energies and genius of a superior people. Some of the most primitive memorials of the human race are among the most convincing and substantial evidences of power and grandeur. The granite obelisks and pyramids of Egypt, the so-called Cyclopean ruins in Greece, the old Etruscan aqueducts, such as the Cloaca

Monumental remains indicate the greatness of ancient peoples.

men hardly inferior to the strongest and most skillful known in history. It will be remembered that in many of these localities barbarism long flourished and ran rampant after the tremendous monuments reared by preceding civilized peoples had gone down to ruins. The Peruvian monuments were in their origin as far anterior to the domination of the Incas as the Incas are remote from the Peruvians of to-day. The earthworks and mounds of North America antedate the epoch of the Red men by a span of ages. The massive foundations laid by the Etruscans in their own district and in Latium are far more ancient than even the traditions of the primitive Latin race. So also are the Cyclopean remains of Greece far more remote than even the age of the heroes; and as to the monuments of Egypt, it is sufficient to say that the oldest of them are the grandest and most enduring.

4. In the fourth place, the evidence of language points to a primitive condition of mankind in which the intelligence and reason were the supreme characteristics. Whatever may have been the origin of human speech, it is clearly a rational product. The oldest languages with which we are acquainted are the most perfect in their kind. If we consider that great group which we call the Aryan, or the Indo-European, languages, we find them to improve as we trace up their descent toward their origin. This is to say that, as a rule, the older dialectical form is fuller, more complete, and more rational than its descendent derivative. The modern languages of Western Europe are, as a rule, devoid of grammatical structure, and are in reality rather the detritus of a perfect speech than the speech itself. The Anglo-Saxon tongue had a more

extensive grammar, if not a fuller vocabulary, than the English of to-day. Mæso-gothic was richer in inflections and rational forms than its descendent German. Latin was more inflected and developed than Gothic, and Greek preserved many of the forms which had already decayed and fallen out of Latin. Sanskrit was far more nearly perfect in its structure and inflections than any later Aryan tongue. With its eight cases and three numbers for nouns, with its full verbal development and its inflected adjectives, it stands to-day as perhaps the most complete structural expression of human thought. Thus we see that the higher we trace the streams of the Indo-European languages, the broader and fuller are the forms which we encounter. Not a trace of evidence is discoverable that any one of the multifarious languages descended from this common source had an origin in barbarian ejaculations, or in any form of irrational utterance. And if we look still more closely into some standard form of this speech we shall find that it has been evolved by the logical processes of abstraction and generalization, the noun being derived from the verb and the adjective from the noun, by an evident effort to abstract a substance or thing from an action and a quality from a substance.

It will thus be seen that many reasons may be assigned for accepting and perpetuating the old-time beliefs of the human race in the splendor of its own ancestry and the reality of the age of gold. But, on the other hand, many reasons may be given for rejecting such belief and putting in its place the hypothesis of an ascent from barbarism instead of a descent from heroes, Titans, and gods. The principal arguments in

Language seems to have begun in an age of reason.

tion of mankind in which the intelligence and reason were the supreme

Arguments may be advanced in support of opposing theory.

favor of the theory of savagery as the original condition of mankind may be stated as follows:

1. Our first actual historical knowledge reaching into the past touches only conditions of barbarism. To the historian or ethnologist the primeval state of man, as seen from his point of view, ap-

Backward look  
of history reach-  
es barbaric be-  
ginnings.

of progress and development have, manifestly, been borne forward by evolutionary forces out of barbarian conditions only a little more remote than the peoples themselves. Such nations as the primitive Greeks were evidently resultant from an agglomeration of semicivilized tribes who, settling down from migratory habits, entered into union



BARBARIAN LIFE ILLUSTRATED.—CHASE IN THE AGE OF BRONZE.—Drawn by Riou.

pears to be one of savagery. It is true that many nations are discovered in the far horizon of antiquity that on our earliest acquaintance with them appear already in a state of intellectual activity and swift progress toward the civilized forms of life. But close scrutiny will discover *just behind them* a lower tribal condition, and behind that a still lower. In other words, the peoples who on our first acquaintance with them appear in a state

with each other and began to develop into rational activities. So also of the Roman gens in Latium and other parts of the Italic peninsula.

All this is a statement of the case as it stands in the backward vision of the historian or ethnologist. His actual acquaintance with the races of men can not well penetrate beyond the conditions of savagery *which he sees*, and ascend to a primeval of intellectual elevation and

social happiness which *he does not see*. He need not deny the existence of such a primitive state, but his discernment can not reach it through the intervening darkness.

2. Not only is the first discernible condition of mankind one of barbarism, but the evidence of an emergence therefrom is abundant. This is to say that under the eye of history early peoples, savage or half-savage in their manners, are in many instances *seen in the actual process of evolution* toward the higher form of rational existence. No condition in the primitive annals of mankind is more certainly established than the fact that peoples *do improve*. They are seen to do it. If we measure the condition of a barbarous tribe and compare it with the condition of the same people after a century or two centuries of growth, we can easily discover the process of evolution and its results.

It must be confessed that the improvement of barbarian races is in many cases slow-paced, scarcely noticeable after the lapse of a long period. It may even be admitted that many barbarous peoples have not improved at all. It is probably true that the original forces with which some tribes are impressed are not sufficient to bring them out of the savage state. They continue as they were from age to age. They become as fixed in their habits and methods of life as are the birds and beasts. They build as the beaver builds, and the concept of a higher state is totally wanting in their understanding. But in most instances there is a forward march—slow it may be, but still a movement that may be seen and measured.

History is filled with illustrations of human development. Tribes become

peoples. Peoples become states and kingdoms and nations. The expansive force of the social and civil instinct in man is seen working powerfully in the

History replete with examples of human development.

evolution of higher forms of activity and better expressions of right reason. The whole story of the human career is in good part a story of progress, amelioration, development. It is the law of life. The human race shares it in common with all other forms and modes of existence. Aye, it is most manifest in man. In him the evolution is strongest, and the tendency toward a higher state—the dream of something beyond and above—is always discernible in his actions and language. The roving tribes in ancient Hellas became the bronze-clad warriors of the heroic age. The returning warriors became the rhapsodists and orators of the age of patriotism; and the rhapsodists and orators became the philosophers and poets of the most intellectual epoch of the human race. The robbers gathered on the Capitoline Hill plant a city and organize a state. Their wolfish manners give way to the culture of the market place and the early forum. Another evolution, and we see the senate-house, the tribune, and the temple. Still another, and the marble-built city, with its marching armies and citizens in toga, its columns, its busts, its trophies, its roaring circus with its multitudes are seen—finally the domination of the world.

In subject Gaul the half-savage and wholly barbarous Franks hoist their chieftain on their shields, and Clovis appears as the primitive king of a primitive people. Further on are Charlemagne and his school of the palace. Already they are reading the annals of the past, sending polite messages to Haroun-al-Rashid,

The Greek evolution paralleled with that of the Gauls.

and studying the stars. Still further on, Godfrey and Raymond and Saint Louis gather their helmeted warriors and, under an ideal enthusiasm, would rescue the tomb of the Christ from barbarians and infidels. Further on stands forth the French nation, breaking the fetters of feudalism, rising through the bloodiest of revolutions into a splendor and freedom hitherto unknown among the peoples of the earth—Napoleon the Great,

splendor of the Plantagenets; the greater glory of Shakespeare and the bards; the establishment of liberty by war; overthrow and rebuilding; emergence; English liberty; the colonization of the world; the triumph of letters and art.

Everywhere the story is the same. Progress and development, the first law. Foundations are laid; then comes conquest, first of savagery and then of the forces of nature—the bending down of



THREE STAGES OF CIVILIZATION ILLUSTRATED—SKETCH FROM FORT LARAMIE.

his conquering armies, victory, renown, the republic.

In the oak woods of primeval Britain are the barbarian Saxons gathered around their chiefs. They have filled themselves with raw meats, coarse cheese, and fiery drinks, but they found their petty states—a heptarchy of possibilities. Then come Egbert and Alfred and the foundations of the immovable kingdom; the Conqueror; Chaucer; the mediæval

the tremendous energies of the material world to the purposes of human will and endeavor—the mastery of the earth and its fullness. All these are the very law, the fundamental method of human existence on the earth. These facts are palpable. They are seen and touched. They are known and manifest; and in so far as they are the demonstrable rule by which mankind are guided, it appears undeniable that the history of humanity is the history of a development from a

lower into a higher form of life—from barbarism to civilization.

3. In the third place it must be acknowledged that the condition into which many civilized nations have fallen and

The fallen estate of races differs wholly from savagery.

relapsed is a condition *very different from that of primitive savagery*. It would seem

that nations having once occupied a high plane of political and intellectual power do indeed lapse into effeminacy, vice, slavery, and moral degradation; but they do not become barbarous or savage. We should look in vain for a single instance in which a civilized people, whether of ancient or modern times, has fallen back into an aspect of life at all analogous to that of the cave dwellers of Europe or the Red men of North America. They do indeed relapse. The heroic Greeks of the fourth century B. C. have become the degenerate weaklings of modern Greece. The Romans of the sturdy republic have left as their descendants the mendicant musicians of Florence, the dirty boatmen of the Venetian canals, and the lazzaroni of Naples. The Spanish warriors and navigators of the fifteenth and sixteenth centuries who found a new world and took it for their sovereign, have as their living representatives the mandolin players of Cadiz and the brandishers of stilettos in the half-lighted streets of Madrid. The evidence of retrogression and decay is sufficiently striking to the philosopher and painful to the philanthropist. But the modern Greeks, the Italians, and the degenerate Spaniards of to-day have no likeness or kinship with the savage races whom we discover on the further confines of history. This is to say that the ascending and descending phases of national life present wholly diverse aspects; insomuch that one can scarcely be compared with the

other. The true savage appears to have in him the potency of the time to come, while the effeminated and degraded descendant of a great ancestry has in him only the potency of death. In so far as this dissimilarity between the barbarian, under the influence of forces that may bring him into the civilized state, and the depraved posterity of great ancestry does exist as a fact, it seems to be an evidence of the original barbarity of all peoples and the evolution of a few into the higher forms of life, rather than an evidence of the relapse of races into original savagery.

4. The believer in the hypothesis of an ascending movement of human nature from a primitive savage condition into light and freedom and greatness, may well urge that the great monumental remains of the remotest antiquity and the perfected languages which we find at the daydawn of civilization are the work of races which had already *passed through the stages of development* from original barbarism to the higher conditions of life. In our present state of knowledge it would be rash to allege that the striking memorials of civilization belonging to the remotest antiquity are certainly the work of peoples who had been developed from savagery through preceding ages of discipline and endeavor; but it would be equally rash to allege that such memorials of primeval greatness are the work of nations who *began* their career in civilization and enlightenment. So also of human speech. It is true that such languages as the Sanskrit appear as the highest grammatical and logical formulae which have ever been invented for the expression of human thought, and that subsequent linguistic developments have been, so far as the structural forms of

Monuments and languages have behind them low conditions.

speech are concerned, retrogressive rather than progressive. But no one can say that the apparition of Sanskrit was not itself the result of preceding ages of progress and development.

On the whole, it appears rather against right reason than in conformity with what we know of the human mind and its principles of growth to suppose that a vast structure of speech like the Sanskrit should come forth at one effort from the brain and tongue of a perfect race. It would seem too much a marvel that the Aryan house-folk of the primitive Indian valleys should have *begun* to speak with the perfected formulæ of language. It is not alleged that such a phenomenon is impossible, but the development of a language from small beginnings and in constant correlation with the opening powers of the mind seems to conform more nearly with the progressive order of human nature and of universal nature than the sudden phenomenal efflorescence and fruition of a full-grown language.

Not reasonable  
that perfected  
languages began  
at once.

Such, then, are the principal arguments for and against the theories which have been advanced to explain the fact of barbarism. Both views of the beginnings of the barbaric life have been sustained with such hot contentions as are born of preconception. The historian may frankly admit that the arguments on either side are weighty and important, and if for the present he suspends a judgment, it will not be thought to proceed from a reluctance to decide according to the evidence before him, but rather from the incompleteness of the data thus far attainable. Meanwhile the argument strongly preponderates toward that theory which makes barbarism and savagery to have been the primitive condition of mankind, and civilization to be the resultant of the slow processes of ethnic evolution. The statement of the various reasons for and against such a view presented in the current chapter has been given as a digressive study, preparatory to a notice of some of the general and actual conditions of barbarism, and to that great topic we now turn our attention.

## CHAPTER XXII.—BARBARISM ILLUSTRATED.



It is painful to reflect how great a portion of the earth is still under the dominion of savage races. Europe, the smallest of the continents, has long emerged from her primitive condition. Large tracts of Asia have been occupied by civilized nations from a remote antiquity. A new world has within the last three centuries been reclaimed. A powerful race has planted itself in place of the scattered aborigines. South

America has, within the current century at least, presented the redeeming aspect of Latin civilization. But the rest of the world is still dominated by races of men whose manners and customs lie close to original barbarity. The islands of the sea present some of the most striking aspects of this current savagery of mankind. Africa throughout nearly its whole extent is untouched with the sunshine of the higher life. The boreal regions, whether in the Old World or the New, are still occupied by races on a

Large areas of  
the world still  
dominated by  
barbarism.



very low plane of development. It is among such peoples that we must now seek and find our examples of existing



NATIVE AUSTRALIAN FROM THE DARLING RIVER  
(HEADRESS OF FEATHERS).

forms of barbarity in illustration of the prehistoric life of man.

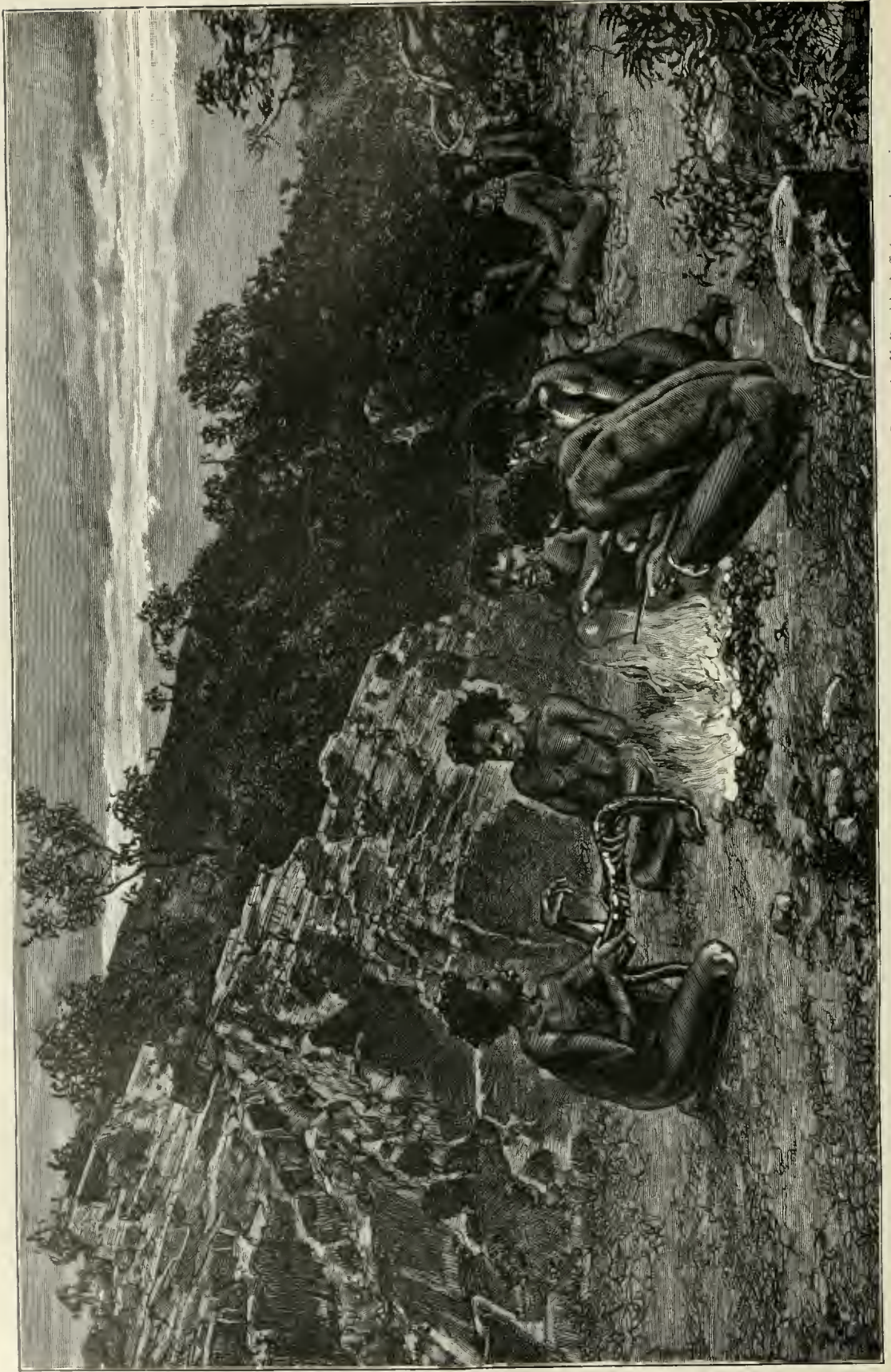
One of the most striking facts in connection with the savagery of the human race is filth. There is perhaps no single example among aboriginal tribes of anything like cleanliness. Those dispositions which we observe in many birds and animals to plume and cleanse themselves and to protect their nests and lairs from the grosser forms of filth are strangely absent among the ruder savages. The historian Kolben has remarked of the Hottentots that they may be regarded as the filthiest animals in the world! Not content with the offensive accumulations of nature and constant contact with the dirt, they actually cultivate gross forms of defilement, rendering them in their personal habits re-

pulsive and disgusting to the last degree. In his description of these heathen the author says: "Their bodies were covered with grease, their clothes were never washed, and their hair was loaded from day to day with such a quantity of soot and fat, and it gathers so much dust and other filth, which they leave to clot and harden in it, for they never cleanse it, that it looks like a crust or cap of black mortar. They wore a skin over the back, fastened in front. They carried this as long as they lived, and were buried in it when they died. Their only other garment was a square piece of skin, tied around the waist by a string, and left to hang down in front. In winter, however, they sometimes used a cap. For ornaments they wore rings of iron, copper, ivory, or leather. The latter had the advantage of serving for food in bad times."



TYPES OF SAVAGERY—BUSHMAN WOMAN AND CHILDREN.

The bath has been practiced by nearly all peoples, whether savage or civilized. But among heathen tribes the act is



BARBARISM ILLUSTRATED—THE AUSTRALIAN MANNER.—BUSHMEN MAKING POISON FOR THEIR ARROWS.—Drawn by Y. Franishnkoff, from a description.

performed with little respect to personal purification. The sensuous change of temperature, from cold to warm or from warm to cold, with the mere pleasure of splashing like a porpoise in the surf, seems to constitute the barbarous idea of the bath. Instead of desiring to purify themselves from all animal taint, from defilement, from those offensive odors which are peculiar to tribes in low condition, such peoples seem to take pleasure in intensifying the disgusting peculiarities of the beast-life which they live. It requires many ages of development, as a rule, to change this horrid instinct and to substitute therefor the instinct of personal purity. It is in proof that as low in race development as the beginnings of barbarous song savages are accustomed to refer, in their rude rhapsodies, to the offensiveness of their bodies, and to rejoice in it as an element of merit and preëminence!

The Hottentots are also a good example of other debasing usages. The gathering, preparation, and taking of food may be cited as a second strongly discriminating feature of human life. One must needs reflect upon the vast difference in the method of refined eating and that of barbarism. The savage man eats very much after the manner of brutes. As to materials, he selects first of all native roots and wild fruits, such as yield themselves readily to his appetite, without cultivation or much search. The proportion of animal food in tropical countries is always considerably less than in higher latitudes, but the Hottentots are none the less great eaters of meat. As a rule, they take their flesh food raw. If they cook it at all they prefer a kind of broil in the blood of the animal, the whole being mixed

with milk. No pains whatever are taken for cleanliness, either of the meat itself or of the utensils. Unless the meat is thus taken fresh in the blood they prefer to let it remain until it is half-putrid, regarding the odor and taste of decaying flesh as delicious. Such other victuals as they possess are boiled in leathern sacks, among heated stones. Sometimes earthen pots are used. The materials of the larder are kept in leathern bags, in the bladders of animals, or in baskets rudely constructed of rushes. Tobacco is in common use by the people, and is carried in pouches made of the skins of animals. The pipe is of stone or wood. The whole stock of provisions is borne from hut to hut, or from one camping place to another.

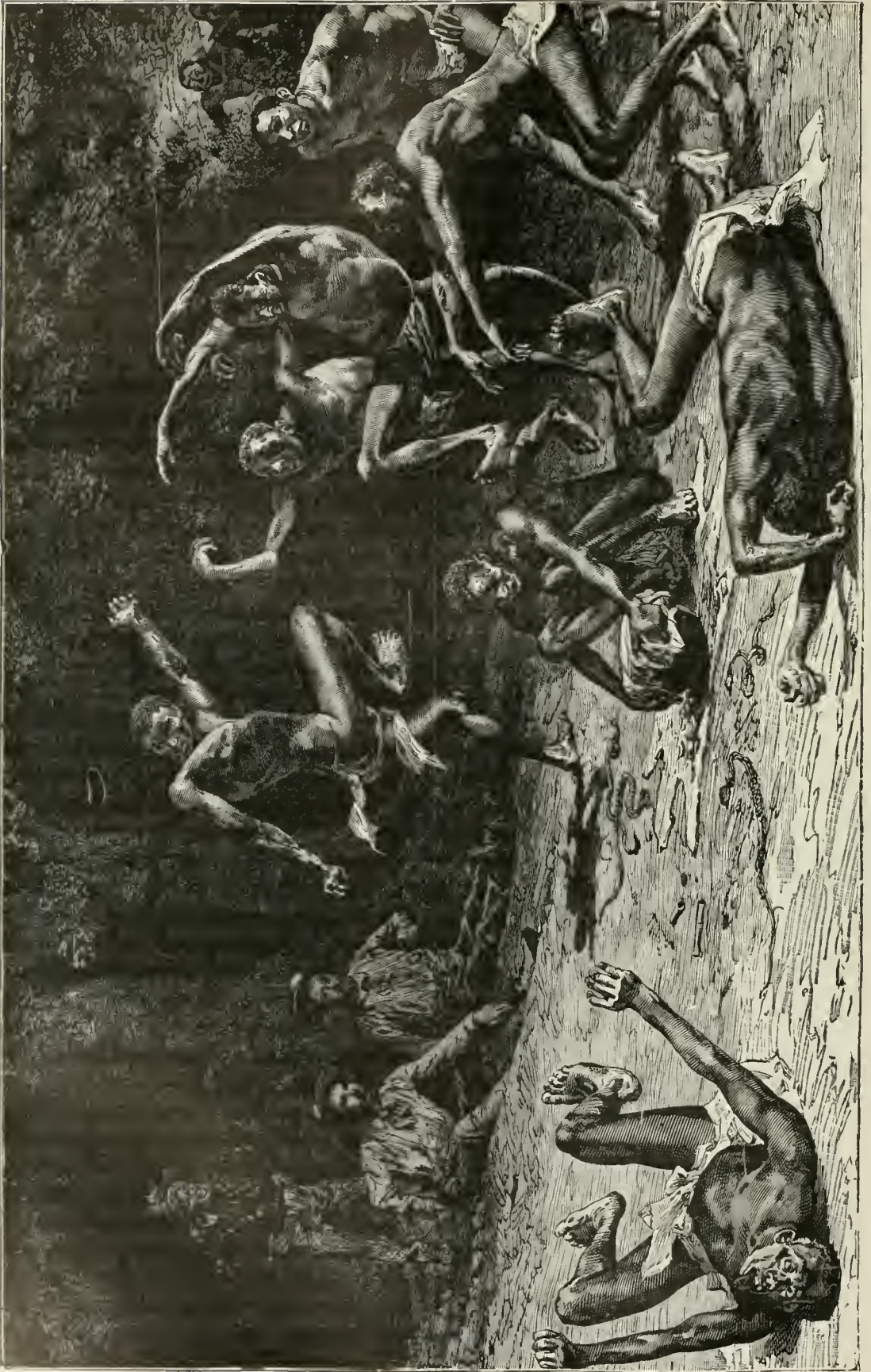
Australia, on the whole, furnishes one of the most interesting and satisfactory fields in which to study the native aspects of human life. The barbarians inhabiting this island-continent when it became known to the European nations were as truly aboriginal in their character as any people with whom scientific observation has had to deal. Nor can it be said that the lapse of time since the coast regions of Australia fell under the dominion of civilization has materially changed the native inhabitants. They are to-day virtually as they were when they were first made known to the Western nations. And it is still possible to study their manners and customs without having to make allowance for the influence of other peoples upon them.

The Australian houses are perhaps the smallest and most insignificant which have ever been used as human abodes. They are scarcely large enough to contain a single person. They are shaped much like an inverted oven. The framework consists of a series of reeds, not

Savages bathe for pleasure rather than purification.

Filth in food supplements filth in personal habit.

Australians an example of degraded savagery.



BARBARISM ILLUSTRATED—THE SOUTH AFRICAN MANNER.—THE SNAKE FEAST.—Drawn by Y. Prantshnikoff.

more than an inch in diameter, bent over so as to bring the two ends to the earth, in which they are driven. The covering of the hut is of palm leaves or bark, and the protection afforded to the inhabitant is very small. One side of the hovel is open, and there is little pretense of shelter. When the inhabitant enters he must sit or lie down, as the concavity overhead is not high enough to permit him to stand. No evidences of artistic taste or adornment have been discovered in connection with these primitive habitations. Nor could such houses avail anything in a country whose climate was less mild than that of Australia. Many inhabitants go without houses at all, sleeping on the ground and making no effort to secure a local habitation of their own. In some places the effort at housebuilding proceeds only so far as setting up two or three poles and leaning against them large pieces of bark, forming a sloping roof, which furnishes a simple protection from the sun and wind.

In matters of taste and cleanliness, the Australians are but little superior to the Hottentots. Their personal appearance approaches somewhat the better type of humanity, but the daily habits of life are low down among the elements of savagery. The food of the people consists of roots and nuts, certain kinds of wood fungus, or mushroom, shellfish, frogs, snakes, worms, moths, birds, birds' eggs, turtles, dogs, kangaroos, seals, and sometimes whales. All of these things, however, or nearly all, are eaten without preparation, and are taken with no sense of cleanliness or decency. It will be seen from their list of edibles that most of the articles are such as may be grabbed from the earth or the seashore. The kangaroo is a wild, fleet

Feeding as the  
beasts; the  
whale carnival.

animal, and is taken with considerable difficulty. The dog is only eaten under stress of hunger and necessity.

The whale is, of course, beyond the reach of capture to these barbarians, but he is sometimes stranded from the deep or washed up dead on the shore. When this happens bonfires are kindled as a signal, and there is a holiday for the natives. It is their great providence, which they accept with as much gratitude as they are capable of knowing. The inhabitants gather from the region about, and pounce upon the carcass with the avidity of beasts. It makes no difference in what stage of putridity the flesh may be. They gorge themselves to utter repletion. They clamber about the dead body, and quarrel for the choicer parts. Notwithstanding the heat of the climate, they stuff themselves with blubber until they are distended with the fatty mass. They eat holes into the interior, and go inside to find what they can not devour. They smear themselves with the offensive oil, and remain for days together half-suffocated around the scene of their feast. Perhaps the annals of barbarism furnish no example of bestiality more gross and revolting.

It is by no means intended in this connection to give a full description of the manners and customs of the Australians or of any other barbarous nation.

The Veddahs  
also exemplify  
the grossness of  
barbaric life.

The whole object in this part is to illustrate the primitive life of man by a few citations from the current conditions of savagery. In another part of the work it will remain to illustrate more fully the tribal condition of the barbarous peoples lying along the outskirts of the civilized world. In further illustration of the present state of savage peoples, a few citations may be made from the life of the Veddahs, or aboriginal inhabitants

of the island of Ceylon. These people are among the rudest and most primitive of any with whom modern observers have come in contact. They are small in stature, the adult male rarely reaching the height of five feet.

With the exception of a piece of skin suspended in front of the body the Veddahs go entirely naked. Their habits are as coarse and low as those of the other barbarians whom we have been describing. They live upon the wild products of the woods and by gathering shellfish from the shore. They are in possession of axes and spears and bows and arrows. These are employed almost exclusively in the chase. The peculiar feature of the Veddah life seems to be its secretiveness, or silence. Even in the hunt they are silent, attempting to slip upon and strike their game unawares. The chase consists in a noiseless approach to the animal which the hunter wishes to take. In prosecuting this kind of capture the natives adopt several devices, the most prominent being the training of bison to the purposes of the chase. The hunter hides behind the tame animal, which is taught to feed along so near to the wild one that the hunter may spring from behind and strike it down. It is a species of stalking, almost panther-like in its method and success.

The Veddahs, like the Australians and the Hottentots, have no social or civil institutions, but one or two customs are marked for their peculiarity. They do not indulge in polygamy, each man having one wife, and the tribal code being very severe in demanding fidelity of the one to the other. The rule, however, does not exclude intermarriage in the family. Brothers and sisters may marry with impunity, subject only to the

Marriage customs and domestic code of the Veddahs.

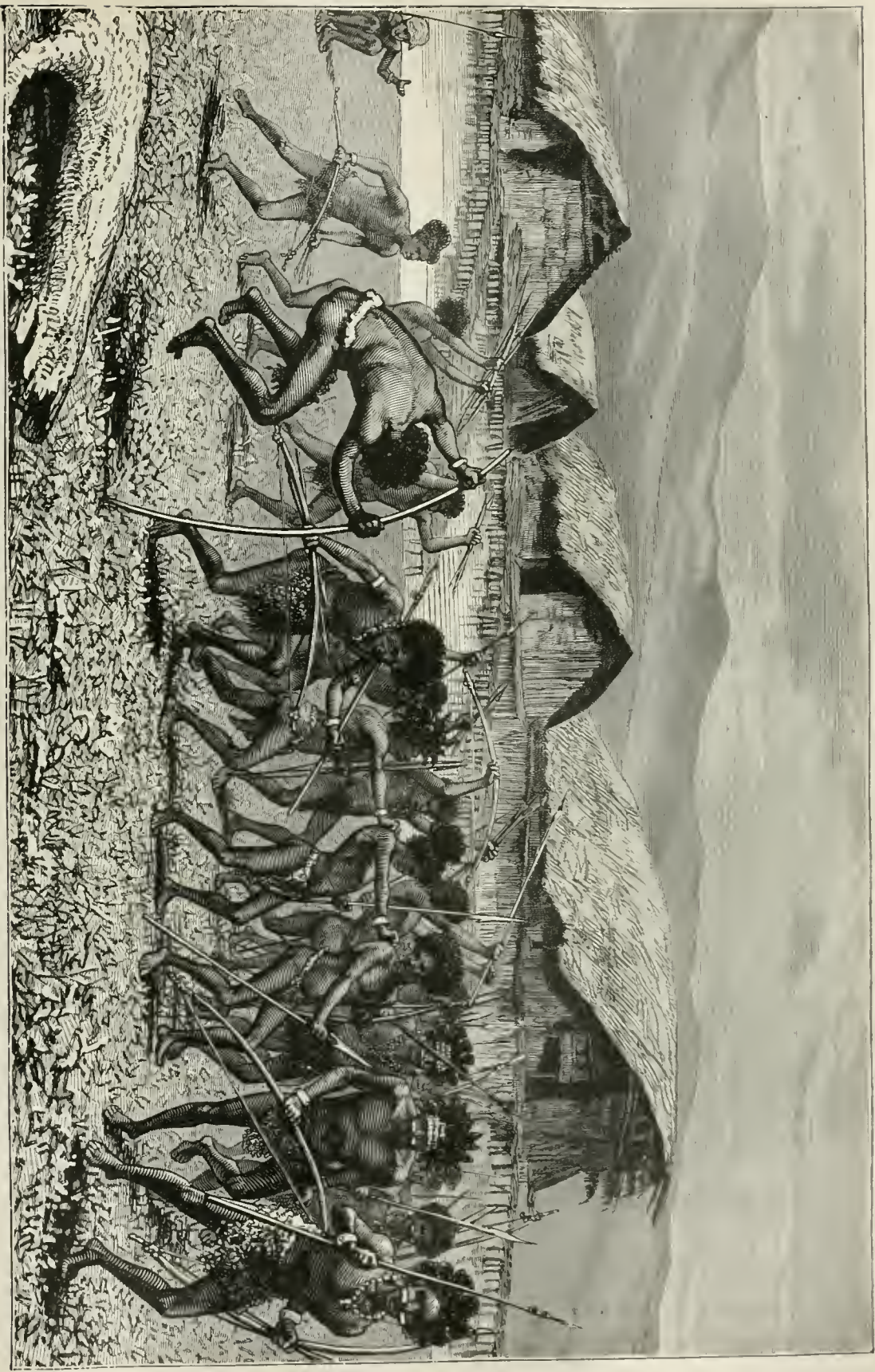
restriction that the sister must be the younger of the two. Otherwise the tribe is scandalized.

The inhabitants of the Andaman islands have been cited by some travelers as the lowest existing species of men. In some respects it is doubtless true that their habits and manner of life are of the most degraded and savage order. They build their houses by planting four rude posts, two being much lower than the others. A rude, inclined roof is thus formed of bamboo, palm leaves, and bark. This is their only structure. The people appear to live exclusively upon the wild gifts of nature and by means of the primitive chase. There is a species of wild pigs that live in the jungles, which are sometimes taken and eaten by the natives. The best piece of Andaman workmanship is the rude canoe, hollowed by means of a stone ax and fire. The people use the bow and arrow, and point their missiles with such bits of glass and iron as they are able to gather from the wrecks of vessels. Travelers have admired their skill in marksmanship, which is generally accurate to the distance of fifty yards. They take fish by means of hooks and nets and harpoons. It has been noted that they are exceedingly agile in the water, and the tradition exists that the diving native is sometimes able, by the rapidity of his action, to clutch a fish with his unaided hand.

Debased condition of the Andaman islanders

In their personal habits the Andamaners are exceedingly filthy and coarse. They smear themselves with mud, and wear no clothing. Tattooing is the common practice of the tribe, but the cicatrices exhibit less skill in design than in the case of other tribes. It is the custom of the people to dig up and

Filthiness of personal habits; uses of the dead.



BARBARISM ILLUSTRATED—THE POLYNESIAN MANNER.—DRILL OF AFFAK WARRIORS.—Drawn by E. Mesple, from a description.

distribute the bones of the dead, the skull being reserved for the widow. This she suspends by a cord around her neck and uses as a casket for her ornaments and valuables! It is believed that these savages have not succeeded in domesticating any of the animals, though it has been noted that tame fowls are seen about their huts. For the rest, their state is one of absolute savagery.

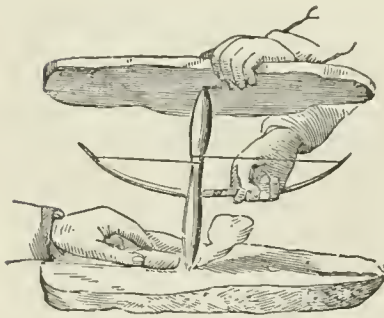
The same may be said of the Tasmanians. Captain Cook has left a record to the effect that these people have neither houses nor clothes. Nor does it appear that they possessed canoes or

Low estate of the Tasmanians; use and preservation of fire.

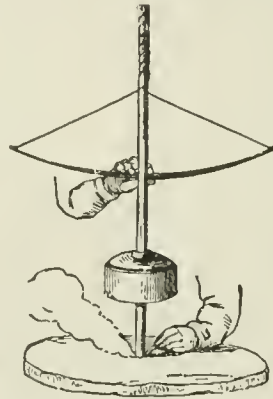
of the natives, especially those of Tasmania, are very careful to avoid the loss of their fire, and it is generally carried about from place to place. It has been noted that in Tasmania the duty of preserving the fire is assigned to the women, and they are held responsible for its loss.

It is not intended in this connection to discuss what may be called the moral ideas of barbarians. Indeed, it might be difficult to speak intelligently of what has little or no existence. It is still in doubt whether the barbarous peoples referred to in the preceding pages have any true concept of religion or of its duties and ceremonial. The matter is in dispute even by observant travelers who have visited these countries and familiarized themselves with the manners and customs of the people. It has been recorded that among the Australians certain dances and ceremonies are celebrated, which would seem to imply a service of religion. But this is doubtful. It is not clear that the natives of Australia, of Tasmania, and Ceylon have any notion of a Supreme Being or of a life after death. If such notions do really exist they are in such a germinal and undeveloped condition as to be little indicative of a higher nature in the people. Certain customs and obligations do exist among them, which are observed under a sense of duty; but it may be fairly alleged that no general morality or religious bond exists.

If we leave the natives of these eastern waters and turn to those of the South Pacific, we find at least two principal races of barbarians. These are the Ne-



Dakota fire-drill bow.



Iroquois fire-pump drill.

MANNER OF PRODUCING FIRE.

implements for taking fish. They seem to subsist on mussels, cockles, and periwinkles. The bow and arrow were wanting at the time of Cook's visit to the island, the only weapon of the people being a long wooden spear.

Most of the barbarians to whom we have referred in the foregoing paragraphs are acquainted with the use and preservation of fire. The Australians understand the method of kindling materials by friction. It is of record that this knowledge does not extend to all the tribes. In some districts the fire goes out and must be relighted from the resources of a neighboring tribe. Most

ful. It is not clear that the natives of Australia, of Tasmania, and Ceylon have any notion of a Supreme Being or of a life after death. If such notions do really exist they are in such a germinal and undeveloped condition as to be little indicative of a higher nature in the people. Certain customs and obligations do exist among them, which are observed under a sense of duty; but it may be fairly alleged that no general morality or religious bond exists.

If we leave the natives of these eastern waters and turn to those of the South Pacific, we find at least two principal races of barbarians. These are the Ne-



grito peoples and the so-called Polyne-  
sians. Among the most prominent of the  
former may be mentioned the Black inhabitants of  
the Fiji islands. In general, they are of darker complexion than  
the Polynesians, and are of larger stature  
and stronger frames. The features  
are more prominent and pronounced,  
and the hair is frizzled. There are,  
however, traces of Polynesian descent  
discoverable in the Fijians, especially  
in their language and in their manners  
and customs. In their use of consonants,  
and especially in the peculiarity of  
placing *m* or *n* before the consonants *b*,  
*d*, and *g*, the people appear to be of the  
same linguistic family with the African  
Nigritians.

The structures of the Fijians are, first  
of all, their dwellings. These, however,  
are much larger and more  
skillfully built than those  
which we have noted in  
Australia. They are made for the most  
part of the trunks of cocoa trees and  
ferns framed in a rectangular manner,  
somewhat like the log houses of pioneers  
in North America, but by no means so  
substantially built. Regular doorways  
are made in the sides, and the houses  
are as much as twenty or thirty feet in  
length, and sometimes fifteen feet in  
height. In another variety of house the  
posts are set up at intervals, like the  
framework of a like building designed  
by a modern carpenter, and the spaces  
between the posts are filled with wicker  
work of bamboo and palm branches.  
The roof is thatched with sugar cane and  
fern leaves; and, considering the mild-  
ness of the climate, the abode may be  
regarded as fairly convenient and com-  
fortable. Hanging mats take the places  
of door shutters. In the middle of the  
floor some flat stones are laid down,

Character of the  
Pelagian Blacks,  
or Sea Negroes.

Buildings and  
furnishings of  
the Fijians.

which serve the purpose of a hearth.  
Here the fire is kept burning, and such  
rude cooking is done as is known to the  
people.

The Fijians surpass most other native  
islanders in the building and manage-  
ment of boats. They build their canoes with consider-  
able skill, and have small masts and sails. The framing of the  
bottom is strongly done, and the joints  
are calked and filled with a kind of  
gum prepared from the bread-fruit tree.  
When the islands were first known to  
White men stone tools were universally  
employed, but these have given place  
in part to the employment of iron.  
Native materials are still used in the  
fabrication of goods and in such rude  
arts as are cultivated in the islands. The  
natives have been observed in the work  
of carving and engraving, using for  
their tools the teeth of rats and mice.  
They have a way of preparing knives  
from the outside layer of the bamboo,  
which is exceedingly hard and close.  
After the blade of the implement has  
been cut into shape, it is charred and  
then brought to an edge so fine and  
strong that the instrument can be used  
in surgery. The Fijians understand  
the art of pottery, but are unacquainted  
with the use of the wheel. Their earth-  
en vessels are manufactured by mere  
handicraft, flat stones and slips of wood  
being used by the women in bringing  
the vessels into shape. This work is so  
skillfully done as to resemble the prod-  
uct of the turning wheel, and it some-  
times requires careful observation to  
decide whether the vessel has been actu-  
ally turned or wrought by hand. The  
other tablewares of the Fijians are some-  
what superior to those in common use  
among barbarians. Forks are employed  
in taking food, and other usages in-

Making and  
management of  
boats; tools and  
pottery.

dicating at least the beginnings of refinement.

The cannibalism of these islanders is proverbial the world over. The eating of human flesh was until recent times the universal practice. It was done as a matter of course, and without the slight-

Open and astounding cannibalism of the Fijians.

of human flesh was until recent times the universal practice. It was done as a

fowl among civilized peoples. Any one might kill and eat his own women. It is in evidence that the Fijian looked upon his living companions with constant regard to their edibility. It was the custom of those who expected to feast upon young women and boys to speak of the lusciousness of their in-



BARBARISM ILLUSTRATED.—FIJIAN IN A BANANA GROVE.—Drawn by Thiriat, from a photograph.

est repugnance or disgust. It was the custom, first of all, to eat the bodies of the enemy slain or taken in battle. Those recently killed were preferred, but it was not against usage to eat the bodies of those who had been dead for a considerable period. Young people, especially girls, were chosen for the feast. The preliminary murder was no more regarded than the slaughter of a

tended victims. It has been declared, with probable truth, that the Fijians have no word in their language to denote a human body except such as convey the notion of food. One of the common descriptive epithets of human flesh is *puaka balava*, which signifies "long pig!" it is impossible to convey an impression sufficiently horrifying of the cannibalism of these people and its attendant degradation.

The manner of life among the Red barbarians of North America is sufficiently well known, at least to readers in our own country. The investigations of Schoolcraft and Morgan and a score of other distinguished and painstaking writers have revealed to the American people, in an imperishable record, the customs, beliefs, and habits of those pe-

Barbarism illustrated from native races of America.

ing all the way around from Siberia to Greenland and from Greenland to Siberia. By race affinity they are allied to the North American Indians, but it is also clear from their physiognomy and other ethnic traits that they have a kinship to the Chinese and the Tartars.

It may be of interest, in passing, to note the fact that in several other instances in ethnic history we have the



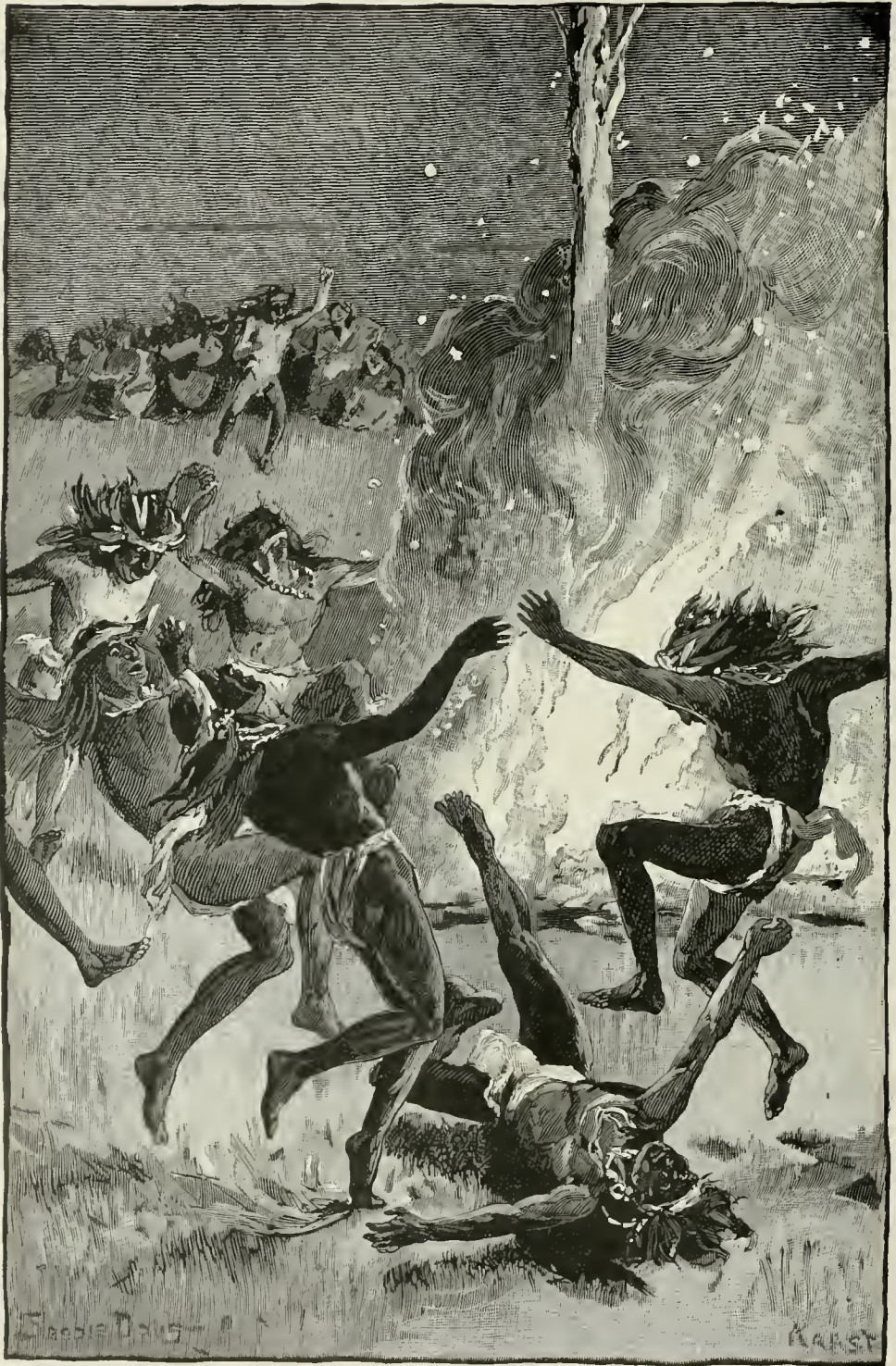
BARBARISM ILLUSTRATED—ESKIMAU HUTS AT ETAH.—Drawn by A. de Neuville.

cular tribes of the woods who preceded the White race on this continent. It is not needed, therefore, in this connection to make any extended citations from the manners and customs of our Indian races in illustration of the probable methods of antiquity. In the case of the Esquimaux, however, the matter is different. The latter are perhaps the most widely disseminated race of barbarians on the earth. They belong on the shores of the arctic oceans, stretch-

ing all the way around from Siberia to Greenland and from Greenland to Siberia. By race affinity they are allied to the North American Indians, but it is also clear from their physiognomy and other ethnic traits that they have a kinship to the Chinese and the Tartars.

It may be of interest, in passing, to note the fact that in several other instances in ethnic history we have the same contradictory evidence in regard to race descent. The Innu language has unmistakably the same radical structure, and to some extent the same vocabulary, with that of the Red men of North America. But the stature, the form, the features of the Esquimaux, especially the physiognomy about the eyes and the structure of the skull, are clearly derivable from a common source with the Tartars. The manner of life,

Race features of our aborigines denote Asiatic origin.



BARBARISM ILLUSTRATED—THE NORTH AMERICAN MANNER.—THE GHOST DANCE.—Drawn by J. Steeple Davis.

moreover, of the Esquimau nations is as much in affinity with the customs and usages of Northern Asia as with the tribal habits of the New World.<sup>1</sup>

Living as they do in the most frigid regions of our planet, the Esquimau barbarians are obliged to defend themselves from the rigor of the climate. The three great elements of such defense against the hardships of nature are, of course, food, clothing, and shelter. The vicissitude of this region of the earth makes it desirable for the inhabitant to have one manner of life for the summer and another for the winter. It is in a large measure the difference between day and night—between extreme rigor of cold and a comparatively temperate climate. Two kinds of houses are therefore necessary, the one for the mild and the other for the severe aspect of nature.

The Esquimaux are, perhaps, the greatest eaters in the world, and their food is almost exclusively of fish and

flesh. The reindeer, the musk ox, the walrus, the seal, land and water fowl, and salmon constitute the principal varieties of living creatures upon which they prey. But there is scarcely any kind of animal, whether marine or dry land, that they do not use for food. The fatty portions, heavy in carbonaceous materials, are greatly preferred. As to the bones of animals, the Esquimaux have the exact method of antiquity: they split them or burst them open by pounding with stones, and take the marrow as the greatest delicacy.

Omnivorous habit and gluttony of the Esquimaux.

In the manufacture of their utensils the Esquimaux have considerable ingenuity. The methods employed are nearly identical with those which we have already described as peculiar to the age of stone. Arrowheads and spearpoints are produced by spalling off flakes from blocks of flint. This is not done, however, by percussion, but by pressure. The block is set in rest and pressed with a beam of wood until it splits, flinging off a flake. Iron and bone are considerably employed for pointing arrows, spears, and harpoons. The method of making and rigging the bow is nearly identical with that of the North American Indians. The arrows are short, and the flight of the shaft is made steady by an arrangement of feathers. It has been noted, however, that the Esquimaux are by no means so expert in the use of the bow and arrow as the primitive Red men of our own country. The heads of arrows and spears are frequently barbed. The most formidable of the Esquimau weapons is the harpoon, the point being fixed to a rather heavy shaft of wood and secured by means of a line.

Skill in the manufacture of implements and utensils.

<sup>1</sup> The reader need not be especially surprised at the fact of a race descent from one source and a linguistic descent from another. Such phenomena have actually occurred in the clear light of day and under the open eye of history. The Northmen who came down in a horde, in their pirate ships, from Scandinavia, under the leadership of Rolph the Ganger, in the ninth century, and who possessed themselves of the fairest portion of France and founded in Neustria a dominion which has projected itself far and powerfully into the modern world, spoke a language as certainly Teutonic, or Norse, as they were themselves of that descent. But within a hundred years after their settlement in the South, that speech had strangely given way to another which they had absorbed from the subject peasantry of Normandy, and which became ever afterwards the vernacular of the conquering race. So that when William the Bastard came with his barons into England and planted there the Norman dynasty, he brought with him a race descent from the shores of the Baltic and a linguistic utterance derived from the softened dialects of the Southern Romance.

When the hunters attack a whale it is customary to affix bladders to the ends of

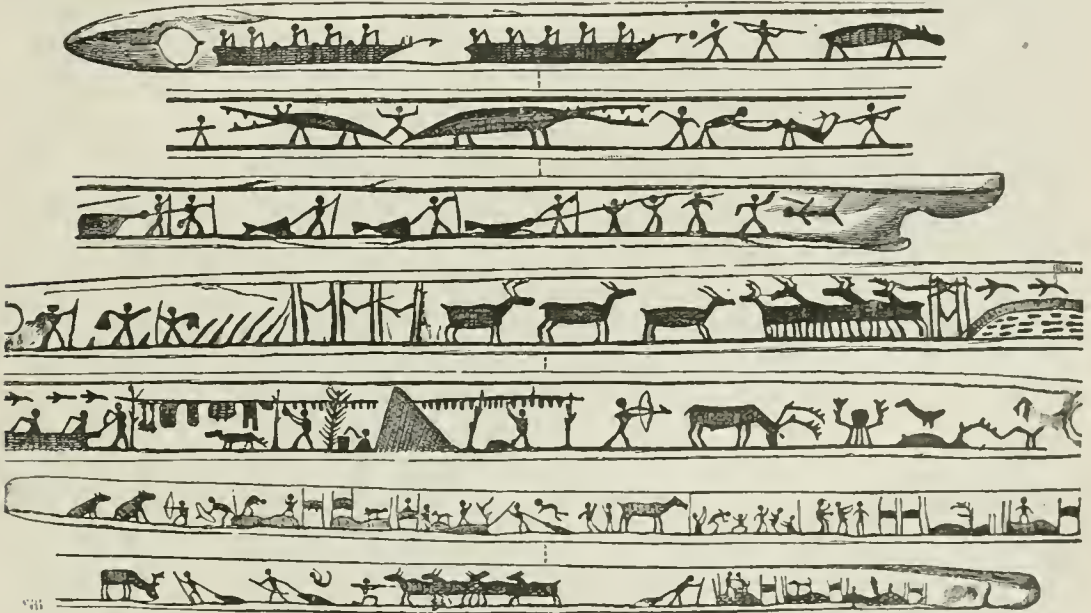


BARBARISM ILLUSTRATED—THE SOUTH AMERICAN MANNER.—EXTERMINATION OF THE CREVAUX MISSION.—Drawn by Riou, from a description.

the harpoon lines so that the position of the wounded animal may be seen at a distance and his course through the water impeded. The same plan is used in the less exciting and dangerous hunt of the seal. In harpooning their game the weapon is so arranged that the head, or barb, generally loosens itself from the shaft and is retained by the line which holds the bladder at the other end. In seal hunting, it is the plan of the hunter

tion of music. They sing a sort of monotonous songs, in both solo and chorus, accompanying themselves with drums and other rude instruments. The choral effect of this alleged music is not unpleasant to the trained ear of civilized travelers. Nor does it appear that the Esquimau songs are intended for ceremonial or for exciting the passions of the chase and war. It is amusement, or entertainment, properly so called, and therefore falls in the same

Manner of harpooning the whale and the seal.



ART WORK OF BARBARIANS.

to watch carefully for the reëpearance of the harpooned animal and to strike it instantly on its emergence at the surface. The Esquimaux are not without skill in pursuing the dry land animals. They stalk the reindeer with considerable success, and are able to deceive many animals by imitating their cry or call.

It may be noted that the Esquimaux have in their character and customs the rudiments of an ideal life. This is manifest in at least two particulars. In the first place, they have some apprecia-

Songs and musical instruments; amusement the motive.

category with the music of civilized peoples.

But a still more remarkable evidence of ideality among the Esquimaux is found in their disposition to draw and sketch. The taste for this kind of work

Taste of the race in sketching and map-making.

among them amounts almost to a passion. They have a real talent for depicting the outlines of natural objects. This extends to a considerable degree of skill in the production of maps. The people have a fairly accurate knowledge of the topography of the neighborhood



BARBARISM ILLUSTRATED—THE ESQUIMAU MANNER.—SLEDGE AND DOG TRAIN.—Drawn by A. de Neville, after a sketch of Dr. Hayes.



and country in which they dwell. Travelers in the arctic regions have frequently drawn upon the natives in the work of sketching the coasts and physical features of the country. In many instances the natives have produced maps for their visitors which have proved in application to be more accurate than could have been expected at the hands of barbarians.

Still more striking is their skill in the work of drawing proper. Nearly all the Esquimau ornaments and utensils are decorated with the outlines of men and birds and beasts. The tusks of walruses and the fossil ivory, which is frequently obtained, are covered with such sketching, and no little degree of skill is displayed in the work. The Esquimau's fancy takes up the scenes and incidents of daily life, the little dramas of the hut and seashore, the hazards of the chase or of fishing, and even the farcical happenings of their barbarous society, and depicts the same, with no little humor, on the surface of their drawing materials. It is probably true that no other people, ancient or modern, with whom the ethnologist and historian have acquaintance have exhibited in a corresponding stage of development so much aptitude and skill in the pictorial representation of natural objects.

Otherwise the Esquimaux have little intellectual force and no attainments. It is surprising to the traveler to observe their labored efforts in attempting to grasp general ideas. They have no mathematical ability whatever. Their minds in respect to number and permutation are as weak as those of children. They are rarely able to count as much as ten, and beyond this they are unable to go. They have large families, which

in the northern regions are a blessing rather than a discomfort. It has been observed that the man of the hut can rarely tell the number of his children. He will attempt to enumerate them on his fingers, will fail, and the matter will result in an animated dispute between himself and his wife! The perceptions properly so called are in a better state of development than the judgment. Those faculties which have been brought into exercise by the conditions of the Esquimau environment have been quickened into tolerable activity. But the rest of the mind lies dormant, as in a state of absolute savagery.

The social system of these people is miserable in the last degree. They practice polygamy. The chief men particularly <sup>Degradations attendant upon polygamy and polyandry.</sup> encumber themselves with multiple wives, and the usage attracts no comment. Polyandry is also in vogue, but is not so common as polygamy. A woman of unusual attractiveness will frequently have two or three husbands, but the common lot are content with one. The sanctity of the relation of the man and the woman is not regarded. The custom which has been noted among many savage nations of loaning to a visiting stranger the wife of the man who is visited prevails among the Esquimaux. The act is regarded as a social compliment, and any refusal to accept the same on the part of the visitor would be a gross violation of etiquette.

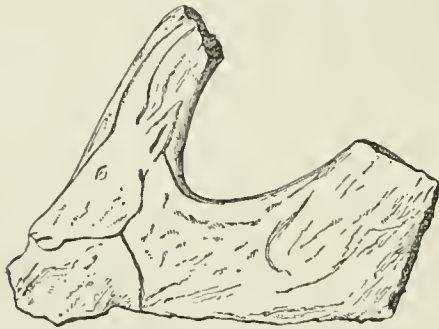
As to moral qualities, the Esquimaux have very little appreciation of duty, obligation, or dependence on a higher power. Their <sup>Weakness of moral nature; a rude humanity.</sup> promise or pledge, however solemnly made, is generally worthless. It does not appear that they will fully deceive or purposely break their

Drawing on bone and ivory; subjects of art work.

Weakness of the Esquimaux in abstraction; inability to count.

word. But the changing conditions of to-morrow making it of advantage to violate a pledge of to-day furnish an easy reason to the barbarian for doing so.

Of religious duty and ceremony they know but little or nothing. In their relations with one another, however, they are generally kind, humane, accommodating. The neighborly feeling prevails in the Esquimau settlements. There is much of common interest among them. The people support each other in their rude enterprises, and



Drawing of an ibex.



Group of figures.

ART WORK OF THE ESQUIMAUX—DRAWING ON BONE AND IVORY.

generosity is by no means unknown. The poorer members of the tribe are supplied in times of want. The hunter divides the results of his successful pursuit with his less successful companion. Two or three fishermen who have had the good fortune to take a walrus are by no means niggardly in distributing to others a portion of their fortune.

In one striking particular the Esquimaux rise above their contemporaries of the American forest. They are never willfully and maliciously cruel. There is, perhaps, no authentic instance on

record of vindictive and preconcerted cruelty toward their fellows. The absence of this disposition among them, however, is rather in the nature of

Absence of cruelty traceable to ethnic indifference.

apathy than of a positive virtue. They are simply indifferent, and are incapable of cruelty or revenge because of their passionless character. They are cold in life and manners, and, though little disposed to do actual harm or to inflict pain upon their fellows, they are equally indisposed to do them positive good. Such, in brief, is the manner of life, the habit, the taste, the intellectual capacity, and general disposition of these widely disseminated barbarians of the North.

The foregoing account of the general condition of several barbarian races is little more than a sketch of superficial aspects. There is no pretense in this

Present dissertation on barbarism no more than a sketch.

connection of making a complete picture of savage life as it exists at present in

various quarters of the world. That work is reserved for another part of this treatise on the Great Races. What is here presented is merely illustrative of savage manners and customs as they

now prevail, and the meaning of the illustration is simply to throw light, by reflection, upon the condition of mankind in prehistoric ages. In every epoch since the appearance of human beings on the globe men have been men. Their essential characters, dispositions, and tendencies have always been the same, or at least in close analogy. The human animal has always had his own habits, peculiarities, and possibilities of development. The present state of the barbarous races, therefore, is of much value to the historian and ethnologist in

determining the primitive condition of mankind, and it is for this purpose that the foregoing imperfect sketches of several savage peoples have been presented. The current savagery of the world is exponential of that prehistoric barbarism which prevailed before the beginnings of authentic history; and, although much allowance must be made for the varying conditions of environment and instinct in the prehistoric ages and at the present time, it can not be doubted that the current aspect of barbarous life is in most respects a faithful picture of that which prevailed before the Vedas were chanted in the valley of the Indus, before Abraham took his journey from Ur of the Chaldees, before the sea-beaten Æneas and his Trojan companions had found a footing on the western coasts of Latium.

Besides the condition of absolute savagery described in the preceding paragraphs, certain secondary stages of barbarism may well be noticed. We may not say with certainty that the semibarbarity of the world is the resultant of such antecedent savagery as we have described; but no doubt such is the fact. Neither may we affirm certainly that the semibarbarous peoples are to be the progenitors of highly civilized races. It is probable that the analogy of the tree should here again be applied to the human race as a whole. Branches put out and are developed to a certain stage. Beyond this they do not expand. Presently they decay and die. Then they fall away from the vital trunk which supports the more vigorous and expansive branches above.

It will not do to say that all branches of a vital organism are equally potent in development. It is only the more central and stronger that shoot up and

spread and flourish. This is probably true of the evolution of mankind considered as one organic, living thing. Possibly the present residual savagery of the world will never reach much beyond its present stage of evolution. This may be true also of the semibarbarous peoples. For the present it suffices that such peoples exist and occupy a considerable part of the earth's surface. Their manners, customs, and modes of existence differ much from those of the savages whom we have described above. They also differ much from the usages of the civilized races—most of all from the refined and cultivated peoples of Europe and America.

Such types as we here contemplate may be found widely distributed throughout Northern Asia. They are of vast territorial expansion and of a comparatively low manner of life. As an example of the whole class the Tunguses of North-Central Asia may be cited. Their customs are above the horizon of savagery, but greatly below the line of civilization. What is said of their customs may be repeated of their intellectual and moral qualities. We note among them a considerable development of the mental faculties and a measure of moral obligation and duty. But these terms must be defined, not according to the standards with which we are familiar, but by a criterion fixed for the particular thing to be defined.

The Tungusic barbarians live the wild life of hunters and fishermen. They tame the reindeer, using that animal for both food and draught. In like manner they train their dogs to draw their sledges. They live a half-sedentary life, having a rude society and the beginnings of usages that in higher

Philosophy of  
the semibarbaric  
estate of man.

The Tunguses  
an example of  
North Asiatic  
barbarity.

Place of semi-  
barbarians in  
the ascending  
scale of races.

progress would be defined as civil. The domestic estate is in a corresponding stage of development. The religious life has been vaguely determined by a native faith which is called Shamanism, and by the vague outreaching influences of Lamaism from the side of the Mongolian countries, and the touch of Greek

and others in the other; that is, one aspect of the Moorish life seems to approximate the conditions present in Europe and the Americas, while another aspect is distinctly barbarous.

In their commercial transactions, and indeed in all of those parts of their public life in which they are brought into



SEMIBARBARISM ILLUSTRATED—THE NORTH ASIATIC MANNER.—TUNGUSIC SORCERER.

Drawn by Victor Adam, after a sketch of the Count de Rechberg.

Catholicism out of Siberia and the West.

We may note also a grade of semibarbarity peculiar to North Africa and to some portions of Eastern and Southeastern Asia.

Perhaps the semibarbarous life of the Moors is the highest estate of mankind below the level of civilization. Some of the usages of the Moors and Berbers look in one direction

contact with foreign nations, the Moors have the manners peculiar to the ruder forms of civilization. But in their race customs—those which they have derived from the past—they are distinctly barbaric. Their personal manners among themselves have the sense and flavor of a remote and barbaric past. Their wild dances and crude religious ceremonies ally the race with the barbarians, leaving only a small reason for

Semibarbarism  
of the Moors and  
Berbers.



SEMI-BARBARISM ILLUSTRATED—NORTH AFRICAN MANNER—SWORD DANCE OF THE MOORS.—After the painting by P. Ivanovitch, Paris, 1860.

classifying them with the civilized peoples of the world.

Several important inferences are now to be drawn from the subject-matter of the present chapter. It remains to summarize the results and to state their meaning. The reader will, doubtless, already have deduced several conclusions from his study of the preceding chapters; but it will be of additional interest to state in a few paragraphs the leading truths which follow as a logical conclusion from premises furnished by the study and comparison of prehistoric and modern barbarism.

repulsive features. What the cave men of Western Europe and the shell-mound people of the shores of the Baltic were in the post-pliocene era—when the mammoth was still a denizen of Western Europe and America, when the hairy rhinoceros and the reindeer were in the valleys of the Seine and the Loire, when the cave bear and the cave hyena and the *Bos primigenius* still maintained their existence from the northern ocean to the Pyrenees—that the native Australians, the Veddahs of Ceylon, the savages of the Andaman islands, and the Fuegians of South America are to the pres-



PICTORIAL WORK OF THE ESQUIMAUX.

1. In the first place, it will be noted that the prehistoric age and the current epoch of human history alike furnish examples of the lowest stages of human development. This is to say that at the two extremes of human history, the one lying below the daydawn of authentic annals and the other reaching to the very feet of the present, tribes of men are found in similar stages of degradation and savagery. This signifies that the whole of human history has not been sufficient to extinguish barbarism from the earth, or even to obliterate its most

ent day. Some variations and departures of tribal character doubtless exist between the prehistoric barbarians and their fellows of the modern world. No doubt there are conditions prevalent, forces operative in the processes of our planet life which have effected changes and diversities of character between the ancient and the modern savages; but the fact remains of their characteristic and essential identity. In food and clothing, in weapons and utensils, in hut building and the rude beginnings of artisanship, in coarseness of manners and brutality of life, the two extremes of the ethnic

All ages furnish examples of lowest human condition.

epoch of human history alike furnish examples of the lowest stages of human development.

history of man may be brought together, and the difference might be hard to seek.

2. The life of man in the prehistoric ages and in the modern barbarian world presents similar extremes of development. This is to say that in the primitive world great variety is discovered in the life of tribes and peoples, and in the degree of development. In some, the evolutionary forces had already worked a considerable result at our earliest ac-

Like extremes of development present in ancient and modern times.

expansion and possibility. In general, the aboriginal inhabitants of Western Europe were as low in development as may well be conceived. The cave men and the coast people were in the extreme of savagery, and it is difficult to point to a single evidence among the relics and memorials which they have left to archæology and history of even a tendency to reach a higher stage of life.

This same contrariety between the higher and lower aspects of human existence in the prehistoric world finds



NONPROGRESSIVE STATE OF BARBARISM.—CHIPPEWAS OF SALT SAINTE MARIE.

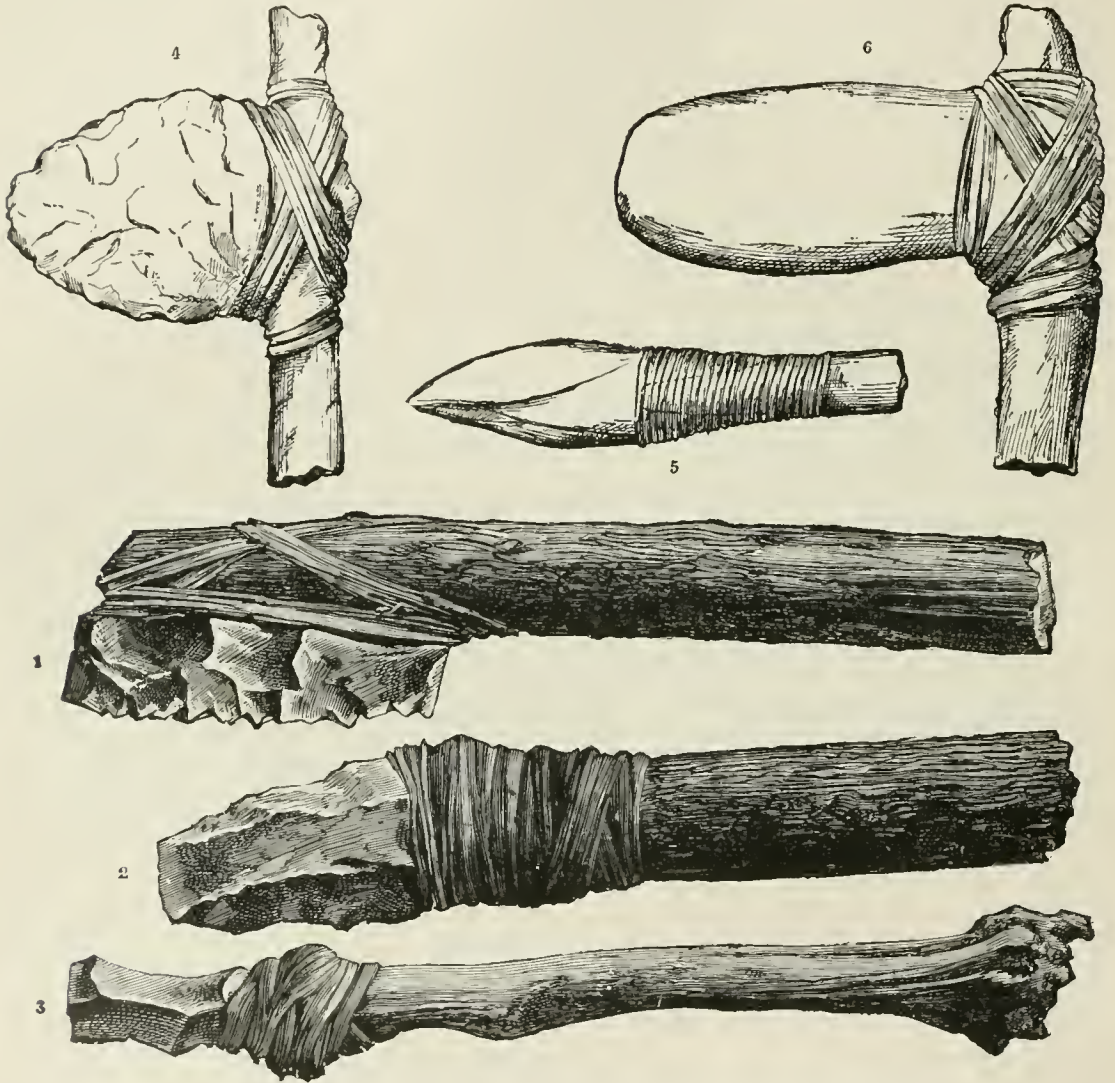
quaintance with a given people, while in others the grossness of savagery was unabated. If we scrutinize the old house-folk of Arya or study the characteristics of some of the better peoples of Asia Minor and the West, such as the Pelasgians of Greece, or the Etruscans of Italy, we shall find them to have been vigorous and growing races, great builders of stone, makers of towns and treasure-houses and fortifications and aqueducts. But if we glance at other aspects of prehistoric humanity we find no such promising symptoms of

an exact analogy among modern barbarians. Here, also, we have Existing barbarism both progressive and nonprogressive. mixed evidences of the progressive and nonprogressive disposition. Many of the existing barbarous races are as absolute in their savagery as were any of the prehistoric tribes, while others give proof of a forward movement and of actual attainment, which may well elicit hopefulness and even challenge admiration. The general principle is that the same diversity which we find evidenced among the races of the primitive world

exist among the barbarous peoples of the present time; from which it would appear that beyond the pale and influence of the civilized nations a state of human society still exists which is little dissimilar to that which the ethnologist discov-

bution of mankind. In contemplating the barbarous races now inhabiting the outskirts of the world, we discover little or nothing to inform the judgment as to how savagery begins or ends, or as to

The barbaric life does not reveal its own origin or spread.



PROGRESSIVE ELEMENT IN BARBARISM—ILLUSTRATED IN WEAPONS OF NEW ZEALANDERS.

1, saw ; 2, chisel ; 3, knife ; 4, ax of chipped flint ; 5, spear of ground stone ; 6, ax of polished stone.

ers on the remotest horizon of his inquiry.

3. The study of the existing forms of barbarism throws very little light on fundamental questions relative to the origin of savagery and the primitive distri-

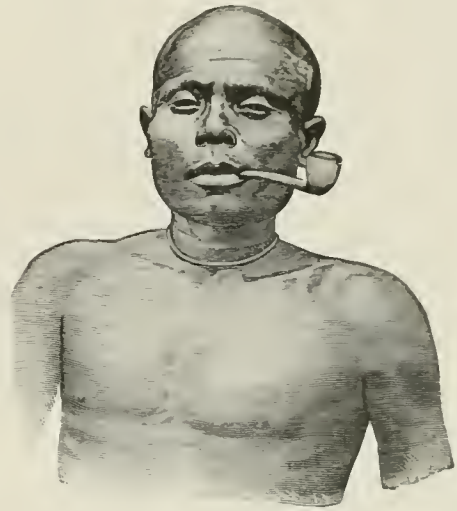
the ethnic source from which such peoples have descended. Their traditions, as already remarked are valueless, and their monuments and arts serve only to illustrate the passing phases of their social condition. It is possible for the



historian to see in the actions of existing barbarians those unconscious movements of man which, in some instances at least, precede the birth and early struggles of civilization. Savage tribes in such a state of development—if, indeed, they are developing at all—are in close analogy with the unconscious period in human life. There is a sense in which the species is always epitomized and expressed in the individual. What the child does without consciousness of its own actions or tendencies, that the species does in an analogous stage of development. But the evidence of the child with respect to its own past, or even with respect to its own purposes, would be little regarded by any candid inquirer. It is a period in individual or tribal life characterized by dreams and vagaries of the fancy; and it must not be forgotten that the fancy is frequently distorted by abnormal conditions and even by disease and delirium. On the whole, the impartial student of the primitive condition of mankind is able to discover as much evidence out of the memorials of the prehistoric ages relative to the origin and essential character of barbarism and the beginnings of tribal life in different quarters of the world, as he is able to discover from the closest scrutiny of the actions and manner of life of the existing barbarous peoples.

4. The chief difference between the aspect of modern barbarism and that of the primitive world is in its geographical distribution. The disposition of modern savagery is very different as it respects the habitable surface of the globe from that of the ancient world. In the earliest epochs accessible to our information savagery was distributed into all parts and places. It had possession of the

choicest regions of the globe. There was a time when it was the central fact in Asia, in Europe, and in the two Americas. Until the present century it was still the central fact in Australia, but the growth and spread of civilization has displaced its barbaric competitor. At the first the savage state gave away in the river valleys of the East and in those choice peninsulas which drop down from the northern continents into the southern waters. In a later stage barbarism receded from the re-



UNPROGRESSIVE CONDITION—MINCOPA MAN, FROM THE ANDAMAN ISLANDS.

gions north of the great mountain chains. The central portions of the continents were reclaimed, and there was a recession, a retreat, of savagery toward the borders of the world.

The general result has been the extirpation of the barbarous condition in all the central and better parts of the habitable globe. It is in these best regions of the world that the great powers are planted. Here they flourish, and in proportion as they are vigorous and possess the elements of perpetuity, they extend themselves, by varying conquests, toward the horizon. Savagery

Civilization has crowded savagery out of the better parts of the world.

has fallen back before this movement and is now compelled to occupy the further coasts of the planet. In the far regions of the north it is still able to maintain itself, at least for a season. In parts of South America and in nearly the whole of Africa it still prevails, flourishing as it were under the ægis of a climate which seems to forbid the development of a higher civilization. As for the rest, barbarism plants itself in what will perhaps prove its last stronghold, the remote islands of the great oceans. It is easy to discover how vastly the position and relative importance of civilization and the barbaric life have been changed in their geographical place, with a constant advantage in favor of the civilized condition.

5. The principal lesson deducible from the present aspect of savagery is the emphasis which it places on the *difference between the progressive and the nonprogressive parts of the human species*. We have seen above that many forms of existing savagery are as low and unpromising as any which prevailed in the prehistoric era. The flint implement of to-day is in no wise superior to that which the cave dweller used in his battle with the extinct mammalia of West-

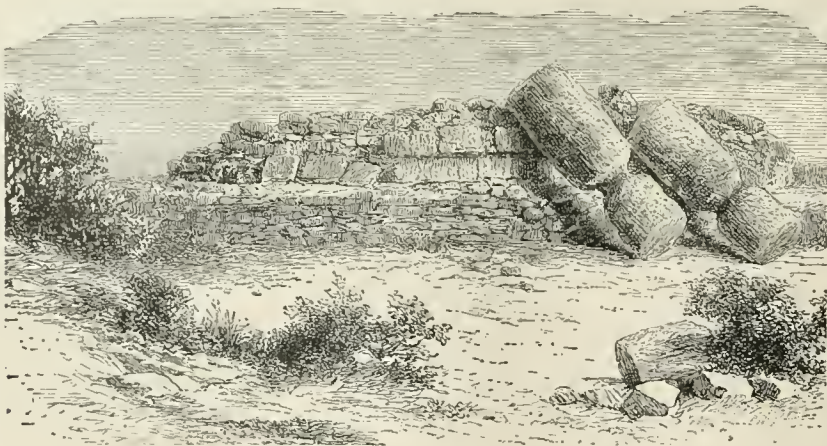
Difference between progressive and nonprogressive parts of human life.

*ference between the progressive and the nonprogressive parts of the human species.*

ern Europe. The manners and customs of the Andamaners and the Veddahs, and the method of life of the Digger Indians in Western America are in everywise as gross and degrading as any which are suggested by the memorials and relics of the primitive world.

It appears conclusive that a considerable part of the human race is at the present time in a condition as degraded and unprogressive as any which is suggested by our knowledge of the prehistoric races of the Old World. On the other hand, we have the fact of evolutionary progress splendidly illustrated in the history, tendencies, and prospects of the civilized races. It is apart from the present purpose to speak of the industry, the enterprise, the letters, the art, the triumph over the obdurate forces of the natural world, which have been practiced and achieved by the great peoples now holding dominion in the earth. It is sufficient to note and to emphasize the contrast which is afforded by the degraded and the elevated aspects of human life, and this contrast is brought most vividly to the mind of the inquirer as he considers the aspect of barbarism set darkly against the blazing disk of civilization.

Lowest savagery still present in several parts of the globe.

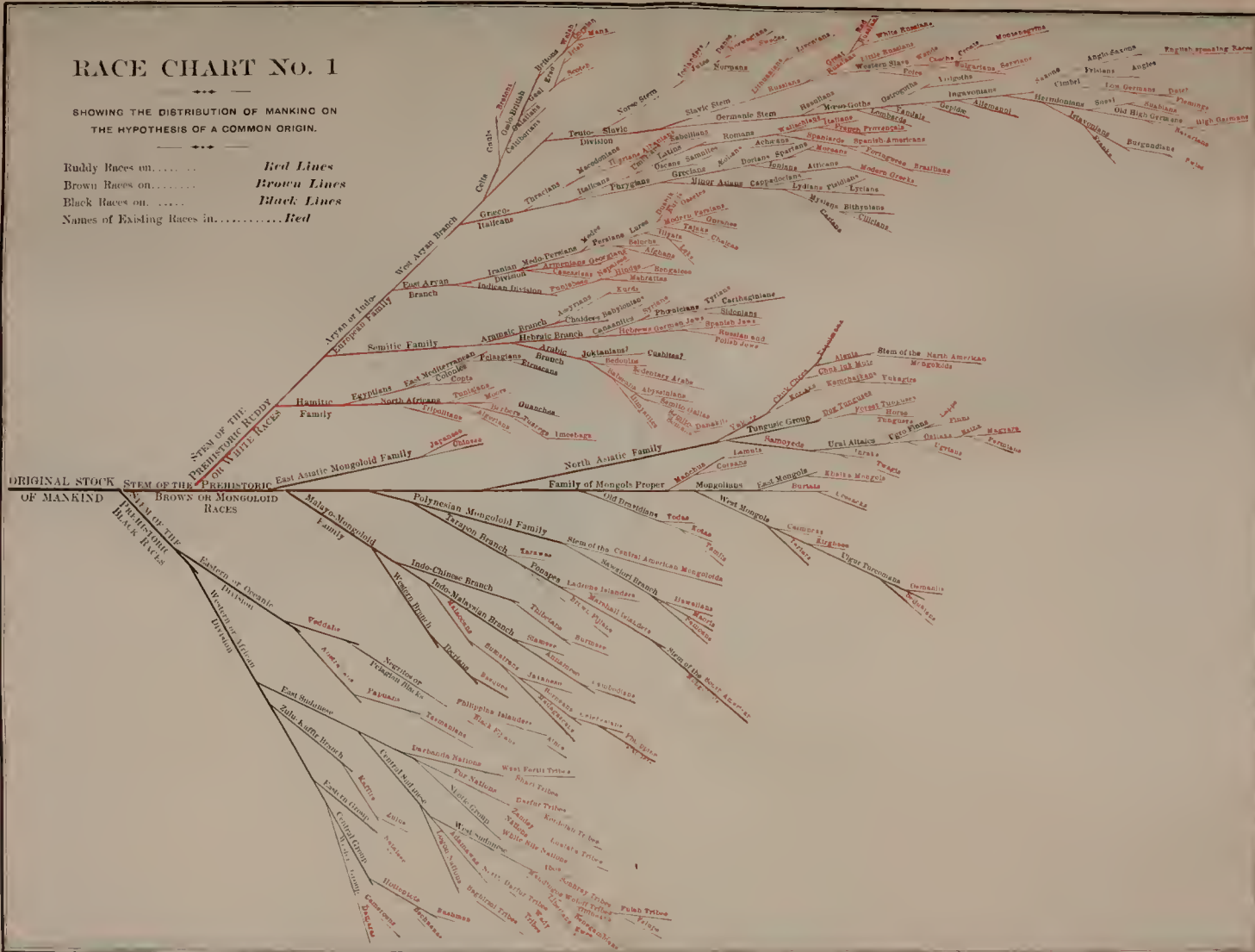




# RACE CHART NO. 1

SHOWING THE DISTRIBUTION OF MANKIND ON THE HYPOTHESIS OF A COMMON ORIGIN.

Buddy Races on . . . . . **Red Lines**  
 Brown Races on . . . . . **Brown Lines**  
 Black Races on . . . . . **Black Lines**  
 Names of Existing Races in . . . . . **Red**





# RACE CHART No. 1.

## EXPLANATION.

IT is the purpose of this Chart to show THE DISTRIBUTION OF THE RACES OF MANKIND, on the theory that they have all proceeded from a *common source*. That source is indicated by the heavy black line at the left, marked "Original Stock of Mankind." From this original stock several great divisions branch off, the first of which is the stem of the prehistoric Black races; the second, the stem of the prehistoric Brown, or Mongoloid, races; and the third, the stem of the prehistoric Ruddy, or White, races. Each of these stems divides into many branches.

In general, the latitude of the given race is indicated in the Chart as on an ordinary map; that is, those races having the most northerly distribution are above; those in the temperate zones come next, as nearly as practicable; and those in the tropical regions fall in the center or lower part of the Chart.

Wherever the red lines extend, there the White, or Ruddy, races are distributed; wherever the brown lines reach, there the Brown, or Mongoloid, races are found; while the black lines indicate the distribution of the Black races.

Nearly one-fourth of the Chart at the left indicates the prehistoric, or unknown, period of race distribution. Out of this prehistoric period the various races emerge. There is an Aryan, or Indo-European, family; a Semitic family; a Hamitic family; a Mongoloid family; and sundry Black races, little known to the present day.

In the greater part of the center of the Chart, and to the right, wherever the names of races or stocks are printed in black letters, those races, or stocks, are extinct; that is, they have either ceased to exist, or are represented only in their descendants. Examples of such are the Visigoths, the Carthaginians, the Etruscans, etc.

All the names of races, families, and stocks, printed in red letters, are existing, or living, peoples. These are found, for the most part, distributed to the right at the end of race-stems. Thus we have, as examples of living races, beginning above, the Welsh, the Icelanders, the Red Russians, the Montenegrins, the English-speaking races, the High Germans, the Swiss, the Brazilians, the Esquimaux, the Magyars, the Osmanlis, etc.

The Chart enables the reader, in particular, to trace the race descent of any living variety of mankind. Thus, the English-speaking races are derived (read back from right to left) from Anglo-Saxons, Saxons, Ingavonians, Mæso-Goths, out of the German stem, of the Teuto-Slavic division, of the West Aryan branch, of the Indo-European family, of the prehistoric Ruddy, or White, races.

So, in all the cases of race-history, the Chart is intended to show, at a single survey, all of the leading developments of mankind. Many minor varieties are necessarily omitted; but all of the principal stocks of the human race are here displayed in their proper ethnical and historical development. (For the geographical distribution of the various races, see Race Charts Nos. 2 to 9, inclusive.)



## BOOK IV.—DISTRIBUTION OF THE RACES.

### CHAPTER XXIII.—CLASSIFICATION OF THE HUMAN SPECIES.



It has already been remarked that migration constitutes one of the leading facts in the history of the primitive world. Movement was the mood of the first men who possessed the earth. It was by means of tribal and national migrations that mankind were distributed into the various regions where they subsequently established themselves in communities and states. From certain centers the human streams arose and flowed in different directions, bearing afar the fecund waters of future national life.

Nearly all of these movements are hidden under the obscurity that clouds the beginnings of history.

Obscurity of the early movements of mankind.

The very best penetration of the historian and ethnologist can reach no further than the shadowy confines of the countries and ages in which these primitive motions of

the human race took their origin and expended their force. The task of delineating the migrations and dispersions of the early races may well challenge the profoundest inquiry, and the problem must even then be attempted with extreme diffidence and much distrust of the existing resources of knowledge.— It is the purpose in the present book to delineate at least the leading migrations of the early races of man.

In the nature of the case, the migratory movements of primitive mankind have left only incidental traces in history and tradition. For this reason the evidences

Why a classification of the races is necessary.

of human distribution have to be gathered, for the most part, by indirection out of collateral branches of inquiry. As preparatory to a description of these movements, upon which all future history in some sense depended, it is necessary to frame an adequate analysis of the human family according to those distinct-

tions upon which the tribal and national life of one people is discriminated from that of another. It is impossible to speak intelligently of the early migrations of mankind without a division and classification of the human species, to the end that its various parts may be considered in detail and in relation the one with another. Such a classification into different races, families, and stocks is the first task imposed upon the ethnologist, and is a work in every way

race according to its true ethnic distinctions has never been satisfactorily accomplished. The principle according to which the division or divisions are to be made has never been well determined, and the problem at the present day is still to be considered in its original elements.

It can but be of interest in this connection to present in brief some of the leading methods which have been adopted in the attempted classification of the



A METHOD OF MIGRATION.—EASTERN CARAVAN.—Drawn by W. J. Morgan.

essential to the understanding of the beginnings of human history.

The division of the vegetable kingdom by Linnæus, and the arrangement of the animal world into genera and species and varieties by Cuvier, were not more essential to the understanding of those two great departments of nature than is an adequate classification of mankind into races, families, and types essential to a knowledge of ethnic history. Great, therefore, is the embarrassment of the inquirer to find that even to the present day this work of classifying the human

human race. The most learned of the ancients were profoundly ignorant of the affinities of the different families of mankind, and found no pleasure in tracing such relationships. On the contrary, the mental tone of antiquity was against the notion of the kinship and common descent of the nations. Each people disseminated the belief in its own priority and preëminence, and discarded as much as possible those democratic traditions which seemed to reduce themselves to a common level with barbarians and heathen. Not until long after the eclipse

The ancients believed in the diversity of the races.



of the classical ages, not until the barbarism of mediæval Europe had at length been pushed back by the revival of learning, did men attempt in a more thoughtful and philanthropic spirit to investigate the beginnings of human development and the affinities of the different peoples who inhabited the earth.

At the time of this reënlighentment of the European nations the Roman Catholic Church was dominant throughout the West. This great organization was based upon the Scriptures of the Old and New Testaments, and from these ancient books were derived, either directly or indirectly, the greater part of the learning of the Middle Ages. It came to pass, therefore, that the first rational views with regard to mankind considered as a race and the dispersion and affinity of the nations were derived from scriptural sources. It was from this origin that the prevalent opinions of several centuries were deduced, and it will, therefore, be appropriate in this connection to present, first of all, the long prevalent beliefs which were derived from the Hebrew Scriptures.

I. THE BIBLICAL ETHNOLOGY.—In the tenth chapter of Genesis we have an account of the departures and migrations of primitive mankind. The narrative

begins with the descendants of Noah, the survivors of a deluge. His three sons become the progenitors of the three dominant races which go forth to people the world. The progenies of Shem, Ham, and Japheth, according to their families and tribes, are dispersed in the various countries of Western Asia, Northern Africa, and Eastern Europe.

In general, this account assigns to Shem and his family the Elamites, the

Assyrians, "Arphaxad and Lud and Aram." According to this scheme Eber is the grandson or descendant of Arphaxad, from which we are able to see emerging dimly at least three historical peoples—the Elamites, the Assyrians, and the Hebrews. Among the sons of Ham are mentioned Cush, and Mizraim, and Phut, and Canaan, with their respective descendants. To Cush is assigned Nimrod and his historical progeny. Mizraim is doubtless the original tribal name of the Egyptians, while Canaan, whose sons are Sidon and Heth, is clearly the ancestor



CUSHITE TYPE—SHEIK OF CHAMARS.  
Drawn by H. Thiriat, from a photograph by Mougat.

of the Canaanitish races of subsequent times.

The generations of Japheth are said to be Gomer and Magog and Madai and Javan and Tubal and Meshech and Tiras. To each of these is given a family of sons and descendants, and they are said to have distributed themselves among the "isles of the gentiles," "every one after his tongue, after their families, in their nations." In the case of Japheth, also, we are able to detect the

The biblical ethnology; distribution of Shem and Ham.

Japheth disseminated into the "isles of the gentiles."

historical beginning of nations, especially in the case of his son Madai, who is thought to have given his name to the ancient Medes. Besides what is here presented in outline, a place must be left in the ethnic scheme for the direct descendants of Noah, who is said to have lived for more than a century after the Deluge, and to have begotten sons and daughters.

Such, in a word, is the biblical scheme which the first ethnologists of modern Europe employed to account for the dis-

**Summary of the biblical schedule of primitive peoples.**

persion of the human race in the earth. It gives a fairly

adequate outline of the peopling of Western and Southwestern Asia and of the countries around the eastern parts of the Mediterranean. We may even allow for the dissemination of the descendants of Noah eastward from Armenia, and thus cover a still wider area of the habitable globe. A summary, then, of the biblical schedule of the primitive peoples will give the following results:

1. *Japhethites*, with seven tribal divisions, migratory in habit, journeying to the west, and peopling the gentile lands beyond the limits of Asia.

2. *Hamites*, with four family, or tribal, divisions, three of which, at any rate, may be located, respectively, in Cush and Canaan and Egypt.

3. *Semites*, with five tribal branches, of which the Assyrians, the Elamites, the people of ancient Aram, called Aramæans, and the Hebrews, became, in their respective countries, the leading representatives.

4. *Noachites proper*, of the divisions of which the biblical narrative has given us no outline, but concerning which a rational inference of eastern migration may be drawn.

The account in Genesis indicates

clearly a disposition of the Noachite families to part company and disperse into various regions. The differentiation of tribes is clearly announced as

Value of the ethnic scheme outlined in Genesis.

the fundamental fact in the first epoch after the traditional destruction of the Old World by water. There is thus a certain conformity in the account given in Genesis to the actual facts which we discover on the furthest horizon of the primeval world. The jostling and division of tribes under the impulse of the migratory instinct is a fact which presents itself with equal clearness to the historian, the ethnologist, and the antiquary; and the correspondence of the primitive Hebrew narrative with this manifest tendency among the primeval families of men gives force and credibility and corroboration to both branches of the inquiry.

Concerning the above biblical scheme of the dispersion of mankind in the primitive world, it may be fairly urged that it is hardly as ample as the facts to which it is applied. Within the limits of the peoples and countries referred to in the tenth chapter of Genesis, it appears to cover approximately the facts as they have been revealed by other methods of investigation, but it leaves many parts of the world unprovided with the populations which they are known to have possessed even before the dawn of authentic history.

Many attempts have been made to strain and exaggerate the biblical ethnology, and to compel it, by attenuation and hypothesis, to cover all parts of the habitable globe.

Points of inapplicability in the Hebrew classification.

These efforts appear to have been inspired by a zeal beyond knowledge, and to have had little success in application, except in the minds of those who had been already fixed in belief by

preconceived opinions. This is to say that the attempt to derive such races as the primitive inhabitants of Western Europe—the cave men, the people of the shell mounds, and the tumuli—from some branch of the Semites, the Japhethites, or the Hamites, as those families are outlined in the tenth chapter of Genesis, would have no ground on which to rest—at least in the present state of human knowledge. In like manner, the attempted derivation of the North American Indians, of the Aztecs, of the South Pacific Islanders, of the Fuegians, of the native Australians, or of the Hottentots, from the Hebrew plan of dispersion would be equally without avail, at least with such data as are now in the possession of scholars.

The scheme of family and tribal division given in the tenth chapter of Genesis appears to the historian and ethnologist to be satisfactory *within the narrow limits*.

*within the narrow limits of the races and countries to which it applies*; but it also appears that there are many parts of the globe which are known to have been inhabited at a time even more remote than current chronology assigns to the rise of the Noachite nations for which the plan of dispersion presented above seems to provide no likelihood or even possibility of inhabitants. How far the Hebrew scheme of dispersion and development from a Noachite origin through its three leading branches of Hamites, Semites, and Japhethites conforms to other ethnological outlines derived from different data and by means of different methods of investigation, remains to be elucidated in the following pages.

II. HISTORICAL ETHNOLOGY.—With the progress of historical investigation during the last three or four centuries so much information has been gathered relative to the first races of men and their movements across the ancient land-

Origin and development of historical ethnology.



INDO-EUROPEAN TYPE—THE SULTAN MACOUD MIRZA.  
 Drawn by H. Thiriat, from a photograph by Madame Dieulafoy.

scape, that a system of ethnic classification has been advanced from a purely historical basis. It was known, or suspected, by the Romans and Greeks two thousand years ago that they were related in their descent. Later on it became known that such peoples as the Medes and Persians were of the same race-origin with the Macedonians and

the Hellenes. In still more recent times it was discovered that the Teutonic races had an ethnic affinity with the Græco-Italic family and with the Celts of Western Europe. Still more recently it became known that the Hindu races were descended, in all probability, from a common origin with the Greeks, the Romans, and the Teutonic branches of mankind. A still higher view of the whole question has led to the belief of the ultimate affinity of the Semitic nations with the great peoples mentioned above, and

Glimpses of a wide application of this method.



SEMITIC TYPE—THE ARAB BENI LAAM.

Drawn by H. Thiriat, from a photograph by Madame Dieulafoy.

of the Hamites with all the rest. As the historical horizon has widened and the vision of the observer has become clearer with the increase of knowledge, the true relations of the various families of men have been discovered to the extent of warranting a classification on the basis of actual history; and many attempts have been made to produce on this basis a scheme of ethnic dispersion as broad and comprehensive as the far-reaching facts which it is intended to explain.

As a result of this method, several

races of men have been distinguished from each other and classified according to their ethnic descent and affinities.

1. *The Indo-European Race.*—It has been definitely ascertained that two of the great Asiatic families and at least four of the prevalent peoples of Europe have had a common descent from a common ancient origin. To this community of nations the name Indo-European, or Indo-Germanic, has been applied by historical writers. The term signifies the two extremes in place and time of the national dispersion from the common origin referred to. It signifies that an Indic branch of the human family, including with this term the Iranic, or Persian, division of mankind, has been derived primarily from the same fountain with the Græco-Italic race and with the Celtic and Teutonic divisions of mankind in Europe. From the common fountain, two Asiatic streams flowing to the south and the east are known to have arisen in common with the four westward flowing streams that were destined to bear into Europe and through all the west the primitive waters of Hellenic, Italic, Teutonic, and Celtic nationality. The term Indo-European is thus devised to cover the wide extremes of human development which span the world from the valley of the Indus to California.

Meaning and scope of the term "Indo-European race."

2. *The Semitic Race.*—Under this head the historians have developed a classification very nearly analogous to that embraced under the same classification in biblical ethnology. There is, historically speaking, some indistinctness on the further borders of Semitic development. Whether, for instance, the ancient Chaldees were to be included under this designation may be regarded as doubtful. It is sufficient to note that the He-

Races included under the definition of Semitic.

brew race, in its several divisions, ancient and modern, is included under the Semitic division of mankind, and constitutes, indeed, its most striking representatives. So also the more recent Arabs are included as a cognate branch of the same great family; and the ancient Aramæans prevalent in Syria, Mesopotamia, and other western districts of Asia must in like manner be classified with the Semitic division of mankind. The reader will not fail to observe that history, considered as a science, and the scriptural account of the dispersion of the human race are very nearly in accord as it respects the divisions, migrations, and historical development of the Semitic family of men.

3. *The Hamitic Race.*—This division of mankind is known to history chiefly by its greatest representatives, the ancient Egyptians. As planters of the strongest and most enduring civilization of remote antiquity, these people could but make a strong impression on the earliest historical developments of the world. Cognate with the Egyptian race were several other branches of Hamites, but nearly all of them are obscured with doubt as to their origin and classification. Such are the old Chaldæans, who planted their empire on the Lower Euphrates as much as two thousand years before our era; and such are the Joktanian Arabs of the south, bordering on the ocean, and such are several of the Canaanitish nations, with whom the greater historical peoples came into contact from the seventh to the third century B. C. Many historians have regarded the Phœnicians, the Sidonians, and the Carthaginians as of Hamitic descent, and it is highly probable that some of these peoples were at least composite in their ethnic origin. As a gen-

Who the Hamites were; doubts as to certain races.

Egyptians. As planters of the strongest and most enduring civilization of remote antiquity, these people could but

eral fact, it appears that the Semitic and Hamitic peoples of antiquity were less completely separated from each other's influence, less perfectly differentiated



HAMITIC TYPE—THE EGYPTIAN SAÏS.  
Drawn by A. de Bar.

into diverse types of race development, than any other two branches of the primitive family of men.

4. *The Altaian Races.*—The great nomadic peoples having the highlands of

the Altais as their original habitat have been designated by many terms, and there is yet much confusion in their attempted classification. Even the major divisions of these races are not well made out. One of the broadest divisions is the Tartar family, spreading to the north and east over a great part of Asia. It is still in dispute whether

The Altaian  
races; dissemi-  
nation of the  
Tartars.



ALTAIAN TYPE—OLD TARANTCHI.  
Drawn by E. Ronjat, from a photograph.

the Tartars and Mongolians should be considered as primary ethnic divisions of mankind, or whether the Mongolian branch of the south has been deflected from the Tartar group of the north. As we shall presently see, this great assemblage of semicivilized races, nomadic over the vast steppes of the north and in a low grade of development in the south, is defined by the term Turanian

in the linguistic division of men. But for historical purposes the whole group may best be classified and named from its geographical center on the northern slopes of the Altais. The White Tartars, or Turcomans, as the westernmost division of the great Altaian group, have, by their aggressions in Asia Minor, Syria, and Eastern Europe, brought the family of nations to which they belong into historical relationship with the Indo-European race, and have thus preserved unto the present time at least the reminiscence of the prowess for which they were characterized in the fifteenth and sixteenth centuries.

5. *Western Aborigines.*— Besides the greater peoples with whom history has had to deal in Western Asia and Europe, the progress of nations westward has brought them into contact with new varieties of the human family, unknown in ancient times. The limited geographical knowledge of the ancient peoples shut them out from an acquaintance with the widely spread barbarian races occupying the New World, the continent of Australia, and the islands of the sea. It is not meant that the inhabitants of the vast regions here referred to are of a common ethnic descent. On the contrary, as we shall see hereafter, many original stocks of mankind are represented in the existing savagery of the world. But for historical purposes the aborigines of the West and of the ocean lands of the South and west may, for convenience, be grouped together and considered as an unclassified mass of peoples, in varying stages of evolution.

Aboriginal races  
of the western  
hemisphere.

It will be remembered that what is here attempted is merely to indicate such results in the way of classification as are afforded from a purely historical point of view; and for this purpose all

the outlying barbarous peoples that have been revealed since the beginning of geographical discovery at the close of the fifteenth century may be grouped as one, and considered as a single fact in the analysis of the human race. If, then, we collect the results derivable from this historical view of the dispersion of mankind, we shall find the foregoing five groups of peoples, the first three of which, the Indo-European, the Semitic, and the Hamitic branches, are tolerably clearly defined and separated by ethnic lines, while the remaining two, the Altaian group of nations and the Western aborigines, are banked together rather for convenience of consideration than by exact principles of classification.

III. LINGUISTIC ETHNOLOGY.—Within the present century the study of language has thrown new light on all the disputed questions relative to the dispersion and race developments of mankind. The scientific investigation of speech has made clear many vexed questions in the primitive history of men that to all seeming could have found no other solution. The general effect has been to confirm and establish many of the views already received from tradition and historical inquiry, and to disprove and render untenable many other opinions concerning the movements and affinities of the early races. Much that was conjectural has become known as fact. Theories have been demonstrated or destroyed, and new views of the extent, variety, and true character of tribal and national evolution have been projected. In some departments of inquiry the new knowledge has amounted to a revolution. On the whole, it is almost impossible to overestimate the value of lin-

Results of the method; imperfections in the scheme.

In what manner language has become a basis of classification.

guistic science in the exposition of all questions relative to the prehistoric conditions and movements of mankind.

If we take up the results of this study of human speech as it respects the ethnic classification of the race, we find a certain general parallelism to what has been presented above as proceeding from biblical and historical investigation. To begin with, the science of



WEST ARYAN TYPE—ALCIBIADES.

language declares with emphasis and demonstrates the existence of—

1. *The Aryan Race*.—This term, as elucidated in the preceding book, relates primarily to a primitive nobility claimed and maintained by the peoples called Aryan, which nobility was based upon the agricultural life as distinguished from nomadic and pastoral pursuits. It is not needed to illustrate further in this connection the meaning and application of the term. It suffices to note the fact

The Aryan race established by linguistic progresses.

that the study of language has defined and proved beyond a doubt the fundamental affinity and kinship of the Aryan folk of Asia—that is, the great Hindu family of Aryans in the valleys of India and the Iranian, or Persic, division of mankind—with the Græco-Italic race and the Teutones and Celts of Europe.

The community of the original speech of all these peoples, spreading in its widest development from the base of the Himalayas westward over the table-lands of Iran, through the southern peninsulas and the transmontane forests of Europe to the Atlantic, and through the New World to the Pacific coast, has been established by proofs irrefragable as those which determine the truths of geology or the laws of the physical world. The course of the tribal movements by which from the countries east of the Caspian these great and progressive streams of human life pursued their way to their destination can be traced by the linguistic phenomena which they left in their track, and the elimination of the great family of men to which scholars have in recent times given the name Aryan from the remaining races has been completely effected.

It can but be of interest at this point to state the linguistic facts upon which the classification of mankind has been attempted. It is found that certain peoples, like the Aryan family above defined, speak dialects of a common language. In general, they have a vocabulary and a grammar in common. When we find two peoples living in different and distant parts of the earth naming the objects of sense and reflection with the same words, and combining those words in sentences under the same laws of grammatical and logical structure, we are com-

elled to conclude that the two languages have had a common origin somewhere in the past; and if the languages have thus arisen from a common source, the two peoples who spoke them had also an original tribal identity. This is exactly the case with the great nations called Aryan. The six branches of this vast family of mankind, namely, the Indic, the Iranian, the Hellenic, the Italic, the Teutonic (including the Slavonic), and the Celtic, are not only identified by the laws of history, but also by the laws of speech. The Sanskrit, spoken in ancient India, the Persic dialects of the plateau of Iran, the different varieties of Greek peculiar to Hellas and the Ægean islands, the Latin tongue of the West, the various Teutonic languages, and the Celtic, with its two or three derivatives, have all a fundamental linguistic identity. Their vocabulary as it respects the primary objects of sense and the common actions of life is virtually the same in all.

More striking still are the fundamental peculiarities of their respective grammars. The great feature of all these tongues is *inflection*. The variations of thought as, for instance, number, gender, and case in nouns, mood and tense in verbs, comparison in adjectives and adverbs, are indicated by terminational changes in the words of the language, and these changes obey the same laws and present the same phenomena in all the speeches above referred to. Only the student of language can fully appreciate the striking similarities which present themselves in all branches of the Indo-European, or Aryan, tongues. It is as though we should study a single language with dialectical variations. And so indeed it is. The original speech of all these peo-

Race movements traceable by phenomena of language.

What facts in language warrant ethnical conclusions.

Inflection the prevailing feature of Aryan speech.



ples was one. Somewhere in the past and somewhere on the surface of the earth, before the era of tribal migration, a family of men had, by reason and experience, developed a language of the inflectional variety, had given names to the objects of nature and the concepts of the mind, had defined by certain words the actions and thoughts peculiar to their volitions and imaginations.

The general result of this evolution was the production of a great typical speech, which was spoken by all the members of the tribe in its ancestral home. From this region the migrations began, and each band of emigrants carried with them the ancestral speech. As they entered into new relations with nature and new experiences in life, passing through belts of different climate, encountering new landscapes and familiarizing themselves with new conditions and environments, their tongues began to modify the original language, and to adapt it to the changing panorama of nature and the varying concepts of the mind. Generations went by. Different regions of the earth were reached. National developments ensued. But still the fundamental identity of the speech of all these peoples was maintained. So that in India, in Persia, in Macedonia and Greece, in Italy, in the forests of Northern Europe, and in the outlying portions of Spain and Gaul and Britain, the scholar of after times discovers the broken, but clearly identical, fragments of a common language once spoken by the ancestors of all these peoples. Thus it is that the study of language has furnished one of the surest criteria by which to determine the ethnic classification of mankind.

2. *The Semitic Race*.—Following this same clue, we discover by means of lan-

guage another family of men, to which is given the name of Semitic. Here we notice the recurrence of the same term which was given us in the biblical ethnology and repeated in the historical division of the races. The linguistic inquirer finds in the East a group of nations speaking languages totally different in structure and vocabulary from the Aryan tongues above defined. The speech of the Hebrews, the old Aramæans, and the Arabs is as distinct in its essential character from Sanskrit and Greek and Latin as though it belonged to a wholly different class of phenomena. The words of the Semitic languages, instead of being of all lengths as to syllables and letters, consisted fundamentally of trilateral symbols. Every word is essentially a word of three letters and three only. These constitute the skeleton, so to speak, of the vocal symbol, and around this skeleton the vocalic elements are arranged.

Inflection is almost unknown to the Semitic languages. The grammar of these tongues is constructed upon a totally different principle from that of the Aryan languages. Even the superficial student of human speech must be struck and astonished from the very first with the essential difference and contrast between the Semitic method of expressing thought and the method of the Aryan peoples. It is from this distinction that the linguistic inquirer has constructed the classification of the Semitic races. The Hebrews, the Aramæans, and the Arabs, with their derivatives in ancient and modern times, are grouped by themselves, and are as certainly defined by means of the languages which they speak or have spoken as they are clearly divided from the other nations in historic development.

Semitic races may be classified by means of their languages.

How languages are modified by environment.

Contrast between Semitic and Aryan methods of speech.

3. *The Turanian Races.*—The progress of linguistic science has revealed another great group of languages, differing entirely in structural character from the two varieties above described. It is found that in general the languages of

Peculiarities of the so-called Turanian languages

express the necessary inflection of ideas and to effect the construction of the sentence, they adopted what is called the agglutinative method of combination. That is, several monosyllables are put in juxtaposition to express the complex or compound notion which in the

Aryan languages would be denoted by means of inflectional terminations. This feature of combining monosyllables in long, compound expressions, partly resembling words and partly sentences, is common to the languages of nearly all the nomadic nations of the earth.

It is believed by scholars that such languages have not yet reached the inflectional stage of development, and that, in obedience to natural laws, they will ultimately pass into a form of structure similar to that of the Aryan vocabulary and grammar. No example of such transmutation, however, has been noted in any quarter of the world. The agglutinative languages hold fast to their original character, and the peoples who speak them prefer to retain their tedious, periphrastic methods of expression to the



TURANIAN TYPE—KIRGHEEZ FALCONER.  
Drawn by Delort, from a photograph and description.

the nomadic nations of Northern Asia are *monosyllabic*. They consisted originally of words of a single syllable, and are *never inflected*. In order, however, to

adoption of the briefer and more elegant inflectional forms of speech. Based on these agglutinative dialects, the ethnic classification of races has been extended to

include the great group called Turanian. The word is derived from *tura*, "a horseman," and has respect to the national habit of life peculiar to the semibarbarous races of Northern Asia. In general, the Turanian family, as determined by the peculiarities of language, conforms with tolerable identity to the Altaian group of nations as determined by historical relationships.

4. *The Ganowanian Races.*—In addition to the three major divisions of mankind thus determined by the evidence of language, a fourth division has been suggested to include the barbarian races of the New World; and for this branch of mankind the name Ganowanian has been proposed by Professor Lewis H. Morgan, of the United States.

In the Seneca-Iroquois dialects the word *gano-wano* signifies "bow-and-arrow," and Professor Morgan has seized upon this expression

as indicating the most universal characteristic of the Indian races. They are, and have always been, the wearers of the bow. Just as the root *ar* has fur-



GANOWANIAN TYPES—UCAJLI INDIANS.  
Drawn by P. Fritel.

nished to Max Müller and other European scholars the hint for the ethnic name Aryan, meaning the races of the plow, just as *tura*, meaning a horseman,

has furnished the root of the word Turanian, descriptive of the nomadic races of Asia, so the word Ganowanian may properly be employed to designate the races of the bow and arrow. Linguis-

The Ganowanian, or bow-and-arrow, races.

pond ideas are expressed by the agglutinative process; that is, the mere juxtaposition of one monosyllable with another, until the mind of the speaker is satisfied with the modification.

#### IV. GEOGRAPHICAL ETHNOLOGY.—We

have thus considered three of the general methods which have been adopted for classifying the human race into species and varieties.

General theory of geographical ethnology.

Still another plan has been proposed by a certain class of writers with a view to the ethnic division of mankind. This we will now consider as the fourth attempt to group the different families of men according to their origin and race descent. It has appeared more feasible to many inquirers to use geography as the basis of a classification rather than alleged affinities of blood or actual identities of language. It has been thought that for practical results the arrangement of the human race according to its continental distribution and its local developments would be of greater value than the somewhat theoretical analysis of mankind according to linguistic distinctions. The result has been a more elaborate but less valuable classification than by any of the other methods. The plan in question begins with a hypothetical center for the human race, located in the Indian ocean, west of Hindustan. From this supposed origin of mankind streams of ethnic descent are carried shorewards from



SEA NEGRO TYPES—NATIVES OF DOREY.  
Drawn by P. Sellier, after a sketch of Dumont d'Urville.

tically considered, the various tongues of the Indian family of men belong by analogy to the same group with the Turanian languages of Asia. They have the same peculiarities. They are monosyllabic, and all complex and com-

Lemuria until, touching the various continents, they are deflected and distributed into all parts of the earth. According to this scheme we have the following results:

1. The *Papuans*, with their derivative

families of Negritos, Papuans proper, Melanese, and Tasmanians. These

peoples, as their names indicate, are distributed in Malacca, the Philippine

islands, Papua, Melanesia, and Tasmania.

2. The *Hottentots*, with their two leading branches, the Hottentots proper and the Bushmen, both inhabiting Capeland.

3. The *Kaffirs*, with their three divisions, the Zulu-Kaffirs, the Bechuanas, and the Congo Kaffirs, inhabiting respectively the eastern, the central, and the western districts of South Africa.

4. The *Negroes*, with their four principal divisions of Tibbu Negroes, Sudan Negroes, Senegambians, and Nigritions, inhabiting the regions indicated by their respective names.

5. The *Australians*, with the two geographical branches of North Australians and South Australians.

6. The *Malayans*, with their three divisions of Sundanese, Polynesians, and Madagascans, the first two inhabiting the Sunda archipelago and the Pacific islands, and the latter the island of Madagascar.

7. The *Mongolians*, with their three varieties of Indo-Chinese, Coreo-Japanese, Altaians, and Uralians, the first belonging to Thibet and China, the second to Corea and Japan, the third to Central and Northern Asia, and the fourth to Northwestern Asia and Hungary in Europe.

8. The *Arctics*, with the two principal divisions of Hyperboreans and Esquimaux, belonging respectively to North-eastern Asia and Northeastern America.

9. The *Americans*, with four leading divisions, the North Americans (Indians), Central Americans, South Americans, and Patagonians, distributed according to their several ethnic names.

10. The *Dravidians*, with two race developments, the Deccanese of India and the Singalese of Ceylon.

11. The *Nubians*, with their three varieties, the Shangallas and Dongolese of Nubia, and the Fulahs of Fulah.

12. The *Mediterraneans*, divided ac-



ESQUIMAU TYPES.

ording to this scheme into Caucasians, Basques, Semites, and Indo-Europeans; the first of these four being named from the range of the Caucasus, the second belonging to the northeastern portion of Spain, the third being limited to Eastern Europe and portions of Northern Africa, and the Indo-European branch being nearly coincident with the European division of the Aryan race as defined in the linguistic scheme above.

We thus have, according to the geographical scheme, no fewer than twelve major divisions of human kind, represented by thirty-seven different races,

many of which are in turn divided and subdivided into various peoples and tribes, according to their localities, languages, and ethnic peculiarities.

On the whole, this method of classification according to the geographical basis is

Unsatisfactory character of geographical classification.

less satisfactory in its results than any of the others presented. It assumes that tribes of a given stock will, as a rule, mi-

associated. A classification like the above, which places so old and radical a stock as that of the Semites in the same group with the Indo-European races, lacks every element of accuracy, and tends to perpetuate the worst vices of the old system of ethnology. None the less, such a division of mankind as that presented in the geographical scheme above has its value when set in comparison and



NUBIAN BOY—TYPE.—Drawn by Ishmael Gentz.

grate in the same direction and occupy the same territories. It is based upon the hypothesis that an aggregation of peoples in any given part of the world is *of itself* a proof of a common race descent. On the contrary, it is well known that in many parts of the world races and tribes of men, as wide apart as the poles in their ethnic affinities, are geographically

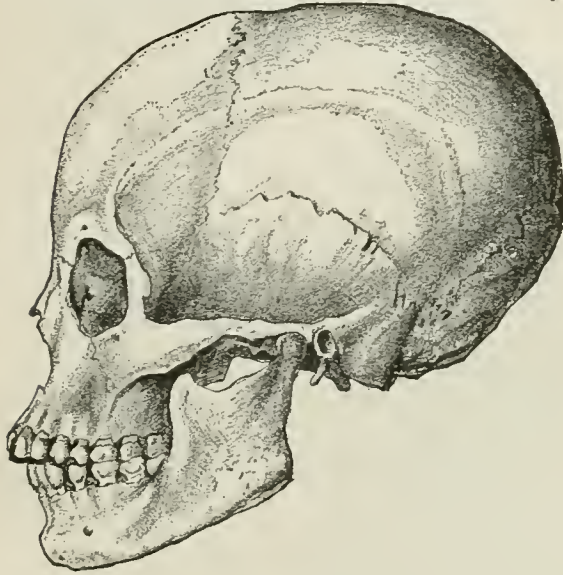
parallelism with other and more rational ethnic classifications.

V. SCIENTIFIC ETHNOLOGY.—In the schemes of race descent thus far presented the linguistic plan of division most nearly approaches a scientific basis. There are in the same, however, certain unscientific conditions that must

Elements of uncertainty in linguistic method of race division.

be eliminated before the division of the human race by language *only* could be accepted as a finality. One of these conditions is the patent fact that a people of a given ethnic origin may, in the vicissitudes of history, adopt a speech other than its own, and thus be thrown in a classification very different from that to which it really belongs.

Several instances might be cited in which this phenomenon has actually



Dolichocephalic skull.



Brachycephalic skull.

CRANIAL CONFIGURATION, SHOWING VARIATIONS IN HUMAN FORM.

and probability of error in classifying by means of language only.

But there are other means of a more strictly scientific character which may be employed in classifying the divisions of the human race. Differences or identities in anatomical structure, persistently transmitted from generation to generation, constitute a valid evidence of ethnic divergence or relationship. The stature of a given people is generally uniform. The men are of a uniform height, and so are the women. In this respect the different families of mankind have presented remarkable varia-

Possibility of classifying on variations in form.

presented itself. At times the conquering race absorbs the language of the conquered people, and, in such a case, subsequent investigation would be put at fault if the linguistic affinity of the people were accepted as the sole criterion of its race relationship. The conspicuous modern example of the Normans, who abandoned their own Teutonic speech and adopted French as their vernacular, carrying the same with them into England, and effecting in the English language a permanent modification by the infusion therein of linguistic elements which they had borrowed from another people, is sufficiently well known, and completely establishes the possibility

tions. Some approximate the stature of giants, and others of pygmies. The proportions of the skeletons likewise constitute a fair basis of distinction between people of one race and those of another. The character of the hands and the feet, the length and proportion of the arm bones and the legs, the particular figure of the chest, and especially the facial angle, are peculiarities which may well be employed in a scientific way in distinguishing people of one race descent from those of another.

More especially the figure and capacity of the skull are typical, each family of men having a cranial configuration and development peculiar to itself.

Careful investigations have shown the limits of these variations, and have determined those features of the skull and brain which are distinctive of several races of men. The hair of the head, likewise, has furnished a distinguishing mark in different peoples. It is found that the hair in different races ranges all the way from a woolly fiber, presenting a triangular section and having its vital channel on the exterior surface, to the straight, tubular filament which constitutes the head covering of some of the superior races. Between these extremes are all varieties of capillary formation. These varieties are found to

Crania and skulls as a means of determining race.

granite crypts of Egypt, where they were laid more than two thousand years before our era, exhibit the same peculiarities and diversities of structure as are found on the heads of living races. Such specific differences in the external covering of the skull may well be used in a scientific way as a mark or criterion by which the different families of mankind may be discriminated the one from the other.



AMERICAN INDIAN TYPE, SHOWING STRAIGHT HAIR.  
Drawn by Riou.



PAPUAN TYPE, SHOWING CRISP HAIR.

be persistent from generation to generation and from century to century. Specimens of human hair recovered from the

granite crypts of Egypt, where they were laid more than two thousand years before our era, exhibit the same peculiarities and diversities of structure as are found on the heads of living races. Such specific differences in the external covering of the skull may well be used in a scientific way as a mark or criterion by which the different families of mankind may be discriminated the one from the other.

The human skin also has its particular features and peculiarities, unlike in the different types of mankind. This is said more particularly of the *color*. Of all the features with respect to which men differ in physiological constitution the pigmentary character of the cuticle is perhaps the most marked, invariable, and persistent. This fact has been selected by many ethnographers as the best consideration from which to frame a scheme of division for the human species. It is found that the different races have different colored skins; that a given race is sufficiently uniform in its hue; that the color once determined, is persistent, reproducing itself from age to age, and being recognizable even after thousands of years as belonging to a certain species. Why not, therefore, adopt the color of the body as the most marked

Color of the skin a true test of ethnic affinity.



and invariable characteristic by which to distinguish the ethnic classification of the various peoples?

Such a principle of division appears to be in every wise scientific. The color of the skin is a physical fact in nature, and its invariability in a given species assures the constancy of the fact and furnishes a guarantee against error. No

anomalous departures from the given standard of color need be expected except in the case of individuals, and such exceptions would in no wise disturb the regularity of the law. Moreover, the other sources of information, the other bases of division of the human family, may well be used as auxiliary to the truly scientific classification of mankind by means of color. All that is known

historically of the different races, all that is known of the various branches of the human family as determined by means of the languages which they speak, may be brought to bear upon the problem to rectify and amend whatever may be suspected of error in the classification by means of color.

Such a method of division has been many times attempted by scholars, but until recently the results have been variable and uncertain. The reason of this is found in the imperfect observa-

tion which has first been given to the question. What are the different colors presented on the covering of the bodies of men? What primary or secondary hues are really characteristic of the human skin in different races and countries? Error in deciding these questions has been at the bottom of all diversity in results.

Sources of former error in this method of classifying.

Scientific classification may be made from color.



NIGRITIAN TYPES, SHOWING WOOLLY HAIR.  
Drawn by Madame Paule Crampel.

It appears strange to the thoughtful inquirer of the present day that so little accuracy has been displayed by those who have attempted to note and describe the different natural colors of the human skin. It will readily be allowed that an examination of the whole race now occupying the earth will discover nearly all colors and shades of color, from one extreme of the spectrum to another; but a very casual examination will show that these various tints are reducible to a few, and these to

still fewer primary pigmentary distinctions.

The great error made by those ethnographers who have attempted to use color of the skin as a basis of classification has been in allowing too many distinctions of tint. Inability on their part to generalize the facts, and to reduce the

Only three primary colors of the human skin.

orange-colored men, copper-colored men, brown men, black men, and many other slighter distinctions which tended to confuse rather than to establish a scientific division. All this turned upon inaccuracy of perception. It is the feature of modern inquiry that the sense-perception with which it begins has become constantly more accurate and penetrating

in recent times. It is now clearly perceived that there are by no means so many fundamental colors to be recognized as the distinguishing characteristics of the different races. On the contrary, there are but few. Without passing through all stages of the inquiry, it is sufficient to say that the very best scrutiny of the actual facts shows that there are only *three primary colors peculiar to the human body*; and that these colors are ruddy, black, and brown. From these fundamental and characteristic tints of the human skin all the other varieties are easily derived, and to them all minor distinctions are readily referred.

What, then, is the true nature of these three fundamental colors peculiar to the races of mankind? It



ENGLISH TYPE (MRS. SIDDONS), SHOWING WAVY HAIR.

different hues to a few radical distinctions, has been the fruitful source of all inaccuracy and confusion. The first classifications attempted on this basis of color resulted in multiplying rather than in simplifying the classification of the human race. According to these first efforts there were white men, yellow men, olive-colored men, red men,

will be noted that the term *white* is rejected. This is done for the sufficient reason that there are not now and never were any tribes of people on the earth to whom the term white could properly be applied. The fairest-skinned specimens of the human race are very far from white. He who has

The term ruddy substituted for white in this treatise.

not himself looked candidly and carefully at the fact here referred to must needs be surprised to note how great the error is in describing the color of any people as white. The races that have been recognized as white are in reality *ruddy* in color, and approach much more nearly to the standard of red than the Indian peoples, who have been erroneously defined as red men.

The so-called Caucasians, for instance, who perhaps present the skin in its fairest tint, are truly a ruddy people. The peculiarity of the skin is its transparency and the consequent revelation of the blood in the capillaries. The red tinge of the blood is thus discernible through the cuticle, and the flush of color, slighter or more emphatic, is always ruddy in its character. The peoples having this quality of skin are the *blushing* races. With every varying degree of excitement the blood appears or recedes in the skin at the surface, giving a deeper or paler tinge to the body. But under no

No races may be properly defined as white.

conditions can the skin be said to be white. The fairest infant ever born into the world, even when bloodless and cold in death, is so far from being white that a really white object placed alongside of the skin furnishes a contrast so striking as at once and forever

to disabuse the judgment of the beholder. The term white, therefore, as one of the definitive epithets descriptive of the color of the human race, must be rejected, and its place be taken with the more accurate term ruddy. We thus have in a scientific classification of man-



THE RUDDY TYPE—PAUL CRAMPÉL.  
Drawn by H. Thiriat, from a photograph.

kind based on the distinction of color, first of all:

I. THE RUDDY RACES.—It is found when this distinction of color is applied to the great facts under consideration that the larger part of *the historical nations* of the earth come under the classification of ruddy. The great races who first

redeemed the world from barbarism were of this color. It is quite certain that those strong and heroic peoples who

What races may be correctly classified as ruddy.

appear in the remote horizon of the primitive world were ruddy in their complexions. Speaking from a biblical point of view, all three of the Noachite

what intensified by the scorching sun of the climates in which they were for the most part developed—with the cognate races of Shem and Japheth. Or, if we speak from the historical point of view, we shall find the same indications of the fundamental identity in color of the early races who developed civilization in the earth. The Indo-Europeans were all ruddy in complexion. From the foothills of the Himalayas across the table-lands of Persia into Ionia and Macedonia and Greece and Italy and the “isles of the gentiles” the same fundamental race complexion is discoverable. Likewise, the Semites and the Hamitic races, noted from the historical point of view, are found to be of the same bodily color. Language contributes its evidence also to establish the same general fact as to the complexion of the Indo-European and other Noachite families of men. They were all ruddy, and the hint in Genesis of the *red-earth* color of the Adamite would seem to be justified by the facts observable in several of the principal divisions of the human family.



THE BROWN TYPE—MISTRESS SENKI.  
 Drawn by E. Ronjat.

II. THE BROWN RACES. — The second fundamental division of mankind determined on the line of color is by the *brown* complexion, which characterizes many of the leading races. It will be observed

from the selection of this hue that many varieties of color may be referred thereto. Several shades of yellow and of red may be correctly carried back into a fundamental brown, which is the composite of black with one of the two tints referred to. Careful observation will show that this is the actual color of the

from the selection of this hue that many varieties of color may be referred thereto. Several shades of yellow and of red may be correctly carried back into a fundamental brown, which is the composite of black with one of the two tints referred to. Careful observation will show that this is the actual color of the

General analysis of the Brown races.

great races of Northern and Eastern Asia, as well as of all the aborigines of the two Americas and Polynesia. As the major division of these races we may cite:

1. The *Asiatic Mongoloids*, corresponding in general terms with the Mongolian race indicated by historical inquiry, or with the two divisions of the Turanians according to the linguistic division.

2. The *Polynesian Mongoloids*, or the peoples scattered through the islands of the South Pacific, with the exception of the Melanesians and the Australians.

3. The *Dravidians*, or the Deccanese and the people of the Micronesian islands north and east of Australia.

III. THE BLACK RACES.—It is clear, on an examination of the facts, that

The four groups of the Black races.

many of the peoples, even the primitive races distributed in portions of the world lying in the equatorial regions, are properly defined as *Black*. The pigmentary deposit under the cuticle is of such a character as to absorb all or the greater portion of the rays of light, and to return to the eye only that negative sensation which we define as blackness. The line of chromatic division between these races of Black men and those who were defined as Brown, is that under the cuticle of the skin of the latter peoples a certain percentage of coloring matter is combined with the black pigment, producing the various shades of color known as brown.

This characteristic difference between the two colors is constant, and tends to perpetuate itself by the physiological law called "reversion to the original type." This is to say that in a contact of the various races, Black and Brown and Ruddy, and in their intermingling of blood, there is a tendency for one or the

other of the elements of ethnic constitution to declare itself and become dominant over the rest. Given a sufficient lapse of time, and these intermediate varieties return to the one or the other of the original types from which they are derived. Geographically speaking, the Black races are distributed throughout the larger part of Africa and through the whole of Australia and that portion of the Pacific archipelago called Melanesia. These are the limits of the natural dispersion of the Black races. The ethnic divisions of this third primary family of men are:

1. The *Negroes*, who occupy the larger band of Central Africa from east to west, and are also distributed through a great portion of the southern division of the continent.

2. The *Australians*, occupying all of Central and Southern Australia, except the coast region on the east and north.

3. The *Hottentots*, distributed through the larger part of the southern extremity of Africa.

4. The *Papuans*, occupying the island of New Guinea, the northern and eastern maritime districts of Australia, the island of Tasmania, and, in general, the Melanesian archipelago.

The foregoing classification of the human race on the scientific method and by the distinction of color is, perhaps, as nearly a satisfactory solution of the problem as can be given in the present state of knowledge.

Other plans of classifying may be harmonized with this.

The three distinctions of Ruddy, Brown, and Black races are fundamental. They are broad enough to include the whole race of man, with its multiform developments in ancient and modern times. The classification is sufficiently ample to embrace in its major and minor divisions all the races and peoples which have been distinguished

from each other by means of historical and linguistic inquiry. It is easy to conform to this plan of division all the others that have been suggested, and to make them consistent with the wider and more scientific scheme. Thus, for instance, the biblical race of Japheth, the historical divisions of mankind called Indo-

In the second place, the widely disseminated Brown races, covering nearly the whole of Asia, the two great continents of the West, and the greater part of Polynesia, may be grouped together on the line of color and considered as a common family in its origin and race descent. It will be the purpose in the following pages of the present book to trace out the lines of the great tribal and race divergencies and migrations which in the lapse of ages have carried these Brown peoples over by far the largest districts of the earth. It will be understood, of course, that the race classification of the peoples of the two Americas as here presented relates to the *original peoples* of these continents, and not to the Indo-European nations that have taken possession of them in recent times by migration and conquest.

General distribution of the Brown races.

The third general division as indicated in this analysis on the basis of color has already been pointed out in its ethnic and geographical distribution. No branch of the Black races has of its own motion crossed the equator of the earth to a point higher than the twentieth degree of north latitude. It will be found in the subsequent chapters of this book that the dispersion of this divi-

sion of mankind was by means of a westward stream flowing in from Eastern Africa and spreading in many branches through all those parts of the continent between the equatorial region and the Cape of Good Hope, while the eastern stream bore off by way of Southern Hindustan into the great, closely distributed islands lying to the south of Asia. It is believed that sufficient is now known of the

Outline of the dispersion of the Blacks.



THE BLACK TYPE—NEGRO MAKUTULU.  
Drawn by Riou.

European, the ethnic branches of men called Aryan in the linguistic classification, all fall under the common designation of Ruddy races. With these are grouped by means of the same color distinction the Semitic families of men, and also the Hamitic divisions. These ten races taken together constitute the whole group, which may be defined by the term Ruddy and considered as of a primary, common descent.

movements of the Black races to delineate their tribal divergencies and migrations with tolerable certainty, and although much will remain to be rectified and amended by subsequent investigations, something may be at present advanced to enlarge the borders of common knowledge relative to this the least known and least progressive of the great divisions of mankind.

From these considerations and others that may be readily deduced therefrom, it has been determined to employ in the present work the scientific method in classifying the different races of men, and to use the *color of the body* as the fundamental fact in considering the scheme of division. In all the subsequent parts of the present work, in

Mankind to be divided into Ruddy races, Brown races, and Black races.

the description of the migrations of the primitive tribes and families of men, in the delineation of manners and customs, and the peculiarities of national development which will in great measure fill up the body of the work, it is purposed to keep always in mind this fundamental division of mankind into, I. RUDDY RACES; II. BROWN RACES; III. BLACK RACES; with their manifest divisions into the three branches, Hamite, Semite, and Aryan in the first; three divisions of Asiatic Mongoloids, Polynesian Mongoloids, and Dravidians, in the second; and four branches, Negroes, Australians, Hottentots, and Papuans, in the third. These ten race classes of mankind will constitute the basis of much of the discussion in the present and the succeeding volumes.

CHAPTER XXIV.—NOACHITE DISPERSION CONSIDERED.



SO far as the present resources of human knowledge have indicated the primary seat and early movements of the Ruddy races of mankind, the same began on the north shores of the western gulf of the Indian ocean. The scene of this important primitive aspect of the race was probably in the southern part of Beluchistan, eastward from the Persian gulf. When these statements are made the whole of our knowledge on the subject may be said to have been delivered. History knows little besides of the time or the advent of this primary stream of human existence; but it can hardly be doubted that this is the real

Primitive seats of the Adamites.

seat of the Adamite and his descendants. Ethnologists have generally been disposed to go further, to trace backwards the stream of this division of the race to the shores of ocean, and thence to carry it by hypothesis far out into the so-called Lemuria, a supposed submerged region in the bed of the Indian ocean.

On the theory that the Black, the Brown, and the Ruddy races of mankind have all had a single ancestral origin, there is some ground for such a hypothesis. The first tribes of Black men appear to have struck the continent of Africa from the east. In like manner the Brown races seem to have touched the continent on the coast line eastward of the Persian gulf; while the ancestors of the Australians and Papuans appear

Apparent point of origin for all the races.

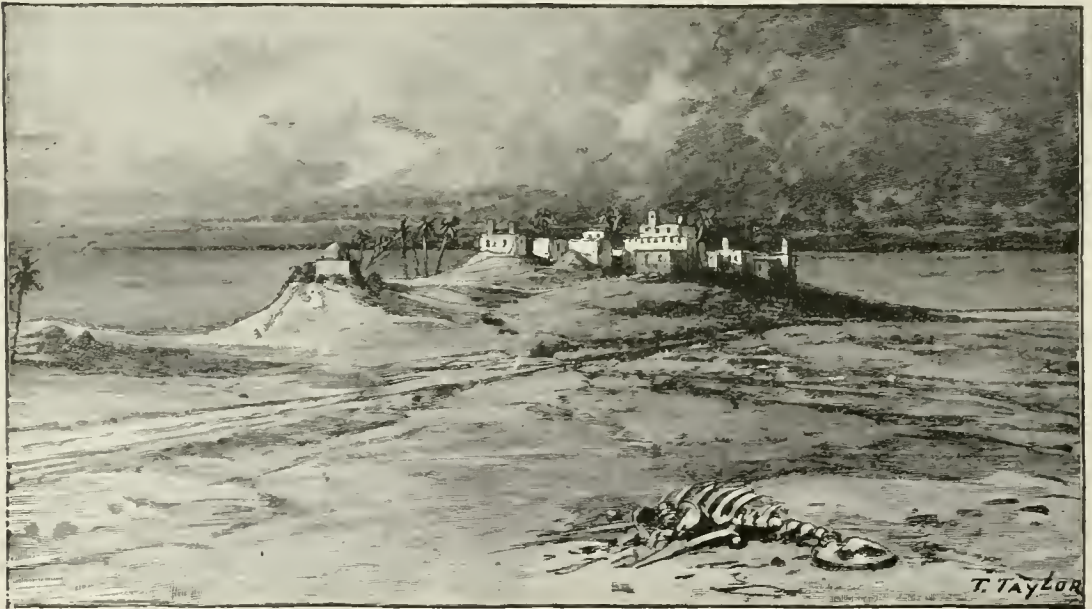
to have reached their destination from the northwest. Thus the observer, standing on the western shore of India, the eastern shore of Africa, or the southern shore of Beluchistan, would seem to see the three major divisions of mankind approaching from the deep, as if from some common origin under the sea.

Nor has tradition been wholly silent in witnessing to such a primeval movement of the race landwards from the sea. One of the oldest traditions on record is preserved in a fragment of Berossus, and indicates the ocean origin, not only of

Berosus re-  
counts the myth  
of the sea god  
Oan.

the day with men. But he took no nourishment, and at sunset went again into the sea, and there remained for the night. This animal taught men language and science, the harvesting of seeds and fruits, the rules for the boundaries of land, the modes of building cities and temples, arts, and writing, and all that pertains to civilization."

In the fifth chapter of the book of Genesis we have an account of the Adamic race from the beginning down to the Deluge. This space is occupied with ten successive patriarchs and their expanding families. To these great



LANDSCAPE OF THE NOACHITE DISPERSION.—BENDER-DILEM.—Drawn by Taylor, after a sketch of Houssay.

the arts, but of man himself. A portion of the story is as follows:

"Then there appeared to them *from the sea*, on the shore of Babylonia, a fearful animal of the name of Oan. His body was that of a fish, but under the fish's head another head was attached, and on the fins were feet like those of a man, and he had a man's voice. The image of the creature is still preserved. The animal came at morning, and passed

longevity is attributed, and the narrative indicates in various ways the rapid tribal development of the race. It will be noted also by a comparison of the fifth chapter with the fourth that two parallel lines of descent are recorded, the one through Cain, and the other through Seth. "For," said Eve, "God hath appointed me another seed instead of Abel, whom Cain slew."

Outline in Gen-  
esis of the  
Adamic races.



The Adamic descendants are traced in the fourth chapter down to the children of Adah and Zillah, the two wives of Lamech; that is, to Jubal, "the father of such as dwell in tents and such as have cattle;" to Jubal, "the father of all such as handle the harp and organ;" and to Tubal-cain, "an instructor of every artificer in brass and iron." Here the narrative ends, and the other branch of the Adamites, that is, the descendants of Seth, are taken up, down to Noah, the son of Lamech. The recurrence of common names in both lines of descent introduces a good deal of confusion, but the line of Seth, considered by itself, is straight through ten generations.

The Hebrew narrative of the Adamite and his posterity to the Deluge is here cited in part because of its striking parallelism with the secular tradition handed down by Berosus. This celebrated ancient author was a priest of Bel, at Babylon, and flourished there in the first half of the third century before our era. He was a native of the country and well acquainted with its earlier and later history. He knew as well as one might know in an uncritical and credulous age the annals not only of the later Babylonian empire, but also of the older Chaldæan dominion which had been established on the lower Euphrates in the very earliest stages of human history.

In that part of his work devoted to the chronology of the Chaldæan kingdom, Berosus describes the epoch before the flood; for, like the Hebrew author of Genesis, he has an account of a universal deluge of waters, through which a single great captain named Xisuthrus, with his family, came safely in a ship and descended from a mountain, to re-

people the earth. To the antediluvian era Berosus also assigns a dynasty of ten kings. To these reigns of fabulous duration are given the ten eons of their dominion, being as follows:

	Years.
1. Alorus, a Chaldæan, who reigned.....	36,000
2. Alopapus, son of Alorus, who reigned...	10,800
3. Almelson, a native of Sippara, who reigned.	46,800
4. Ammenon, a Chaldæan, who reigned....	43,200
5. Amegalarus, of Sippara, who reigned...	64,800
6. Daonus, of Sippara, who reigned.....	36,000
7. Edorankhus, of Sippara, who reigned...	64,800
8. Amempsinus, a Chaldæan, who reigned.	36,000
9. Otiartes, a Chaldæan, who reigned.....	28,000
10. Xisuthrus, the Chaldæan Noah, who reigned .....	64,800

A total of ten kings, reigning.....431,200

The general conformity of these two schemes of ethnic descent must be patent at a glance. The Chaldæan and the Hebrew accounts of this dim age of an ancestral race agree in the important consideration of ten successive patriarchal kingships. It is easy to observe the more moderate conception and outline of the Hebrew scheme of descent and longevity, and the wild extravagance of the Chaldæan tradition. But the pattern and outline of the progress of the race are alike in both, and in either case this line of long-lived mythical rulers ends with a righteous captain, whose virtue and wisdom, in the wickedness of his surroundings, enable him to go safely through the waters of a deluge and re-people a new world on the hither side of the catastrophe.

The identity of the two narratives in their essential spirit and leading features can hardly be doubted. We thus see in the maritime parts of Beluchistan, at a time almost unimaginably remote, even from the standpoint of the oldest historians who have attempted to trace the course and development of mankind,

Value of the Berosian account of the Chaldæans.

Ten Chaldee mythical kings; conformity to the Hebrew scheme.

The headmen of the Adamite clans.

the apparition of a ruddy race of men expanding through a mythical age of unknown duration, and entering at least three stages of civilizing activity. Jabal was the "father of such as dwell in tents and of such as have cattle." This is manifestly an outline of the beginning of the pastoral life which occupied so large a part in the subsequent history of the races of Western Asia. Ju-

instruments as have pleased the senses of men in all subsequent ages with the concord of sweet sounds.

To the same epoch, or a little later, in the tribal evolution, is assigned Tubal-cain. He is represented as a worker in brass and iron. Question of the primitive metallurgy of the Semites. Very notable is the fact that the composite metal *brass* is here mentioned as the material of the earliest



THE FATHERS OF "SUCH AS DWELL IN TENTS"—OLD SEMITIC TYPES.

bal, the brother of Jabal, is represented as being the "father of all such as handle the harp and the organ." From this we are to infer that at least the musical branches of art made their appearance in the East contemporaneously with the development of the pastoral life. The makers of tents and the keepers of flocks and herds discovered harmony, and became the makers of such

metal work of the Adamites. Iron also is named as the other substance in which Tubal-cain and his successors became proficient as workmen. It would appear in accord with right reason that both of these names of the metals are erroneously deduced from some original which has been misunderstood in translation. The primitive men could hardly have begun as workers in *brass*, since the

copper and zinc of which it is composed must first have been employed and the ratio of their combination discovered before brass could have an existence. Moreover, the extraction of iron from the matrix is a process so difficult and so late in the order of metallic discovery that, as we have already seen in another part of this work, it follows and does not precede the discovery of copper, of tin, of the precious metals, and, indeed, of nearly all the other metallic elements common to the surface of the earth.

At the close of this Adamite period in the history of the Ruddy race we come to that great catastrophe, the Deluge of waters. In respect to this event tradition was busy throughout the primitive world. Among almost every people there was a mythical reminiscence of a flood by which their ancestors were destroyed from the earth. The diluvian legend generally assigned the wickedness of the race as a cause of its overthrow. The tradition of such a visitation always presented itself most emphatically in countries so situated as to be subject to inundations. Perhaps the greatest seat of such a belief was in the valleys of the Lower Euphrates and Tigris. It was from this region that the Hebrew account of the Deluge was transmitted by Abraham and his posterity to the west, and there recorded in the annals of that people. At the same time a like tradition was handed down among the Chaldæans, and at a later epoch in history was repeated and modified by the Assyrian seers, on the Upper Tigris. The story of Deucalion and his survival of the Deluge was rife among the primitive Greeks, and other primeval nations had like accounts of a like disaster.

To this general dissemination of the

belief in a deluge of waters by which the race of man was swept away, the ancient Egyptians furnish a remarkable exception. Their legends and mythology furnish no account of any such event, either in the primitive or later ages of their country. It is easy to see in this fact the action and re-action of natural and supernatural elements in the primitive history of a people. The Nile is, perhaps, the only river in the world whose swellings and fallings obey a certain law, the knowledge of which secures the inhabitants of the valley from disastrous consequences. The regularity of the coming and the recession of the waters furnishes a guarantee against all harm. A curse is thus converted into a blessing; and the river becomes, instead of an object of dread and superstition, an object of reverence and worship! The uniformity of nature stood guard over the welfare of the people who built the pyramids, and even if a prehistoric deluge had occurred before the civilized development of the Egyptian race, the tradition of it would have perished in the presence of the future beneficent conduct of the great river. In other valleys of the East irregularity rather than uniform flood and subsidence was the law, and wherever, as a result, disaster on many occasions and from natural causes must necessarily have ensued to the people living on the river banks, the tradition of a great catastrophe overwhelming all would be perpetuated and handed down as a distinct and memorable crisis in the past history of the world.

However this may be, we find a remarkable conformity between the Chaldæan and the Hebrew account of the disaster by which the race of man was swept away at the close of the Adamite

Dissemination  
of traditions of  
a deluge.

Why the Egyptian race possessed no such tradition.

era. The well-known narrative of the Deluge given in the seventh chapter of the Book of Genesis need not be here repeated. Nor is it desirable to recount in full the story of the flood as recorded by the ancient Chaldeans and Assyrians. The principal features of the

General harmony of Chaldean and Hebrew accounts of the flood.

destroy the world by a flood. The great captain was ordered to bury the records of his country in Sippara and to embark in a ship, with his kindred and friends. He was also directed to take into the ark with him all manner of living creatures. When everything was completed and the ship, nine thousand feet in length, was



MESOPOTAMIAN LANDSCAPE.—VIEW OF MOSSUL.—Drawn by E. Flandin.

latter, however, will serve to show the fundamental identity of the three principal narratives of the Deluge. The Chaldean and Assyrian accounts differ in this, that the latter assigns as a *cause* for the destruction of the human race by a flood the wickedness of mankind in the earth, whereas the older, or Chaldean, account simply recites that the god Bel revealed to Nisuthrus his purpose to

closed, the Deluge came. In course of time Nisuthrus sent out birds, which at first came back without evidence of resting, but afterwards with mud on their feet. At length the ship rested on the Gordyæan mountain, and the inhabitants came forth to repeople the earth.

In the Assyrian account the divinity who revealed the flood is Hea, and the Assyrian Noah is named Sisit. He, as

in the case of his Chaldæan prototype, gathered all manner of living creatures and seeds of the vegetable world into his ship. Then Samas, the sun god, sent the flood. There was a great storm that went over the nations, and the waters reached up to heaven. Even the gods had to ascend to their highest thrones and sit there until the subsidence. All living things outside were drowned. At last the waters abated; the ark rested on Mount Nizir, and Bel led forth Sisit by the hand to repopulate the country. It is sufficient to note that the narrative given of the great catastrophe in the seventh chapter of Genesis is much more serious and elevated than the two forms of tradition which were preserved to after times in the valleys of the Euphrates and the Tigris.

Apart from these traditional accounts of the manner in which the Adamite race came to its termination, we turn to a more scientific aspect of the question. It appears that before the destruction of this people, before they had reached the scene—at least the central scene—of their disaster, they had already begun to part into the three branches of ethnic life already mentioned as the major divisions of the Ruddy family of mankind. It is in evidence that the Noachite race, from its old maritime *débourchure* on the shores of Gedrosia, the modern Beluchistan, made its way first to the north, in the direction of the Carmanian desert, and was thence deflected to the west. It was here, on the tableland of ancient Iran, in the district of country east of Yezd, that the ancestors of the Ruddy races of mankind seem to have felt for the first time the impulse of westward migration. Here, at any rate, they were deflected toward the

setting sun. Here, too, they appear to have begun that threefold ethnic separation which was destined, in far ages and countries, to give to history some of its most vigorous and highly developed peoples.

If we fall back again for a moment upon the classification the nomenclature of which is derived from the three sons of Noah, we find here the beginnings of the division. So that if we regard the valley of the Euphrates and the Tigris as the center, or seat, of the great diluvian disaster which subsequently occurred, we must conclude that the Ruddy peoples who made their way into these valleys from the east had already separated, or at least begun to separate, into Hamites, Semites, and possibly Japhethites. The adoption of such a hypothesis would tend to explain or remove the difficulty which historians, ethnologists, and linguists alike have experienced in the attempted classification of the most ancient peoples of the Tigrine and Euphratine valleys. This work has never been satisfactorily and conclusively accomplished. In a general way it has been decided that the old Chaldæans were Hamitic in their origin and development. In like manner the preponderance of evidence has tended to show that the Assyrians were Semitic in their race descent and character. But the evidences also indicate much mixture and confusion in the primitive history of these regions.

It is extremely difficult, either by means of historical traditions, ethnic traces, or linguistic proofs, to determine satisfactorily to which branch of the original threefold division the Assyrians and the Chaldæans respectively belong. Moreover, at later periods, when the Hamitic race has well emerged from this

The Assyrian tradition departs from the older forms.

Uncertain ethnic relations of early Mesopotamians.

Early division of the Adamites into three branches.

Point of dispersion eastward from Assyria and Chaldæa.

region, and is discovered with all its peculiar traits in Southeastern and Southern Arabia and in Egypt, and when the Semites have likewise appeared, with their distinctive peculiarities well developed, in the West, the course from which the two races have manifestly come into subsequent fields of activity, when traced back-

the center, and the Japhethites close up to the Caspian.

From these evidences and by this just train of reasoning, it would appear conclusive that the primary division of the Noachite family took place in the uplands of ancient Iran, at a point more than ten degrees of latitude eastward



IN KURDISTAN.—VIEW OF LITTLE ARARAT, WITH GROUP OF KURDS IN FOREGROUND.—Drawn by Alfred Paris.

wards, shows a conjuncture *much to the east* of the Mesopotamian region and not in the valleys of the Euphrates and the Tigris. This is to say that at the time when the Hamite, the Semite, and the Japhethite races made their way *through* Mesopotamia to the West, they were already separated geographically, the Hamites being on the south, pressing close to the Persian gulf, the Semites in

from the Mesopotamian region, which may be regarded as the center of the traditions of the Deluge. It is safe, therefore, in the ethnic scheme, to mark the division of the Noachites far beyond and to the eastward of the low-lying alluvial plains of Mesopotamia.

If, then, the observer should take his stand in the Arabian desert west of Mesopotamia and look thitherward in

the earliest epoch of human development, he might see emerging from the shadows the vanguard of two races, with possibly a third on the north. The Hamitic division of mankind would be seen making its way to the westward, close to the head-waters of the Persian gulf and bending, as if by preference, to the south into Old Arabia, next to the sea. The central phalanx would be the descendants of Shem, heading for the west, and, perhaps, deflected somewhat to the north, on its way from Ur of the Chaldees into Canaan. The Japhetic division, if seen at all, would be well to the north, close to the southern shores of the Caspian, and bending in a north-westerly direction toward the eastern limits of the Black sea. This may be called the Noachite dispersion of the human race. The lines of its progress westward lie between the southern extremity of the Caspian and the northern limits of the Persian gulf. This region is to Europe and Southwestern Asia what the wrist is to the extended palm. Mesopotamia, considered longitudinally from east to west and in connection with Kurdistan, is a *strait*, and through this strait the streams of the Ruddy races of men flowed out toward the open regions in the prehistoric ages.

It is from this point of view that we may, in part at least, apprehend the ethnic characteristics of the primitive peoples of Elam and Chaldæa. Through these most ancient countries the Hamitic division of men made their way in their earliest departure and migration from the parent stock. It is, perhaps, safe to say that the Elamites were the first development of a Hamitic nationality in the world. This earliest lodgment of the oldest branch of the

Issuance of the Noachites to the west.

Probable directions of the Hamitic dispersion.

Noachites was in the country afterwards called Susiana by the Greeks, and the dominion established here remained for many ages a seat and stronghold of the primitive race. Historical traditions indicate that the Hamites came into this region by invasion, and that they displaced, by conquest, the original Semitic and possibly Turanian peoples who were there before them.

This view, however, is a doubtful hypothesis. As already stated, it is likely that the disentanglement of the Semitic and Hamitic tribes had not yet been completely effected when the Elamite nationality was founded; and it may well be confessed that Semitic influences were afterwards discoverable in the development of what was truly a Hamitic dominion. Geographically considered, the country here referred to was bounded on the north by the river Diyalah, on the east by the Kebir Kuh mountains, on the west by the Tigris, and on the south by the Persian gulf. It was a low-lying country, fertile and inviting, identical almost in character with those other regions of the world—Chaldæa, Southeastern Arabia, the valley of the Nile—where the Hamites established in subsequent ages the seats of their dominion.

Traces of ethnic admixture in primitive Elamites.

Primitive Assyria may be assigned to the Semites. Asshur was the son of Shem. The position of Assyria, east of the Tigris rather than in Mesopotamia Proper, would indicate its planting by early tribes of the Semitic race coming from the east. There are evidences that such a dominion, north of the Greater Zab and east of the Tigris, was planted as early as the fourteenth century before our era.

First distribution of the Semites and Japhethites.

The Japhetic branch is generally re-

garded as the oldest division of the Noachite family. The movements of this race have been by far the most complicated and difficult to trace. The first deflection from the parent stem was doubtless to the north or northwest of the common stream flowing westward. The point of departure of the Japhethites has already been indicated. It is more than likely that their first course after separation from the ancestral tribes was so well to the north as to bring them into contact with the lower extremity of the Caspian, in which event they would be turned back or deflected more directly toward Northern Asia. It may be fairly conjectured that this geographical circumstance lies at the bottom of the formation of that great ethnic whirl, or center, from which the Aryan races of subsequent times were all descended. It is not purposed in this connection to trace out the after ramifications of the Japhethites, or, indeed, of the cognate races of the south. It is sufficient to note that from the Japhetic center the subsequent migrations took place in both directions, east and west, while the Semitic and Hamitic movements followed a more orderly progress, the one toward Canaan and the other into Southeastern Arabia.

It has been intimated above that the Old Chaldæan dominion on the Lower Euphrates was Hamitic in its origin. Several circumstances besides the mere course which the tribal migrations were then pursuing may be cited for assigning Chaldæa to the Hamites. Historical evidence shows almost conclusively that there were race prejudices and frettings between the Chaldæans and the Assyrians on the north. The two peoples were hardly ever at peace. There was a divergence of language, of tradition, and

of religious ceremonies, but at the same time such striking analogies in all as to indicate close affinities of race.

It was the preponderance and pressure of the stronger Assyrian nationality on the north that, at the close of the fourteenth century B. C., finally overpowered the Chaldæan dominion and replaced it with Semitic influence in the south. By careful observation we are able to see, long anterior to this period, the race troubles between the northern and the southern people. There are indications of invasion and oppression on the part of the Assyrians respecting their southern kinsmen. It is not improbable that these difficulties were at the bottom of some of the earliest migrations to the west. Perhaps Eber, the father of Abraham, had drifted from beyond the Tigris into the low-lying country of the south. His name is said to signify "from beyond;" that is, from beyond the rivers. Doubtless he was either an immigrant into the low country or an invader. A family so situated, expanding into a patriarchal tribe, would soon find itself with unpleasant surroundings, and a cure for local troubles might be sought and found in a further migration into the freer west. Hence the Abrahamic exodus from Ur of the Chaldees.

Another proof of the race diversity already existing between the Old Chaldæans and the people of Asshur is found in the monumental remains of the two countries. There is already a clear departure in the typical physiognomy of the Chaldæans and the Assyrians. The former are like the Elamites in personal characteristics, while the latter are of the well-known Semitic type, with hints of Medo-Persian modifications. It is easy for the ethnographer to see in the

Race troubles between Northern and Southern Semites.

Differences in remains of Chaldæans and Assyrians.

Indications that the Old Chaldæans were Hamitic.



features and person of the ancient Chaldæan the antitype of the Cushite, the Old Arabians, the Hamitic Canaanites, and even the Ethiopians and Egyptians. It will be readily agreed that the Semitic peoples became, in the course of time, predominant throughout Mesopotamia. It is likely that the Hamitic race, by pressure from the north, became attenuated even to actual separation around the head of the Persian gulf, and that the Elamite dominion on the east preserved the principal, if not the only, remnants of that race beyond the meridian of Chaldæa and Assyria.

Several facts of some interest come to light on an examination of the ethnic names of the three branches of the Noachite family. The word Shem means a "name," or more properly, "sons of a name." The sense is, that this division of the Noachites was an aristocracy *having a name*, that is, a lineal descent from reputable fathers, as distinguished from the no-name, or base-born, descendants of other stocks. The early Semites evidently regarded themselves as peculiarly the representatives of the Noachite race, and perpetuated the belief in the nameless, that is, the gentile, character of the cognate families of their own descent. The innuendo was directed against both the Japhethites and the Hamites, particularly against the descendants of Canaan in the west, whom the sons of Shem afterwards overcame and expelled from their territories.

The evidence of this race contention and feud is plentifully scattered in the Hebrew writings. The old prejudice lies at the bottom of the relative priority of the sons of Noah. As a matter of fact, the Japhethites were the eldest, the Hamites second, and the Semites

the youngest division of the Noachite family. But there was a constant effort, extending through many centuries, on the part of the Hebrew scribes and chroniclers to change this order and to give to Shem the rank peculiar to the eldest son. In the biblical ethnography the order of the three descendants is always given thus: Shem, Ham, Japheth. But it will be observed that even in the tenth chapter of Genesis, while the first verse preserves this order, giving priority to Shem, the analysis of tribes which immediately follows places Japheth in his true position, and assigns the place of youngest son to Shem. Such primitive quarrels as to the seniority of descendants were very common among the early families of men, and are of little value to modern scholarship except as illustrative of a striking and persistent feature of organization and belief existing in the earliest ages of human development.

All the ancient nations strenuously insisted that they were respectively the most ancient of all. Priority seems to have been an idea which sufficed to establish right, and make all things legitimate in primeval society. "We were here first, and therefore possess this region, and are greater than you," was the language of every primitive people to its neighbors. As a result of this disposition, claims to extravagant antiquity were advanced by all, and were attested by long lines of successive monarchs, in successive dynasties, extending through fabulous ages. One of the principal devices to make good such claims was to extend the lives of their rulers to hundreds and thousands of years. The Berossian scheme presented above of the Noachite dynasty in Chaldæa down to the epoch of the

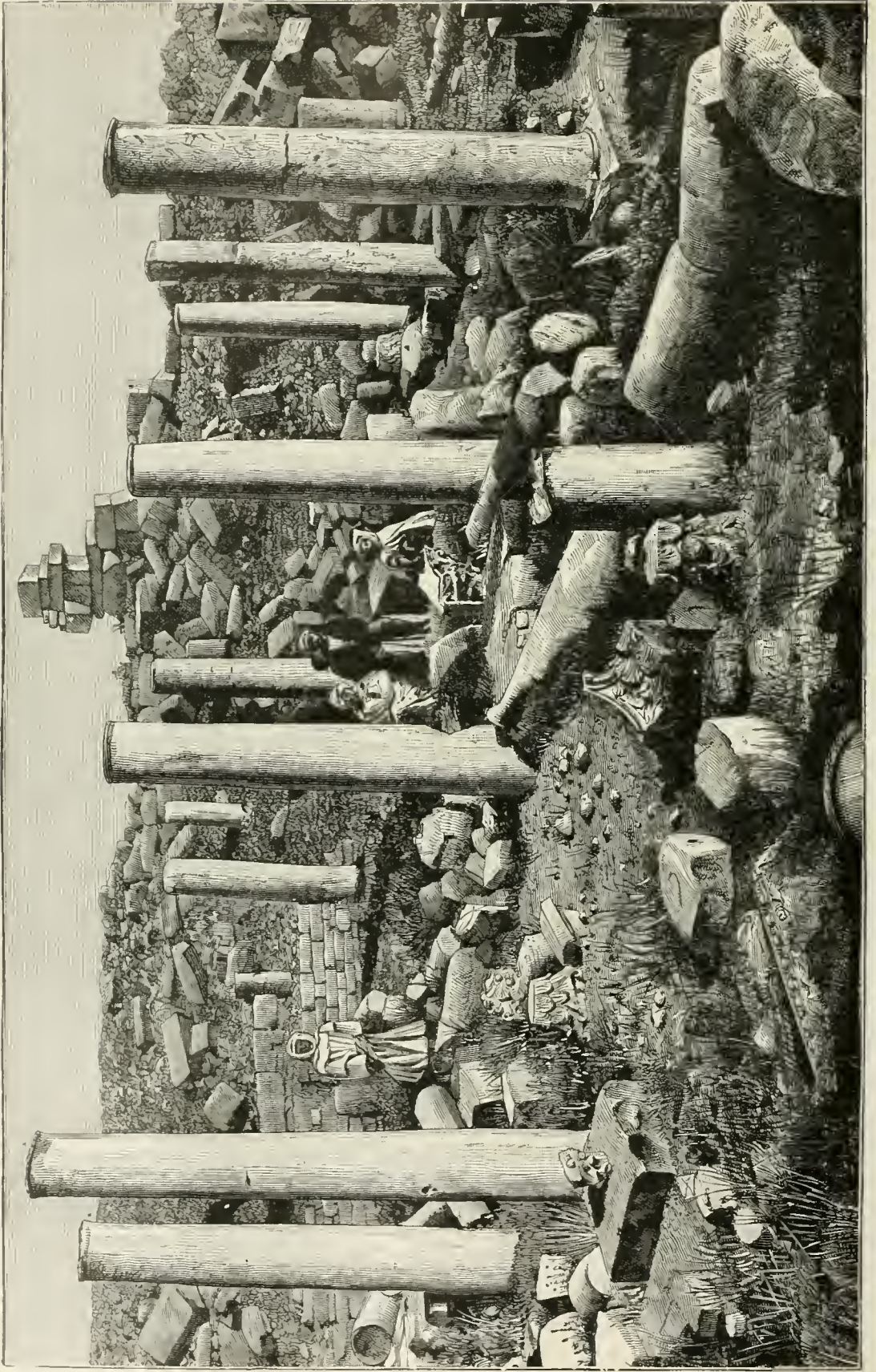
Significance of the Noachite patronymics.

Shem means a "name," or more properly, "sons of a name."

Strife of the ancients for the rights of priority.

Contention for precedence among Shem, Ham, and Japheth.

The old prejudice lies at the bottom of the relative priority of the sons of Noah. As a matter of fact, the Japhethites were the eldest, the Hamites second, and the Semites



HAMITIC RUINS AT DJAMA SIDI OKBA.—Drawn by H. Saladin, from a photograph.

Deluge is a sample of the plan which the ancients adopted to make good their claim of primogeniture and proscriptive right. The Egyptians, not satisfied with even the fanciful expansion of their dynasty, were wont to abandon terrestrial criteria and appeal to the planets for their antiquity. It was a common boast among the Egyptian priests that their people were *Prosclenoi*, that is, pre-Moonites, older than the moon in their occupancy and possession of Mizraim.

In the discussion of the Mesopotamian development of the different branches of the Noachite races, no attempt has been made to establish the chronological relations of the several ethnic divisions in the dispersion, or even to date the general epoch to which they all belonged. In fact, chronology is wholly at fault in considering such primitive movements of the race. As to the time when the Noachites may be said to have been deflected to the west, and to have begun their separation into different peoples, nothing can be alleged with even approximate certainty. The whole tendency of recent inquiry has been to extend the time relations of these early events. It is clearly perceived that the notions formerly prevalent about the time required for the peopling of different and distant regions of the earth, and the development therein of distinct nationalities, must be abandoned as totally inadequate for the ethnic evolutions to which they refer. It is known that the first progress of men gathering into tribes and nations is exceeding slow as compared with subsequent stages of human development. There is an accelerating tendency in the progress of mankind, and this manifest fact emphasizes the necessity of widening and enlarging the whole scheme of ancient chronology.

Chronology at fault respecting the Noachite races.

As it respects the Semitic and Hamitic peoples who created the earliest civil societies in Elam, Chaldæa, and Assyria, a few suggestions may be offered as to the time when the same occurred. If we look at the rise of the Hamitic race in the valley of the Nile we discover the most emphatic evidence of a very remote antiquity. It is safe to affirm that almost as early as four thousand years before the common era the primitive Egyptians, who themselves seem to have taken possession of the valley by conquest, were already a strong and progressive people. They had civil organizations and many well-developed institutions of religion and secular society. They were magnificent builders in stone, and appear to have been, from the earliest date of their *débouchure* into Northeastern Africa, in possession of considerable scientific knowledge. These Egyptians were descendants of the older Hamites in Asia. They came by migration and invasion into the country of their subsequent development. For this movement out of Asia much time must be allowed.

Evidence of great antiquity of Egyptian Hamites.

A greatly extended period must have elapsed between the founding of the first Hamitic societies in Lower Mesopotamia and that subsequent time when the Hamitic tribes, making their way westward through Syria, established themselves in Egypt. It is true that the formal chronology, so far as it has been recovered and reconstructed for the Chaldæan ascendancy, does not by any means reach a period so remote as that of Egypt. But the movement of the race to the westward points unmistakably to the fact that the Chaldæan ascendancy and the dominion of Elam were *long anterior* to the creation of political power in the val-

Probable derivation of the Egyptians from Chaldæa.

ley of the Nile. This indicates for the primitive peoples of Mesopotamia an antiquity far greater than history, or even ethnology in its current phases, has been accustomed to assign or accept.

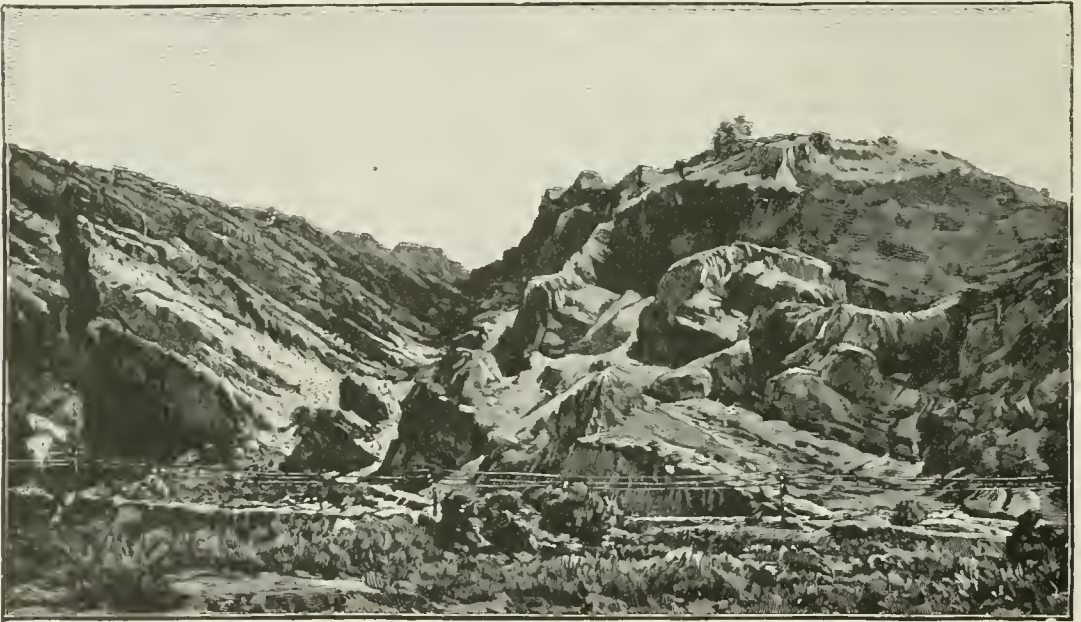
The country lying between Armenia and the head of the Persian gulf furnishes a good example of the influence of physical environment on the movements and development of the early races. Mesopotamia constituted a

Effects of environment on the migrant Noachites.

of the influence of physical environment on the movements and development of the early races. Mesopotamia constituted a

its way, while through the gaps of the Zagros the Semites would precipitate themselves into Upper Mesopotamia.

Before the immigrants would spread an open country, traversed by two great streams of living water, fertile in natural products, and inviting to settlement. The alluvial plain in Lower Mesopotamia would in a special manner provoke to permanent residence from the ease with which multiplying tribes could here support themselves by the resources of the



PASS IN THE ZAGROS MOUNTAINS.—Drawn by D. Lancelot, from a photograph.

natural, perhaps an inevitable, stopping-place in the westward movement of the Noachites. Such was the situation as to make it necessary for them to pause, and to pause meant the growth of fixed societies. On the east of this region the country is defended by the bulwark of the Zagros and Kebir Kuh mountains. It is easy to see how the already half-separated races, drifting from the east, would be impeded for a time by the interposition of the mountain range. Presently, however, through the southern passes, the Hamitic division would make

earth. Adventure would soon carry the still half-nomadic peoples across the country to the western borders. Here, however, there would be a pause. Even the civilized man hesitates long, and the compulsion must be extreme ere he throws himself into the desert. Perhaps of all the natural landscapes presented on the surface of the globe the most forbidding and repellent is the desert.

West and southwest of Mesopotamia is a wide stretch of desert country. It fatigues the eye and scorches the feet. On the north is the Assyrian desert, and

to the south and west stretches away the seemingly infinite waste of Arabia. Here are the fundamental conditions which made Chal-dæa and Assyria a sort of necessity in the progress of the early race. It is not needed in this connection to enter elaborately into the geography of the valleys of the Euphrates and the Tigris and the adjacent upland countries. On the north, from the Caspian to the Black sea, stretch the Armenian mountains; on the south, is the sea; on the east, the Zagros range, and beyond, the great plateau of Iran; on the west, the boundary line is the long stretch of the Syrian desert.

At the time of the development of the early empires in these valleys and for ages afterwards the two great rivers still discharged their waters by separate channels into the Persian gulf. Mesopotamia reached to the sea, and the mouths of the rivers were fully a hun-

Chaldæa and Assyria a necessity of the early peoples.

The Ruddy races plant themselves in Mesopotamia.

dred miles south of the present shore line. Along the banks of these streams, high up to the foothills out of which their upper waters are drawn, especially on the east by a multitude of smaller streams, the earliest, or at least one of the earliest, civilizations was developed in the world. It was the work of the Ruddy races coming from the east. Here they planted themselves at the north and the south, according to their race descent, and became in course of time much more strongly marked by ethnic differences than they were on their first arrival in the country. It is from this region that the different races belonging to the Hamitic and Semitic families of mankind made their way at length into the western foreground of history, where we shall discover them in a somewhat clearer light than that in which they have thus far been revealed. Here, then, is the end of what may be appropriately called the Noachite dispersion of mankind.

## CHAPTER XXV.—THE HAMITIC MIGRATIONS.



IN the current chapter the attempt will be made to trace out geographically the various lines by which the Hamitic race was distributed, first into

Southwestern Asia, and thence through a large part of Northern Africa, to the borders of the Western ocean. The

inquiry will begin with the movements of the Hamitic division of mankind, not from any preference for that race as a dominant people of antiquity, not because their civilization reached a higher

Hamitic races lie nearest the Blacks in race distribution.

stage than that of the cognate races, but rather for geographical reasons. The Hamites were distributed to the south and west, and are thus the southernmost branch of the Ruddy races. It will, therefore, be convenient to begin on that side of the ethnic distribution which lies nearest to the lines marking the dispersion of the Black races, and thence to pursue the inquiry northward until the Hamitic movements have been exhausted. In the next place, the various branches of the Semitic family may be taken up and considered in like order, leaving the Aryan, or Indo-European, divisions of mankind, most important of

all, historically considered, for the concluding chapters on distribution.

The historical circumstances which gave rise to the first departure of the Hamitic emigrants from Lower Mesopotamia for the southwest are not known. It is not unlikely, however, that the pressure of the stronger Assyrians on the north, who by repeated invasions and conquests reduced the old Chaldean empire to a condition first of dependency and then of actual subversion, may have been the occasion, if not the real cause, of the first migratory movements of the Hamites in the direction of Arabia. It is not known whether this primitive impulse was coincident with the Chaldean ascendancy in Lower Mesopotamia or subsequent thereto, but the former supposition is more in accord with right reason and with such other facts as bear upon the question. At any rate, the first dispersive migration of the Hamitic family was from the primitive seat of the Chaldeans toward the south and into the maritime parts of Arabia.

It is likely that the first progressive people in the Arabian peninsula were the descendants of the migratory movement here described, and that they belonged to the maritime parts adjacent to the Persian gulf. The primitive Arabians of the eastern parts next to the sea were of Semito-Hamitic origin, and that they antedated the Central and Western Arabians may be safely inferred from the ethnic movements then prevailing in the world, and also from an old preference of the early races for the seashore and the regions adjacent. A glance at the geography of the peninsula will show a range of mountains between the modern Arab state of Hasa and the great desert. It was through the strip of

territory lying between these mountains and the Persian gulf that the earliest tribes of the Hamitic family made their way to the southwest. In the lower part of the peninsula the migration divided, throwing off one branch into the modern province of Oman, while the major division was deflected somewhat in conformity with the coast line to the southwest, toward the modern state of Yemen, adjacent to the strait of Bab-el-Mandeb. Such in general was the direction of the oldest ethnic line in the Arabian peninsula, and it was from this primitive migration that the Old Arabs, as contradistinguished from the more recent Ishmaelites, were derived. The former were, in general terms, a maritime people, and to the present day the distinctions between their descendants and the Arabians of the regions bordering on the Red sea are sufficiently marked.

Throughout the whole of Southern Arabia, especially toward the southwestern termination of the peninsula, are found linguistic traces of this ancient people. A class of primitive writings, called *Himyaritic Inscriptions*, testify unmistakably of the presence of a peculiar people in the regions where they are found. These writings, generally engraved on stone, have been one of the most interesting and puzzling studies presented to modern students of language, and there has been great diversity of views in regard to classifying the original speech to which these writings belong. Many most eminent linguists have regarded them as of a Semitic origin. Another plausible view is that of Renan, who holds that the inscriptions in question differ too widely from Arabic and cognate varieties of Semitic speech to be classified therewith.

These facts open a question of much

Historical reasons for the migrations of the Hamites.

Primitive Arabian population of Hamitic descent.

Himyaritic writings show traces of Hamitic production.



LAND OF THE JOKTANIANS.—MOUNTAIN VIEW IN HASA AND CAMP NEAR HAIL.—Drawn by G. Vaillier.

G. Vaillier

importance respecting the affinities of the Hamitic and Semitic languages. It appears that the linguistic separation of these two races was never so complete as the division of either of them from the Aryan families of the north. It is likely that in manners, institutions, language, and laws the primitive Hamitic tribes held together with their Semitic kinsmen until common linguistic forms had been in a considerable measure fixed in each, from which circumstance considerable similarity would appear in the subsequent development of the respective languages. On the whole, it is safer to classify the Himyaritic inscriptions with the other Semitic dialects, and to admit the influence of the Hamitic Arabs in giving particular features to the writings of Southern Arabia.

Wherever the inscriptions in question may be placed in linguistic classification, it is certain that their origin is extremely ancient, and that they were deduced geographically from Lower Mesopotamia. The line of these writings has been traced from about the junction of the Euphrates and the Tigris all the way around through Southeastern and Southern Arabia to Yemen, and even across into Africa. The explorer Loftus found a sandstone slab covered with Himyaritic inscriptions in one of the mounds of Warka, in ancient Chaldæa. Two specimens of gems covered with like characters are preserved in the British Museum. Coghlan and Playfair made similar discoveries at Amran, near Sana. In short, the identity of the writings along the line of the extreme southern dispersion of the Hamites is clearly established.

The Himyarites, as a people, occupied the southwestern extremity of the Arabian peninsula. They are nearly iden-

tified geographically with the inhabitants of the modern Yemen, though the Himyarites were further south and more maritime than the modern Arabic state. It will thus be seen that the Hamitic branch of mankind which we have been tracing was brought, in its southwestern migration, to the southern neck of the Red sea. It was not likely that so narrow a strait of water would prevent the further dispersion of the ancient stock. The opposite African shore is embraced in the small maritime districts called Samara. More generally, it is Abyssinia to the north and Somaliland to the south.

The fact has long been recognized that there was an ancient race identity between the peoples inhabiting the countries on the two sides of the strait of Bab-el-Mandeb. The belief that the Old Abyssinians were of Semitic derivation, and the knowledge that they were of the same race with the people of the Himyaritic district in Arabia, has led to the conclusion that the latter were Semites, and this belief has been perpetuated by the discovery of strong Semitic traces in the Himyaritic writings. The Abyssinians and other ancient Ruddy races of this region of Africa were clearly in some sort of race affinity with the Egyptians, the Canaanites, and the Old Arabians, as well as with the Semites proper. The whole question clears up on the hypothesis that this most southerly division of the Noachite descendants was Semito-Hamitic, and that the Semites proper were dispersed toward the south about to the center of the Arabian peninsula. It is true that some ethnographers have carried the Ishmaelite migration southward along the eastern shores of the Red sea to the

Affinities and connection of Hamitic and Semitic languages.

Wide distribution of the Himyaritic inscriptions.

Geographical position of the ancient Himyarites.

Race kinship of Southern Arabs and Eastern Africans.



strait, and thence into Africa, which would bring the Semitic tribes into the same country with the cognate Hamites, but it may be doubted whether the true line of Ishmael was ever carried so far in that direction.

If we attempt to trace the Hamitic dispersion beyond the crossing into Africa, we shall find the migration pursuing the same general course to the southwest which it had taken while in Southern Arabia. It appears that the peoples of this stock were thinly distributed from the

Distribution of Hamitic blood in Eastern Africa.

bearing divisions of the Black races. The ancestors of the Hottentots and the Negroes made their way from the east through this same region of Gallaland, and their migratory intersection with the south-bearing progress of the Hamitic family must have constituted one of the earliest, if not, indeed, the very first, contact of the Ruddy with the Black races of antiquity.

Meanwhile Syria, almost directly west from Chaldæa, had also been pre-occupied by Hamitic tribes. While the movement into the maritime parts of



DESERT COUNTRY OF THE SYRIAN BORDERS.—THE PLAIN OF TORTOSE.—Drawn by A. de Bar, from a photograph by Lockroy.

strait of Bab-el-Mandeb, in the general direction of the Victoria Nyanza, and that the westward progress of the Hamitic race was finally checked in this region. The Somalian peoples of the extreme eastern portion of Africa were doubtless derived from a deflected branch of this Semito-Hamitic migration; and, in general, the Noachite races of Gallaland had the same origin.

One peculiar feature of this African distribution of the Ruddy peoples from Arabia was the fact that the lines of their progress to the southwest into the continent must have crossed the westward-

Crossing of the ethnic lines in Gallaland.

Arabia had been going on, another division of the Hamitic stock had made its way out of Mesopotamia to the west. It appears that this migration divided in the desert country on the Syrian borders, one branch being deflected into Western Arabia, and the other pursuing its direct course toward the sea at Suez. If we take up the first division, we shall find the line of its dispersion drawn through Southeastern Syria and thence in the direction of Medina and Mecca. There can be no doubt about the race descent of the original peoples of this region. They were prior to the first Semitic mi-

Syria is pre-occupied by Hamitic immigrants.

grations or invasions of the west; and the aboriginal substratum of the more recent Ishmaelites and Joktanians was undoubtedly of Hamitic origin.

It was the peculiarity of the westward course of the Hamites from Central Mesopotamia that they divided north and south in their progress. At first, the volume of national life which flowed off toward Syria contained the potency of the Western Arabs, the Canaanites, and the Egyptians. The Canaanitish deflection from the main migratory line was northward, and occurred in the region of Central Syria. The northward-bearing branch from this point entered Canaan Proper and Phœnicia; and here began the development of one of the most prominent divisions of the Hamitic family.

Traditional Canaan takes its name from the son of Ham. In the chronicles of the Hebrew race this division of the Hamites is most prominent. They were greatly disparaged by the early annals of the Hebrew race, and through all subsequent ages were despised and contemned by them as gentiles and servants of servants. It was against these descendants of Canaan in their tribes and generations that the wrath of invading Israel was turned, after the Egyptian exodus.

The progress of the Hamitic migrations to the northwest, around the eastern extremity of the Mediterranean, introduces the inquirer to one of the most difficult passages in the ethnic distribution of mankind. The problem is the extent of the migration in the direction of Asia Minor. Ethnographers are not agreed as to how far the Hamitic movement in this direction continued. One

class of writers are of the opinion that the traces of this branch of the human family extend no further than the southern regions of Asia Minor, or, at most, the eastern borders of the Ægean sea. Some are of opinion that the line was deflected into the island of Cyprus, and there terminated so far as its westward progress was concerned. Still another class of inquirers hold that the Hamitic progress extended westward through the Ægean archipelago and into Southern Greece. This view of the case makes the Pelasgians, to whom considerable space was devoted in a chapter of the preceding book, to be the descendants of the Hamitic stock. It will be remembered that the view of a northern, that is, a Thessalian, origin for the Pelasgic race was advanced in the former account of that people. This view of the case is not fully established. Nor can it well be said that the opposite opinion, namely, that the Pelasgians came from the archipelago into Argolis, and thence continued their progress to the West, is more than tentative.

Winchell, in his *Chart of the Progressive Dispersion of Mankind*, holds to the view that the Hamitic migration was carried through the southern parts of Asia Minor, and thence by the Cyclades into Peloponnesus. From Southern Hellas this distinguished ethnographer extends the Hamitic line first into Northwestern Greece, where, in Epirus, as we have seen, one of the principal Pelasgic developments occurred. But the main line is carried across the Southern Adriatic into Italy, whence one branch is turned to the left, to furnish an aboriginal stock for the island of Sicily, while the other line bifurcates on the two sides of the Apennines, giving in Central Italy an origin for the prob-

Divisions and resultant plantings of the migration.

Ham founds Canaan; Hebrews disparage their kinsmen.

Extent of Hamitic migrations into Asia Minor.

Winchell's views regarding the European dispersion of the Hamites.

lematical Etruscans and their primitive development. It may be possible, even probable, that this scheme furnishes the best solution as to the race-origin of the first peoples of the Ruddy race in Southern Greece and Central Italy. If so, we may regard the valley of the Po, the inland region of Etruria, and the remote parts of Sicily as the westernmost limits

Egypt. But a better view of the whole subject shows that if any such race movement occurred it was of a later, and perhaps a Semitic, origin, from Arabia into North Central Africa.

The original occupancy, then, of the Nile valley by the Ruddy races was certainly by the incoming of the Hamites, first into the eastern delta, and



ROUTE OF THE HAMITE MIGRATION, NEAR SUEZ.—LAKE TIMSAH.—Drawn by Dom Grenet.

of the European excursion of the Hamitic race.

We now turn to the central progress of the same race to the west. From Syria, the Hamitic movement continued directly through the isthmus of Suez into the valley of the Nile.

The race enters and occupies the Nile valley.

It has been believed by some historians that the invasion by which the aboriginal Egyptians were expelled from their country was carried, in part at least, across the Red sea into Central, or even Upper

thence southward along both banks of the river to Upper Egypt. The progress of Hamitic civilization from the vicinity of Memphis and Cairo southward to its extreme limit at Elephantis has been traced by ethnographers and historians until its course and character are no longer doubtful. The oldest occupation was in that part of the delta lying next to the isthmus, and from hence the progress of the race was constant until the whole valley was populated by tribes of a common descent.

The account of the original dispersion of mankind may well pause at this point, that the attention of the reader may be once more called to *the extreme antiquity* of the movements here described. It is worthy of special note that the civilization of Egypt tended, in virtue of its own character, to transmit better evidences of time-relations and the succession of events than that of any other country. One of the fundamental ideas of the civilization created in the Nile valley was architectural grandeur, and closely connected with this was the notion of perpetuating the records of human life by means of colossal tombs and imperishable inscriptions. Fortunately the granite quarries of the country, especially in Central Egypt, gave opportunity to gratify this disposition, if indeed the presence of such materials did not first provoke the habit. The peculiar priestly organization of the race, in close union as it was with the secular dynasty, also tended to the creation and preservation of records.

From these circumstances the great antiquity of Egypt became a marvel to the earliest historians and travelers of other races. No doubt the Egyptian scribes profited by the credulity of the age in which they flourished, and enlarged as much as possible the ancient records which they possessed. When Herodotus came into the country, about the middle of the fifth century B. C., he was shown the records of the old dynasties, from the founding of the first by Menes down to the reign of Seti. From this scheme he made up his estimate of the antiquity of the nation, producing as a result something over 12000 B. C. as the epoch of Menes. Four centuries afterwards, when Diodorus traveled

in Egypt, he also studied the records of the country, and made out the founding of the first dynasty to have been more than twelve thousand years before the common era. According to Manetho, a native historian, the span between Menes and our era is reduced about one half, the accession of the first dynasty being fixed at about 5706 B. C.

The mediæval historians did nothing with the question, but in recent times many learned inquirers have taken up the subject, and the result has been the almost concurrent agreement of modern

Modern inquiry fixes approximate date for Menes.

scholars that the epoch of Menes, founder of the oldest dynasty, goes back to the year 3892 B. C. This date is now accepted as approximately correct. Indeed, it appears to be rather within than beyond the true limits. Meanwhile a fact in astronomy has thrown perhaps the strongest light on the true era of the founding of Egyptian nationality. By the rate of the great movement called the precession of the equinoxes, it is now known that the equator of the heavens accomplished on the ecliptic a complete circuit in about twenty-five thousand years. It is also known that a certain star, which was polar at the time of the building of the oldest pyramids in Lower Egypt, has been, at the present time, turned by torsion just about one fourth of the way around the circuit of the heavens. This would imply the lapse of a little over six thousand years since the construction of the first pyramids; and the date indicated would be somewhat more than four thousand years before the common era.

It is safe to fix upon this date as a fair approximation for the time of the incoming of the tribes and the beginning of the great architectural era of the Hamitic race in Egypt. And it will be

Extreme antiquity of ethnic movements here described.

Old travelers marvel at the age of Egypt.

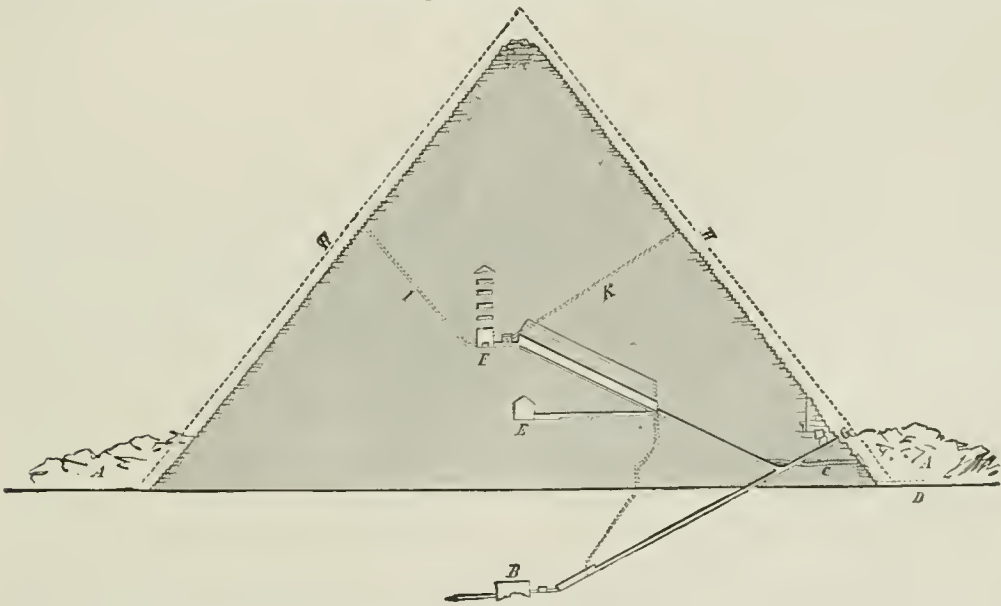
remembered that the ethnic movements which have furnished the subject-matter of the preceding paragraphs belonged to a still earlier period in the history of the race; all of which facts tend most strongly to emphasize the necessity of a great extension and widening out of the whole scheme of ancient chronology.

It is difficult for one removed to modern times and distant countries to realize the nature and method of the ethnic migrations of antiquity. It is not purposed in this connection to attempt to

True nature of primitive tribal migrations.

hard to obtain. But ever and anon this rapid volume of the moving race, most rapid in the vanguard, would flow into a region which, from its geographical situation and its fertility, would invite to settlement. Here there would be a pause. The tribe would spread over the surface of the country like a lake of water running into an inclosed lowland.

For a long time the incoming tribes would pour along and discharge their volume into the reservoir. If the situation were sufficiently auspicious, there would be, in a short time, the begin-



VERTICAL SECTION OF THE GREAT PYRAMID FROM SOUTH TO NORTH.

A, débris; B, vault; C, passage of entry; D, abutments; E, chamber of the queen; F, chamber of the king; G, ancient entrance; H, primitive facing of granite; I, K, ventilators.

depict the actual manner of tribal removal from place to place to final settlement. One great feature, however, of the migratory progress of ancient peoples was the alternate speed and cessation of the movement. Sometimes the migrating horde would pour along like a swift stream, traversing in a short time vast stretches of country. Such was the rate of progress in desert regions and in mountainous districts where the means of subsistence were scattered and

nings of a national development. The more conservative elements of the tribes would establish themselves on the soil. Hunting would give place to the pastoral pursuit, and the pastoral pursuit to agriculture. Permanence would assert itself, and vacillation cease. Institutions would soon be planted. Architecture and the other practical arts would arise, and society would emerge from the tribal chaos which had preceded it.

In what manner favored localities become populated.

Into such situations, however, a restless element is always poured, along with the calmer varieties of humanity.

The radical element breaks away from the conservative.

This radicalism would first flow to the furthest—generally the western—limit of the locality. Ere long, dissatisfied with the situation and longing for the old tribal freedom, these elements would burst away from the restraints of the civilizing communities and resume the migratory habits of antiquity. They would draw after them all adventurers, all the unprosperous parts of the half-formed societies behind them. They would strike out into new regions, driven by an impulse which they had no disposition to understand or check.

We may conceive that ancient Egypt furnished one of the most striking examples of this *débouchure*

Egypt a striking example of the ethnic sack.

of tribal waters. Here they were gathered, and here, out of the fecund soil, the elements of primitive life drew at first the means of subsistence and afterwards of development. How long the general progress of the Hamitic race to the west was checked and hindered by the outspread of the incoming volume in the valley of the Nile, it were, perhaps, vain to conjecture. For many centuries, no doubt, the outline was sufficient, and the auspicious character of the valley for succeeding ages appeased and satisfied the cupidity and restlessness of the immigrants.

In course of time, however, the more nomadic elements of Egyptian life

Migration at length resumed through Northern Africa.

climbed the western slope of the valley, and found the sand waste of Africa before them. Migration was resumed, and the first line of the new movement was stretched along the Mediterranean in the direction of Barca. It may be

safely affirmed that the first tribes which were dropped into permanence in the country west of Lower Egypt were the ancient Marmaricans. It is well known that in after times Cyrenaica was colonized by the Greeks, but the primitive people whom they expelled from the coast and forced back into the interior were the descendants of the ancient Hamitic exodus from Egypt.

The main line of migration continued to the west, branching into the interior south of the modern Greek colony, and also turning into the peninsula toward

Branchings and turnings of the Western Hamitic dispersion.

Ptolemais. When we consider the geography of Northern Africa we shall find the country well adapted to the maintenance and perpetuation of such a movement. Throughout the whole extent of the region, from Egypt to the Atlantic, a mountain range of greater or less elevation defines the coast region from the desert to the south. Toward the eastern terminus this range is of slight elevation, being in the plain of Barca no more than a thousand feet in height. Toward the western extreme the peaks of the Atlas rise to a much greater elevation, reaching the line of perpetual snow. Throughout the whole extent the range approximates the sea, and the country between the mountains and the Mediterranean slopes down rapidly to the level of the ocean. It was through this region that the African Hamites made their way to the west, through Barca and Tripoli, into the ancient state of Africa Proper, and thence into Mauritania, and finally to the extreme west.

This region, thus peopled in the prehistoric ages, became one of the most important of the subsequent historical countries. The ancient states along the southern shores of the Mediterranean

never attained—with the exception of Egypt—the power and importance of those situated on the northern coasts, but they reached a considerable degree of development, and were able to compete with the Mediterranean peninsular powers for the mastery of the west. Funda-

Rank and character of North African states and peoples.

stream flowed still further to the south. It may also be noted that the seafaring Semitic Phœnicians who passed westward through the Southern Mediterranean skirted the coast of Africa, and touched the islands rather than established colonies or built states on the mainland.



TUNISIAN COAST.—GULF OF HAMMAMET.—Drawn by Eugene Girardet, after a sketch of Saladin.

mentally, the people of the North African provinces were Hamitic in their origin. It is true, as we shall see hereafter, that parallel streams of a different race descent were at a subsequent time led westward through the same region. But the Brown race division of mankind carried its migration toward the Atlantic on the *southern* slope of the North African mountains, while the Semitic

The main stream of Hamitic migration may be said to have reached its terminus with the Atlantic, or at least with the islands west of Morocco. It is believed that the original tribes inhabiting the Canary islands were the westernmost dispersion of the human race, so far as the Hamitic migration from the east was concerned. As a rule, the Hamites no-

The Hamites venture by land, but avoid the sea.

where took to the sea. They were a land people, and while preferring the coast regions of the ancient world, they avoided the open ocean and formed very few insular settlements. They had far less dread of the perils of the desert than of those peculiar to the deep. An examination of the movement of the race westward through Northern Africa will show a much greater number of tribal departures toward the south than toward the north. The inviting character of the Mediterranean islands seems to have appealed less strongly to the people of this descent than did even the desert wastes of Sahara.

It is possible that the Hamitic movement, considered as a whole, was somewhat determined by latitude and temperature. The race appears to have had a preference for the southern climates. If we consider the central line of migration from the original seat of the race to its extreme western limit in the Canaries, we shall find only one or two considerable developments toward the north. The whole expansion of the Hamites was in the direction of the equatorial regions. If we allow the Pelasgians and the Etruscans to have been of this descent, we shall find this single stream to have attained a northern limit of a little more than forty-five degrees, in the valley of the Po. Otherwise, the northernmost deflections were scarcely above thirty-five degrees north. The main line of westward population was about the parallel of thirty degrees, and from this line nearly all the departures, both in Asia and Africa, were to the south and southwest. From the main course, the various tribal migrations into the regions of the equator and their ramifications filled a considerable portion of the old countries from the

Hamitic preferences for the equatorial trend.

peratures. The race appears to have had a preference for the southern climates.

Persian gulf to the Atlantic south of the thirtieth parallel and north of the equator. None of the Hamites crossed the equatorial line southward in their original dispersion, the nearest approach thereto being made by the Galla tribes of Eastern Africa.

Among these various lines of southern deflection, the two principal were, first, the great Cushite departure into Southeastern Arabia and Eastern Africa; and secondly, the West African division, which left the parent stem on the borders of the Libyan desert, in the modern state of Algeria. From this point the secondary current turned to the southwest into the Moorish states and again divided in the Sahara, one stream continuing the original course and the other bending back toward the east, forming a loop whose southern line reached nearly to the parallel of twenty degrees north. It was thus that the aboriginal population of the Moorish and Berber states was supplied. Here sprang the desert people of the African waste, and from this source have been derived at least a majority of all the Berber, Tuareg, and Imoshag nations.

The Berber races result from deflected movements.

In following the course of the Hamitic progress toward the Atlantic, the ethnographer meets some peculiar difficulties. The ethnic classification of the Carthaginians has been the source of much perplexity; and there are even yet unsolved elements in the problem. By language and many of their institutions the ancient Carthaginians seem to have been closely allied with the Semitic races of the Orient. Tradition has distinctly and emphatically assigned to them a Phœnician origin. Many ripe scholars have not hesitated to classify them as Semitic.

Ethnic place of the Carthaginians considered.



In the first place, it must be remembered that the institutions and languages of the Hamitic race were by no means clearly separated from those of the Semites. Linguistically and institutionally, as well as ethnically, these two branches of the human family appear to have hung together until the forms and characteristics of each had to a considerable degree become fixed by development. The selvages, so to speak, of the various Hamitic and Semitic migrations lay together and overlapped each other in a measure that could not be expected in the case of the Aryan nations. For these reasons, identities and analogies of language and of institutional forms of both public and private life are abundant between the earliest Hamitic and Semitic nations. The Phœnicians were doubtless in the first place Hamitic in their origin. With the Semitic conquest of Canaan, that race became dominant to the sea. To what extent they were modified in their Phœnician development by Hamitic Canaanites it were impossible to tell, but doubtless the more recent Phœnician character was in its ethnic origin the product of both elements.

Moreover, in this region, the common forms of the two races were especially abundant. So if we consider the Phœnicians in the act of colonization in the west, as at Carthage, we shall find them planting on that shore a mixed race in which the oldest blood was Hamitic, and the more recent Semitic, in its derivation. Again, the later commercial relations of the Phœnicians brought many of their merchants and not a few Eastern institutions into the mart of Carthage. If, then, we look at the Carthaginian state, particularly at the city,

in the time of its ascendancy, we shall find a people marked in all of their civic and private life with the unmistakable traces of Shem. But it need not be



HAMITIC TYPE OF THE UPPER NIGER—BAMBARRA.  
 Drawn by Riou, after a sketch of Valliere.

forgotten, at the same time, that the westward progress of the Hamites along this coast must, almost of necessity, have furnished the aboriginal element and germs of all the states primarily

Institutional and linguistic intimacy of Semites and Hamites.

Semitic influence prevails over the Hamitic at Carthage.

created between Egypt and the Pillars of Hercules.

Continuing the course of Hamitic migration in the west of Africa, we find the main line of progress passing to the south from the Moorish states across the

twentieth parallel and into the more habitable countries of the Upper Niger.

Here there was another bifurcation, the western branch reaching out to the coast and furnishing the original elements of the Fulah tribes of Western Guinea. This was the second extreme limit in westward extent of the Hamitic migrations, being almost as far in that direction as the Canary islands. The other branch of the race appears to have turned eastward in the lake region of the Upper Niger, and to have thence descended the valley of that river into the Sudan and as far east as the country drained by the streams which flow into lake Chad. It is likely that the Baghirmi nations, lying southeast of the lake just named, mark the remotest point to which the original impulse carried the race of Ham into Central Africa.

The whole course of the migration, considered from the standpoint of Lower Egypt, resembles a fishhook bending

southward around the larger part of the desert region of the African continent

and presenting an interior and an exterior line, the latter of which reaches back toward the country of the original exodus, about one half way from the western coast of the continent to the Red sea. The final distribution of tribes, by means of this great migration in the prehistoric ages, was in a region of Africa into which the Black races, coming from the east, had already been poured, and with which the Hamitic peoples have in all subsequent ages been intermingled,

Extreme limits of Hamitic distribution in the west.

Nature of the dispersion in African interior.

until it were difficult, if not impossible, in modern times to discriminate the diverse race elements in the peoples of this region.

This, then, concludes the summary of Hamitic migrations in Southwestern Arabia and Northern Africa. No doubt all such movements are

more clearly drawn, more definitely indicated, in discussions of the kind here presented than they were in fact.

In the physical world nature abhors a line, and the same may be affirmed with emphasis of the movements and phenomena of the world of life. Of a certainty, tribes migrate from place to place. They flow here and there into favorable localities, and there possibly develop into nations. But the movement *is not so exact and logical* as it appears to be when viewed through the medium of description. There is, on the contrary, much that is desultory and irregular in the course of migration from one country to another. Much allowance must be made for delays and deflections, and still more for the intermingling of one tribe with another on the way. The incoming people frequently disperse themselves among the original inhabitants, and are mixed with them in the race development of the future.

In some cases the migration is more exact and definite, and in such instances the facts correspond more nearly to the concept of the movement as it is transmitted by description.

In the case of the Hamitic dispersion over the countries to which we have referred in the current chapter, it must be constantly remembered that these people were not so different typically from their Semitic kinsmen as the latter were from the Indo-European races. From this source

Ethnic movements are not exact and logical.

General summary of the Hamitic migrations.

also much confusion has necessarily arisen in the attempted classification of these people by their ethnic affinities. But it is believed that, on the whole, the Hamitic race took in prehistoric times the general lines of distribution which are here indicated; that it was distributed first into Southeastern and Southern Arabia, then into the western portions of the same peninsula, and then into Canaan. From this position the lines of migration part around the Mediterranean north and south, the lower departure being into Egypt, and afterwards into Northern Africa. In the course of ages the movement continued to the west, along the southern shores of the Mediterranean, to the Atlantic, and

was thence deflected to the south into the equatorial regions, and finally turned back into the desert wastes covering the central and north-central parts of the continent.

It is not intended in this connection to trace further the historical development of the various peoples who sprang up on the line of these migrations. That part of the work will be attempted in another book. For the present, we turn from this cursory outline of the Hamitic distribution of mankind to consider another of the great primitive races in its similar dispersion, first through a great part of the Orient, and afterwards into different parts of the Western continents.

CHAPTER XXVI.—MIGRATIONS OF THE SEMITES.



ROUGHLY considered, the great monarchies in the valleys of the Euphrates and the Tigris were planted and developed by people of the Semitic race.

It was in Mesopotamia that the first striking evolution of this branch of mankind was manifested. This is said of civil and political expansion, and of the establishment of social and linguistic forms. It is here that ancient history finds its first great buttress against the unknown. If we look at the upper part of the valley, below the Armenian mountains on the north and the range of the Zagros on the east, we find a region in which Semitic elements followed their natural course of evolution and were unadulterated by foreign nations. In the south of Mesopotamia, as we have seen,

Mesopotamia essentially a land of the Semites.

there was a mixture with the Hamitic stock. But in the later Babylonian aspect of these nations the influence of the Hamites had waned to such an extent as to leave the Semitic races dominant throughout the whole region drained by the great rivers.

We have already noticed the fact of the prevalence of this division of the race in the Tigrine and Euphratine valleys. It remains in the present chapter to take up the course of Semitic life and follow it on its migration into western lands. For a long time after their departure from the Mesopotamian regions the different branches of the traditional Noachite descent were held well together by the geographical environment. On the whole, the Semitic stock was central in its movement to the west. The Syrian desert was entered from about the middle of the valley of the Euphrates,

Central position of the race; the westward movement.

and was traversed by the migrating family directly into Canaan.

It is here, moreover, that the ethnographer, in his attempted delineation of the prehistoric movements of mankind, is reinforced by tradition. One of the oldest and most authentic of these is the story of the migration of Abraham

Tradition of the outgoing of the Abrahamites.

el-Hie. The place is called Mugheir, meaning "supplied with bitumen." The outline of a most ancient temple is still discoverable in the place; and the plan of the foundations, and indeed of the whole structure, has been made out by Rawlinson and other Oriental scholars. It was from this vicinity that the Abra-

Place and character of Ur of the Chaldees.



RUINS AND PLAIN OF MUGHEIR.—Drawn by W. H. Boot.

from Ur of the Chaldees into Canaan. This, viewed from the Semitic standpoint, is one of the most famous movements of the early world. The tradition of it exists among all the cognate races of the Hebrews, and with themselves it is the virtual founding of their race.

The position of Ur in Mesopotamia is well known. It is identical, in site at least, with the extensive ruins about six miles to the west of the Euphrates and nearly opposite its junction with the Shat-

hamic tribe took its way, first ascending the valley of the Euphrates for a considerable distance, and thence traversing the country into Canaan.

All, or nearly all, the names that have been preserved to us of this period are significant of tribal movements. Eber, the ancestor from whom the name of Hebrew is taken, means "from beyond," that is, he was an emigrant from beyond the Euphrates, perhaps the

Special significance of the Semitic patronymies.

Tigris. The name of his elder son, Peleg, signifies "division," "because in his time the earth was divided." The name of Salah, the father of Eber, signifies "departure," and evidently refers to a title which that patriarch received in departing, or setting out, with his tribe for a new home. Everything pertains to migration. If the meaning of the name Arphaxad has not been ascertained, the position of his tribe at least is known. Arphaxad is a mountain district of Southern Armenia, between lakes

finally of his really serious battle with Chedorlaomer, or according to the Assyrian spelling, Kudur-Lagamer, is sufficiently striking and impressive. Kudur-Lagamer was king of Elam, or rather the Elamite king of Chaldæa, and had followed the Abrahamic tribe out of the East, with the hope of falling upon it and gathering great spoil. There is little doubt that this Elamite dynasty in Chaldæa was of Hamitic origin; and the departing Abraham was thus the object of race antipathy, as well as the possessor of



LAND OF THE ARPHAXAD.—VIEW OF KOPANS KALE.—Drawn by T. Deyrolle, from nature.

Van and Urumiah; and there is no doubt that the primitive clan of this ancient Semite had its original locus at this place. Nahor, the son of Serug, means "the river," that is, the Euphrates—and so of scores of other proper names referring to Mesopotamian localities or to family or tribal movements in that region.

The pastoral picture which is drawn in Genesis of Abraham on his way to the Promised Land, and of the troubles which beset him on his journey, of his contention with his kinsman Lot, and

flocks and herds. According to the Hebrew account of this migration, which was the origin of Israelitish greatness in Palestine, there was a division of the family which appears to have been on the borders of Canaan, about the time of the invasion. Ishmael, the oldest son of the patriarch, had married an Egyptian bondswoman and had become the head of a tribe. The troubles arising out of this heathen alliance led to a separation of the families, and Ishmael was carried off into the south, into Arabia.

Contact of the  
Abrahamites  
with the races  
of Canaan.

Several generations before this time, however, another branch of the Eberites had already made a departure into Arabia. This movement was made by Iaktan, or Joktan, his elder brother being that Peleg who was the ancestor of the Abrahamites. Joktan was thus five generations before the patriarch of Israel. A large list of twelve sons and a daughter are assigned to Joktan as the heads of the tribes which he led off into Northern and Western Arabia.

The movement was at a very early date. Joktan was the great grandson of Arphaxad, and the latter, as is well known, belonged to the extreme north of Mesopotamia, in the mountainous region of Armenia. So the Joktanites must have been strongly in the migratory spirit. Eber, the father, had come "from beyond." Salah, the grandfather, was the "departer." It is thus evident that the whole race of Arphaxad was in process of removal and migration.

Ethnographers, ancient and modern, have made out and identified several of the tribes having their origin in the Joktanian descendants. Ptolemy mentions the Almodœci dwelling in the central portions of Arabia Felix, and it can hardly be doubted that the name is derived from Almodad, the oldest son or tribe of Joktan. Another people called the Salapeni by the same geographer, are thought to have been derived from Sheleph, the second son of the same patriarch. This branch of the race was set down by Ptolemy as having its abode near the modern Mecca. A third division called the Cathramitæ were presumably the descendants of the third son of Joktan, named Hazarmaveth. It is likely that the modern provincial name of Hadramaut preserves the reminiscence

of the original Semitic tribe by whom this region was peopled. There is also a modern tribe called Yarab, having its territories on the Arabian-gulf border and thought to have been descended from Jerah, the fourth division of the Joktanian progeny.

The Semitic inhabitants of Yemen are believed to have descended from Uzal, sixth son of Joktan. The Himyaritic tribe, called the Dulkhelitæ, are believed to be the descendants of Diklah, the seventh branch of the original family. The tribe called Mali by Theophrastus, the Malichæ of Ptolemy, stand for the descendants of Abimael, the ninth Joktanian. The name of the modern town Malai, in the vicinity of Medina, preserves the same word. The tenth issue of Joktan was that Sheba, which is mentioned in the Hebrew writings and still more frequently among the local names of Southwestern Arabia. The eleventh Joktanian branch was called Ophir, and preserves another name famous in the Hebrew writings of the time of the kingdom of David and Solomon. It is believed that Havilah, a name common to one of the descendants of Ham, is represented by the modern Semitic people at Chaulan, in Arabia Felix. The tribe of the Iobaritæ, mentioned by Ptolemy, have their ancestral representative in Iobab, or Jobab, the thirteenth member of the Joktanian tribe.

We thus see, with more than usual certainty, considering the extreme remoteness of the time, the outlines of a distribution of Eberites into Northern and Western Arabia. If we accept the extreme longevity assigned by the sacred writings to the patriarchs of this era, we shall find that the six generations between Joktan and Ishmael would cover a

Outgoing and plantings of Joktan in Arabia.

Modern traces of the ancient Joktanians.

The Joktanidæ make themselves names and races.

Relations of the Joktanians and the Eberites.

period of thousands of years. However this may be, it can not be doubted that the Joktanians departed from the parent stem at a date much more remote than the more recent Abrahamites, and that when Ishmael, with the descendants of the Egyptian bondwoman, turned off into the "wilderness," he found already in Arabia Felix the half-nomadic and half-settled descendants of the older branch of the Eberite race. It will be borne in mind, however, that the progeny of Joktan, the younger brother of Peleg, would be displaced in rights and prerogatives by the descendants of the senior branch of the family; so that the Ishmaelites would have precedence in these regions as the representatives of the common father Arphaxad. The accompanying diagram will illustrate the tribal relationships of the descendants of the Joktan and the Ishmaelites:

Ishmaelitic migration was from the borders of Syria to the southwest and thence to the south, until the coast of the Red sea was reached, and skirted southward to the extreme limit of that body of water. If, as some ethnographers maintain, the Semitic race crossed at Bab-el-Mandeb into Africa, it was an Ishmaelite removal, and whatever elements there may be of Semitic descent among the Galla races of Eastern Africa, the same must be traced to Ishmael rather than to the Joktanian branch of the original Semitic family.

In the course of their progress through the peninsula, the Ishmaelites appear to have divided east and west about the eastern border of Hejaz, and to have thrown off one branch toward the central desert and another across the Red sea into Africa. This latter movement of the race must not be confounded with

The western branch reaches the Imoshag in Africa.

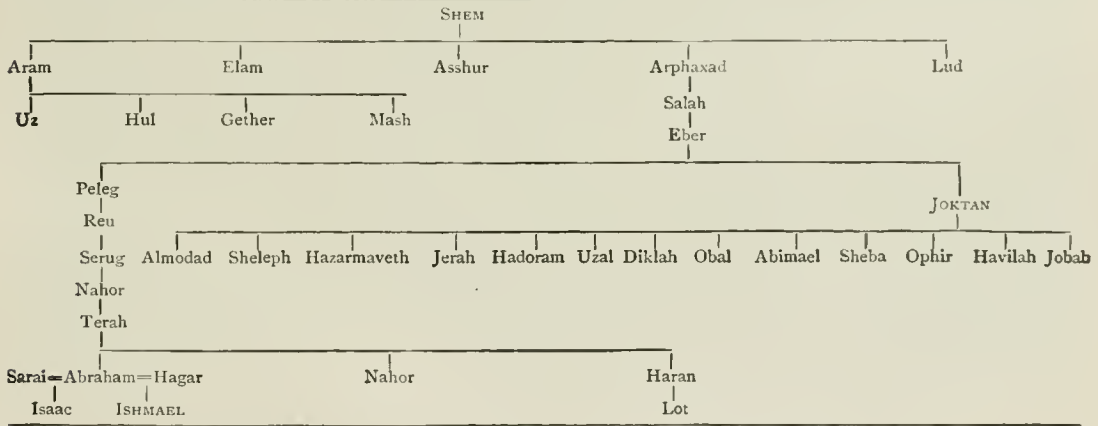


DIAGRAM SHOWING TRIBAL RELATIONSHIPS OF JOKTAN AND ISHMAEL.

The career of the Ishmaelites in Arabia was one of aggression. They encroached, especially in the northern part of the peninsula, upon the older Joktanians and also upon the original Hamitic Arabians, who were anterior to both branches of the Semitic immigrants. In general terms, the course of the

the supposed one at the southwest angle of the peninsula. The real Semitic line was carried into the continent about the parallel of twenty-four degrees north, across Middle Egypt, and almost directly west into the Great Desert. The migration of the Ishmaelites in this direction appears to have extended as far as the Imoshag races, to the southwest of

Spread of the Ishmaelites through Arabia.

Fezzan; and this point may be regarded as the extreme landward progress of the Semitic race south of the Mediterranean.

In general, the modern Arabs are regarded as the lineal descendants of the Ishmaelitic branch of the Semitic family. In the main, this opinion is verified by

extent the Juktanian influence of later ages. Finally, in the north and west of Arabia, the immigrant Ishmaelites overcame and subordinated all the peoples that had previously occupied the country. The antipathy between Shem and Ham, however, was never great—except in matters of religious dogma and cere-



ARAFAT DURING A PILGRIMAGE (LAND OF OPHIR).—Drawn by D. Lancelot, from a photograph.

the facts in possession of the ethnographer and historian. But the Arab character is, to a considerable

Composite race character of the modern Arabians.

extent, composite. Several ethnic elements have contributed to its formation. The Hamitic race, especially in the southern part of the peninsula, underlay the national development of subsequent times. With this oldest stock was blended to some

monial. For this reason the original inhabitants, already a composite people in Arabia Felix, may be supposed to have contributed not a little to the ultimate formation of that type known in modern times as Arabian. But the dominant stock, at least in the important regions bordering the Red sea from Suez to Yemen, was Ishmaelitic in its origin and development.



We have thus considered the southernmost migratory movements of the Semitic race. The Abrahamic tribe entered and possessed Canaan. This movement of the principal stock, representative of the family of Eber, is better understood in its character and results than any other single migration at a time equally remote from the present. The story is elaborately expanded in the Book of Genesis. All the principal episodes in the career of the Abrahamic tribe are narrated, even to details. The patriarch became the progenitor of a famous race which he planted in Canaan. The extent and variety of his tribe are indicated by the conduct toward him of Melchizedek, King of Salem, and by many other incidents and events. A great development of the immigrant race took place in the time of Israel, grandson of Abraham, whose twelve sons became the progenitors of the twelve tribes and the origin of the twelve geographical divisions of the rising race. It is not needed to recount the episode of the sojourn in Egypt and of the rapid multiplication of the foreigners about Pelusium. The return out of bondage and the repossession of Canaan by conquest furnished the material for the heroic aspect and story of the Israelitish nation, which became dominant

from the borders of the Syrian desert to the Mediterranean.

It is worthy to be noted in this connection that the Hebrews were never a seafaring people. It was against the economy of the state, and regarded perhaps as in-



LIFE OF THE ABRAHAMITES—SHEPHERD WITH LAMBS.  
 Drawn by Paul Hardy.

jurious to the theocratic principle upon which the government was founded, to make commercial excursions and contract relations with foreign powers. A student of history will not forget that the narrow strip of coast called Phœnicia, with its great seaports, lay between

Noncommercial character of the primitive Hebrews.

Israel and the Western ocean. This fact has an ethnic signification also; for the Tyrians and Sidonians and other old stocks of mankind, hanging in their rookeries along the eastern end of the Mediterranean, represented races long anterior in their western distribution and development to the immigration and conquest of Canaan by the Eberites.

In course of time the Semitic stock became dominant to the sea. But the spirit of navigation which prevailed in the ports of Tyre and Sidon must be attributed to a race impulse other than that of the Hebrews. To the extent that the Phœnicians had accepted the institutions and blood of the invaders who conquered Canaan, we may regard the outgoing fleets from these shores as carrying Semitic influences through the Mediterranean. But it is doubtful if these fleets of outbound merchants carried to the western parts anything *distinctively* Hebrew. All the traces of the Semitic race which have been found in the Mediterranean islands, on the shores of Spain, and beyond the straits of Gibraltar, in Wales, and in the littoral islands of Western Africa, must be attributed to that community of language and institutions which the Phœnicians, particularly the Sidonians, possessed in common with the race of Abraham.

Time and again we have shown that the Hamites had common forms of language and a common institutional development with the cognate nations of Shem, and the original Canaanites could thus carry into western waters evidences of a race affinity with the dominant Semitic stock. However this may be, ethnographers have agreed in extending the Semitic line of dispersion through the Phœnician coast and around the northern shores of

Africa by water. As just indicated, this line extends beyond the Pillars of Hercules, and is deflected northward to Britain and southward to the twentieth degree of latitude. The western limit of this maritime migration is thought to have been in the Azores; and this group of islands may be said to mark the extreme Atlantic progress in the natural dispersion of the Semitic family.

It must be noted in connection with the foregoing schemes of dispersion that most of the names employed appear as the names of individuals—Use and significance of Hebrew tribal names. as the sons of a household. This fact gives to the discussion a strictly *family aspect* which is too exact and too narrow for the facts which it represents. Many of the names in the above classifications are known to be the names of tribes and of whole divisions, or even of whole peoples. It is impossible from a study of primitive Semitic records to make out precisely which of the ancestral names employed in geneological tables are intended to represent single ancestors, and which are designed to specify households, tribes, and peoples. It is the custom in the Semitic languages to prefix to many personal names, especially such as have a descriptive signification, the definite article, thereby giving to the word an ethnic turn of sense different from what would be expressed in the Aryan languages. Such names, moreover, are frequently in *the plural*; and the Hebrew Scriptures, taken as an example of all such records, have, in many instances, intermixed these tribal or ethnic epithets with individual names until even the closest criticism is put at fault in determining precisely what is meant. On the whole, it is safe to make considerable allowance for this circumstance in estimating the value of the names, apparently individual, given

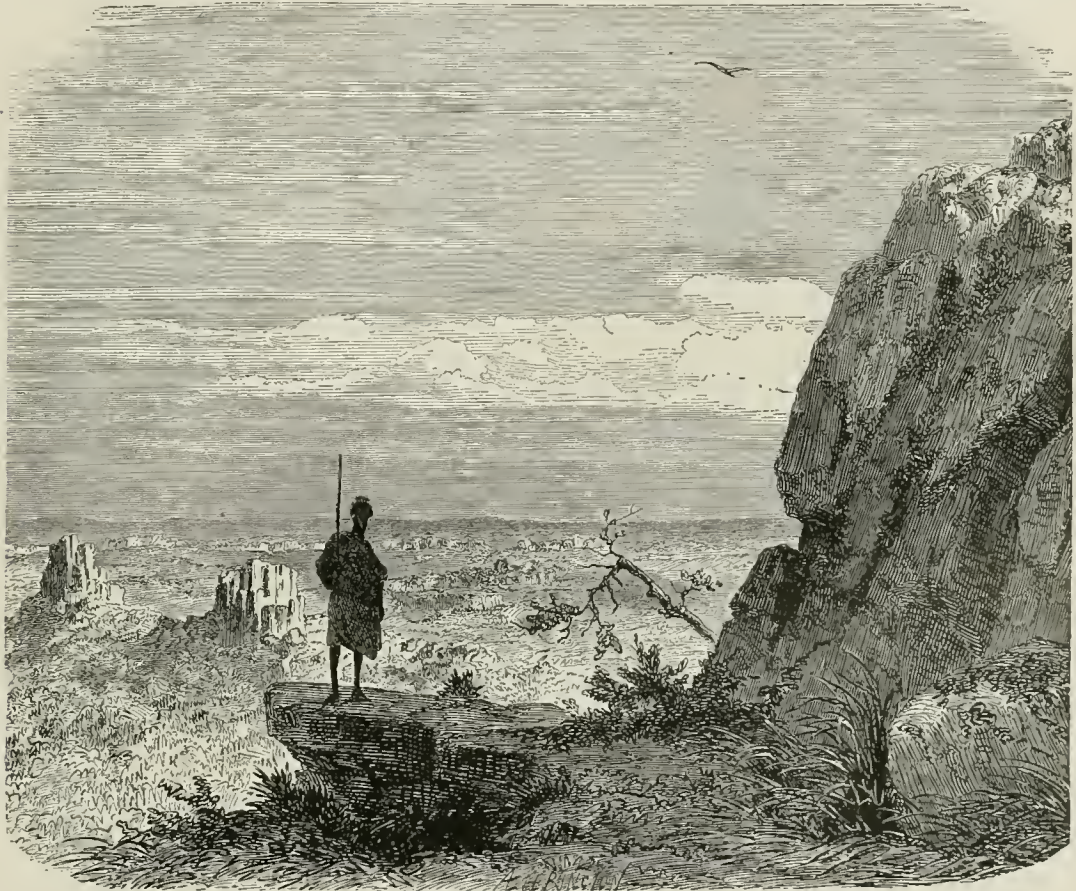
Extent of Hebrew influence on the Mediterranean.

The Azores mark the Atlantic limit of Hebrew departure.

to the ancestors of the Semitic and Hamitic races. This fact must always be taken into account in attempting to estimate the *time* and the *extent* of a given migratory movement.

If we look to the north of the central line of the Semitic dispersion into Ca-

and it has already been suggested that in Cyprus itself the aboriginal development was of Hamitic origin. The primitive history of the island is exceedingly obscure, but all that is known with reference thereto points to an early colonization by the Phœnicians from the



"LAND OF THE SCORCHED FACES."—ABU SENOM, ON FRONTIER OF KORDOFAN, TOWARD DARFUR.—Drawn by Karl Girardet, after a sketch of Lejean.

naan and the west, we shall find only a single significant departure. This leaves

The Hebrew branch entwines with the Hamitic in Cyprus.

the main stem on the north in the Syrian desert, and bears off in the direction of

the northeastern extremity of the Mediterranean, where it touches the coast, and is thence carried over to the island of Cyprus. It is hardly to be doubted that along the line of this migration other peoples had preceded the Semites,

neighboring coast. The ancient worship of Ashtaroth in Cyprus seems to be identical with the corresponding cult in Phœnicia, and it may be concluded that the first race, by which is meant the first progressive race, in the island was of the old Canaanitish stock which fixed itself in the earliest ages along the eastern shore of the Mediterranean.

Such, then, is the general view of the dispersion of the Semitic nations-

Geographically considered, the race was narrow and intense. Its migratory excursions did not reach out so extensively as those of other peoples. The extreme western continental limit was, as we have seen, in North Central Africa. The southern departure dropped down as far as the limits of Arabia. The northern limit was the island of Cyprus; and the maritime expeditions—if we regard the Phœnicians as representatives of this race—extended through the Mediterranean and to a certain distance around the western coasts of Europe and Africa. Taken altogether, the dispersion is the smallest, that is, the most limited in geographical extent, of all the great ethnic departures. The dispersion of Japheth in comparison with that of Shem was, as we shall presently see, world-wide in its extent. But within the limited territories occupied by the Semitic race a very intense form of religious and civil development ensued, making the Semites conspicuous among ancient peoples for their peculiarities and persistence and force of character.

In the course of the current chapter little has been intimated relative to the primitive populations of Ethiopia. This name was given by the Greeks to the region lying immediately south of Egypt. The word means "the land of the scorched faces," and was doubtless applied by the Hellenic ethnographers to the Ethiopians on account of their swarthy hue. This, however, by no means implies that they were a branch of the Black races of mankind. It is well known, on the contrary, that this people were allied with the Hamitic and Semitic families of men, and not with the Negroes or Hottentots.

The early history of Egypt indicates close relationship between that country and Ethiopia. At one epoch an Ethiopian dynasty is found in the ascendant in the Nile valley. There was much community of religions and of civil institutions between the two peoples, who, however, frequently went to war. To what extent, in the prehistoric ages, the Hamitic race had made its way up the valley beyond the falls of the Nile and contributed a first population to Ethiopia can not be well ascertained. But that the original race of this region was at least to some extent Hamitic in its origin can hardly be doubted. We may, nevertheless, accept the current view of ethnographers that the western division of the Ishmaelites crossed the Red sea and gave a Semitic character to the first Ethiopian tribes. It is possible, moreover, that the same race, after making its way to the southern extremity of the Red sea and passing thence into Africa, doubled back into Ethiopia and disseminated certain tribal elements in this obscure but important region of the earth.

We thus note three great divisions of the Semitic stock. The primary departure sent off the Aramaic branch of the race. In general terms the people of Aram, known ethnically as Arameans, were distributed from the Zagros and Kebir Kuh on the east, to the borders of Canaan on the west. Aram embraced all of Mesopotamia except Chaldæa, subsequently known as Babylonia, and all of Syria in the west except Palestine and Phœnicia. The seat of Aramaic culture was Mesopotamia. Here was exhibited the strongest development of the race. Geographically, Aram was the northern division of the Semitic family,

Summary and outline of the Hebraic distribution.

Western Ishmael combines therein with the Hamites.

Question of the race derivation of the Ethiopians.

Aram the seat of the strongest Semitic development.

as the Hebraic stock was the central and the Arabic division the southern evolution of Shem.

In considering the race characteristics and historical progress of these peoples, we shall have occasion to revert to this division of the Semitic family, and to make the same the basis of a discussion of

the national life of the Mesopotamian nations, the Hebrews and the Arabs. We turn, then, in the next place, to a discussion of the far wider, and in many senses more important, development of the oldest branch of the Noachite family of mankind—the Aryans, or Japhethites.

CHAPTER XXVII.—THE EAST ARYAN DEPARTURE.



THE dispersion of the Japhetic, Aryan, or Indo-European race—for the three ethnic names are virtually synonymous—constitutes the most picturesque chapter in the prehistoric annals of the world.

We are brought in the investigation to what appears to have been an inexhaustible fountain of human life, and are led to view the issuance from this common source of at least six of the great races which became in their development the principal historical forces in the ancient world. It will be of primary interest in this inquiry to note, first of all, the geographical location of this common fountain wherefrom issued the best, or at least the strongest, peoples who have, by their energy and genius, transformed the primeval world into its present civilized and auspicious condition.

With the map of Asia before him the student need not be long in fixing the great ethnic center which we are about to consider. Regarding the ancient country of Carmania as the seat of the Noachite division of peoples, and fixing the line of Japheth on the north, it may be easily perceived that its westward-

bearing course would come against the Hyrcanian mountains and the Lower Caspian, and be deflected or doubled back toward the Upper Oxus into Margiana and Bactria. It was in this region that the great ethnic whirl was established, where the Aryan race seems to have found itself turned by torsion for a season under the dominion of cosmic forces, which it were, perhaps, vain to attempt to analyze and define.

Ethnographers have differed somewhat as to the true seat of the great races which we are now to consider. The better opinion places the center of the distribution about the Lower Caspian, or eastward toward the borders of Bactria. It is likely that the rapidly multiplying race covered geographically the larger part of the country between the Bactrian borders and the Lower Caspian. At least this is the general locality from which the most powerful ethnic forces have ever proceeded. In viewing the situation, we may discover once more how the laws of physical environment coöperated with the laws of instinct in producing such marvelous results. There is little doubt, in the first place, that evenness of surface and approximation to sea level have a marked influence in preserving the aggregation or compact-

Determination of the origin of the Aryan migrations.

Region of the Lower Caspian the point of departure.

ness of tribes in the formative state, and in conducing to certain religious and political types of development.

In the next place latitude, with its invariable concomitant of temperature, contributes much to modify the peoples who are subject to given degrees of heat and cold. This is true in particular of tribes who are still in the plastic state. There can be no doubt that there is a childhood and a youth to mankind—an

Hamites are ethnically modified by environment.

men. They also grew sedate and austere, less disposed to highly developed forms of society, and, in brief, more like the desert and rainless countries into which they penetrated than were the races which distributed themselves further northward.

Among the oldest monuments of the Egyptians there are pictorial representations of the differences which had already been produced among the Noachite descendants by the influences of



LANDSCAPE OF OLD ARYA.—RUINS OF TONS.—DRAWN BY A. DE BAR, FROM A PHOTOGRAPH.

impressionable stage of evolution in which the influences of the external world are more potent in their reaction upon the mental and physical constitution than they are in later stages of development. In these early stages of society there are infantine susceptibilities and diseases from which the race recovers at a stage of fuller maturity. For this reason the early peoples in their migratory epochs have developed a constitution peculiarly significant of the climate and region of their tribal sojourn. The races of Ham became much darker in color than their Semitic kins-

environment. The sculptors, in these representations, have unwittingly borne evidence of the tendency of Egyptian sculptures evidence the early differentiation of races. Their evolution to conform to climatic conditions. The Egyptians defined themselves as *Roth*, meaning red, or ruddy, as to complexion. They pictured the cognate Semites as *Namahu*, meaning yellow; and the Japhethites, or North Mediterranean peoples, as *Tamahu*, or white. Yet it is now well known that these three types of color and the associated form, feature, and stature of the three peoples to

which they belong, were all of a common ethnic descent.

The race of Japheth on the north and east of Mesopotamia was, in its earliest stages of development, thrown into a region where nature had greater variety than in any of the countries where the Semitic and Hamitic families were dispersed. It was a region of uplands, ris-

Primitive Japhethites affected by climate and surroundings.

mer, the quick oncoming of the storm, the biting frost of a comparatively early autumn, the high winds, the blasts of snow and sleet peculiar to the winter months. It is in some sense a climatic maelstrom, and the Japhetic race was whirled and beaten in its childhood by the wild elements that dashed and turned from alternate calm to tempest, and from warm airs to biting blasts and



PASS OF THE ARAXES.

ing easily into mountain ranges of considerable elevation. It was a country of snows, and particularly of storms in winter. There are few parts of the earth in which vicissitude in temperature and the whole external mood of nature are more pronounced than in the region south and east of the Caspian.

The primitive Japhethites were exposed from the beginning to the full force of these climatic changes—to the flush of early spring, the heat of sum-

mer, the quick oncoming of the storm, the biting frost of a comparatively early autumn, the high winds, the blasts of snow and sleet peculiar to the winter months. It is in some sense a climatic maelstrom, and the Japhetic race was whirled and beaten in its childhood by the wild elements that dashed and turned from alternate calm to tempest, and from warm airs to biting blasts and

freezing sleets. For these reasons the early Japhethites would, by the turbulence of nature, be impressed with greater restlessness, hardihood, and adventure than might be expected in the case of any other primitive people. How great must have been the influence of such an environment upon sensitive peoples recently liberated from a parent stock in a more genial latitude! We have already seen that the Adamite seems to have come up from the low-

lying seashore, where the Ichthyophagi afterwards roamed, half-naked in the seashore sunshine, gathering shellfish from the brine. Many of these moderating influences had been carried by the Noachites into the Carmanian uplands; and it was from thence that the Japhethites were deflected to the northwest into the region of snow and mountains.

Before beginning a review of the wider aspects of the Japhetic dispersion into remote continents, it can but prove of interest to note, as we have already done in the case of the Joktanian migrations, the narrower biblical plan of distribution presented in the tenth chapter of Genesis. Japheth signifies, etymologically, "widespreading," from which meaning of the word the inference is drawn that the name was applied to the Northern Aryans *after* they had shown the migratory disposition. Far back in the Noachitic era there was a prophecy that Japheth should be *enlarged*. Everything from the biblical point of view points to the expansion of this branch of the Noachite family. The close relation of the western division of the race with European tribes is shown in the fact that the Greeks had a myth of their own ancestor under the name of Iapetus, which is clearly the same as Japheth. In general terms, the countries assigned to the descendants of this branch of mankind are called the "isles of the gentiles." Doubtless the expression is poetical. The Oriental imagination substituted "isles" for countries in general, no doubt from the *remote* and seagirt meaning suggested by the word.

If we scrutinize carefully the Japhetic family as recorded in Genesis, we shall find seven sons, or founders of tribes, assigned to the head of the race. These

are, first of all, Gomer. Among the descendants of this ancestor many names are found, even in Europe, which preserve the etymology of the ancestral title. Rawlinson has noted the presence of the Gimirians among the cuneiform inscriptions, belonging to the age of Darius Hystaspes. The Cimmerians, dwelling on the northern shores of the Black sea, are believed to have their name from Gomer. The word Cymri (Kymri), one of the Celtic names of Western Europe, is thought to have the same origin; and the words Cambria, in England, and Cambrai, in France, preserve, perhaps, an etymological tradition of the oldest branch of the Japhethites.

The first son of Gomer was Ashkenez, from whom, no doubt, the ancient tribe of Ascanians, dwelling to the south of the Black sea, were descended. These are believed to have been the ancestors of the Phrygians, and were therefore closely related with the Hellenic emigrants who subsequently peopled Greece. The country of Ascania extended over the land of Troy, from which circumstance we may deduce something of the ethnic relations existing between the Trojans and the Hellenes. It is worthy of note that "the boy Ascanius," the son of Æneas, founder of mythical Rome, perpetuated the ancestral name of Ashkenez. It is not impossible that the classical name Euxine, formerly spelled Axenus, is also derived from the ethnic designation of the early race dwelling on the southern borders of this sea.

The second branch of the Gomerites was, according to Genesis, deduced from the tribal ancestor Riphath. From him are thought to have descended the ancient Paphlagonians, whom Josephus designates as Riphaces. This people,

Seven tribes of the Japhethites; the race of Gomer.

Place of the Riphaces in the ethnic scheme.



like the Ashkenites, dwelt on the southern borders of the Black sea, though the location has not been so definitely determined as that of the first Gomeritic division. On the whole, it is likely that the Riphaces had their dwelling place somewhat toward the east, in a district which was properly included in Armenia. The third son of Gomer was Togarmah, who is believed to have founded an Armenian tribe which may be identified with the modern Thorgonites inhabiting the same region.

The next branch of the Japhethites was deduced from the second son, called Magog. But it is difficult to determine into which of the Black sea provinces this division was led and distributed. There is general consent that the famous savage

Distribution of the Magog and the Madai.

race of Scythians were the offspring of Magog. Some ethnographers have referred the Turanians in general to this origin, and others have derived the Circassians, inhabiting the mountainous district between the Caspian and the Black sea, from the Magogian stock.

Concerning the Madai, who are recorded as the third tribe of Japheth, there can be little doubt that these were the ancestors of the great race of Medes, whose country spread from the Upper Zagros toward the east, as far as Hyrcania and the desert of Aria. Subsequently, in the development of the Median race, the

nation spread southward over the Iranian plateau, and passed by conquest into Assyria, and even to Babylonia. But the prehistoric tribes descended from Madai were limited to the northern provinces east of the mountains.

The fourth son of Japheth was Javan, easily identified with the Greek ancestral



OLD MEDIAN TYPES—THE SASSANIAN PRINCES (OF THE SCULPTURES).  
 Drawn by H. Chapuis, from a photograph by Madame Dieulafoy.

name Iaones, from whom, according to the Hellenic tradition, the Ionians of Asia Minor and the Ægean islands were descended. Traces of the Javanites

Traces of the dispersion of the Javanites.

have been discovered among the inscriptions of Egypt; and the Greeks as a race were called Javanas among the ancient Hindus. The Arabic word for Greeks is Yunan, which is evidently of the same etymology with Javan. In later times the Hellenic ethnographers were disposed to accept Iaones as the ancestor of their whole race, and to make Ionian and Greek equivalent terms.

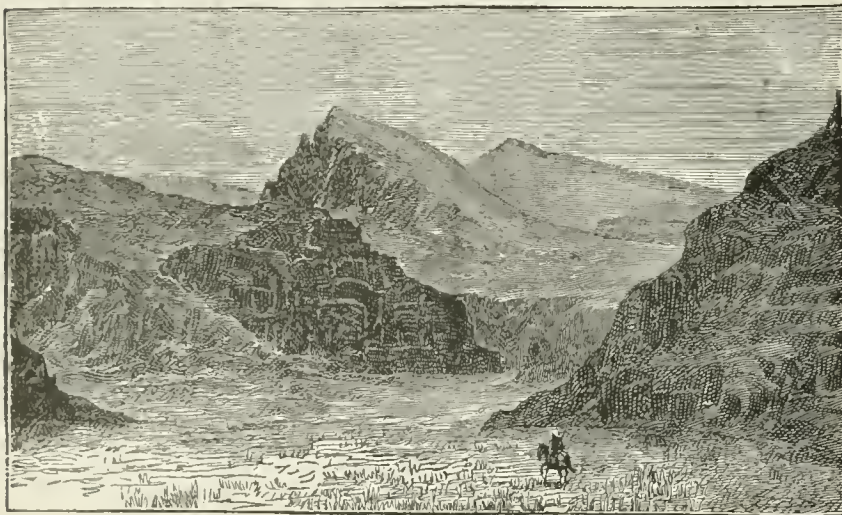
From the Javan, several ancestral stocks are said to have been derived. The first son bore the name of Elishah, and it is

possible that the Greek state of Elis, in the eastern part of Peloponnesus, perpetuated this name. Some have suggested that Hellas itself is a derivative from Elishah. Tarsus, on the Cilician coast, has been derived from the word *Tarshish*, assigned as the name of a second son of Javan. A third tribe was called Kittim, which is believed to have been distributed near Paphlygonia, or possibly into the island of Cyprus. A fourth division of Javanites were the Dodanim, which we may possibly identify with the Dodonians of Macedonia. The tribal name

The sixth son of Japheth is called Meshech, whose descendants were doubtless the ancient Moschi. The territory of this tribe lay next to that of the Tibareni. The Moschian range of mountains preserves the word in the north of Armenia to the present time. According to a conjecture of Rawlinson, the modern national name of Muscovite is derived, through Moschi, from the Japhetic Meshech.

It is believed that the great Thracian stock of mankind may be traced up to Tiras, the seventh and last of the Japhetic

progeny. It is thought that the country into which this branch of the race was distributed was on the north of the Black sea, on the banks of the Dniester, the name of which river is believed to preserve the etymology of Tiras. Afterwards the same



GATEWAY OF THE EAST ARYANS INTO INDIA—THE BOLAN PASS.

is sometimes spelled *Rodanim*, which would point to the island of Rhodes as the locality of this branch of Javan.

The race of Tibareni, mentioned by the Greek historians, have generally been referred to the Tubal, fifth tribe of Japheth.

Probable identification of the Georgians with the Tubalites.

They have been identified with the original Georgians, but the name in itself does not indicate the descent. In the Iberians we may discover traces of the original name. The latter had their habitation bordering on the Black sea and reaching out on the southern slope of the Caucasus.

geographical name was carried into Europe. The Thracians were originally distributed over a wide range of country, extending from the Black sea as far as the borders of the Cimmerians.

Possible derivation of the Thracians from Tiras.

It will be seen that according to this genealogical scheme, deduced from the Book of Genesis, the dispersion of the Japhethites was wholly to the westward

Biblical scheme represents the Japhethites as developed westward.

from the point of departure. This indicates that the eastward migrations of the race, so important in the subsequent development of the Medo-Persian up-

lands and India, were unknown to the Hebrews, or at least omitted from the ethnic tables which they preserved. As a general fact, the Hebrew accounts of peoples other than themselves were limited to the necessity of the case, while the movements of the Abrahamites were expanded and developed in full proportions.

A second observation relative to the Japhetic dispersion is that according to this sevenfold tribal scheme all, or nearly all, the races of Indo-European origin are located in Armenia and around the shores of the Black sea. The territory contemplated by the Hebrew author extended westward into Phrygia and at least as far as the Ægean islands. It is safe to mark out the wilds of Thrace and the island of Rhodes as the westernmost boundaries of the Japhetic dispersion as deduced from the tribal references in Genesis. But if we examine the geographical knowledge which was possessed in the times of the composition of the earlier Hebrew books, and join to this the comparative indifference of the race to the movements and distribution of the Japhethites, we can discover sufficient reasons for the imperfection or inadequacy of the ethnic scheme. It now remains to look at the question in the broader light of historical and linguistic indications.

It has already been indicated in the first chapter of the preceding book that the study of language has led to many rectifications in the general scheme of knowledge. In no other department of science has this correction and emendation of previous opinion been more manifest than in ethnography. One of the most striking examples of the improvement of the old scheme of learning

How far the Hebrew outline of Japheth extended.

Great contribution of linguistic science to ethnography.

by the new linguistic contribution is found in the discovery that the Indic peoples of Hindustan have certainly been derived from the same origin with the great nations of Europe and America. The bringing to light of the identity of Sanskrit in its elements as a language with the Greek and Latin opened up a totally different view of the movements and distribution of the Indo-European family of men. The slightly subsequent demonstration of the identity of the language in which are recorded the sacred writings of the Iranic or Persic race, added proof to proof of the great community of the six or seven branches which are now known to compose the Aryan family of nations.

Ethnographers were quick to seize upon these additions to their previous knowledge; and one of their first works was to trace backward the Indic streams of mankind through the passes of the Hindu-Kush to its confluence with the Iranic stream, and then to follow up the Old Indo-Persic family in its descent from an ancestral home common to themselves and the Græco-Italic stock in Europe. These ancient and shadowy movements, most important in the dissemination of the strongest peoples in the world, have now been sufficiently delineated, and the scholar of to-day may trace with comparative certainty the ethnic lines which mark the course of primitive peoples from the great center which they had in common, eastward of the Lower Caspian, to their several destinations in distant continents.

The primary movement of the Old Aryans in the geographical vortex just referred to appears to have been a sort of spiral, throwing off streams east and west from its circumference. The oldest

Discovery of Indo-Iranic affinities by means of Sanskrit.

First movements of races from the Aryan nidus.

of these departures was that toward the southeast. It contained the potency of two principal developments, an older and a younger; the former finding its geographical area of expansion on the table-lands of Iran, and the latter continuing in migratory movements to the east, until it descended from the mountain gaps into the Punjab, and thence down the Indian valleys to the sea.

The first peculiarity of this remarkable departure is the fact that it stands alone of all the Aryan migrations in having a general direction *toward the east*. All the other dispersive movements of this race were *to the west*, the tendency being in common with that of the Semitic and Hamitic families on the south. The Eastern Aryans, however, made their departure *against* the course of nature, and followed it persistently across nearly a third of Asia to their final lodgment and distribution in the East.

The reason for this reversal of the general migratory movement to the West, and of the departure of the Eastern Aryans from what appears to be a common ethnic law, is difficult to determine. The earth is held in equipoise by the electric currents with which it is girdled and by which all its magnetic elements are polarized. These encircling influences, which are doubtless determined in their fundamental direction by the diurnal course of the sun, extend into and control all the vegetable and animal life on the surface of the planet. Every vine and tendril that springs from the earth and seeks a support twines around the object to which it fastens in obedience to a common law which determines the *method* and *direction* of the growth. No mechanical means or contrivance can prevail against this obvious and invinci-

ble tendency of a vine to turn in its own direction about the object on which it seizes. In general, the tendrils of the vegetable kingdom follow the course of the sun, from left to right in a circle. In the animal kingdom the same phenomena recur. Bees departing from the parent colony follow, in every country, a given line of migration. Birds and quadrupeds also obey these cosmic influences, but are somewhat more variable in the directions of their tribal movements. As we shall see further on, the Brown races of mankind have in general carried the lines of their migration to the *east* instead of the *west*; and the same is true of the Australian and Papuan streams of dispersion among the Blacks.

But the Aryans have shown almost a passion for the westward course. All the original ethnic movements of this great division of mankind were toward the setting sun, with the single exception of that which we are now considering. Why should the Indo-Persian migration have disobeyed the general law? Why should the Ruddy race have contributed to populate the valleys of India at a distance so great from the original tribal departure? It may be said in answer, that the vegetable kingdom is not quite uniform in the directions of its growth. There are a few exceptional instances in which vines and tendrils are specifically opposed in their method of growth to the action of the common law, and when such reversal of the usual order is discovered in a given plant, it is found to be as obstinate in its manifestation as are those which conform to the usual methods of development. It is possible that something analogous to this may have prevailed among the Eastern Aryans to the extent of a prevalent instinct contrary

Possible reason  
for the direction  
of Indo-Persian  
migration.

in its action to the usual desires and dispositions of the race.

At any rate, the first great migration of this family of mankind was toward the rising sun. The epoch in *time* in which the movement began

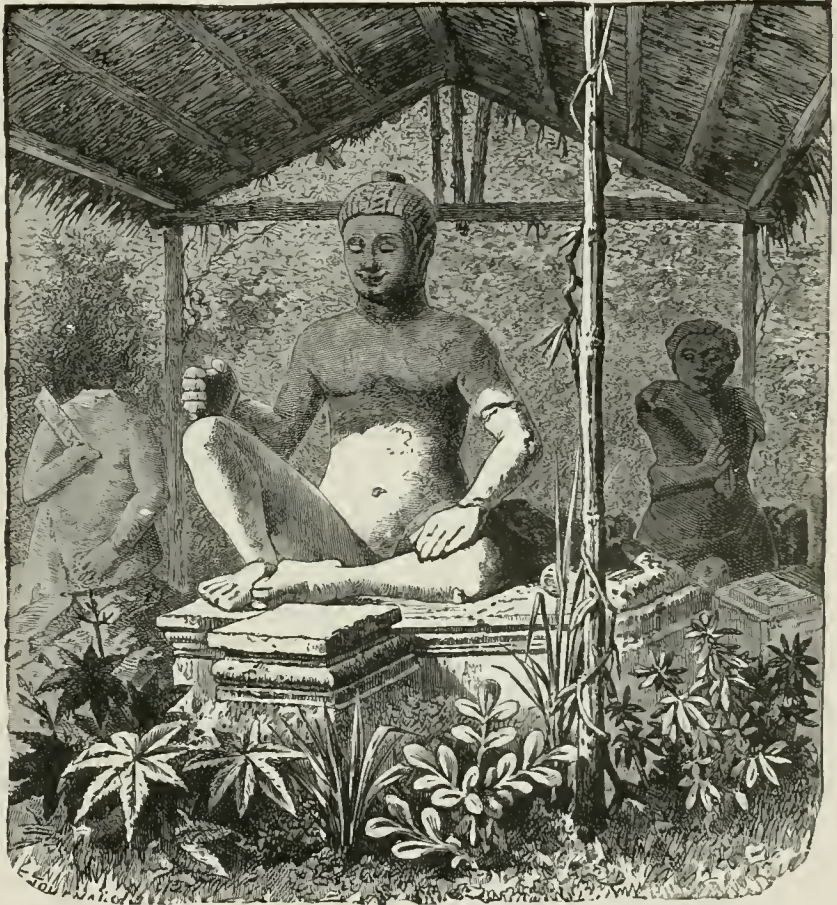
can not be ascertained, but the *condition* of the migrating nation has fortunately been,

to some extent, preserved in the language. The old books of the Iranic and Indic races have been to the ethnographer what the stone-leaves of the earth are to the geologist. There are even to be discovered in these works some hints of chronology. It is now conceded that the Rig-Veda is the oldest book in the possession of the human race. It may be that investigations hereafter among Orientals, particularly the Chinese, may substitute some other work for the Hindu Bible. It is now generally admitted that the

earliest hymns of the Vedic collection go back to wellnigh three thousand years before our era. The sacred books of Zoroastrianism were compiled at a later date. The evidence of language is sufficient to show that the Iranic speech and religious institutions were developed at a period considerably

subsequent to that from which the Rig-Veda proceeded. It is possible that the hymns and ceremonials composing this most ancient book were sung or chanted by the Aryan tribes long before they descended into the valleys of India. It is certain at least that the language was well forward in evolution of structure and determination of vocabulary while

Light derived from Iranic and Vedic literature.



TYPE OF THE ANCIENT BRAHM—LEPER KING OF ANGCOR WAT.  
 Drawn by E. Tournois, after a sketch of Delaporte.

the Iranians and Indicans still drifted in a common migration toward the south and east.

The distribution of the Indic peoples, first into the Punjab and afterwards into the lower valleys, thence into the uplands, and finally eastward to the foothills of the Himalayas, has already

been described. It was here that the great race of Brahm expanded through centuries of progress into that fixed national form which we discover in the earlier epochs of authentic history. Here the Brahmanic form of worship prevailed. Here the Indian castes were established in society. Here those peculiar philosophical theories of life and duty and destiny were evolved which seemed to be an exact reversal of the beliefs and dogmas of the Western nations. It will be the work of a subsequent chapter to trace out this easternmost development of the Aryan peoples, to note its peculiarities and tendencies, and to contrast the life of the Hindu peoples with the more aggressive and active social phenomena exhibited by the primitive races of Europe.

In the case of this migration we have another example of the disposition of primitive tribes to hang together and maintain their solidarity for a considerable distance toward their unknown destination, and then to depart into two or more courses of independent development. While the Indic branch of the

Expansion of the race of Brahm in India.

Primitive tribes hang together in the migratory movement.

eastward-bearing Aryans had been making its way farther and farther toward the Indian valleys, the Iranic division gradually spread from the common movement and turned into the half-desert plateaus on the south. The movement was first into Media Proper, and then into Persia. The course of this branch of the race, which may be defined as Indo-Iranian, appears to have been almost exactly the reverse of that of the original Ruddy stock making its way north and westward from the shores of the Indian ocean.

It is not the purpose at the present time to note in extenso the establishment of the Median tribes and their organization first into a political community and then into a kingdom. It is well known that the Medes preceded the Persians in the formation of a body politic and in the development of the arts. We are here, however, on the borders of history, and pass, for the present, from the eastward dispersion of the Aryans, to note the still wider and more significant distribution of the race into the westernmost parts of Asia and thence into Europe.

The Medes precede the Persians in historical development.

## CHAPTER XXVIII.—THE WEST ARYAN MIGRATIONS.



It is clear from the evidence in possession of modern scholars that there was an attempt on the part of the original Aryans to make their way around the eastern shores of the Caspian and thence westward across the Ural river; and it is also clear that this movement did not succeed. The migrations in

this direction reached no further to the north than the sea of Aral, where the course of the tribes was permanently checked. It is more than likely that the climate in this region was so severe as to prevent further progress in that direction. The country between the Lower Ural and the Aral sea is one of the bleakest and most forbidding in the world, and Aryan adventure was stayed in this direction.

In these facts we discover another example of the peculiarities of migratory tribal movements. Ethnic progress is by no means so rapid and exact as the word *migration* would imply. These north-bound Aryans, if they had been "emigrants" in the modern sense of that

Sense in which "migration" is to be understood.

word, would have continued their course around the Caspian to the north, and would have found an ample vent for westward expansion afterwards. But the movement of primitive tribes is a *progress* rather than a *migration*. The removal from place to place is slow. It involves camping, temporary settlement, and a test of the locality as to its resources and suitability for permanent abode. The ethnic movement is thus tentative in its whole course. It puts out in this direction and in that, testing the climate and the resources of the region, and spreading

into different tracts adjacent until the course of further migration is determined by the inviting or uninviting character of the borders beyond. There is a sense in which the migrating tribe is always *tempted* to proceed on its way in a given direction. The imagination is allured to the extent of inciting a new departure. While the natural instinct of the race, in the form of cupidity or the

spirit of adventure, furnishes the bottom impulse of the progress, the suggestions of the natural world determine its course and the rapidity and oscillations of the forward movement.

The north-bound migration which we have here described, and which ended with the Aral sea, contributed an abo-



KARAKALPACK TYPES—TWO USBEKS.  
Drawn by A. Ferdinandus.

original race between the Oxus and the Caspian. Here a single Indo-European family is represented which doubtless owes its origin to the very primitive movement just described. The Karakalpacks, whose territory lies immediately north of the Atrek river, which empties into the Lower Caspian from the east, are probably of Aryan descent,

Northern limits of Aryan dispersion in Asia.

as are also a second tribe, called the Usbeks, who have their habitat further to the north; also the Tadshiks, holding the country immediately south of the sea of Aral, at the *débouchure* of the Oxus, are Indo-Europeans, and are the northernmost of the Aryan peoples of Asia eastward of the Caspian sea.

the Caucasus. Defined in terms of ancient geography, the course was across Media, through Atropatene and Armenia Major. In all this region—such was its geographical constitution—the migratory race appears to have held together. Indeed, it was not possible that there should be dispersion in a country



CAUCASIAN TYPES.—GEORGIAN WOMEN.—Drawn by Eugene Burnand, from a photograph.

In the meantime a still stronger migratory movement of the Aryans had taken place directly to the west. The stream of departure in this case carried in its current the potency of all the European nations. It extended primarily south of the Caspian along the upper parts of Mesopotamia, and was held from northern deflection by the spurs of

Sources of the race movement into Europe.

so confined. All of the ancient states which we have just mentioned were strongly Aryan in their original population, from which circumstance it is easy to discern how Aryan influences would press upon ancient Assyria from the east and modify that nationality by the infusion of many foreign elements. The modern countries of Mazanderan, Ardalan, and Adarbijan hold a similar rela-



tion to the Mesopotamian regions, and the pressure of the Kurds upon the peoples between the Tigris and the Euphrates has in progress of ages amounted to a conquest.

After reaching the more open region midway between the Caspian and the Black sea, the Aryans divided into two major streams, one continuing the westward course, and the other passing through the Caucasus mountains into Armenia. It is at this point that the line of departure to the right enters the Russian empire of modern times.

The first peoples of Aryan stock deposited in the region of this divergence were the Armenians and Georgians. Here is the seat of that great division of mankind to which the ethnographers of the last century gave the name of *Caucasian*. Until the more comprehensive scholarship of recent times had thrown a stronger light on the question, it was supposed that the White, or Ruddy, races had all issued from this source, the southern branch passing into Asia Minor, and the northern being carried around the Black sea into Europe. It is now seen, however, that the real origin of the Aryans lay further to the east, and that the starting point of dispersion in the Caucasian region was only secondary to an older departure beyond the Caspian.

It will be desirable in following out the great migrations which we are now to consider to take up first the western branch of departure and follow the same into Asia Minor, and thence into peninsular Europe. If from the eastern extremity of the Black sea to the north-eastern limit of the Mediterranean a line be drawn, we shall find that all of the original peoples of peninsular Asia lying

west of the line and east of the Black sea were contributed by the principal stream of Aryan migration to the west. This movement entered the peninsula centrally from the east and was distributed into all parts, especially around the southern shores of the Black sea. The only exception to the ethnic distribution here stated is the possible Pelasgic line of the Hamites, carried around from Syria into the archipelago. Otherwise, all of the prominent nations who, out of prehistoric shadows, came into view with the beginning of authentic history in Asia Minor were of a common Aryan descent, and this descent was immediately from the point in the Caucasus where the primitive races of Northern Europe took their departure into Great Russia and the West.

The Aryans, once in Asia Minor, found themselves in a region inviting to development. The result was that in the earliest ages of history many states were created within a comparatively limited territory. Kingdoms and empires that even contended with the great powers of Mesopotamia arose in several parts of this Lesser Asia; and if the country had been as fortunate in the preservation, by literature and monuments, of the story of its past as were the states of Assyria, Egypt, and Greece, we might expect some of the most striking contributions to the ethnography and annals of primitive times. It will be fitting in this connection to notice a few of the leading peoples who were developed from the Aryan stem in the country between the Black sea and the Mediterranean.

If any of the nations within the limits here defined belonged, in whole or in part, to other than an Aryan stock, it was the Cilicians, lying at the extreme

First races planted on the lines of the outgoing.

Multiplicity of ethnic plantings in the Lesser Asia.

Origin of the Minor Asians; Hamitic influences.

east of the peninsula and along the Mediterranean border. The physical

features of this country are the Taurus mountains and the river Cydnus, both famous from the remotest ages for their historical associations. The belief is prevalent that the Phœnicians were first to colonize these regions, and it is quite likely that their adventurers and seamen passed around the coast and established settlements as far west as Lycia. To the extent that the Phœnicians had as the basal element in their race character an element of Hamitic descent, it will be proper to regard the Cilician race, especially of the seacoast provinces, as descended from the southern branch of the Noachites. But subsequently the incoming Aryans gave another complexion to the people. Cilicia was Aryanized, and remained ever afterwards virtually an Indo-European state. In the times of Hellenic colonization the Greeks sent around maritime bands, who settled along the Cilician coasts, and thus completed the race revolution which their ancestors had begun in prehistoric ages.

North of Cilicia lay the still greater country of Cappadocia. The primitive race inhabiting this region was contributed directly from the Aryan migration westward. Indeed, the region lay immediately in the path of the great movement, and the people sprang up from the elements which were dropped by the race on its progress toward the Black sea. The same may be said of Paphlagonia, lying in the inner curve of that sea on the south. We have already seen that these countries were assigned by the Hebrew account to the sons of Japheth. Paphlagonia is believed to have belonged to the Kittim of the Japhetic dispersion, while the same

Place and race composition of the Cilicians.

country is by other writers assigned to the Riphaces, descendants of Riphath, the second tribal head of the Gomerites. Immediately west of Cappadocia lay the still more important country of Phrygia, with its northern peninsula next to the Propontis. This region also lay immediately under the center of the migratory line, and the primitive population was distributed in the manner already described for Cappadocia. The political power subsequently developed in this part of Asia Minor was of great importance in the earlier historical times. The state was touched on its various borders by Bithynia, Paphlagonia, Cappadocia, Lyconia, Pisidia, Lycia, Caria, Lydia, and Mysia. It was the center of the Lesser Asia. The country of which we here speak was called Greater Phrygia, to distinguish it from the extension of the same region along the Propontis, which was known as Lesser Phrygia.

Beginnings of Cappadocian and Paphlagonian races.

According to the traditions of the various races of the peninsula, the Phrygians were the most ancient nation of Asia Minor. They were thought by the Greeks to be in close race affinity with the Thracians. There are also hints of their relationship with the Armenians on the east. Both of these conjectures of the ancients were correct. The Phrygians were the result of a migratory movement out of Armenia into the countries of the West, and the people were accordingly allied, by race descent, on the east with the Armenians, and on the west with the Thracians. It is not the place to review the important historical bearings of Phrygia in the earlier ages of Grecian history, or to repeat the traditions and legends which have been preserved of the nation.

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South of Phrygia lay the smaller states of Caria, Lycia, and Pisidia; and to the

Rise of the Phrygians; their kinship with the Armenians.

north, on the shores of the Black sea and reaching to the Bosphorus, was the country of Bithynia. All of these districts were peopled by tribes who were dispersed right and left from the original Aryan migration which brought the ancestors

Other Minor  
Asians; Lydi-  
ans in particular.

the Ægean were from the earliest ages intimate. The Lydians were to the Ægean sea what the Phœnicians were to the Eastern Mediterranean. In the arts and sciences they antedated the Greeks, and their history is only second in importance to that of the Hellenic states.



ROUTE OF WEST ARYANS THROUGH ASIA MINOR.—PASS OF HADJIN, IN CAPPADOCIA.  
Drawn by Grandsire, after Langlois.

of the Europeans to the eastern borders of the Ægean sea. Immediately west of Phrygia, next the archipelago, was the important state of Lydia. The history of the people who were here developed is better known than those who grew into importance further east. The Lydians were nearly allied to the Greeks. The Ionian cities were on the Lydian coast, and the commercial relations between the peoples on the two sides of

We have thus noted the westward progress of the Aryans through the whole country from Upper Mesopotamia to the Ægean sea. This region of Lesser Asia presented one of the earliest fields of Aryan development. While the Medes and Persians on the east of the Zagros, and the Indic Aryans in the Punjab, were laying the foundations of their respective nationalities, the

Minor Asians  
contemporary  
with the Irani-  
ans and Indians.

various peoples of Asia Minor, all closely allied by race descent and common institutions, were settling from the nomadic state into permanent residence, discovering the native resources which were richly distributed in their country, and creating those institutional forms out of which great monarchies, rivaling those of the valley of the Euphrates and the Nile, were to spring and flourish.

It is probable that the westward progress of the Aryan race was considerably delayed by its course through Asia Minor. The richness of the country in resources, the fertility of the soil, the abundance of the forests which prevailed in prehistoric times, the acceptability of the climate, and the general beauty of the landscape invited to residence; and here the migratory and adventurous spirit would be checked. It was only after the peninsula began to be well filled with the immigrant race, when the nations began to contend and displace each other by conquest, that the old migratory impulse revived and progress toward the west was continued. These circumstances may account for the fact of the *different streams of migration* which appear to have discharged their volume into the Hellenic peninsula.

With the resumption of the movement to the west from the shores of Lydia we have the picturesque episode of a race crossing the Ægean by means of the archipelago. The Cyclades are generally within easy sail the one of the other, and the passage of a primitive people would be easy. The gradual spread of Phrygian and Lydian adventurers into these waters presents an aspect of dispersion quite as unique as it is poetical. Some ethnographers maintain that the incoming of the Hellenic

race into Hellas Proper was by means of this island progress across the Ægean, while others hold that the true Hellenes dropped into Greece from the north, out of Thrace, whither they had drifted out of Lesser Phrygia, across the Hellespont.

Perhaps the truer view would be to ascribe the Hellenic peoples to both of these origins. Several kinds of evidence point unmistakably to the conclusion that the Hellenes were out of Phrygia. The Greeks themselves, though many of them held to the mythological opinion of an earth-born, or autochthonic, origin, recited the legend of a northern descent, and it is almost certain that a majority of the incoming tribes descended out of Thrace through Thessaly, where they had found a footing and partial development, after their migration from Asia. But that the general progress of the Aryan peoples was continued out of Asia Minor across the Ægean archipelago into the mainland, thus making the two streams confluent in the Hellenic peninsula, can hardly be doubted.

Great was the restlessness of the early races in Greece. They were, perhaps, the most turbulent tribes of whom history has made a record. Ages elapsed before permanence of settlement was attained. They were ages of myth and adventure. The gods were mixed with the men, and the Titans stood between. It now appears that the older name of the people was in their own language *Graikoi*, a term which the immigrants had evidently applied to themselves with a view to distinction from more barbarous peoples. The word *Graikoi*, which subsequently, in the Latin form of *Gracii*, became the designative of the

Reasons for the different streams of Hellenic migration.

Principal migratory route by way of Thrace and Thessaly.

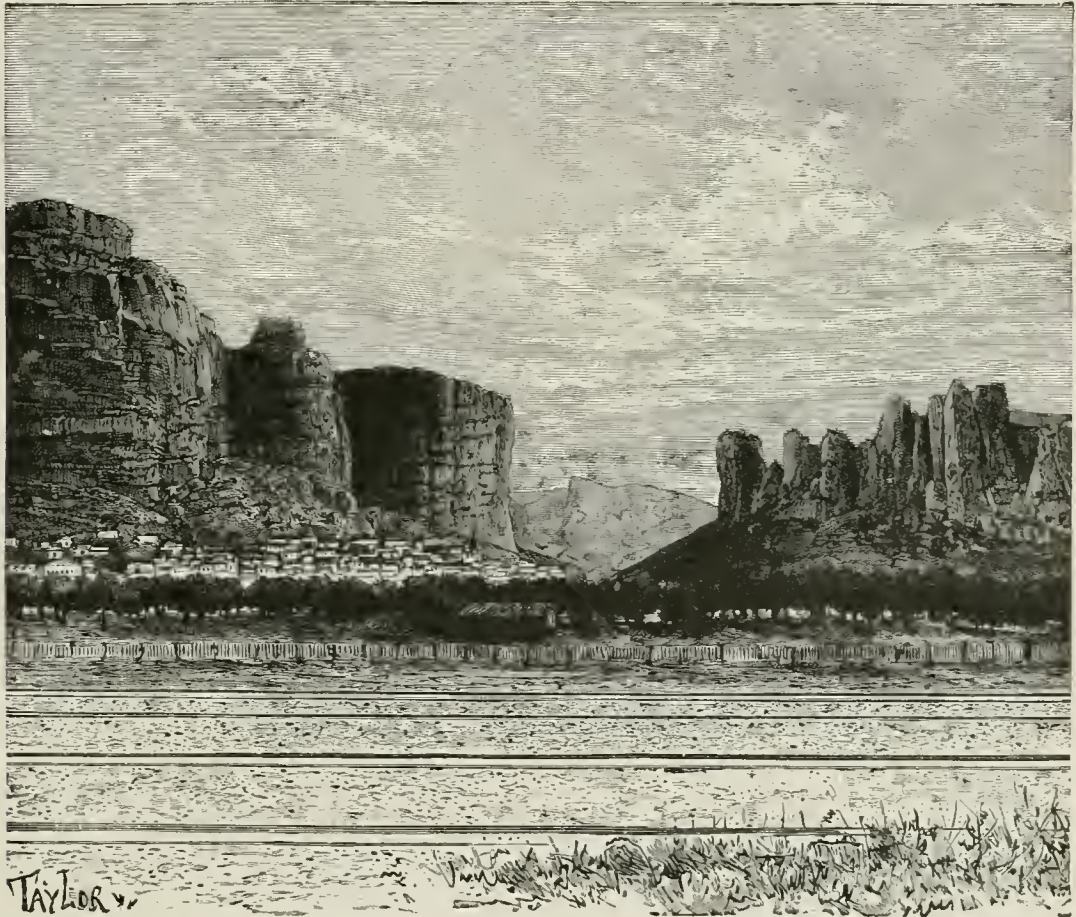
Ethnic restlessness of the *Graikoi*; meaning of the name.

Race progress through the Cyclades into Hellas.

Hellenic race among all peoples, signified old, or honorable. It was thus very nearly equivalent to the Latin *senator*. Aristotle declares that ancient Hellas was the country about Dodona and Achelous. "Here," he adds, "lived the *Selloi* and the people then called the Graikoi, afterwards the Hellenes." Thus

itself the elements which were afterwards to be distributed in Italy and to become the germs of the Italic, or Latin, race. The exact shape of the migration in this respect is, of course, unknown. It is sufficient to allege that the migratory wave out of Asia carried

The Greek migration contained the potency of the Italic.



ROUTE OF THE GREEK ARYANS INTO HELLAS.—PASS OF KALABAKA, THESSALY.—Drawn by Taylor, from a photograph.

it appears that the Greeks, in course of time, rejected the older national name and substituted Hellenes as the title by which they would be known among the nations.

We may here pause to anticipate what will appear in a subsequent part of the present chapter; that is, that this Greek, or Hellenic, volume of tribal life flowing into Hellas contained along with

the potency of both the Greek and Latin peoples. The uncertainty is as to which foreran the other. It is possible that those tribes which were destined to plant themselves in Italy were the vanguard of the whole movement. Again, it is possible that the Celts of the extreme west went before the Latins, but the likelihood is that the Celtic stem was bent around from the north of Eu-

rope and did not cross by way of the peninsulas. It is possible also that the prehistoric Greek and Latin stocks held together as far west as the Hellenic peninsula, from which point the Latin branch continued its course to the west. It is sufficient to know that the name Græco-Italic, designating the whole stock, is appropriate as descriptive of its ethnic character, until the two peoples were differentiated and distributed into their respective countries.

Students of language have been curious to inquire into the relative antiquity of the two races as determined by their respective dialects. It is

Linguistic hints as to priority of Greeks or Romans.

a remarkable fact that the evidence points *both ways*.

There are parts of the Greek grammar and vocabulary which are manifestly older than the corresponding parts in Latin, and, on the other hand, there are Latin constructions and words which are just as clearly of a higher antiquity than those of Greek. Thus the preservation of the ablative case in Latin points to the retention of a form of grammar which had died out of the more recent grammar of the Greeks. *Sumus*, the first person, plural, of the verb *to be*, is much more nearly identical with the Sanskrit *asamas* than is the corresponding *esmôn* of Greek; that is, *esmôn* is the more recent grammatical inflection. On the other hand, the retention in Greek of the dual number in nouns and of the middle voice in verbs indicates an older grammatical structure than that exhibited in Latin grammar, where no such nominal and verbal inflections exist. Likewise, the much more complete evolution of the Greek verb, considered in its entirety, and of the adjective, with its one hundred and thirty-five inflectional blossoms, shows a closer alliance with the full tables of the older Sanskrit

than the narrower and later forms of Latin. There is, however, nothing really paradoxical in this seemingly contradictory testimony of language as to the relative age of the two races; for it is easy to perceive that *in some respects* the Greek tongue might preserve the older forms, while in other peculiarities Latin would retain the ancient structure and vocabulary less impaired by time and migration than in the corresponding linguistic development of the Hellenes.

Early in the mythical age, the incoming tribes superimposing themselves upon the Pelasgian peoples already in the peninsula, ceased to designate their

Rise of the system of ancestral mythology.

race as Graik, and took up a sort of ancestral mythology, which they ever afterwards zealously disseminated. The story ran thus: The ancestor of their race was the immigrant hero Hellen. He was the son of Deucalion and Pyrrha. He led his tribe into Hellas after the Deluge. Hellen had three sons, Dorus, Æolus, and Xuthus. Dorus became the founder of one race and Æolus of another, while the two sons of Xuthus, Ion and Achæus—like Ephraim and Manassah, sons of Joseph, in the Hebrew scheme—rose to equal rank with their uncles, Dorus and Æolus, and became the heads of the Ionians and Achæans. It will be noticed in this table of family dispersion that the name Ion reappears, recalling the Hebrew Javan and also the Hindu name Javanas, which occurs in the *Laws of Menu*, and is thought to designate the Ionians. This legendary account of the origin of the principal Greek races was accepted by the credulous Hellenes as an ample and final explanation of their origin and diversities of national development.

Historically considered, the Hellenes present two great branches of race

evolution: the one Dorian, and the other Ionian. These two are separated from each other by such marked characteristics as to distinguish them in all epochs of Greek history. The Æolian tribes do not appear to have diverged greatly from the common ancestral type. The term Æolian may well be regarded as discriminative of a number of partly developed Greek peoples dwelling in the northern part of Hellas, particularly in the plains of Thessaly. With the jostling of the other races from their original seats, however, the Æolians became more distinct as a people. When the Dorians possessed themselves of the Peloponnesus, the Æolians passed over to the northwest coast of Asia Minor and established there a confederation of cities under the name of Æolis. They also populated the islands of Lesbos and Tenedos, from which insular seats the Æolic dialect of Greek spread into other regions, and left behind some scanty specimens in Hellenic literature.

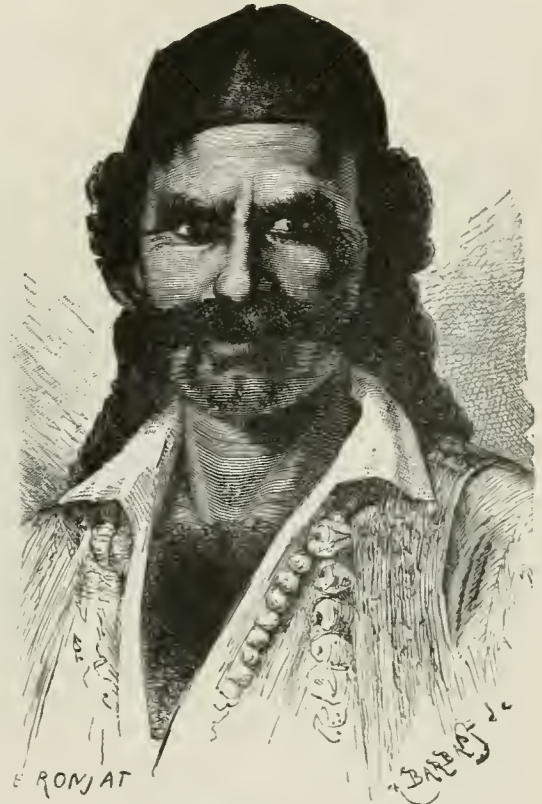
The Æolian was the least important development of the Hellenic race. The Dorians were far more powerful and famous. Their native seats in the peninsula appear to have been between the ranges of Olympus and Ossa. At one period they invaded Macedonia and took possession of a part of the country, but were afterwards expelled. They established themselves in the island of Crete, and made the little state of Doris the seat of their power until the so-called "return of the Heraclidæ" carried them into Peloponnesus. Here they became predominant, and were the virtual founders of the powerful states of Sparta, Argos, and Messenia.

It was from this epoch in their development that the Dorians became so

strongly discriminated in their character from the other Hellenes. They became austere, rough in manners, and laconic in speech, to the extent of transmitting their name to all after times as a synonym for the peculiarly selfish, stoical, and indifferent character which they presented in their own age. Even the architecture which they cultivated retained unmis-

Place and characteristics of the Æolians.

Evolution and race character of the Dorians.



MODERN ACHÆAN TYPE—ODYSSE.  
 Drawn by E. Ronjat, from a photograph.

takable traces of the simplicity and severity of the Doric race, and the same may be said of that variety of Greek which they spoke, and out of which the dramatists, especially the tragedians, of the literary age were prone to draw those archaic and rude forms of versification peculiar to the Greek tragical chorus.

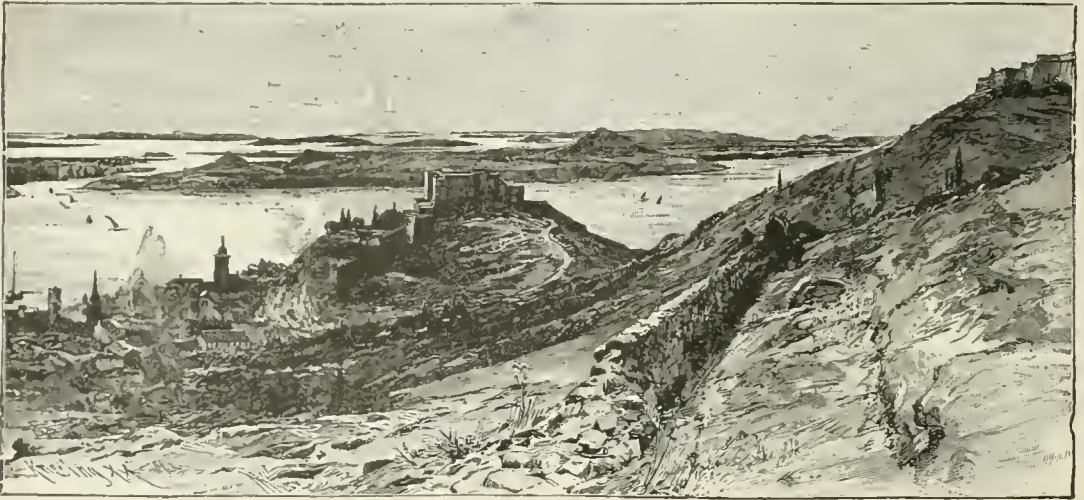
Ancient Ionia was on the coast of Asia Minor, between the rivers Hermus and

Mæander. The adjacent islands of Chios and Samos were included with this dependency. How far the Ionians, or Javanites, had been distributed along this shore before their migration into European Greece can not be stated with certainty. The country above defined was determined in its limit after the return of the Ionians, in later times, and their resettlement in the region of their ancient home. Here it was that they founded the Ionian confederacy of twelve states or cities called the Dodecapolis.

Situation of  
Ionia; the Do-  
decapolis.

It remains to note the geographical situation of the Achæans. It is believed that in the heroic age Mycenæ, Argos, and Sparta were peopled by tribes of Achæan descent. This race also extended into Thessaly. Indeed, the latter country is thought by ethnographers to have been their original seat, whence they migrated into Peloponnesus. The importance of this branch of the Greek race was greatly lessened in the time of the Hellenic ascendancy. In the Homeric age the

Rank and rela-  
tions of the  
Achæans among  
the Greeks.



ROUTE OF THE GRÆCO-ITALICANS.—SEBENICO, ON THE DALMATIAN COAST.—Drawn by Charles W. Wyllie.

Many of the most important maritime towns of the fifth, fourth, and third centuries B. C. were included in the list. Here were Miletus and Ephesus, Clazomenæ and Phocæa. The city of Smyrna was transplanted, about 700 B. C., from the Æolic to the Ionian confederation. In course of time this assemblage of important communities became subject to Lydia, and after the overthrow of Croesus they were annexed to the Persian empire by Cyrus. Ionia furnished the field of broken faith and conflicting interests from which began the great struggle for the subjugation of Greece by the Persian kings.

leadership of the Achæans was constantly recognized, and in the *Iliad* their name is many times employed as a synonym for the whole Greek host engaged in the Trojan War. They appear, however, to have been lacking in the elements of intellectual greatness. In the later epochs of Greek history the term Achæan sank from its old heroic sense into a name of contempt. But it is of interest to note that, geographically at least, the relative importance of the race was acknowledged by the Romans, who, on their conquest of Greece, gave the name of *Achaia* to the whole province.



Such is the outline of the distribution of the early Aryan tribes in Hellas. The geographical relations between that peninsula and

Easy ethnic relations of Greece and Italy.

Italy were always easy.

The Adriatic is, even in its widest part, a narrow body, easily crossed from shore to shore. The course out of Epirus around the coast into Upper Italy is crossed with no barriers and attended with no difficulty. It can not be known by which of these routes the primitive peoples of Italy were distributed to their several tribal localities in the West, probably by both. It is safe to assume that a race which had made its way from beyond the Caspian, passing centuries en route in a contest with the forces of nature and crossing from island to island in more remote ages, would easily navigate the Adriatic. And this is the more likely highway of the prehistoric Italians.

According to our best information there were four principal groups of peoples in primitive Italy. On the south we find the Iapygians, or Ænetrians, with their several branching tribes, occupying first the peninsular projection next to

Place of the Iapygians; races of the north.

Greece, and afterwards the whole country across to the Tyrrhenian sea. Some

ethnographers have concluded that these southern peoples were not of Aryan descent, and it is possible that the Hamitic lines which we have agreed to carry into Italy distributed some branches in the southern parts as well as in Etruria. Upper Italy was occupied on the east by Gaulish, that is, Celtic, tribes, of which the Lingones and Insubres constituted the chief. On the west, as we have already seen, were the Etruscans, who were clearly a foreign race, differing radically in language and development from the other Italic peoples.

The greatest group of primitive tribes belonged to Central Italy and were nearly allied in ethnic descent.

Distribution of the Umbro-Sabellian tribes.

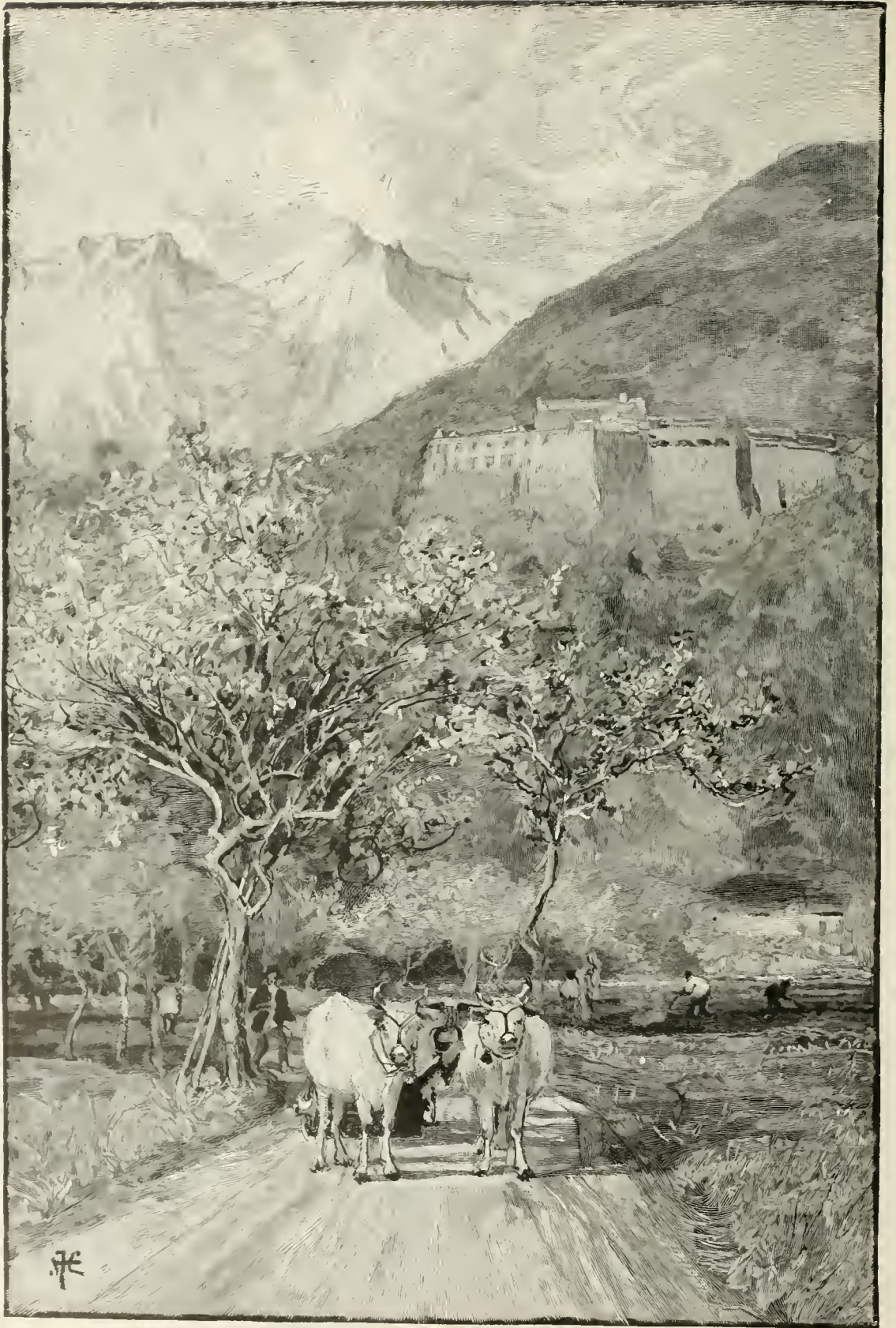
Of these peoples there were five distinct stocks, namely, the Umbrians, the Sabines, the Latins, the Volscians, and the Sabellians, commonly called Oscans, with their two branches of Samnites and Campanians. This scheme covers in general the populations which were distributed in the country stretching across from the Central Adriatic to the western shores of Italy.

The first of these nations, called Umbrians, had their original seats on the Adriatic, between the Rubicon and the Æsis. The western boundary was the Apennine range and the Tiber. It is likely that in early times their territories were still more extensive. But before the rise of the Roman gens the Umbrians had already declined, and were easily subordinated by the dominant people. The territory of the Sabines lay close to Latium, and they and the Latins had intimate relations from the earliest times. The Sabine district was rugged in physical features and inclement in climate, and the opportunities of development were much less favorable than those of the people on the west.

The origin of the *Latins* is involved in inextricable myths. Poets and fable-makers of republican and imperial Rome elaborated and inflected the legendary

Myth and tradition of the primitive Latini.

lore which they had received from antiquity until it resembled the Greek fables in complexity and contradiction. One myth assigned to the Latins a Pelasgic origin, in common with the Peloponnesian Greeks and the Etruscans. More famous was the tradition of a descent from the heroic families of Troy. A more obscure legend assigned the moun-



LAND OF THE ANCIENT LIGURIANS — MASSA, NEAR CARRARA — Drawn by J. Fulleylove

tainous parts of Central Italy as the native seat from which the founders of Latium had descended into the low countries of the west. There was an attempt in all this to bring in, after the Greek fashion, the agency of the gods, and to make it appear that the Latins were of divine origin and fatherhood. It is sufficient to recognize the kinship of these peoples with the other races associated with them in historical development in Central Italy.

The Volscians were prominent among the prehistoric peoples of the peninsula. They had for their neighbors the Sabelians, or Oscans. Their home was in the forbidding mountain district with which their name is geographically associated. At the beginning of authentic history they had ceased to be a separate people, and the remains of the race are scanty and imperfect. It may be said, however, that their isolated situation in the mountains tended to preserve their dialect from the mutations to which the languages of the neighboring tribes were subjected.

In the earliest times the Oscans possessed the largest territory in Central Italy. Their country extended well to the south, and this wide region they continued to dominate until Rome began by conquest to become mistress of Italy. Of the various Oscan peoples, the Samnites were the most powerful tribe, though the Campanians, Lucanians, and Bruttians were all important peoples before the ascendancy of Rome.

If we glance to Northern Italy, we find three peoples of different ethnic descent in that region. The Gauls proper occupied the great plains in the valley of the Po and its tributaries. Their coun-

try extended from the Alps to the Apennines and the Adriatic. It was commonly conceded that their immigration into Italy had been of a later date than that which must be assigned for the coming of the central nations. The principal divisions of the Gaulish race were the Insubres and the Senomani on the north of the Po, and the Boii and the Lingones on the south of that river.

The second general division of the peoples of Upper Italy were the Veneti, whose country covered the whole head of the Adriatic from Istria on the east to the valley of the Po in the west. Corresponding with what is now the southern part of Piedmont lay the territory of the Ligurians, of whose origin not much is known. They came into the country, however, before the Gauls, and were doubtless allied in their race descent with the peoples of Central Italy. Such in general was the tribal distribution of those primitive races which in process of time were consolidated under the leadership of the Latins, and ultimately forged into the most powerful nationality of the ancient world.

It appears tolerably conclusive that the Græco-Italic migration reached its limit with the Alps on the north and Liguria on the west. Other Aryan tribes in course of time found their way through the Alpine passes, and penetrated the civilizations established by their kinsmen in the south of Europe. But the Italic race proper was stayed with Italy. We therefore return to the East and again take our stand in the region of the transcaucasus. Here, on the northern slopes of the Armenian mountains, we find the Aryan dispersion pressing boldly to the north.

In the country between the Caspian

Scanty knowledge of the Volscians; their situation.

Place and derivation of the Veneti.

Predominance of the Oscans; the Italian Gauls.

Limits of the Græco-Italic migrations.

and the eastern shore of the Black sea at least two ethnic departures were made from the main branch of migration. The first of these was to the right of the line of progress, and contributed the Ossetes and perhaps one or two other stocks of Indo-Europeans on the western borders of the Caspian. The other division seems to have been maritime in its plan, to have entered the Black sea, and to have carried itself in the direction of the Bosphorus. It is not unlikely that the ancient Phrygians, especially that part of the race inhabiting the Black sea coast, were contributed by this deflected movement out of Upper Armenia.

By the course of the line we are now pursuing we are unexpectedly brought into proximity with that country in Asia

**Ethnic movements by which the Celts reached Galatia.**

Minor which received the final migratory impulse of the Celtic race. Though we have not yet reached the point in ethnic dispersion from which that race took its departure from the main northwestern stem of Aryan progression, we may well anticipate sufficiently to account for the presence in Asia Minor, on the southern borders of Bithynia and Paphlagonia, of a country peopled by Celts. This is the province of Galatia. The population of this country was contributed by the bending back of the Celtic race from its western limits of migration in the remote parts of Europe. The movement in question presents one of the strangest aspects of race progress. It is that of an ethnic line carried backward from the lower parts of Spain, in the old country of the Iberians, around the northern coasts of the Mediterranean, across Upper Italy, and down through the valley of the Danube to the Bosphorus. The latter part of this movement took place in the historical era. In the third century B. C.

the Gallic people crossed over into Asia Minor and conquered the province to which they gave their own name. This invading migration was carried forward by three principal tribes and twelve tetrarchies, each directed by a chief, after the Celtic manner of warfare. It is instructive to reflect, while we here have our stand on the highlands of Phrygia or Pontus, that we are able to observe, as with a field glass, the northward movement of the old Aryan stock on the eastern borders of the Black sea, while, on the other hand, we can look down into Galatia, which was the terminus, after perhaps two thousand years, of one branch of the great migration.

If then, for a moment, we anticipate the departure of the Celts from the main Aryan stem, which we are now tracing, to the north, we shall find the same to have occurred about the valley of the Upper

**Point of departure for the Celtic dispersion in Europe.**

Dnieper. From this point the migratory impulse bore off almost due west, across the larger part of Europe. It traversed Germany, and crossed the Rhine in general conformity with the coast line of the Baltic. It is probable that by this first movement to the west no races were deposited in anything like permanence until the stream was dispersed in Gaul. If we seek for time relations in this great movement we are at fault, but the period of the Celtic migration could hardly have been less than two thousand years B. C.

It would appear from the invasion of Gaul and Britain by the Romans, in the first century B. C., that the Celtic race had already been long established in those regions, and that it had matured its institutional forms without disturbance. This is especially true of the

**Complete development of the race in Gaul and Britain.**

western parts of Gaul and of Britain, where the completeness of the druidical ceremonial and perfect condition of tribal government indicated a long occupation of the country. Ethnographers have not attempted to decide with certainty the priority of the respective movements by which the British Isles received their primitive Celtic population and Central Italy passed under the dominion of Græco-Italic immigrants.

In the beginnings of authentic history the Celts had already traversed Northern Europe, and had left traces of their progress in the east and actual tribes in the west. It was from this source that the Gauls (*Celtæ*), whom Cæsar declares to have been divided into three races of Galli, Aquitani, and Belgæ, were distributed. In all of

Wide distribution of the Celts throughout the West.

Europe west of the Rhine the Celtic race became predominant, almost to the exclusion of other people. If we except the Basques and Iberians, it may be said that the whole country between the Rhine and the Atlantic was Celtic as to its primitive population.

In the preceding book we have already pointed out the fact that prehistoric races occupied this part of Europe before the Aryan migration. What the condition of the aborigines was at the time

The Celtic races superimposed on aboriginal barbarians.



THE CELTIC VANGUARD, OF THE AGE OF BRONZE.  
Drawn by Emile Bayard.

of the incoming of the Celts we are left to determine by conjecture. We have seen the extreme barbarity which characterized the aboriginal life of the cave dwellers and other savages to whom primeval Europe seems to have belonged. Upon these rude races the Celtic tribes were superimposed, and the foundations

were laid of that condition which we perceive when the expanding power of Rome brought her legions into Gaulish territory.

As the Celtic race continued its way to the south, several streams of migration put off laterally to the coast. The most

Ramifications of the Celtic stock in the British Isles.

important of these crossed the channel into Britain, where it again divided, one

branch being carried over into Ireland, and the other penetrating the Highlands of Scotland. An examination of the Celtic languages has enabled the modern ethnographer to determine with toler-



OLDEST CELTIC TYPES.

From the Gaulish bas-reliefs found at Entremont, near Aix.

able certainty the original distribution of the race in the British islands. There were two general Celtic stocks. The first of these was the Gadhelic, or Gaelic, branch, which was divided into three departures: the Irish stem proper, called the Erse, the Scottish Gael, and the Manx. These linguistic divisions point unmistakably to the tribal separation of the Gael of the Highlands, the Irish folk, and the inhabitants of the Isle of Man. The second stem presents the British division proper of Celtic. This also parted into three: the first of which was the Kymræg, softened into Cymric, meaning the original speech of the

Welsh; the second was the Cornish; and the third the Armorican, being the language of Bretagne.

We thus note the dispersion of the Celts in our ancestral islands, and discover the parts of the coun- Bending back of Celtic migration to the place of beginning.

try appropriated by the several tribes. Meanwhile, far down in Spain the main continental stream of Celtic migration was bent backwards, as we have seen above, through the greater part of Southern Europe, making its way finally to the valley of the Danube and thence to the Bosphorus. From this point migration and warfare carried the race, as has been said, into Galatia, thus bringing it in its final distribution to a point so near to the original Aryan movement east of the Black sea that the old departure of the race to the northwest and its last distribution in Galatia after thousands of years of wandering might almost be seen with a field glass in the hands of the observer from the highlands of Eastern Pontus!

In resuming the consideration of the movement of the great northwestern branch of the Aryan race, Question of the race connection of Teutons and Slavs considered. making its way between the Black sea and the Cas-

pian, from the transeucasus toward the Don, we are confronted by another of the disputed questions in ethnography. This relates to the independent or dependent origin of the Slavic peoples in their relations with the great Teutonic family. Were the Slavs and Germans involved originally in a common movement out of Asia? Were they still a common people in their progress from their Asiatic origin to their European dominions? If so, where and when did they part company in linguistic and institutional development? Which is the older of the two races? Which, if either, is derived

from the other? Was the migration common to both, or were there *two migrations*, one Slavonic and the other Teutonic? These problems have been variously solved by different ethnographers, and the whole ground has been hotly contested since the question of race distribution assumed its present scientific aspect.

On the whole, it appears that the movement was common which carried these two races out of Asia into Europe. It may be safely alleged that the Teutonic and Slavonic peoples held together on their way to the north and far into the heart of Great Russia. It would be proper to call the whole line of progress from the Caucasus to the north, well up to the northern borders of the Russian empire, thence westward and southward to the borders of Poland, the Slavo-Teutonic stem. It certainly carried the volume of both races, both languages, both varieties of institutional forms. Above the sea of Azof, on the left as the migratory progress continued, a branch was thrown off into Sarmatia, from which that division of the modern Slavs, called Little Russians, have sprung. But the main line continued northward in the direction of the subsequent site of Moscow, and afterwards toward the gulf of Riga, on the Baltic. It was, however, to the south of the gulf of Finland, and perhaps nearly midway between that water and the northern bend of the Black sea that the final separation took place between the Germanic and the Slavonic races. In the meantime, a branch had been thrown off northward toward that collection of inland waters extending from the White sea to lake Ladoga, and another division to the west, into the country of the Letts.

If, then, we take our stand on the head-waters of the Dnieper, we shall not be far from the ethnic division on which was based the subsequent separation of the Slavonic and Teutonic peoples. The two stocks were both characterized for extreme fecundity and power of development. There are at the present time within the limits of European Russia and Poland about seventy-five million of people of Aryan descent. These may be divided into Russians proper, Poles, Bulgarians, Czechs, and Serbs, all of which are Slavonic in their ethnic origin.

Point of division of the two races; the Russian family.

The Russians are subdivided into Great Russians, Little Russians, and White Russians. The Letto-Lithuanian peoples are divided into Lithuanians proper, Zhmuds, and Letts, with a total of over three million. This is the summary of populations which have sprung in modern times from the single ethnic stem called Letto-Slavonic. The Great Russians themselves number forty-two million, and the Little Russians more than seventeen million. Besides the above peoples, the Græco-Roman population in Russia numbers considerably over a million, while the Germans, in admixture with the Armenians, Georgians, and Tsigans are represented by considerable communities.

Geographically, the Great Russians are grouped in the states and provinces around Moscow, extending northward to Novgorod and Vologda, southward to Kiev, eastward to Penza and Vyatka, westward to the Baltic provinces and the borders of Poland. The Little Russians are distributed chiefly in Galicia and Bukovina. In general, they belong to the southern parts of Russia, next to the Caucasus. The White Russians are

Distribution of the Great, Little, and White Russians.

distributed throughout the western governments of the empire. The Bulgarians inhabit Bulgaria Proper, Eastern Roumelia, and Roumania, and are scattered into Austria, Russia, and Macedonia. The other ethnic divisions are dispersed into the countries to which they have given their respective names—Servia, Lithuania, Croatia, etc.

Second only in importance as to numbers and first in importance in civilizing energy are the Teutonic races which issued in common with the peoples described above from the Slavo-Germanic stem. A glance at the map will show that Europe is divided from southeast to northwest by the two great rivers Danube and Rhine, whose waters issue from the same upland region, in the central part of the continent. It was on the right bank of the Rhine, extending down to the Baltic from the great central region, that the Germanic nations were first distributed. As the left bank of that river and hitherward to the western parts of Europe belonged roughly to the Celtic race, so the right bank eastward to the Vistula was Germania.

Into this great region was extended and dispersed the Teutonic stream of immigration. Roughly speaking, the whole Teutonic stock was parted into three divisions, which correspond roughly with the modern linguistic distinctions of High German, Low German, and Scandinavian. In prehistoric times, however, one of the first distinct departures of the primitive stock was that which carried down the great race of the Goths into the valley of the Danube. They issued from the southern portion of the Baltic region, and appeared on the scene of their subsequent activities during the fourth century B. C.

The family known as Gothic has been

somewhat unscientifically divided into the Vandals, the Heruli, the Rugii, the Gepidæ, the Alani, the Suevi, the Longobards, the Burgundians, and the Franks. On their arrival on the Lower Danube the Gothic race began to divide into the two major families of Ostrogoths and Visigoths, meaning the Eastern and Western Goths. The former had a habitation originally in Southern Russia, between the Dniester and the Don, while the latter held their territories from the Lower Danube to the Carpathian mountains. In course of time the Goths were pressed on their eastern frontiers by various invasions, until they were aggregated and heaped up on the left bank of the Danube, whence they ultimately burst into the Roman empire. After this event, as is well known, the Ostrogoths found an ultimate lodgment in Italy, while the Visigoths continued their progress into the Spanish peninsula and became a substratum of population in the modern ethnic development of that peninsula.

The Franks appeared as an aggregation of Teutonic tribes on the Lower Rhine as early as the middle of the third century B. C. At the first they were confined to the right bank of the river, but in course of time passed over and began their settlements in the northern part of Gaul. They were ultimately divided into two families, known as the Salian Franks and the Ripuarians. It was the former division of the race that was thrown by impact on Gaul, and that was established within the limits of that country as a barbarian empire under Clovis and his successors. The Ripuarians spread southward and occupied first the right and afterwards the left bank of the Rhine, whence they carried their

Analysis and distribution of the Goths.

Franks people the Rhine valley; the Vandal distribution.

Dispersion of the Germans; three branches of the race.



incursions on the west to the Meuse and on the east to the Main. It was from the Ripuarian Franks that the Teutonic state called Franconia took its name. The Salians constituted one of the ethnic elements in the formation of the French people.

It will prove of interest to note only the ultimate distribution of the other branches of the Teutonic stock. The Vandals were essentially of this race, but had taken into their constitution Slavonic and Celtic elements. They belonged to the general division of Goths. One of their oldest seats was in the Riesen-Gebirge. Afterwards they occupied Pannonia and Dacia. In the fifth century of our era they played an important part in the overthrow of the Roman empire. In the Spanish peninsula they founded the state of Andalusia. Under Genseric they crossed into Africa, and there developed their greatest strength and nationality.

The Heruli were the earliest of the German races to make their way into Italy. There they established themselves under their great leader Odoacer, and

the Herulian kingdom was the first barbarian empire created within the limits of the home government of Rome. The Gepidæ were likewise of Gothic extraction. Historically, they are first known



THE FRANKISH VANGUARD.  
Drawn by Emile Bayard.

to us in the third century B. C., in their territories on the Baltic. They also came into Pannonia, and were interposed for a while between the Ostrogothic and Visigothic divisions of the race. They

were joined to the armies of Attila, and were subsequently successful in gaining a province for themselves, on the Lower Theiss and Danube. Here they were finally overrun by the Longobards and the Avars, with whom the remnants of the race were amalgamated.

Movements of the Heruli and the Gepidæ.

One of the most powerful of the German migratory tribes was the *Suevi*. Their territories lay between the Rhine and the Weser. In their progress and development they spread southward as far as the Upper Danube. On the north they reached the coasts of the Baltic. It was with the Suevians that Cæsar had one of his hardest contests in his struggle for dominion north of the Alps. The Longobards, commonly called Lombards, were nearly related to the Suevic branch of the German race. From their seats in the valley of the Elbe they made their way into Italy, within the historical period, overthrew the Hærnian monarchy, and established one of their own on the ruins of the empire. In later times they contributed their name to the modern state of Lombardy in Italy, and it is likely that their ethnic influence entered more largely into the formation of the northern Italian race than did the qualities of any other barbarian people.

Ethnic place and vicissitudes of the Burgundians.

The Burgundians were a branch of the Gothic family, and first established themselves in Europe, in the country between the Oder and the Vistula. The Gepidæ drove them from their seats, and they sought refuge in the territory lying between the Main and Neckar. Here they were combined in common enterprises with the Suevi and Alani and the Vandals in their wars with the remaining powers of Rome. Afterwards they

struggled with the Franks, by whom they were restricted to the province bearing their name. Such, in brief, was the European distribution of the principal barbarian nations of the Gothic stock.

Meanwhile, another division of the Teutonic race had made its way along the shores of the Baltic, and in Jutland, Friesland, Angleland, and in Hollow-land had possessed themselves of the country and begun the formation of institutions. This is the so-called Low Germanic branch of the Aryan family. The tribal ramification in these lowlands was extraordinary. It was from this region that the Angles and Saxons and Jutes took their rise, and, in the fifth century, carried their battle-axes and spears into the forests of Britain.

Outspread of the Low Germans and the Norse.

From the southern coast line of the North sea the race next made its way into Scandinavia. Two branches of migration sprang from this region, one penetrating the great peninsula of Norway and Sweden, and the other making its way by water to Iceland. It was in the latter island that the Norse, or Scandinavian, race presented, and does until the present exhibit, the purest aspect of Scandinavian life and manners. There have always been such intimate race relations between the southern and northern shores of the Baltic that the Low Germans inhabiting the two countries have intermingled almost to the extinction of ethnic differences. But in Iceland the old Norse, or Scandinavian, stock has been allowed to develop according to its own laws into an independent race character.

Such, then, was the distribution of the great Teutonic and Slavonic races in the northern parts of Europe. It will be of interest to note *the extent of the complete*

*dispersion* of the Aryan family of men. On the east the Indic branch of the race reached the meridian of ninety degrees east from Greenwich. On the west the extreme limit of the primary Indo-European development was in Iceland and Ireland, under the meridian of ten

Extent of the dispersion of the Aryan family.

tively. In the latter country the race was dispersed as far south as Beluchistan, and in the former to the bay of Bengal, in latitude twenty degrees north. But turning to the westward branches of the Indo-Europeans, we find them invariably bending to the north. Perhaps the only exception to this general law was



NORTHERN LIMIT OF THE ARYAN DISPERSION.—VIEW IN UPPER NORWAY.—Drawn by Myrbach, from a photograph.

degrees west, making a complete divergence east and west of one hundred degrees of longitude.

It was a peculiarity of the Aryan race never to be deflected to the south; that is, in its westward movements. The Indic and Iranian branches of the family dropped into India and Persia respec-

General and exceptional movements of the Aryans.

in the case of the Celts, who, from their somewhat northern range in Germany, turned to the southwest across the Rhine into Gaul, and thence continued their course in the same direction as far as the country of the Basques and Iberians in Spain.

The northernmost limit of the whole movement was reached in the upper parts

of Norway and Sweden, about the parallel of seventy degrees north. The migration thus, in its entirety, presents a band very nearly coincident with the north temperate zone. The belt is forty-five degrees in width, reaching a little above and extending a little below the limits of the zone referred to. The next conspicuous feature of this great distribution is the fact that it is essentially European. The exceptions within the borders of that continent of peoples derived from any other than Aryan stock are so few and insignificant as to be neglected without hurt to the general scheme. Europe is Aryan, and the Western Aryans are Europeans.

It is, of course, not the purpose to extend the lines of race movement by tracing out the continental colonization and development of the two Americas by people of Indo-European blood, or to note the world-wide colonization which has been effected within the last two or three centuries by people of the same race. These secondary movements, if developed in this connection, would confuse the concept of the original or natural distribution of mankind in the prehistoric ages. There is a sense in which men have moved from place to place on the surface of the earth *unconsciously*. That is, the movement has been accomplished while the race was still in the unconsciousness of childhood. There is another sense in which civilization has *consciously* carried forward the work of peopling the earth. All the latter movements are of record in the open annals of authentic history, and with such development and expansion the ethnographer has not much to do. His work is primarily with those prehistoric movements in which the races of men

were distributed, under the influence of instinct and environment, to their destination in different quarters of the earth.

At this point, then, we touch the limit of the primeval excursions and settlements of the Ruddy races of mankind. To these races we have given the general ethnologic name of Noachites, but have chosen to define them more scientifically by the term Ruddy, as indicative of their color. We have now traced out the dispersion of the three families to which ethnography has assigned the popular and traditional names of Hamites, Semites, and Japhethites. We have seen the first dropping southward into a form of geographical development very similar to that which the Japhethites, or Aryans, have exhibited in the north. The whole scheme of migratory dispersion resembles the two sides of a leaf, having its stem between the Caspian and the Persian gulf, its point in the Atlantic west of the Pillars of Hercules, its left-hand side in Arabia and Africa, and its right division in Europe. The central lines of this leaf correspond in general with the movements of the Semitic races to the west. The right-hand lines are those of the Aryans, and the left-hand departures those of the Hamites.

The limits of the present chapter are reached when we have marked out the migratory movements by which they were distributed into their respective countries. It now remains to take up another general division of mankind, and to note in like manner the course which the Brown races have pursued on their way to their destination in the great arena of Asia, in the islands of the Pacific, and ultimately in the two Americas.

Extent and boundaries of the Aryan belt.

General view of the dispersion of the Ruddy races.

Only conscious movements to be considered in migration.

CHAPTER XXIX.—DISPERSION OF THE BROWN RACES.



F it were not for the Black races of mankind distributed in Equatorial and Southern Africa, in Australia, and Melanesia, the primitive seat of

the human family might perhaps be discovered. If the observer should take his stand upon the mountains of Western Afghanistan, he would not be far from such a crossing and divergence of ethnic lines as might indicate the original center from which the human race was distributed into all quarters of the globe. This is to say that in the country between the Afghan borders and Beluchistan the Brown races of men, as well as the Ruddy races, seem to take their rise. All the Mongoloid varieties of mankind can be traced back to this geographical center, and we have already seen that the Noachite, or Ruddy, race had its origin somewhere in the same region.

It will not do, however, to press these indications too far. The Dravidian peoples, also brown as to their color, had a departure somewhat further south, on the coast, between the mouth of the Indus and the Persian gulf. In fact, the origin of this branch of the human family appears to have been nearly coincident with what may be supposed to have been the seat of the pre-Noachites. But a greater obstacle in the way of determining an ethnic center for all the divisions of mankind is encountered in the case of the Black races, who seem not to have originated from this region at all.

Common source of Ruddy and Brown races may be found.

Dravidians appear to have had a separate line of departure.

Some ethnographers, going beyond the limits of determined fact, have attempted to find the origin of the Brown races in the Indian ocean; that is, in a submerged continent formerly occupying the bottom of that sea. This theory has, no doubt, been put forth with a view to reconciling existing facts with the hypothesis of a single origin for the whole human race, and it may be admitted that such a hypothesis would fairly explain the facts to which it is applied. In the present state of knowledge, however, the line of demarkation between ascertained truth and hypothetical explanation must be strictly observed; not with a view to the denial of the possible truth in the supposition of a submarine continent under the Indian ocean, with its Lemuria, a thing indeed probable; not with a view to the positive assertion of such an opinion *as* the truth, but simply to maintain a definite boundary between knowledge and conjecture.

Hypothesis of common origin for all in Lemuria.

We must, therefore, content ourselves to note the issuance of the Brown races from Beluchistan, and to trace from that origin the course of the tribal migrations which ensued. It may be inquired by what right or for what reason the ethnographer fixes upon such a locality as the point of departure for great races inhabiting distant quarters of the earth, particularly since the movement which has distributed those races to their respective countries was prehistoric, and therefore not to be ascertained by the usual methods of proof. It may be well, at this point, to satisfy the reader as to the validity of that course of reasoning

Criteria for determining the direction of migrations.

which leads inevitably to the conclusion of certain race origins and divergencies beyond the borders of authentic history.

In the first place, the testimony of language is nearly always available in carrying the inquirer backward to a point which he could not otherwise reach. Suppose, for instance, that all authentic

In what manner the language and institutions of Rome may be restored.

could not otherwise reach.

from the minds of men. Would it be possible, under such circumstances, to revive, by means of existing languages, a knowledge of the Latin race, of its institutions, its practices, and, in general, its history?

Undoubtedly such a revival could be easily produced. Take the six modern Roman languages, called Italian, French,



ROUTE OF THE DRAVIDIAN DISPERSION.—GORGE AND FORTRESS OF ARDERBEND.—Drawn by A. de Bar, after a sketch of Blocqueville.

knowledge of the great political power called Rome was obliterated from the annals of mankind. Suppose that every book in which a trace of the Latin language and literature is recorded were utterly destroyed. Suppose that the memory and tradition of the people called Romans had passed completely

Spanish, Portuguese, Wallachian, and Provençal, and examine their structure and peculiarities. It is found that they have been originally deduced *from some common speech* having a grammar and vocabulary of a determinate form. Out of the study of these six languages that old grammar and vocabulary can be *recon-*

structed, and when reconstructed, they are Latin. If Latin, then there was a Latin race that spoke it. If a Latin race, it had its seat and its institutions. The seat of the race can be discovered geographically by tracing back the lines of departure by which the six nations referred to have reached their respective countries; and the institutions of Rome can be largely redeveloped by means of

tions of a *method* which may be universally pursued. Wherever two kindred tribes are found on the earth an examination of their language and of their geographical environment will lead, if carefully carried out, to a discovery of their common origin, or of the divergence of the one from the other. By this and analogous processes, strictly scientific in their nature and peculiarly



LAND OF THE DRAVIDIANS.—CAPE COMORIN, INDIA.

the etymological hints and inherent revelations of the descendent languages.

In like manner we may group together Latin and Greek and Old High German, Celtic, Slavic, Persic, and Sanskrit, and, by means of a similar comparison of these great varieties of speech, can revive the grammar and vocabulary of the primitive Aryan race lying, in all of its activities, completely below the dawn of history. These are but illustra-

The whole Aryan group may be reconstructed likewise.

and, by means of a similar comparison of these great varieties of speech, can

interesting as methods for the increase of human knowledge, the ethnic lines of the prehistoric nations may be traced over continents and across seas until, by their conjunctions, convergencies, and parallelisms, we are able to determine with approximate accuracy the earliest movements of the human race.

We will begin the examination of the migrations of the Brown races of men by tracing out the course of the Dravidians, these being the southernmost of the

ethnic divisions which we are to consider. Perhaps they were the oldest. At any rate, their origin appears to have been nearer to the Indian ocean than was the line of the Asiatic Mongoloids. As already intimated, the point of departure between this branch of the human family and the primary stem of the Ruddy races may be fixed in southern Beluchistan. From this region the Dravidian migratory movement was toward the east, into the valley of the Indus. It is probable that the place at which the Brown tribes first entered the country was near the junction of the several streams which, converging from the north, inclose the Punjab. From this region the dispersion of the race began, eastward across the uplands of Northern Hindustan and southward into the peninsula proper.

It can not be doubted that from the region here described the great country between the bay of Bengal and the Arabian sea received its original populations. It will be remembered that in the preceding book we had occasion, in speaking of the incoming of the Old Aryans into the Punjab and their dispersion hence through Hindustan, to refer to the preëccupation of the country by aboriginal tribes. These, then, are the peoples whom the Aryans found and overcame on their entrance into India. It was, perhaps, the first contact of the Ruddy races of the northwest with the Brown peoples of the southeast, since the original dispersion—if such there were—of the race.

No historical record has been preserved of the conquests or other measures by which the Aryans became dominant in India. But there are the best of reasons for believing that the original population

was spared by the stronger people, and was absorbed or amalgamated into the Hindu races of after times. One of the principal evidences of such amalgamation is found in the *color* which people of this region of the earth subsequently assumed. The modern Hindu is a living witness of some prehistoric change in complexion, in all probability the direct result of the admixture of the primitive Brown races of the peninsula with the dominant Aryan conquerors from the north and west.

The fact to which we have just referred of a permanent modification in the color of the skin by the admixture of races, and the establishment thereby of a typical complexion different somewhat from that of either of the original peoples from which it is derived, are general phenomena which recur, under like circumstances, in different parts of the world. In all probability every race now existing on the face of the earth has been somewhat modified in its complexion by the absorption of foreign elements, and it is only by a recognition of this fact and a reference of it to its true causes that the ethnographer has been able to discover that underlying all the shades of complexion in the world are only a few fundamental colors from which every intermediate hue has been obtained by admixture and amalgamation.

For a long time after the attempt was first made to classify the human race on some rational plan, the color of the different families of men was regarded as *an incident of climate*. It was believed that races transferred from one region to another suffered a change of complexion under the influence of sun and air.

Direction and character of the Dravidian dispersion.

rate, their origin appears to have been nearer to the Indian ocean than

The conquerors are modified by the subject races.

Probability that all races have mixed complexions.

Color of the human skin not derivable from climate.



Beginning with the general fact that the darker races are, for the most part, equatorial in their distribution, it was concluded that the Black races had become so from the high heat, the scorching sunlight, and the arid atmosphere to which they were exposed. It was assumed that the White races belonged to the higher latitudes and that the Yellow and Brown peoples have been made so by their respective geographical, or rather climatic, environment. It has remained for more careful investigations to show that these opinions have but little foundation in fact.

It appears, then, that instead of the colors of the different races being dependent upon the latitude and other conditions of the country into which the tribes were dispersed, the different complexions of the primitive peoples were almost independent of their position with respect to the equator. The relation, or correlation, between color and climate is neither constant nor exact in any particular. It has been found that some of the Indians of Upper California, under the latitude of forty-two degrees north, are as black as the Negroes of Guinea; and it is also noted that those Negroes who are at a departure of as much as fifteen degrees from the equator are much more nearly absolutely black than those who dwell along the equatorial line; that is, in this region the race *seems to grow whiter* with its approach to the center of solar influence.

In the southernmost parts of North America, namely, in the extremes of Mexico lying between the latitudes of fifteen degrees and twenty-three degrees north, many of the aboriginal peoples were of a reddish or olive complexion,

Variations of color traceable to primary ethnic conditions.

Evidence of the insufficiency of climate to make complexion.

almost as light as that of the Ruddy races. The Esquimaux of the extreme north of Europe and America are very dark as to their complexion, while the Finns, who are almost as near the polar regions as it is possible for men to live, are comparatively white. The concomitant facts of light hair and blue eyes, along with the lightness of skin color, belong to many tribes that are dispersed well toward the tropical regions. The Afghans of India and the Taureg tribes of the Sahara desert and the Amazonian nations of South America are of this character. Humboldt has pointed out the fact that the South American Indians inhabiting the plateau of the Cordilleras, clearly within the torrid zone, are identical in color with others whom he had observed as far down as the forty-fifth degree of south latitude. We are thus constrained by undeniable facts to refer the extremes of complexion in the human race to an origin other than climatic environment. In fact, the races of men *differ in color absolutely*, and have done so independently of their geographical position from the earliest ages in which human phenomena began to be observed and recorded.

Returning from this digression, we find the lines of distribution for the Dravidians to be drawn around by the valley of the Ganges, skirting the southeastern coast of the Indian peninsula to its southern extremity. Thence the race passed, by easy migration, into the island of Ceylon, where it received perhaps its most characteristic development. It is here that the modern *Veddahs*, of whom mention has been previously made, display the old race character in its recent aspects. In the island, as well as on the continent, however, the dominant Aryan peoples have pressed

Course of the Dravidian lines in India and Ceylon.

upon the natives, until the latter now represent only about thirty per cent of the whole population. In the prehistoric age all the aborigines of Ceylon were of the same Brown family with the people of Southern India and Eastern Beluchistan. At the present time the Dravidian population is compacted in the eastern and southern parts of the island, where the condition and character of the race are still subject to the study of travelers and scholars.

time represented by the Lohito tribes, between the Ganges and the Himalayas. These are evidently Mongoloids, and must thus be in race alliance with the Thibetans north of the mountains. A second stream carried down the Burmese to their destination on the east coast of the bay of Bengal. From this line there appears to have been deflected, somewhat above its intersection with the Lan-Tsang river, a secondary movement, tending almost directly to the

southeast and terminating in two branches, the one in Southern Annam and the other on the gulf of Tonquin.

By this latter movement the Annamese peninsula, between the Cambodia and the South China sea, was populated. It appears, however, that the Siamese peninsula, west of the Cambodia, received its ethnic stream from a departure which was made high up in Thibet, and that this



MODERN DRAVIDIANS—KOTA TYPES.

Drawn by P. Fritel, from a photograph.

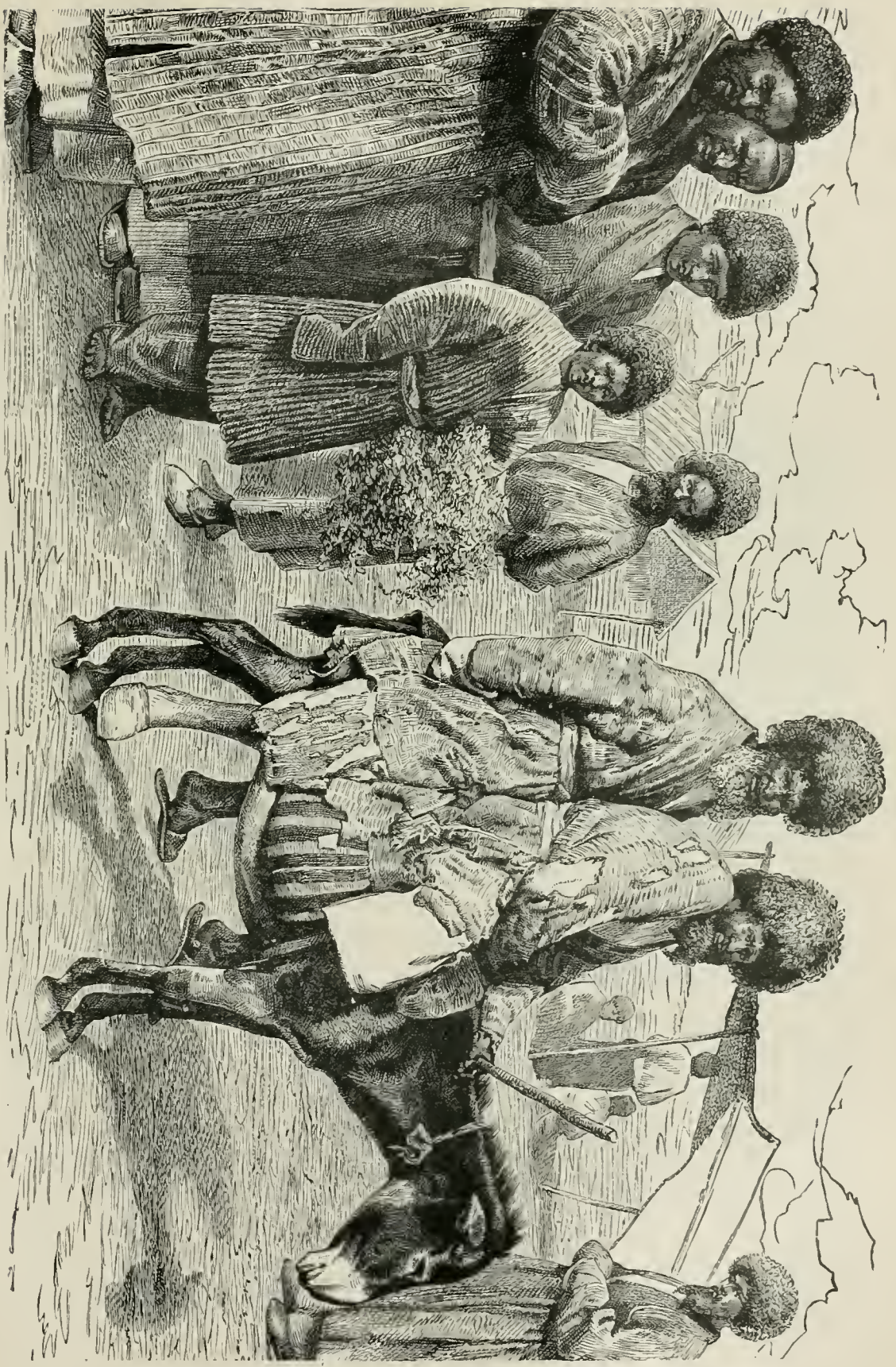
Returning to what may be called the intersection of the original Brown and Ruddy races of mankind in Afghanistan, we find that the first principal Asiatic stream of the former family was the Malayo-Chinese departure. This took its course in the direction of the Upper Punjab, and crossed directly to the east into Thibet. There appears, however, to have been thrown off to the southeast, into the Himalayas, a branch of this family, which is at the present

latter migratory line crossed the Annamese dispersion on its way to the south. Another peculiarity of the ethnic distribution of Siam is found in the fact that the populations south of latitude fifteen degrees north all partake of the character of the Polynesian Mongoloids, as distinguished from the Asiatics. Ethnographers have therefore agreed to regard the extreme of the peninsula and the adjacent islands of Sumatra and Borneo as having re-

The Malayo-Chinese departure; Lohitos and Burmese.

Doubts respecting the populations of peninsular Asia.

THE MALAYO-CHINESE DISPERSION.—Nomads of the Oasis of Merv.—Drawn by V. Prantshnkoff, from a photograph.



ceived a Polynesian stream either turned back by reversal from the Micronesian archipelago, or else deduced by a change of ethnic character from the Malayo-Chinese stem. The Polynesian line which we are here considering may be traced through Sumatra and Northern Borneo, from which the migration appears to have turned northward into the Philippine islands, and thence to the east into Micronesia.

Here it is that we begin to consider the

islands directly east of the Philippines. This group is generally known as the Caroline islands, or Micronesia. From this point the archipelago eastward is exceedingly dispersed through a distance of more than twenty-five degrees of longitude. Yet the progress northward into the Ladrões could have been easily made.

From the Caroline group eastward to the Marshall and Gilbert islands was a more extended and difficult voyage.

Thence the line continued to the southeast, through the Ellice group to Samoa, where there was an evident bifurcation into two great lines of progress. Meanwhile, from the Ellice a stream of island migration appears to have been carried



VIEW IN EASTER ISLAND—IMAGES AT RONOBORAK.  
Drawn by E. Meunier.

great problem of the original peopling of the islands of the South Pacific. Except in Melanesia, all of the great group lying between the coast of China and South America are inhabited by people of the Brown race. They are manifestly allied with the Asiatic Mongoloids and the Dravidians in their ultimate origin and descent. No method more rational, more consistent with the facts can be devised than to suppose their distribution into the great archipelago from the smaller group of

Problem of the peopling of Polynesia.

out to the Phoenix islands, where we may suppose the movement in *this* direction to have ceased. From Samoa one line of departure was to the west of south into the Friendly islands, then southwest to Norfolk, and then southeast to New Zealand. Here, in the North island and the South island, were distributed the ocean tribes from which has sprung the remarkable race of Maoris, of whose character and peculiarities a sketch will be presented in a subsequent book.

Outreaching ethnic lines from Caroline and Gilbert islands.

Eastward from Samoa the line of

migration was carried to the Society islands, whence it again divided north and south for two great departures toward the continents of America. The southern line passed down to the Austral islands, and then southeastward to the Oparo group, one hundred and forty-five degrees west from Greenwich. From this point, about latitude twenty-eight degrees south, the line of departure, through seventy-five degrees of longitude, appears to have been almost directly to the east, through the Elizabeth islands, the Easter group, Saint Ambrose, and finally to the coast of South America, about the center of Chili.

The other branch of Polynesian dispersion from the Society islands was borne to the northeast, to the Marquesas group. On this line there was a departure to the right, from which the Low Archipelago may be supposed to have been peopled. From the Marquesas the island migrations bore backward to the northwest, through more than twenty degrees of latitude, passing, by way of Maldon and Fanning, to Carson. Here the course was again changed to the east of north, to the Sandwich islands. From this noted ocean group the migration continued islandwise to the northeast, passing through the sparsely scattered points for a distance of twenty degrees of longitude, to the Pasaries. From this group the line was carried away through Henderson on a long curve a little to the south of east, until it entered the gulf of California and touched the coast of Mexico.

These migratory movements which ethnographers have attempted to trace through the South Pacific represent, of course, only *the major lines of dispersion* along which the Polynesian Mongoloids were carried to their almost infinite dis-

tribution in these limitless waters. It was essentially a progress from island to island. The stages were sometimes easy and the movement by no means incredible. In other parts of the migrations the distance was great from point to point of departure and lodgment. Nor may it be easily conceived how the progress was continued by races whose skill in navigation must have been limited by the conditions of savagery. It must be borne in mind, however, that for weeks and months together the waters of the South Pacific are as placid as an unruffled lake. The trade winds are equable and of constant direction. The climate is mild in the last degree. Under such conditions even savages, in open boats, with a modicum of sail, would drift, as in a dream, for hundreds, perhaps thousands, of miles. These are the circumstances which *make it possible* for the ethnic distribution through the islands of Polynesia to have been effected in the manner above described.

It is not the purpose, at this point, to develop the dispersion of the Polynesian races through the two continents of America. The distribution of the various branches of the human family in these continents will be considered when the Asiatic Mongoloids have also been traced to the western shores of North America. Grave questions arise in the mind of the inquirer relative to the certainty or uncertainty of the movements by which the first men were distributed on our continent. In the present state of knowledge the bottom problems arising in this connection must be passed by as unsolved. The best that ethnography can do in the premises is to trace out the possible, even *probable*, approximation of the Polynesian and Asiatic Mongoloids

Dispersion from the Samoan group and the Marquesas.

and south for two great departures toward the continents of America. The

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Easiness and difficulty of the progress through Polynesia.

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Probable derivation of the races of the New World.

to the western parts of the two Americas. It is certainly *not impossible* that the race of man may have thus made its appearance in the New World, and may have been disseminated from ethnic stocks which were derived from the northeasternmost parts of Asia and the islands of the South Pacific. The immediate task before us is to resume the consideration of the migratory lines by which the Brown races were dispersed through the larger parts of Asia.

dispersed, and where they have since developed into the type of Chinese proper. All the races south of the Hoang-Ho and north of the Yang-tse-Kiang are of this common stock, which is one of the most distinct and persistent types of mankind.

The East Mongols, as distinguished from the Chinese and the Malayo-Chinese, flowed from a branch of the Asiatic Mongoloid family known as the Northeast division. Its course from Afghan-



ROUTE OF THE MONGOLIAN DISTRIBUTION.—THIAN-SHAN MOUNTAINS.—Drawn by Riou.

We have now followed the lines of distribution from Thibet, in the south-eastward direction, to the Annamese and the Siamese peninsulas. Returning to the point of departure we find from the valley of the Lan-Tsang a full stream of migration, tending directly toward the east and into the heart of the Chinese empire. From the head-waters of the Lan-Tsang to those of the Yang-tse the migratory movement carried the true Mongolians into the valley of the great central river of China, where they were

Outbranching  
of the Asiatic  
Mongoloids.

istan was through Eastern Turkistan and into that part of China which is known geographically as Mongolia. This country occupies the great region between the Amoor and the Hoang-Ho, with the

Distribution of  
the Northeastern  
Asiatics.

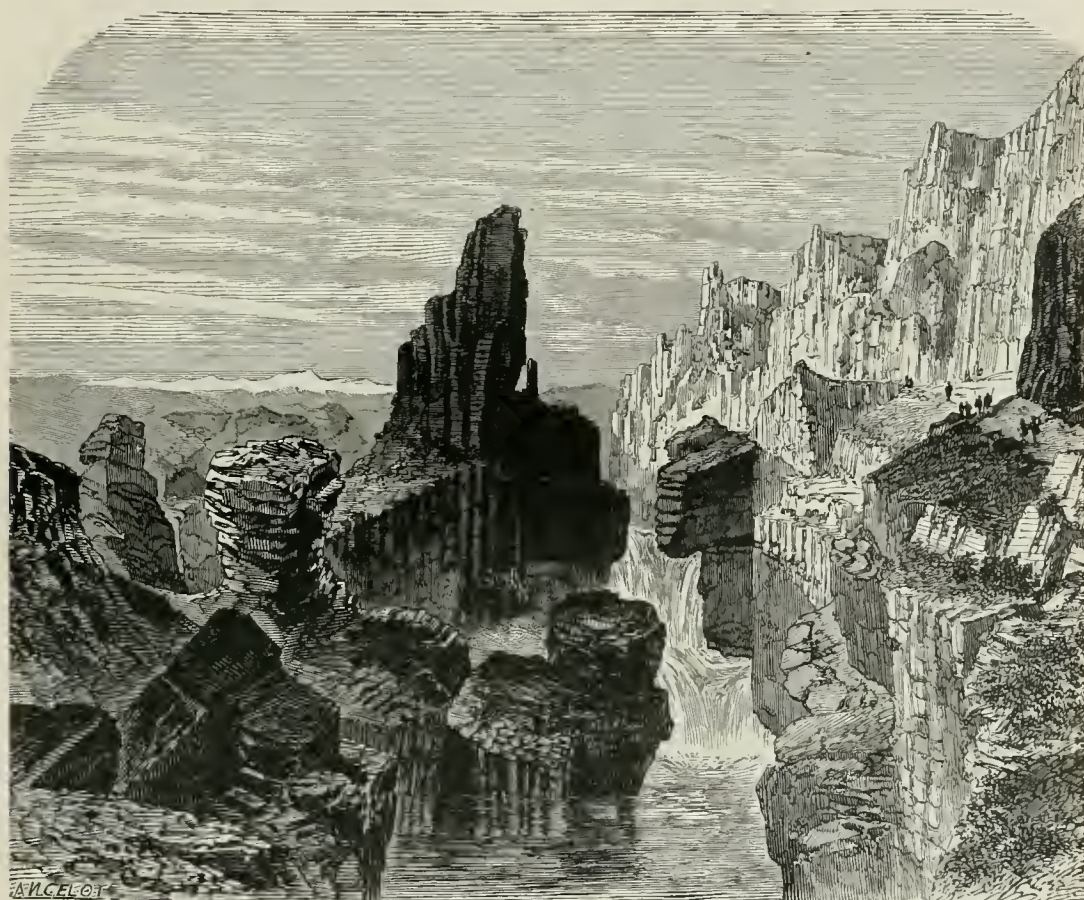
exception of the eastern part, next to Corea and the sea of Japan, which is called Manchuria. The people known as Manchus are also descendants of the northeast stream of Asiatic Mongoloids.

It is in this region, near the mouth of the Amoor, that the great movement of the Brown races of men in their progress

eastward was checked and turned back into the almost limitless regions of Northern Asia. First of all the Mongolian stream, after crossing to the north of the Amoor, was reflected into a loop, and the migratory movement was resumed toward the head-waters of the Hoang-Ho.

Dispersion of the Brown races deflected in the Amoor valley.

appears that the reverse line representing the departure of this race reaches throughout the entire breadth of Asia, having its origin as a separate ethnic division in the Russian province of Amoor, north of the river of that name, and extending westward through Mongolia into Turkistan. The main migra-



CHUTE OF TCHIMBOULAC.—Drawn by D. Lancelot, after Atkinson.

In the upper valley of this great river the Calmuck Tartars were deposited, as the result of the backward migration just described. A second stream was deflected from the main line of this movement and contributed the Buriats, holding the country south of lake Baikal. More extraordinary still was the departure from the backward curve of the Mongoloids of the Turkish division of mankind. It

tory line seems to have passed south of lake Balkash, and to have thence continued its western progress across the Ural and the Volga to the northern shores of the Black sea. On the whole, this progress of the Turcomans is one of the most remarkable among the ethnic movements of mankind. The principal families deposited at the extreme of the migration on the line we are now considering were

the Nogaians, whose territory reached from the Volga to the Caucasus and the Black sea.

Before attempting to define all the dispersions of the Turks in their backward movement into Western Asia, it is desirable to note some of the other returning ethnic curves of the Brown

Race lines of  
Samoyeds and  
Ural-Altaiacs.

gration from the departure of these two peoples was, for the Samoyeds, somewhat south, through the region between lake Baikal and the desert of Gobi; thence the line extended westward until it crossed the river Obi, near its junction with the Tobol. West of this great stream began the dispersion of the so-called Turanian, or Ural-Altaiac, na-



OFF THE COAST OF COREA.—Drawn by Theodore Weber, after Zuber.

ances to the north of the Turkish line. From the same origin with the Turks themselves, in the country north of the principal bend of the Amoor, extended westward another great stream of migration, which bore at first the combined volume of the Samoyed and Ural-Altaiac nations. The course of the mi-

tious, whose development covers, in general terms, the whole region between the Baltic and the Obi. From the central line of migration westward, having its termini among the Finns and Lapps in the extreme north of Europe, many subordinate migrations turned to the left and right, the principal of which



were the streams which contributed certain Mongoloid families in the valleys of the Ural and the Volga, and the departure on the south which ended with the Esths, on the eastern coast of the Baltic.

Returning to the point of division between the Ural-Altai and the Samoyed families east of lake Baikal, we find the latter stream pursuing its way westward, dropping one branch of the family in the valley of the Upper Angora, and carrying its volume thence northward to the Twagi tribes, east of the gulf of Obi, under latitude seventy degrees north. The main stream continued westward to about the meridian of eighty degrees east from Greenwich, where another branch was thrown off northward, contributing the Juraks to the peninsula west of the Yenisei river. Still a third departure entered the Yalmal peninsula, where the Juraks also bear witness of the Mongoloid origin. The westward course of the Samoyed dispersion ended between the meridians of forty degrees and fifty degrees east, with the tribes of Vanuta and Laghe.

If then once more we take our stand in Manchuria, we shall find still another great curve, to which the ethnic name of Tungusian has been given, bending in like manner close along the sea of Japan, and thence turning to the west and north. It was from a branch of this Tungusian stem bearing off to the south through Manchuria that the Coreans were deduced, and an extension of the same migration carried into Nippon the primitive Japanese. The Ainos, also of Yezo, on the north, may be a derivative of the same branch which here perhaps reaches its limit oceanward. The main line also divides in

Distribution of the Twagi and the Juraks.

Outline of the Tungusian dispersion.

high latitudes, throwing out branches, especially on the right, which find the limits of their departure among the Yataks, the Tunguses, and other arctic tribes, in the extreme limits of North-eastern Asia. From this same origin, moreover, the eastern movement was continued through the great Asiatic peninsula which stretches out between the Arctic ocean and the North Pacific toward Behring strait. There can be little doubt that the Mongoloid tribes inhabiting this region, such as the Lamuts, the Itelmes, the Koriaks, and others, are of the same Mongoloid origin with the Tungusians, the Manchurians, the East Mongolians, the Ural-Altaiacs, and the Samoyeds, the difference being chiefly in modifications of development effected by the peculiar geographical environment into which the eastern division of the race was thrown on its progress to the northwestern extremity of North America.

Such, in brief, is a sketch in outline of the distribution of the Brown races through the continent of Asia. We have now traced the Polynesian lines to the western coasts of South America and Mexico, and the Asiatic Mongoloid lines through the eastern extension of Northern Asia and the Aleutian islands, to the northwestern shores of North America. Before beginning an account of the distribution of these various Mongoloid races in the New World, it will be desirable to notice some exceptional lines which they seem to have followed, even to the extreme west of Europe.

It is claimed by ethnographers that the Basques and Iberians, the ancient nations of the Spanish peninsula, were of Mongoloid extraction. The question has been much debated and the argu-

Outer circuit of the dispersion of the Brown races.

Question of the ethnic descent of Basques and Iberians.

ments fortified with every variety of proof. On the whole, it may be conceded that these primitive peoples of Spain were allied in their race descent with the Mongolians of the Asiatic continent. Between the straits of Gibraltar, however, and the main line of the original Mongoloid dispersion where it passes northward through Beluchistan, there have been found no Mongoloid tribes, or indeed any distinct traces of their presence. In some manner, then, we may assume that the Basques and Iberians reached their destination in the extreme west. By what route they did so must remain conjectural. It may have been by transnavigation of the Mediterranean. But the greater likelihood seems to be that in very primitive times a branch put off to the west from the pre-Mongoloid stem, passing through the countries of the Hamites about the head of the Persian gulf, across Upper Arabia, and through the whole extent of North Africa to the straits, and thence into Southern Spain. Such a line may, at any rate, without undue straining of the hypothesis, account for the presence in the west of Europe of nations evidently allied in their ethnic descent with the Thibetans and Malayo-Chinese.

The presence of the Esths between the Letts and Finns on the eastern shores of the Baltic has also constituted a problem for which a solution has already been found in the deflection of a southern line from the Ural-Altaic migration in Northern Europe. Some ethnographers have not hesitated to mark out a route of migration from the country of the Basques in a north-eastern direction, across Gaul and Germany, into Esthonia! But, considering the general course and character of the movements by which Central Europe

was peopled, the latter supposition appears to be altogether unwarranted.

A general comment or two will be appropriate as to the character of the dispersion of the Brown races in the countries which we have thus far considered. In the first place, it is remarkable, in view of the early preferences which the Mongoloids showed for warm climates, that Africa has been untouched by their migrations. The nearest approach to this continent which the Brown races has made is that of the Polynesian Mongoloids in Madagascar. It is in evidence that from the island of Java a branch of this race made its way through the Indian ocean, touching perhaps at the southern point of Ceylon, and thence passing in a southerly direction from island group to island group to its destination and development in the natives races of Madagascar. To these peoples ethnography has assigned the ethnic name of Malagasy.

In the second place, it may be noted that the Brown races, in the primary stages of their distribution, appear to have been drawn by cosmic forces *toward the east*. In general, Southern Asia received its population from movements in this direction. These movements continued until the Pacific was reached, and was even carried forward through the Polynesian archipelagoes until, as we have seen, the race lines probably touched the western shores of the New World. But on the continent the eastern migrations of the Mongoloids seem to have fallen into a whirl in Manchuria, and to have been bent backwards, as above described, through the whole extent of Northern Asia and even far into Europe. The world-wide extent of these movements can with difficulty be appre-

Ethnic connections of the Malagasy.

General and special directions of the Brown dispersion.

Place of the Esths in the scheme of races.

ciated or understood even by the student of history, to whom great continental stretches and far-reaching developments are familiar. As compared with the limited dispersion of the Hamitic and Semitic nations, or even with the greater and more populous distribution of the Aryans in the small continent of Europe, the Asiatic and Oceanic dispersion of the Mongoloids appears to the scholar in ethnography and history as world-wide and limitless.

We come, then, to look briefly at the primitive distribution of mankind in the two Americas. For many reasons the ethnology of these continents is beset with special difficulties. The aboriginal peoples inhabiting them were uncivilized races in the preliterary stages of development. Their monuments had already fallen into the domain of

archæology before the coming of the White races. The peculiar family relation existing among nearly all the tribes of the New World tended to confuse the lines of race distinction and to blur the whole ethnographic outline. The household was generally based upon a system of marriage differing but little from polyandry, the result of which was to converge the lines of descent through the woman instead of the man. The tribes were largely nomadic in their disposition. War and conquest were frequent,

and one race, by means of aggression and victory, was many times superimposed territorially on another.

Behind all this confusion there appears to the ethnographer the shadow of the bottom question relative to *the primary origin* of these races. We have agreed to regard the Polynesian islands and Northeastern Asia as the sources of the American aborigines, but it may be frankly confessed that so much has not

Ultimate derivation of the Indian races.



COAST OF MADAGASCAR AND VIEW OF MAJONGA.—LIMIT OF THE BROWN DISPERSION.  
 Drawn by De Berard.

been established by irrefragable proofs. Nevertheless, the affinity and diversity of languages prevalent in the New World give many evidences, when compared with Polynesian and Asiatic tongues, of a common paternity; and ethnic and tribal lines have been in many parts sufficiently maintained to indicate with tolerable certainty the direction of migrations and the ultimate derivation of these barbarous peoples. The physical peculiarities of the Red men, the primitive Mexicans, and the Esquimaux have also been of advantage in

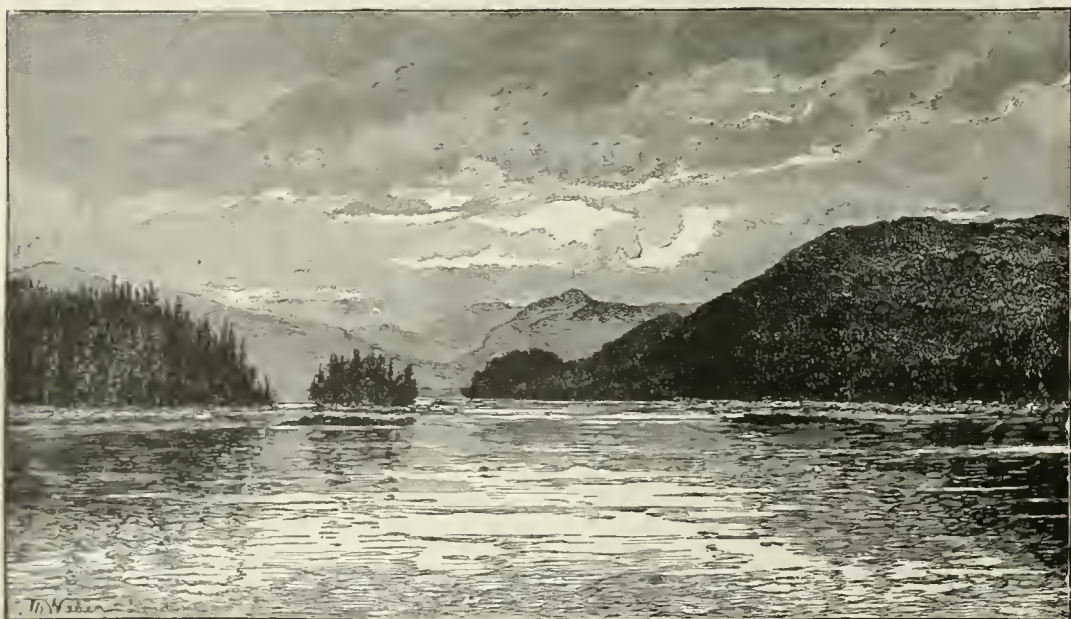
Difficult ethnography of the American aborigines.

clearing up many questions relating to the first people of North America; and the persistency of manners and customs—that great fact which has often come to the rescue of embarrassed scholarship—has thrown its constant light on many obscure parts of the questions here before us. We shall now attempt, following the hypothesis of an Asiatic and Polynesian origin, to delineate the course of distribution of the primitive races through the two Americas, and their develop-

the Koriaks and Chuk-chee tribes, that has warranted the conclusion of an Asiatic derivation for the Orarians.

The line, therefore, marking the dispersion of the northeastern stream of Asiatic Mongoloids into these extreme parts of Asia may well be drawn across the strait and distributed into the peninsular region of Northwestern North America. In like manner, the clear relationship of the people inhabiting

Easy derivation  
of Alaskan ab-  
origines from  
the Asiatics.



ROUTE OF THE ORARIAN DISPERSION.—PERIL STRAITS.—Drawn by Theodore Weber.

ment into distinct families of the human species.

In the extreme northwestern portion of North America we find a rather widely dispersed race, to which ethnographers have given the name of Orarians. In general, they are distributed in that peninsular part of the continent which extends from the meridian of about one hundred and twenty degrees west to Behring strait. It is the affinity, almost unmistakable, of these people with the Yakuts of Northeastern Asia, particularly with

Place and affin-  
ities of the  
Orarians.

the southern part of the Alaskan peninsula with the Pacific peoples of the Aleutian islands, gives warrant for the derivation of the former from the latter. It is in this Alaskan portion of the country that ethnographers have placed the Orarians proper, while to the north, in Upper Alaska, that is, between the Yukon and the Arctic ocean, we have a distribution of the Western Esquimaux.

Further to the east and central to the peninsula are the Tinneh races, or at least a branch thereof, while to the south of these and around the coast of

the Great archipelago are located the Tlinkets and Nasses. The outlying islands are inhabited by other branches of the same race called the Yakuts, the Sitkans, and the Hidahs.

By the time that the ethnographer has advanced thus far to the east, in following the lines of the Asiatic Mongoloids

the Polynesi-ans who had come primarily to the shore of the continent in the region of Old California. Advancing still further to the east, and following the same Asiatic Mongoloid line of dispersion in the extreme north, the inquirer will make his way above the region of the Great Bear and Great Slave lakes,



ROUTE OF THE CHONTAL DISPERSION SOUTHWARD.—COAST OF PANAMA.—Drawn by De Berard.

continentward, he finds himself confronted with what appear to be returning races of Polynesian extraction. The Tinneh family above referred to are a people different apparently in race characteristics from the other stocks of Alaska, and it is generally conceded that they have been carried into this remote position by a returning migration of

in the country of the widely spread family called the Tinneh. The territory occupied by this division extends from about the meridian of one hundred and twenty-five degrees west, eastward to Hudson's bay and the gulf of Boothia. Its limits northward are the Arctic ocean and the countries of the Eastern Esquimaux, whose line of dispersion reaches the coast of Labrador. On the

Polynesian Mon-  
goloids mix  
with Asiatic  
derivatives.

south, the great river and lake system which discharges its waters through the Nelson into Hudson's bay mark the boundaries of the Tinneh.

It is in the latter region that the returning lines of the Polynesian Mongoloids are again encountered. The whole movement of the latter races here appears from the east to the west, while the Asiatics flow from the west to the

General course of Polynesian and Esquimaux migrations.

Greenwich, while the original source which we have assigned to the Brown races in Beluchistan is very near the meridian of sixty-five degrees east, from which it is manifest that the direct dispersion east and west of the Asiatic Mongoloids has covered a longitude of *one hundred and sixty-five degrees*; and if we take into account the multifarious departures to the right and left—the endless curves and windings by which such a movement would be carried forward from its initial departure to its final destination—we shall see that the Brown races of men have virtually encircled the earth in their wanderings!

Meanwhile, the migration of this same family of Mongoloids had extended down the Alaskan coast to Vancouver's island. Here, in the north-western part of what is now the United States, the great family of the Selish was distributed. By hy-



TYPE OF AMERICAN MONGOLOIDS—THE INDIAN BARRE.  
Drawn by Riou.

east. The main migration of the Eastern Esquimaux may be regarded as extending through the arctic archipelago, perhaps by way of North Devon island, or Ellesmere land, across Smith's sound into Greenland, where the final distribution of this family has its limits.

It will be seen by an examination of the map that this region is under the meridian of fifty degrees west from

pothesis, a deflected branch of this family may be traced eastward and thence southward to about the fortieth parallel of latitude and the ninety-fourth west from Greenwich. From this center several lines of departure may be noted upon which, in the southern parts of the United States, the old nations of Choctaws, Creeks, and

Distribution of the Selish; the Mexican races.

Natchez Indians were developed. Another line, perhaps, passed from the same origin to the west, thence southward into Mexico, and from the latter dispersion we gather the old races of the Toltecs, the Aztecs, and the Ottomies, who played so important a part in the quasi civilization which the Spanish invaders discovered and destroyed.

From another branch of the same dispersion arose the Cholulans. Still southward the course of migration was continued into Central America, where the nations called the Mayas, the Nahoas, the Quiches, and the Chontals were distributed north of the isthmus. We may even continue the same line of southern departure through the isthmus of Panama and down the whole coast of Western South America. The native races along this extended seashore, from Panama through Peru and Chili to Patagonia and finally to Terra del Fuego, have been found to be allied throughout with the Asiatic Mongoloids rather than with the Polynesians. The greatest of these families are perhaps the Aymaras, the Quichuas, the Araucanians, the Pampas, and the Patagonians, named in the order of the descent from the north. The Fuegians mark the extreme of this dispersion. The lines indicating the progress traverse the entire extent of the two continents, besides many meanderings, the limits of which could hardly be determined in terms of current geography.

At this point it may be well to note also some special developments north of Mexico. The Californians, together with the Shoshones, the Mutsun, and Yuma nations, may be regarded as dispersions from the north.

It may be, however, in the case of the

Shoshones, that they proceeded from an eastern migration, having its origin in the center of the United States. There appear to have been a good many interchanges of character in the central nations of North America, the Asiatic Mongoloids taking on the character of Polynesians, and vice versa. The great nations of the Eastern United States,

Origin and dispersion of the Central Americans.



TYPE OF AMERICAN MONGOLOIDS—MONDURNCA INDIAN WOMAN.

the Onondagas, the Oneidas, the Senecas, the Mohicans, may be referred ultimately to the same stock with the Cherokees, the Muskogeas, and other families of the Southeastern United States, and these in turn seem to have originated in the Antilles, and to have arisen ultimately from a Polynesian source.

It will be well, therefore, at this point to take up the course of dispersion of the Polynesian races from the center of the west coast of South America and follow the same in its divisions through that

Place of the Shoshones; derivation of the Six Nations.

continent. Perhaps the first deflection from the main line of eastern departure was to the right, into the countries now occupied by the Argentine Republic. The native races of this region are known by the name of Guaycurus. They belong in general to the country between the mouths of the La Plata and the Rio Negro. The coast nation of this part of the continent are known as the Puelches. A second migratory stream put off about the head-waters of the La Plata, taking its course eastward, and was thence deflected to the coast, in Uruguay, where the people called Charraks bear evidence of the dispersion. Higher up, the Guarani were distributed, and from this region the main line extended in a course nearly parallel with the sea, into the heart of Brazil. The mountain races to the left of this line are known by the name of the Parexis, while the still greater family of nations between the river Amazon and the San Francisco are called Tupis. The latter are subdivided into the Crans, the Crens, and the Gucks, with many subordinate tribes and ramifications.

One branch of this same Polynesian migration turned from this country up the valley of the Amazon and was distributed among the initial streams of that great river, while another branch crossed the Amazon to the north and contributed the Caribbean nations in their various families and tribes. It appears that from the coast at the mouth of the Orinoco, almost directly northward, and thence westward through the islands to Hayti, and thence by way of the Greater Antilles to the southern extremity of Florida, the line of migration was carried, depositing the Seminoles in the latter country, and thence

The Polynesian  
Mongoloids in  
South America.

Origin of the  
West Indians  
and the Semi-  
noles.

bending eastward through the coast regions of the United States. It is probably true that the kinship and affinity of so great numbers of the Indian tribes of North America with the Polynesians of the South Pacific must be referred to this almost infinite line of departure which we have been following from Sumatra and Siam across the South Pacific to the western coast of South America.

Hereafter, in noticing the peculiarities of the Indian races of the New World, we may have occasion to speak again of their geographical positions and mutations. It is believed that this cursory outline of the general movements by which the New World was probably peopled with inhabitants belonging to the Brown races of mankind, will be sufficient to give an adequate idea of the development of these races. The great peculiarity which impresses itself most upon the mind of the ethnographer and historian is that *all* the aboriginal families of these continents belonged to the Brown family of mankind. In those primary movements which may be called *natural*, as contradistinguished from the somewhat *artificial* migrations and colonizations which are projected from civilized countries into the barbarous territories of the world, not a single Black or Ruddy tribe of men reached the shores of either America.

It is, indeed, a reflection well calculated to astonish the inquirer that the most progressive and energetic peoples of the world have not, until times most recent, carried the lines of their dispersion into the remoter parts of the habitable globe.

It is true that the Aryan races have at present extended their languages and institutions—even their blood progeny—into the uttermost parts of the earth, but

Universality of  
the Brown dis-  
persion in the  
Americas.

Astonishing ex-  
tent of the mi-  
grations of the  
Brown races.



these movements do not belong to the same class of phenomena by which the primitive, unconscious peoples were distributed to their several destinations.

If we look at these primary movements only, our surprise may well be great at the indescribable extent of the wanderings and ethnic dispersions of the Brown races of mankind and the comparatively small areas in which the progressive and civilizing peoples have borne themselves and their institutions. With a map of the world drawn on Mercator's projection before the student who desires to inform himself of the prehistoric movements of mankind, the great, well-nigh universal, diffusion of the Brown races throughout all Asia, several parts of Europe, and the whole of Polynesia and the two American continents must impress his mind with the striking character and singularity of these human phenomena.

Before dismissing the subject of the distribution of the Brown races, we will point once more to the outer geographical limits of the dispersion in different

parts of the world. The migratory lines in South America drop to the extremity of the continent in latitude fifty-five degrees. The Fuegians represent the nearest approach of the Brown races to the south pole. The next limit in the same direction may be found in the Chatham islands and the southern parts of New Zealand, extending from latitude forty-five degrees to fifty degrees south. As already noted, the western stream of this family terminates in Spain, at about ten degrees west from Greenwich. The eastern boundary of the Greenland Esquimaux may be given at about twenty degrees west. The northern excursions of this race have reached to at least the eightieth parallel north; from which we may gather that through *three hundred and fifty degrees of longitude and a hundred and thirty-five degrees of latitude* the descendants of the Brown races of mankind have been dispersed by the natural forces to which barbarians in their migratory movements are subject!

Outer periphery and limits of the Brown dispersion.

## CHAPTER XXX.—DISTRIBUTION OF THE BLACK RACES.



As compared with the complexity and extent of the dispersion of the Brown races of mankind, the Black divisions and departures of the human family are simple and easy of apprehension. They are confined, in general terms, to that portion of the African continent lying south of the twentieth parallel of north latitude, and to Australia and the Micronesian islands. The fact that the

Indian ocean lies between these African and Australian dispersions of the race, and that the presence of Black peoples is not discoverable in any other of the great continents, except by reason of recent civilizing movements, introduces the one great difficulty in determining the origin whence both streams of the race have flowed. It is this circumstance, moreover, which has in a great measure fortified the hypothesis that under the Indian ocean lies the sub-

General character of the Nigritian distribution.

merged continent of Lemuria, the ancestral home of all the races of men.

Granted the existence in prehistoric ages of such a continent, and the subsequent dispersion of mankind on the monogenetic hypothesis becomes not only plausible, but easy and natural. But the continent is a supposition so

Lemuria necessary to unify the Black dispersion.

Africa seems to have been on the eastern or peninsular coast where the continent juts out into the Indian ocean, about the parallel of ten degrees north.

Origin of the ethnic dissemination of the African races.

It has been stated above that most of the peoples of this coast region as far west as about the thirty-seventh degree of longitude are of Semitic origin, with



MEURKA.—Drawn by Y. Pranishnikoff.

far as the present knowledge of mankind is concerned, and we are obliged to consider the African and the Australian distribution of the Black races as separate phenomena, one presenting itself with a westward and the other with an eastward migratory tendency.

As already remarked, the beginning of the Black populations of Southern

perhaps a mixture of Hamitic stock. Such peoples are the Somali, the Donakil, the Galla tribes, and others, inhabiting this peninsular part of Africa. It is somewhat to the west of these, therefore, that the actual dispersion of the Black peoples seems to have its center. This is to say that the lines indicative of the migration of the Black races from

the eastern coast of Africa are for a distance of about ten degrees from the ocean hypothetical, the country through which they pass being now occupied by tribes of another race.

It may be conceded that the oldest branch of the Negro family, upon the consideration of which we are now to enter, are the Fundi-Sudanese, who occupy the country between the Blue and the White Nile for some distance south of

Place and distribution of the Fundi-Sudanese.

At this point it may be well to designate the principal branches into which the Negro race proper is divided. The northern stem, next to the Fundi just mentioned, carried into Central Africa the Negroes of the Sudan and perhaps the Fulah races lying to the north. Some trouble has arisen as to the classification of the latter peoples, and there are traces in their color and other peculiarities indicative of an admixture of

Kinship of Fulah and Fundi races; subordinate families.



BAMBARRA TYPES.—Drawn by Emile Bayard.

their intersection. It is likely that this was the first territorial dispersion of the family which afterwards spread through the larger part of the continent to the west and south. The Fundi seem never to have removed very far from their original seats. They founded here the kingdom of Sennaar. They have the same peculiarities of person and tribal character with the Negroes of Southern and Western Africa, and are certainly in affinity with them by race descent.

Hamitic blood. By the Sudanese, however, the Fulahs are regarded as of the same race with themselves, and, on the whole, the evidences of kinship with the Black peoples on the south are sufficient to warrant this classification.

Several subordinate families were thrown off from this same northernmost stem of Black dispersion. Among these are the Haussa tribes, the Sonhrays in the valley of the Niger on the extreme west, the Jolofers between the Senegal

and the Gambia on the coast. There is no doubt that the Hamitic line of migration, bending to the south out of the Moorish states of Western Africa, penetrated the valley of the Niger, and that this stock has contributed somewhat to modify the Black peoples in the north of the Sudan.

The Sudanese proper are likewise divided into many peoples, distributed from the Upper White Nile, across the

Distribution of the West Sudanese and Guineans. continent to the westward, to the Mandingos and other tribes of Guinea.

Glancing over the whole field of Central Africa, between the twentieth parallel of north latitude and ten degrees south, we may, on a geographical basis, note four principal ethnic divisions of peoples:

1. *West Sudan and Guinea.*—In this region there are beside the Fulahs six other groups, distinguishable by sufficient differences to warrant a classification. The Mandingos, with ten or twelve subordinate tribes, occupy Upper Guinea and Southern Senegambia. The Woloffs have seven divisions, or tribes, which are distributed inland between the Senegal and Gambia rivers. The Felups are divided into twelve tribes, or nations, scattered over the territory between the Gambia and Sierra Leone. The Liberians have seventeen tribal divisions scattered along the Grain coast and the Ivory coast. The Ewe group consists of ten different nations, and are distributed along the Gold and Slave coasts. The Ibo group also embraces ten subdivisions, having their territories in Benné and along the Lower Niger. The Sonhray family, with many subordinate tribes, occupy the country along the Middle Niger, from Timbuctu to Gando. The Fulahs, already described, are divided into eight nations, inhabiting the eastern parts of Senegambia and distributed eastward to the

Baghirmi country. All these peoples except the Sonhray and Fulah nations speak dialects of a common language, but the latter peoples appear to have each a distinct vernacular.

2. *Central Sudan and the Chad Basin.*—

In this region there are five separate groups of peoples. The first are the Adamawa Central Sudanese and tribes of the Chad Basin. group, with some sixteen tribal branches, belonging to Upper Benné and scattered thence eastward to Logo. The second division, called the Tubu nations, embraces twelve tribes, inhabiting Tibesti, Kanem, and the countries extending to the northern part of Darfur. The third, or Logon, group includes about fifteen branches, inhabiting Bornu, Lower Shari, and the Chad islands. The fourth group, called the Baghirmi, is divided into fifteen nations, occupying the lower and middle parts of Shari and the territories eastward to Runga and Darbanda. The fourth, or Waday, group, including a vast number of tribes, occupy the country of Waday and the districts eastward to Darfur.

3. *East Sudan and Upper Nile.*—In this region there are four race families. The first, known as the Darbanda group, has eleven Place of the East Sudanese and the Nilotes. tribal divisions, occupying the country of Upper Shari and the territory eastward to Dar-Fertit. The second family of tribes, called the Fur group, have about seventeen nations occupying the country of Darfur and Kordofan, between Waday and the White Nile. The third group, called Nilotes, are divided into more than twenty tribes, living along the White Nile and its tributaries, eastward to Kaffa and Gallaland, and southward to Uganda. The fourth group of tribes are known as the Zandey, and are better organized as a nation than any of those above enumerated. They

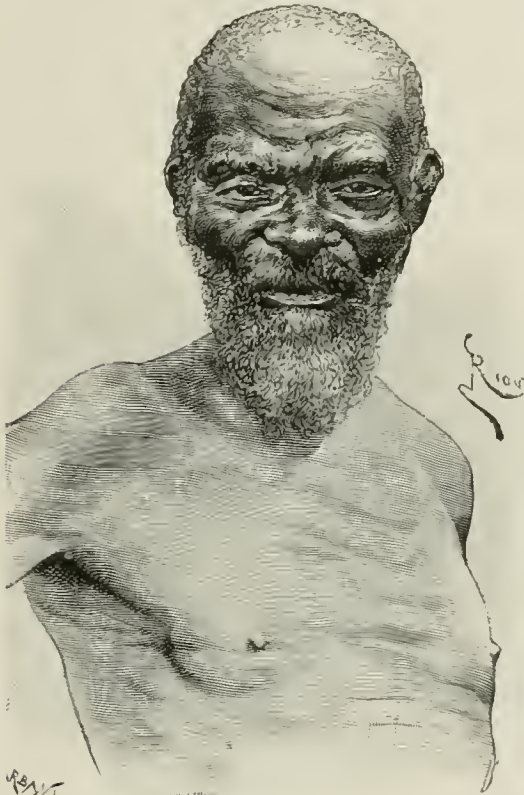
live about the Welle, and extend southward to the Lualaba.

The above three general divisions are all included under the general head of Sudanese, and are all Negroes — though considerably differentiated in ethnic character—except in so far as they have been modified along the northern and

Ethnic traces of the Hamites among the Nigritians.

the Sudanese on the north and the Kaf-firs and Hottentots on the south. The Bantus have been classified, according to such distinctions as they present, into five ethnic groups. These are arranged principally on the lines of geographical locality: first, the Zulu-Kaffir group, embracing many tribes, are scattered through Zululand, Natal-Kaffraria, and in the region northward toward the great lakes of Eastern Africa; second, the Central group, divided into about sixteen nations, occupy the Upper Orange river, Transvaal, the shores of lake N'gami, and portions of the Zambesi. The Eastern group, also including many subordinate tribes, fill the territories on the east coast from the equator southward to the edge of Delagoa, and westward to lake Nyassa; fourth, the Equatorial group, including more than twenty nations, fill the regions of the great lakes, the upper part of Lualaba, and the country southward to the Lokinga mountains; fifth, the Western group, including about forty nations, are distributed along the west coast of the continent, from Damaraland northward to the Cameroon mountains, and eastward to the twentieth meridian of longitude.

Classification and subdivisions of the Bantus.



BANTU TYPE—CHIEF N'DOUMBA.  
Drawn by Riou.

western borders by Hamitic influences. It has already been noted that the Fulah nations, especially the West Fulahs, have been influenced not a little in their race development by the impact of the Hamitic migration, turning from the north into Senegambia. We now come to the fourth general division of the Negro race.

4. *The Bantu Family.*—This great race occupies South Central Africa, between

Within these vast regions, almost incomprehensible in their extent and character by people of the Western continents, there are distributed about one hundred and thirty million of people of pure Negro origin, besides about twenty million who have received, from one circumstance or another, the traces of foreign blood. These are the parts of the earth out of which the conscienceless states of the Middle Ages, and the great nations of modern times as well, have gathered their cargoes of human

Africa the Patria Dolorosa of the world.

chattels for the slave markets of the world. It is the region of infinite sorrows, to which the inhabitants of a better universe might point with shame, as to the *Patria Dolorosa* of all planets, upon which the stronger races of mankind have preyed with the cruelty of tigers and the gluttony of wolves.

If we resume the consideration of the migratory lines by which the widely dispersed races of the Sudan and the Bantu countries were distributed, we shall find one great departure turning to the south, from the country included between the Blue and the White Nile, and bearing down the eastern coast of Africa the primitive races of that region as far as the Zulus and Coast Kaffirs of the south. It appears that this branch of the dispersion was limited to the country between lake Nyassa and the sea, thus constituting a marked division between the coast Negroes of Eastern Africa and the Hottentots of the central and western parts of the continent.

In the district immediately east of the Victoria Nyanza the migratory line seems to have bifurcated, a western branch putting off from the Coast Kaffir division and extending around lake Tanganyika and into the heart of the Bantu country. It was by the ramification, very extensive and multifarious, of this line that the Bantu nations and the great family of the West Kaffirs were distributed. The dispersion continued to the western coast of the continent, the ramifications in this region reaching from above the equator to the parallel of twenty degrees south. On the lower coast, however, the Bantu tribes were somewhat restricted to the interior by a line of Hottentot migration from the south, which distributed the Obongas and

other tribes between the Kaffirs and the sea.

Such, then, in general terms, are the limits and extent of the Negro dispersion of mankind. Geographically, its southernmost point is with the Zulus, under the parallel of thirty degrees south. Its northernmost departure is with that ethnic line which carried the Jolofers to their place on the south banks of the Senegal, in latitude twenty degrees north. The eastern divisions of the Negro family are conterminous with the African coast adjacent to the Indian ocean, and the western distribution of the race is along the shores of the Atlantic. Measured by meridians of longitude, the dispersion reaches from fifty degrees east to twenty degrees west. The whole area, therefore, included by the dissemination of Negro races, extends through about fifty degrees of latitude and seventy degrees of longitude, being, in general terms, coëxtensive with Central and Southern Africa.

We come, in the next place, to consider the dispersion of the Hottentots. These constitute the remaining major division of the Black race in Africa. It is claimed by ethnographers that the line of migration which carried this people into the south extremity of the continent entered from the side of the Indian ocean at a point on the coast somewhat below the entrance of the Negroes. We have, however, in the case of the Hottentots the same uncertainty that confronted us in the case of the Negro race. This is to say that Hottentot tribes have not been found, within the historical era, in that part of the country where they are supposed to have entered. The line from the coast, running in a southwesterly direction between lakes Tanganyika and Nyassa, is carried *by hypothesis*

Limits of the Zulu and Kaffir dispersion.

General boundaries of the Nigritian distribution.

Ethnic relations of the Coast Kaffirs and the Bantus.

Race origin of the Hottentots considered.

through more than twenty degrees of latitude before the borders of the Hottentot dispersion are reached. Such is the theory. All probabilities, however, point to the incoming of these tribes from the direction indicated, and their affinity with the Negroes fully warrants the assumption of a common origin with them.

It is not until the inquirer reaches the valley of the Upper Zambesi in his journey across Southern Africa from the east that he comes upon the first tribes of Hottentots. They are virtually limited in their actual distribution to the

Where the Hottentots and Bechuanas are distributed.



BECHUANA TYPE—A PAHOVIN.  
Drawn by Riou.

country south of the Zambesi. The first nation of importance is the Makololo people, on the right bank of the river and in the central part of the country. They have the Negro Ovambos and Bundas on the west and the Coast Kaffirs on the east. The Makololo may be regarded as the oldest existing branch of the Hottentot race, though it is in evidence that in former times they extended much further to the east, and that they occu-

pled the country from which they were subsequently expelled by the Kaffirs and other Negro tribes.

The next branch of the race is found on the head-waters of the Gariep, or Orange, river, and is known by the ethnic name of Bechuanas. Some ethnographers have been disposed to make them a race of different origin from the Hottentots. It can not be denied that they are distinguished from the aborigines of Cape Colony by several important characteristics. The nation has been considerably compressed by wars with the people of the south and with the Kaffirs on the east; and in recent times the Boers have established themselves within the Bechuana territory.

The family of Hottentots are, like the Negroes further north, divided into many subordinate tribes, of which the Bassutos are the principal. They have their territories to the west of the Quathlamba mountains. A second tribe is called the Batlapi, having their habitat on the borders of the Kalahari desert. A third family, known as the Barolong, dwell to the north of the last named people, but these have been nearly exterminated in warfare with the Kaffirs. Still north of the Barolong are the Bangwaketse, while the Bahurutse have their territories close alongside. The Badoana are scattered on the north coast of lake N'gami, and the Bakwains occupy the hill-country whence the rivers Notuani and Marqua descend to the coast. These are the principal tribal divisions of the Hottentot family. In the extreme south, however, the most characteristic of all these races, the Bushman and the Namaqua are found, whose names have been synonyms for one of the lowest types of aboriginal life known in the annals of existing races.

Subordinate  
tribal divisions  
of the Hottentots.

There are not wanting evidences, sufficiently conclusive to the ethnographer, that the peoples whom we are here considering—Negroes and Hottentots—are among the most ancient races on the face of the globe. A single fact may be cited, or rather repeated from a former chapter, of the monumental delineation of Negroes among the captives of the primitive Egyptians. All the race characteristics of the two peoples were already distinctly developed. The ethnologist of to-day could not detect any radical mark of difference between the Negro as he is depicted among the sculptures of the Egyptians or unwrapped from the mummy cases of their tombs and the living specimen of the same race taken from the heart of Bantuland. But the Negro of the sculptures and he of the valley of the Livingstone are separated in time by a period of hardly less than six thousand years. Yet *before Egypt was Egypt* the Black race was disseminated in Central Africa, and was in all probability at that remote prehistoric epoch not different in characteristics and tendencies from what it is to-day.

Still further away from the historical era are the primitive Hottentots. All the ethnic qualities of these people point to an extravagant antiquity. An argument would not be far to seek from these premises in favor of the evolutionary hypothesis of the human race, and the assignment of a primitive, or indigenous, race center to the southern parts of Africa. The cranial capacity of the Hottentot is considerably less than that of the Negro, as the Negro's bulk and weight of brain are less than those of the Turanians. Following the same line of development we note the still more extended brain evolution of the

Indications that Negroes and Hottentots are primitive races.

Probability that the Hottentots are least developed of mankind.

Indo-Europeans, reaching its maximum in Europe and North America. In what direction soever these hints, drawn from the natural history of man, may lead, we may safely conclude that the Hottentots are the oldest and least developed of all the races which we have thus far attempted to trace in their migratory movements. No sketch of their characteristics as a people is here attempted. It has been the purpose in the current chapter merely to mark out the course of dispersion and distribution by which the Black races of Central and Southern Africa have reached their respective destination.

It now remains to notice the migratory movements of the primitive Australian branch of the human family. Viewed as a whole continent, Australia presents in its aborigines only a single type of people, to whom ethnographers have given the name Australians. If there be any trace at all of another race in the great island continent, it is on the extreme eastern borders where the Papuans of Tasmania may have left some evidences of their presence or at least their transmigration.

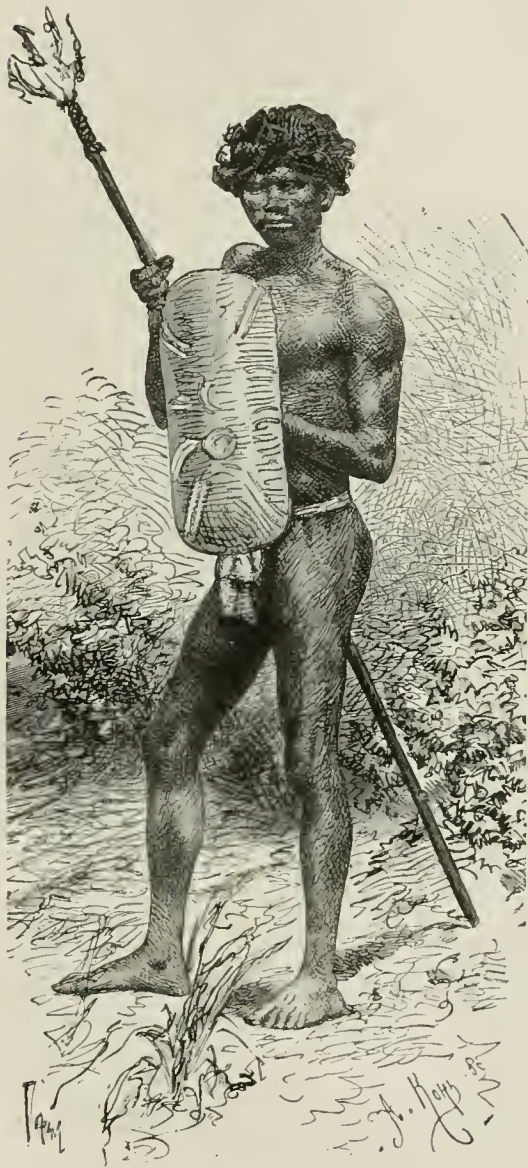
If the inquirer should begin his investigations from the standpoint of Australia, he might well conclude that the native races are indigenous to the country, being apparently without derivation from any other race. In color, it is true that the primitive people are in affinity with the Negroes and Hottentots, but their general characteristics and personality would seem to set them apart from almost every other type of mankind. It has been agreed, however, that, proceeding on the monogenetic hypothesis, that is, on the supposition of one common origin for all the races of men, the

Homogeneity of the Australian aborigines.

The Australians should be classified with the Nigritians.



Australians may best be classified with the Black races of Africa, and that their incoming into the island should be reckoned from the northern coast.



AUSTRALIAN TYPE—JOKKAL.  
Drawn by Tofani.

Ethnography has not hesitated to trace backwards from this point, by way of Java and thence across the Indian ocean to Southern Hindustan, the prehistoric line of Australian dispersion. This, of course, is done to carry out the ever-

present supposition of a submerged continent in the region between India and Africa. Thus much being granted, it is easy to develop the line of probability

Lemuria seems necessary to the supposed distribution.

by which the primitive Black tribes of Australia may have made their way from Lemuria into the country of their present occupancy. We shall therefore follow the hypothesis to its legitimate conclusions, and regard the Australian branch of mankind as an eastern deflection from a parent stream, which was common in its origin with the Negritic and Hottentot divisions on the other side of the Indian ocean.

It appears, then, that from the northwest coast, near the gulf of Cambridge, or Arnhem's land, the primitive Australian migration was extended by divergencies through the island in three different di-

Lines of the Black dispersion in Australia.

rections. The first extended laterally from north to south to the coast in the vicinity of Spencer gulf and the gulf of St. Vincent. The second branch turned to the west coast, which it followed as far as the valley of Swan river, and was thence extended to King George sound. These divisions were subordinate, however, to the third ethnic branch which turned to the east, near the head of the gulf of Carpentaria, and was thence parted into several divisions, losing themselves in the modern Queensland. It appears that New South Wales was populated by tribes from the Upper Darling, and that the whole of South-eastern Australia was filled from the same general source.

The inquiry will again suggest itself by what means these prehistoric movements have been indicated to the ethnographer. What are the sources from which he has drawn his conjectures and

Valid grounds of ethnographic hypothesis.

proofs? In the first place, a comparison of the different dialects spoken by the native Australians indicates sufficiently their affinity and common origin in some single parent linguistic stock. But secondly, the general community of manners and customs, the identity of the barbarous institutions, of which at least the rudiments are discernible, lead to the same conclusion of a common origin for all the natives of the continent. In the third place, what may be called personal peculiarities, identical in different and

of mankind has apparently taken its rise. In general, the Melanesian islands are peopled with races derived from this source. New Guinea has drawn its population from this Papuan stock, and has taken their name as the modern designation of the island. Traces of the same race have been followed to the east and south as far as the Fiji islands, where the migratory movement seems to have terminated. In short, throughout Melanesia the Papuan lines have

Origin and course of the Papuan distribution.



PAPUAN TYPES—MALE AND FEMALE HEADS.—Drawn by E. Méplés.

widely spread tribes, point likewise to a common descent from a single ethnic branch of the human family. It will be the aim in a subsequent part of the present work to give an account of the manners and customs of these native races, and to outline the institutional forms of which their savage state has shown some traces and beginnings.

From the main line of pre-Australian migration a secondary ethnic development has apparently occurred in the archipelago lying north of Australia. From this origin the Papuan division

carried peoples of this stock north, south, east, and west, as far even as the coast of Japan, and westward to the Andamans.

Southern Borneo and a great part of Sumatra have felt the like influence among their aborigines, and nearly all of the islands between Australia and the

Geographical limitations of the race.

coast of China are infected with the same blood and derivation. The southern limit of the dispersion is reached in Tasmania where the Papuans took one of their most characteristic and

undisturbed developments. The geographical limits of the race are the great ocean region between the forty-second degree of south latitude and the thirty-fifth north. Eastward the Fiji islands, under the meridian of one hundred and eighty from Greenwich, and westward the Andaman islands under ninety-two degrees east, define the lateral distribution of the Papuan race. Its peculiarity is that it is wholly insular. The great country of Australia, though lying in what might be called the heart of this ethnic development, seems for some reason to have shed the Papuans and to have taken a family of native peoples peculiar to itself.

We have thus attempted to trace out the geographical distribution of man-

Legitimate use  
of hypothesis in  
ethnic inquiry.

kind according to their several races and kindreds.

All parts of the globe have now been considered, including the remote islands of the South Pacific. It will readily be allowed that in many places the course of migrations, as indicated in the foregoing discussion, is hypothetical. It may be claimed in this particular that in a scientific age, such as the present, all work by hypothesis and conjecture ought to be eliminated from a discussion which pretends to partake of the nature of the exact sciences. This view of the case is too extreme and severe. The progress of knowledge depends not infrequently upon stepping from shore to shore by means of hypothesis and theory. This method of human investigation in many cases fore-runs the observed order of nature and indicates the place and limitations of law. It is only in this sense that we have here ventured to fill up certain gaps in the movements of mankind by theoretical lines. All such work is, in the nature of the case, tentative, and sub-

ject to revision and correction, as discovered and discoverable data may hereafter indicate the necessity of such modification.

Before dismissing this part of the subject, several topics present themselves for passing consideration.

In the first place, the long-standing dispute about the place, the time, and the method of man's appearance on the earth obtrudes itself constantly into the inquiry. It is pressed upon the mind of the ethnographer not only by the ever-recurring suggestions of traditional belief, but also by the very necessities of his theme. Almost in despite of those restraints and cautious methods which he imposes upon himself and upon every branch of the subject, he finds himself disposed to favor the one or the other of the several current theories respecting the original locus of mankind and the nature of the genesis of the race.

Question of  
time, place, and  
manner recurs.

The fundamental question is whether the facts of ethnology on the whole tend to strengthen or to weaken the monogenetic theory of the human family. Did

Theory of Mon-  
ogenesis is best  
sustained by  
facts.

the race of man arise from a single source and a single pair, at a single time and under simple conditions? or did the various branches of mankind have polycentric origins and independent lines of development? In this form the question is simply anthropological. Carried into the domain of natural science, however, the problem has become one of creation by evolution or immediate and phenomenal creation; and the inquiry takes the same form which it has respecting all other animals and all plants on the face of the earth, namely, did they originate by evolutionary processes of growth and adjustment from a single germ or a few germs of life, scattered in

the soil of possibility, or did the existing forms of life appear phenomenally in time and place and in complete development? On the whole, it may be said that the theory of a monocentric origin for the human race gains under the addition of facts and the readjustments of right reason; while on the other hand, it may well be allowed that the universality of the evolutionary process as applied to all other forms of life would seem to demand a like process of growth and development for man.

It is also fitting in this connection to add a paragraph in the way of further explanation of what may be called the *true aspect and form* of those migratory movements which have been delineated in the present book. In several places the reader has already been put on caution against the too exact representation of these human phenomena by means of lines and the other physical terms made necessary by the nature of the discussion. Ethnic lines drawn on a map from place to place as indications of the movements of tribes of men in process of natural dispersion must not be understood as a narrow highway or as a river channel bearing a single definite volume of water from its source to its mouth—from its departure to its *débouchure*. Human progress over the face of the earth has never been in this exact similitude. If any tangible symbol could be adopted to express to the senses and receptive faculties of man the exact nature of tribal diffusion, it would be that of a *film spreading over the face of the earth*. Nevertheless, this filmy and irregular dispersion of mankind does proceed from one place to another. It starts from a definite origin and reestablishes itself in another locus far removed. A line drawn from one of these

places to another subserves an excellent purpose as indicating the *direction* which the movement, considered as a whole, has taken, and also as defining the points of departure and arrival. But in other respects the line is altogether misleading, as being *too mathematical* and *precise* for the fact which it is intended to represent. If a map could be so constructed as to bear broad, thin bands of color, widening and contracting and bending in likeness to the expansion and narrowing and eddying of actual tribal movements, the representation would be more in conformity with the facts. The student of ethnography must, therefore, be on his guard lest the notion or concept which he receives of the migrations of mankind, deduced from the drawing of lines across the map through continents and over seas, be inadequate, and, indeed, erroneous in its nature.

Many familiar illustrations drawn at random from the movement of peoples within the historical era may be deduced in illustration of the misconceptions into which the inquirer is likely to fall. For instance, the passage from the shores of the Old World, in ships, of the colonists who planted themselves in little rookeries on the eastern seaboard of America might well be represented by lines drawn across the Atlantic from point of departure to point of settlement. But the diffusion of those peoples inland from the Atlantic shores, though it had a direction and a tendency, could hardly be given a linear representation. With the development of the Old Thirteen States, the overflow of their population by adventure came through the passes of the Alleghanies into the Ohio and Mississippi valleys; but such a movement would be very poorly represented by lines.

True aspect and form of migratory movements considered.

called the *true aspect and form* of those migratory

Familiar illustrations of the movements of races.

The peopling of the trans-Mississippi states and territories was in the nature of a gradual spreading of the American race toward the Rocky mountains.

The colonization of Kansas and Nebraska may in general be traced to an origin in New England. But a single line drawn from Western Massachusetts across New York, Pennsylvania, Ohio, Illinois, and Iowa, and bifurcated at its passage of the Missouri river into Eastern Kansas and Nebraska, would be a very inadequate, not to say an erroneous, representation of the actual facts. Yet the movements which we have here described were projected in the open daylight of history, under the conscious and rational forces of civilization. They were consequently much more exact than those *natural* expeditions and swarmings forth which characterized the barbarous epochs of human society. The progress by which the colonists have peopled the western portions of America by migration from the east is much more susceptible of exact delineation than were those prehistoric movements which were directed by the blind forces of barbarism. An attempt to point out with geometric curves the course taken by the Teutonic hordes who came into Britain in the fifth century, or by the Northmen into Neustria in the ninth, would be not only conjectural but exceedingly inefficient as a pictorial method of symbolizing the things it is intended to express.

The movements of human society on the surface of the earth are as multifarious as the swarming of bees from the parent colony.

It is easy to indicate the general direction of the swarm, to point out its origin and its ultimate destination in the distant forest; but its exact course and the manner of its going are phe-

nomena exceedingly difficult of definition and description. Human migrations are even more intangible and multifarious in their manifestations than are the blinder circlings about and the final settlements of animals and birds, and the reader must be on his guard against the exact and mathematical delineation of such movements on maps and globes. They are, at best, the vague indications of the places *from* which and *to* which and the space *over* which the tribes of men have drifted and turned and whirled on their way to a final occupancy of a different and distant part of the earth's surface.

Still another important consideration arises with respect to the classification and tribal dispersion of mankind. This relates to the *precise separation* of tribe from tribe and race from race which the

Separation of tribes and races not complete.

ethnographers have employed in their schemes of division. These plans of distribution and of race partition are drawn up as if they were mathematical formulæ. It is assumed that the Ruddy races are clearly defined from the Brown, and the Brown races from the Black; that is, that the lines of demarkation between these major divisions of mankind are clearly and definitely drawn. Such a supposition is as wide from the fact as is the use of a line to represent the prehistoric movements of a tribe. It is true that there are Ruddy races, that there are other races which are Black, and others Brown. But the lines of division which are supposed to separate the one from the other, that is, the ethnic distinctions by which the one is separated from the other, would be difficult to discover.

It is here, as in all natural analysis, that nature hangs together. The races of men grade off, the one into the other, by imperceptible degrees. This is true

of their physical characteristics, of their mental habitudes, of their morality, and of their institutional forms of life. It would perhaps be impossible to find the exact points of division between the

Grading of the human species: no lines in nature.

of their institutional forms of life. It would perhaps be impossible to find the

world does not present a single instance of what may properly be called a line. Every phenomenon is shaded off on all sides into the other facts with which it is associated. It is true that the distinction between night and day is sufficiently striking; but all the scientific tests in the world could never define the limits of that dawn which separates the one from the other. The cloud is discriminated from the sky, and yet by what kind of test could the edge of a cloud be defined from its atmospheric envelope? It is not possible to produce even on the edge of the finest cutlery an actual line. Everywhere there is a blending of the phenomena that lie on the two sides of the demarkation. In the world of life this absence of exact outlines by definition is equally noticeable. The differences between races of men are among the most striking and interesting facts with which historical inquiry has to do; but these conditions are graded down until at the selvage they blend with one another into a common character.

This, however, is not to assert that there is no difference between one race of men and another. It is only to deny the division of the one from the other by those exact lines of discrimination which ethnographers are wont to employ. Those thinkers who have made the widest application of the hypothesis of evolution to the various forms of life on the globe have become satisfied that all varieties of living forms merge into each other, and that the method of classifying by genera and species is in reality fictitious—a convenience of science perhaps, but having no corresponding fact



TYPE OF RUDDY RACE APPROXIMATED TO BROWN  
—A NATIVE OF MADRAS.  
Drawn by Emile Bayard.

Black peoples of the world and those who are classified as Brown. Nor could the Ruddy peoples be separated from either by a precise line of demarkation. Nature abhors a line! The physical

all varieties of living forms merge into each other, and that the method of classifying by genera and species is in reality fictitious—a convenience of science perhaps, but having no corresponding fact

in nature. It is held that whereas there are almost infinite *varieties* among living creatures, there are no *species* in the sense in which that term has been hitherto understood by natural philosophers. In many places in the world of life great gaps and chasms are discovered which it is necessary to bridge over by supposing intermediate living forms which have disappeared. But it is believed that if all the phenomenal exhibitions of life which have been seen on the earth could be restored, the artificial methods of classification now employed would disappear; in other words, that all life would become one, the various formal manifestations of the same being shaded off by such fine degrees as not to warrant the fixing of the great classes and smaller divisions which furnish the nomenclature of biology.

If this view of nature be accepted as applied to the human race, we should be led to regard the chasms between the different divisions of mankind as the result of the perishing and dropping out of certain intermediate types that, on the whole, were less able to perpetuate themselves than were those varieties of men who were differentiated under more favorable conditions on either side of the departure. We should thus be led to regard a given "race," so called, as a certain form of humanity which nature had proved and ratified under the laws

of environment and survival. A different family would present simply another aspect of the one common fact adjusted to new conditions and developed on new lines of activity. Intermediate between these two separate forms of human evolution we should find both branches grading toward each other and approximating to a common type. The type itself would perhaps be absent, but the shades on either side of the line of demarkation would be so slightly different as to be hardly distinguishable the one from the other.

Such conditions are discovered along the edges, or selvages, of race development. The Danube in ancient times constituted a kind of geographical barrier between the Teutonic and the Græco-Italic races. The Goth, considered as a Goth, was sufficiently distinct from the Greek considered as a Greek, or the Roman as a Roman. But the two races at their margins approximated a common ethnic form, and this independently of the admixture of blood. All of these considerations are adduced and urged upon the attention of the inquirer to the end that his concept of race divisions may be somewhat more in accordance with the facts, than would likely happen if he were trained to consider the different streams of mankind distinctly separated by the exact lines of ethnography.

Races of men must be regarded as varieties of a common life.

Peoples approximate along their ethnic margins.

## CHAPTER XXXI.—MIXED RACES OF MANKIND.



WE are thus led to the consideration of another fact of no little importance in the general apprehension of the movements and dispersion and devel-

opment of mankind. This is the existence and character of *intermediate or mixed races*.

Existence of mixed or intermediate races.

It has always happened that wherever two families of men have touched each other geographically, they

- have also touched by the more intimate admixture of blood. In the early ages of history, when race antipathy was stronger than it is under the light of civilization, the intermingling of different branches of the race was less frequent and conspicuous than in modern times. But intermarriages were common from the remotest epochs, and are mentioned as common circumstances in the most primitive traditions of the world.

As a result of the cross-relationships thus established between fami-

Race offspring takes character from both ancestors.

lies of different blood an offspring, possessing something of the traits of both

ancestors, would arise, intermediate between the two; and when the departure between the two stocks thus blended was strongly marked in color and other ethnic qualities, the result of the union would present a type sufficiently distinct to be classified by itself. An intermediate group, or branch, of people would thus be established who, preferring associations with their own kind, would become a tribe, and finally a nation. Such is the somewhat theoretical

view of the genesis of a mixed race of people.

Strangely enough, however, the facts do not seem to warrant the conclusion.

This is to say that the tribal and race development of the intermediate stock But intermediate forms do not perpetuate themselves.

has never seemed to answer to the expectation of the premises. That is, there is an apparent law in the natural world which forbids the propagation and expansion of these intermediate varieties of mankind. The law in question is common to man, to the lower animals, and to plants. The hybrid does not procreate its kind. It is incapable of doing so. This is to say that if the two animals which have been united in the production of a third be sufficiently differentiated from each other as to belong to what the naturalist calls diverse "species," then the offspring can not procreate its kind, and the movement in the direction of a new variety of animals ceases with the first stage. If, however, the two animals are so near together in structure and characteristics as to fall within the limits of what is called a "species," then, indeed, the offspring of their union can procreate along the new line of life. But it has been universally observed that such propagation is extremely feeble, and that it tends to weakness and early extinction.

In cases where this does not actually happen, the offspring of the original union, after a few generations, reverts to the type of the one or the other of the ancestors from which it was descended.

This reversion to the character of an ancestral stock appears to be the case with the union of the different branches



of mankind. That is, considered according to the biological classifications until recently acknowledged as the best

either of the types from which it has been derived.

A closer study of the situation, however, has established the opposite view. It is now known, and wellnigh universally recognized by biologists, that the intermediate varieties, or so-called mixed races of men, are, considered as distinct types, exceedingly short lived, unable as a rule to continue their existence or to maintain the distinct features which they present in the first generations after the original admixture. Such intermediate peoples, therefore, constitute, not, as was hitherto supposed, distinct races in the ethnography of mankind, but a kind of floating population interfused among the nations of the world, mixing and



APPROXIMATION OF BLACK AND BROWN RACES—THE MOOR FAGHE.  
Drawn by E. Ronjat.

expressions of the different orders of nature, all men fall within a single species, having its varieties which may unite despite of their strong distinctions, and produce a progeny having the qualities of both parentages. It has been maintained by many naturalists, and until recently has been generally believed, that these hybrid forms of human life have in them the elements of perpetuity, that the new variety of mankind thus established is fecund in its kind, and as well qualified to maintain its independent characteristics as is

All varieties of men fall within a single "species."



APPROXIMATION OF THE RUDDY AND BROWN RACES—DON MARIANO TERAN, PRIEST OF COPORAQUE.  
Drawn by Riou, from a photograph.

mingling dimly with the other human elements, but really effecting no changes in the general constitution of any type.

Short-lived character of all mixed varieties.

In all ages this impermanent compound of humanity has shown itself along the margins of race contact, but has never exerted other than a modifying influence on the separate peoples from whom the mixed type has been deduced. We have already seen that the valleys of India were populated before the immigrant Aryans took possession of the country. In another chapter the presence of this aboriginal population has been accounted for by the hypothesis of a Dravidian migratory movement across the peninsula before the deflection of that race into the great archipelagoes of the East. The Aryan tribes were not severe with the aborigines, but absorbed them by blood union and amalgamation. The result was, not the establishment and perpetuity of an intermediate or mixed race, but merely a modification in the Indo-Aryan character. It is believed that the immigrant and superior race took a considerable percentage of the Brown color of the Dravidians, something of their tropical suppleness of body, and a certain mental quiescence favorable to the genesis and propagation of the dreamy philosophies and negative religions of India. These results have continued to the present time, and are quickly discernible by the ethnographer in the swarthy complexion, liteness, and subjective moods of the peoples of Hindustan. But the Hindus are not to be regarded in the light of a mixed race. They are essentially Aryan, not only in their genesis and evolution, but in their present character as a race. The tint of the Old Dravidians is in their countenance, and their blood is tinged with the influences of aboriginal descent; but the ethnic type is the same that it was beyond the Hindu-Kush and in the old Aryan *nidus* in Bactria.

The same phenomenon has occurred

and recurred in hundreds of instances in the history of mankind. In fact, it is exceedingly exceptional to find a race of men who have not been more or less infected in blood and development by alien influences. But each race has continued its course of evolution under the dominion of the original ethnic impulse; and while it has accepted modifications from foreign peoples, it has persisted in maintaining its own type. The attention of the reader has already been called to the fact that the Assyrians were a people who had been thus modified by two or three contacts with other races. The Hamites on the south had somewhat infected the ethnic character of the people in Upper Mesopotamia. Later on, the Aryan Medes penetrated the country on the east and gave another modification to the people. So great were the changes thus effected in the Assyrian race character that ethnographers have been confused in their classification. Even the language was so much infected as to mislead the inquirer in regard to the linguistic stock from which it was deduced. But all of these foreign influences were no more than modifications in the real Semitic constitution of the Assyrians. The foreign admixture deflected somewhat the course and character of the people of the Upper Tigris, but did not subvert their fundamental constitution or substitute one ethnic descent for another.

The peoples of Western Asia Minor, especially on the south, were regarded as composite. This fact has been pointed out in a former chapter. But the persistency of the strongest stock, whatever that was in a given instance, preserved the original type, however modified and diverted from its earlier

Results of inter-mixture in the case of the Indo-Aryans.

margins of race contact, but has never exerted other than a modifying influence

and recurred in hundreds of instances in the history of mankind. In fact, it is exceedingly exceptional to find a race of men who have not been more or less in-

Examples of like ethnic phenomena elsewhere.

Further examples of composite ethnic character.

standards. All the western nations of primitive Europe might be cited as examples of the absorption, to a greater or less degree, of preceding populations that were overcome by conquest and taken up by the process of amalgamation. The Hamitic Basques and Iberians of Spain were in this manner absorbed by the Aryan Spaniards of a later age, and the latter received from the former a darker tinge of color, and perhaps other physical and mental characteristics which they carry to the present day.

The modern world presents still more strikingly the modifications resultant

The Israelites modified by the environment of races.

from the intermixture of distinct types of people.

Perhaps no stock in the world can better exhibit the persistency of the original type under infinite modifications of environment and foreign impact than the Israelites, who are at present interfused among the Western nations. The "Abrahamic face" is seen in all the parts of the world. The original character is strong upon him. He has intermingled with all the races. The Spanish Jew is very different in constitution and ethnic character from the German or Polish Jew; but each and all have preserved an original type under diverse and divergent aspects.

Modern ethnography has taken note of an almost endless variety of mixed races which present the beginnings, but never the results, of new ethnic developments. The distribution

Wide diffusion of mixed types; the Mulattoes.

of the Black and Brown races into regions of the

earth now occupied by the Ruddy families of men has given occasion for the production of these multiform cross-bloods whose interest as races lies not in their perpetuity, but merely in their present aspect. Wherever the

Ruddy and the Black race have come into contact, that type known as Mulattoes has appeared, and until recently it might have been thought that the Mulatto was destined to permanence as an intermediate type of mankind. This, however, is the very thing which, under the law of nature, can not, or at least does not, occur. The Mulatto is fecund. It has been noticed by statisticians that the first generation of Mulatto children, that is, Cascos, or those who have Mulattoes for both parents, are unusually numerous; but it is also observed that the tendency to reversion immediately appears, some being blacker, like the ancestral mother, and others whiter, like the first father of the admixture.

The latter type of Mulattoes, that is, those who gravitate toward the white parentage, are almost invariably weak and spiritless. If they procreate at all,

Instability of the Mulatto stock.

the offspring dies, and the reversion toward the white parentage soon ceases for want of material. The backward tendency goes on for several generations, when the distinction between the Mulatto progeny and the children of Blacks is no longer noticeable. The type has reverted on the side of the original mother. The same phenomenon recurs with the Mestizo, or the half-breed of the Mexican and the Spanish-American states. As a rule, the father, in this case, is a white Spaniard and the mother an Indian woman. Here, again, in the first generation a distinction appears among the children. The Mestizos fluctuate from the father's to the mother's side, and, though somewhat more persistent than the Mulattoes, they either revert or perish.

That indefinable type, called Creole in those countries where the word is

used to designate half-breeds, shows the same or analogous tendencies. The

Crosses of American aborigines with Negroes.

Zambo, or cross between the Negro and the Indian, is after a few generations

undiscoverable as a separate type. That is, the Zambo can only be perpetuated by the repetition of the original cross.

or forces which occasion the departure of one type of people from another, and the development of each into diverse forms of activity, we should, perhaps,

Ethnic instincts traceable to procreation and birth.

find the answer to our inquiry in *the nature of procreation and birth*. There is a human instinct which, in virtue of its



MIXED TYPES—MEXICAN WOMEN.—Drawn by Riou.

So, likewise, of the Cholo of South America, the Pardo and the Mamaluco of Brazil, the Chino of Mexico and Spanish America, the Cafuso, or Negro-Indian cross, of Brazil, and in general of all varieties and shades of the so-called mixed races of mankind.

If we are disposed to look into what may be called the origin of races, that is, the very primary circumstances

own nature, hovers around the fact of maternity. Still deeper down than this somewhat generalized sentiment that covers the mother, there is an instinct of the mother herself for her offspring. This is sufficiently strong even in animals to stimulate intelligence and forethought. The mother does not abandon her child. She protects it, nurses it. Otherwise, there were no perpetuity.

This maternal impulse is the bottom fact in the ethnic dispersion of mankind.

All race dispositions arise from the family. The mother is bound to her child by the law of her being. Therefore she keeps it, first on her breast, afterwards at her side. She is the mother, not of one, but of many. She nurtures and gathers all of them about her, and puts herself between them and danger. This phenomenon is perfectly natural, and, like other elementary facts, is incapable of explanation. To the mother and her group the father is drawn. They constitute a complex fact, and he a simple fact. Even in savagery he is tied to this group, with one of whom he has the most intimate association, and of the rest of whom he recognizes himself as the creator.

Place of the father in the primary organization. The ties which bind the father to the mother and to his offspring are not so permanent and absolute as those between the mother and her children. But they are, nevertheless, sufficient to hold him, with tolerable singularity, to her and to them, and, indeed, to constitute him their head and defender. Doubtless the sentiment of fatherhood arises at a very early period in the breast of the savage, and, though it is not constant and dominating in the barbarian, it nevertheless is sufficiently pronounced to complete the elementary conditions of the family. The family, then, begun on these simple and natural, we might say inevitable, conditions, is the beginning of race divergence.

In what manner the gens is evolved from families. Out of the family springs the gens. The brothers of a given family, mayhap the sisters, become the heads of other families, bearing an intimate relationship the one to the other. They have a common blood. They dwell together

or in proximity. Their interests are, in large measure, mutual. They help each other, prosper together, suffer together, and struggle in common causes. They call each other by the common ancestral name, and are thus all grouped as one, constituting that fact in the evolution of man called the gens, the clans, the sept, the totem, or some such name significant of a single blood origin and development. The gens, then, is the second stage of race evolution.

Out of the gens arises the tribe. That strange fact which we call by the general name of *nature* does not freely permit the intermarriage and blood union of intimate kinspeople. The tribe in like manner springs from gentes. There is a revulsion against it as a method of procreating and extending the race. The natural affections of brotherhood and sisterhood, even in the most savage state, are totally different from those sexual affections upon which the multiplication of the race depends. It is thus found convenient and desirable, in the very earliest stages of society, that the members of a given gens do not intermarry with one another. It is found to be more fitting that the man of one gens take the woman of another to his wife, and vice versa. For convenience, we call the members of a given gens *gentiles*, and the rule of even the most profound barbarism is that gentiles shall not intermarry. With the cross unions which take place under these natural laws, relations are at once established between two or more gentes. These cross relations bring the several gentes together in a common cause. The selvages of all are knit together by the marriage unions among them, and the offsprings of such unions are allied to all in common. This union of several gentes constitutes the tribal or third stage in race evolution.

It must be borne in mind that the threefold process which we have here described occurs in the plastic stage of human development. It may be assumed

The gentile life a state of susceptibility.

that the primitive gentile was in a state of youth as it respects the family child-

hood that had been and the race manhood that was to be. It is well known that throughout all nature plants and animals pass through *a state of susceptibility* in which and out of which they may be deflected into almost any form of growth. There is a time in the history of a tree when, as a mere withe, it can be tied into a knot without injury to the organism. There is a time when the husk of corn may be opened and a row of the grains cut out, and the wound will close and the completed ear give no hint of the process by which the number of rows thereon has been reduced from even to odd. Aye, more, in the early stages of life all animal forms are virtually identical. But at a certain period they begin, in obedience to their own laws, to differentiate into the several types which they are ultimately to bear.

The gentile age of man appears to be his "age of susceptibility," as it respects

In the tribal life ethnic features are established.

the form and character of the race toward which he tends. Something of

this susceptibility is carried forward into the tribe, which is the next higher form of human structure. It is likely that after the tribe has been well constituted, the features of the race are not only discoverable in the tribal lineaments, but are in a measure *fixed* so as to be subjected to little additional modification. Thus, if we trace the barbarian unit of the primitive world toward the coming race of which his descendant is to be the epitome and brief abstract, we shall find that his actual differentiation into race form takes

place while he is passing through the gentile and tribal stages of development.

It happens—has happened—in a vast number of instances that the development of mankind has been arrested in the gentile stage. This is to say that the *organic tendency* ceases at this low

The horde arises from arrestment of race development.

point in the scale, and instead of reaching a tribe by the evolution of the gens, we come to that other remarkable fact in the prehistoric world called the horde. A horde is not a tribe. We have in the vegetable kingdom a phenomenon called blasting. The grain that is to be, instead of coming to development and maturity, suddenly passes, as in the ergot of rye, into a blasted and inorganic condition. The horde is a blasted tribe. It happened in the ancient world that the growing gens sometimes expanded sparsely into a vast and cheerless region, unfavorable for aggregation and, perhaps, already thinly populated by some aboriginal form of humanity. The dispersing members of the gens that might have become a tribe under more favorable circumstances, inviting them to unite with some other gens into a more complex form of organization, merely diffuse and scatter among the barbarians already existing, intermingle with them, become a common mass, without discoverable features or form, and presently, after multiplication without development, roll away, under the influence of some blind force, into the form of a *horde*. This phenomenon recurs and re-recurs beyond the horizon of history, and even on this side of the dawn. To the present day there are hordes drifting over the waste regions of the earth, without form and void. They are the miscarried aspects of tribal development, the ergot of races that have suffered abortion.

The surviving tribe, however, situated under more favorable conditions and urged by a more rational instinct, fixes itself in the soil, and presently, by its growth, expansion, and maturity, presents us with that aspect of humanity

The race is the result of tribal evolution.

to the divisions thereof, and sometimes even to minor stocks. But, as we have said, the context generally shows in which sense the word has been employed. Race, then, may be understood as an expression for a given type of mankind sufficiently differentiated from



THE HORDE.—ENTRANCE OF THE MOORS INTO ALCAZAR.

which we call a race. The word is very inexact. It has a wider and a narrower sense. Its merit is that it generally conveys to the mind, in its relations with a given context, the true sense which it is intended to give. The term race is sometimes applied to all mankind, sometimes

all other types to present and maintain certain characteristics easily distinguished from those of other branches of the human family.

Such a differentiated form of mankind is the product of tribal evolution into permanency and persistency of structure.

The genesis begins with the instinctive preference and passion of the mother for her own offspring, and the association and binding of the father to the mother and child as the head of the family. The evolution passes easily into the gentile form, which is the first stage above the family development. The gens unites with another gens, or with other gentes, to produce a tribe. This is the migratory, and also the differential, period of the human career. When the tribe has become fixed in a favorable locality it expands, under auspicious conditions, into the permanent form of a race, and the evolution is complete.

The gradual and toilsome spreading of mankind over the surface of the globe has been a process both striking and wonderful. In the course of ages the planet came into the habitable condition—into the epoch of life. Life appeared. The lower forms were succeeded by the higher. Man came as the master race of animals. He came with reason, at least potentially, and with possibilities of improvement, of adjustment and re-adjustment to his environment, of change and growth and high achievement. With the development of his tribes migration became a necessity, not, indeed, a definite movement from one locality to another far distant, but a spreading first into adjacent regions, and afterwards to lands afar.

The successive stages of development summarized.

Slow and toilsome progress of the human race.

With this outbranching from old ethnic centers there came, in the plastic stage of mankind, the differentiation of tribe from tribe, of race from race. Possibly a diversity of individual instinct was the small source from which the differential tendency arose. Some cause there certainly was for the branching forth into different forms of the common stock of humanity. Long, tedious, and variable have been the processes of movement and evolution until, at last, all parts of the habitable globe have come under the dominion, or at least the occupancy, of the race.

It has been the aim in the current book to give merely a cursory sketch of the principal movements by which this distribution of mankind into all parts of the earth has been effected. In tracing out these migratory waves we have only incidentally touched upon the peculiarities and characteristics which were meanwhile manifesting themselves among the various races and nations. While the distribution has been in process of accomplishment, the distinct features by which race is distinguished from race have been evolved. The conspicuous differences which discriminate one people from another have appeared, until the modern inquirer is more surprised at *the variable aspect* of mankind than he is with those movements which have preceded the present conditions of the race.

Synoptical view of the dispersion of mankind.



CHAPTER XXXII.—GENERAL VIEW OF ETHNIC CHARACTERISTICS.



BEFORE passing to another general division of the subject, we pause to look somewhat more attentively at the general ethnic peculiarities by which the different

racés of mankind are discriminated the one from the other. The inquiry will include not only distinctions, but also analogies and identities among the different branches of the human race. It is intended to note the traits and qualities of life and manners among at least the principal divisions of mankind, to the end that the race characters of all may be clearly discerned. The study before us will include what may be called the personal characteristics of the various races, together with their means of subsistence, their habits and manners, their primitive institutional forms, their intellectual appetencies, their arts—where the same exist—and their influence as a modifying force in the physical world, or, in general, the traits of mankind and their relations with the laws and conditions of environment.

Personal characteristics of races to be considered.

It is purposed in the present chapter to glance briefly at these ethnic peculiarities from a general point of view. There are a few leading features by which the races of men may be strongly discriminated, and it is perhaps along these primary lines that their differentiation has been chiefly accomplished. After noting these first principles of divergence, we may, in the following chapters of the present book, descend

Races of men distinguished by certain leading features.

into the particulars of tribal life, developing, according to the present resources of knowledge, the whole aspect of the race as the same is displayed in different parts of the world.

In the first place, it may prove of interest to note, as we look down upon the whole scene of human development, from the beginnings of race evolution unto the present day, the extent to which the different kindreds of mankind have been able to modify the conditions of the physical world. The observer will be struck at the beginning with the fact that some peoples have effected a very considerable change in the surface of the earth, while others have in no wise modified the primitive aspect of nature. There are parts of the earth in which the change effected by human agency has been very considerable, insomuch that if the earth were viewed, planet-like, as we view the moon, the modifications effected by human agency would be easily discoverable. It has happened that all such changes have taken place in the north temperate zone, or possibly to a small extent within the tropics. Western Asia and Europe throughout have been, until the present century, the scene of the largest modifications produced by the agency of man. At the present time the most rapid change in the general aspect of the world is that which is taking place in the central zone of North America, under the impact of the English-speaking race.

Ability of mankind to modify the physical environment.

If we look at these changes from an ethnic point of view, we shall soon discover that they have been effected most

largely by the agency of the Ruddy, or so-called White, races of mankind. In the countries of the Brown races it is not in evidence that the surface of the earth has been transformed to any considerable degree, except in Eastern Asia,

The Ruddy races have effected greatest modifications.

the countries of the Brown races it is not in evidence that the surface of the

been changed by the massing of a great population and its necessary subsistence from the soil. Native woodlands could not possibly coëxist with so dense a population. Forests have entirely disappeared, and the rivers have no doubt shrunk considerably in their volume.



MODIFICATION OF THE NATURAL WORLD BY MAN.—VIEW OF THE FORTIFICATIONS OF BELFORT.—Drawn by Taylor, from a photograph.

where the Chinese Mongolians, through long occupancy of a given country, have wrought a considerable change in its aspect. The original physical condition of China is a matter of conjecture, but it is not unlikely that forests were prevalent, and that much greater humidity prevailed in primitive ages than within the historical era. As a matter of course, both of these former conditions have

In most parts of the earth, however, the Brown races have little concerned themselves with the physical conditions around them. More particularly, they have made few efforts to transform the primeval state of the countries into which they have penetrated. Asia north of the Altais remains virtually as it was before the race of man had taken possession—if

Brown races do not concern themselves with physical conditions.

possession that may be called which consists in mere occupancy. Doubtless considerable cosmic modification has occurred since the coming of mankind, and those limitless steppes and cheerless mountain slopes have shared in common with the rest of the earth the slow processes of climatic change; but the actual agency of man in the Turanian countries has been but slight in so far as the conditions of physical nature are concerned.

One of the first instances of the mastery of the earth's surface was in the Mesopotamian region, where the strong tide of the Noachite family flowed to the west. In Chaldæa, about the head of the Persian gulf, the whole surface of the low-lying plain has been raised to an elevation of many feet above its prehistoric position. It has not been determined by geologists and ethnographers by what process the surface of thickly inhabited countries is elevated to higher levels; but that such is the actual fact the old Chaldæan burying grounds and the level of the whole region around Rome conclusively show. It is well known that the two great rivers, Euphrates and Tigris, were thrown together either by the elevation of the country along their banks or by the cutting of canals through the alluvium. Another marked variation in the Chaldæan landscape was the extension of the verdant region on the side next the Arabian desert. In this direction the waters of the Euphrates were carried off by the agency of man to a distance of a score of miles, by which agency the fertile extent of Lower Mesopotamia was perhaps doubled in area. In the northern region the native woods from the foot of the Armenian mountains down into Central Mesopotamia were removed,

Modifications effected by man in Mesopotamia.

and the desert character of the country, such as it was in the days of Herodotus and afterwards in the times of Xenophon, was the result.

To what extent nature sympathized with these changes on the surface of the earth we may not well determine; but there was doubtless a considerable climatic modification resultant from human agency. Through all of Asia Minor to the Ægean the same kind of modifications were effected. On the whole, the country between the Black sea and the Eastern Mediterranean was greatly deteriorated by the influence of the early peoples who planted themselves in this fertile region.

Nature changes somewhat under the influence of man.

It is here that we may consider for a moment the great injury done to the face of the world by the butchery of forests. It is true that the relations of man with the earth require the conversion of wild woods into fields and gardens, but the wise energies of the race should be directed to the redistribution of the tree-growths on the face of the earth rather than to their mere destruction. Nothing is more certain than the desert tendency which immediately appears in every country which is recklessly denuded of its trees. No country has suffered in this respect more than has Asia Minor. Its extreme fertility in ancient times can not be doubted. For a long time after the institution of civilized states in this peninsular portion of Asia the country was proverbial for its great yield of grains and fruits. Man has virtually exhausted the whole region by his careless administration. He has consumed the current resources of the country and provided nothing in their place. The result has been the creation of great deserts on this area once cov-

Injury done to the world by destruction of forests.

ered with grain-bearing fields and orchards and vineyards.

This was the work of the Aryan peoples who came into Lesser Asia and there developed the early states which flourished until they were crushed between Persia and Europe. But if we follow the northwestern line of Aryan

Asia Minor more modified than Eastern or Northern Europe.

The migratory tribes generally effected no change in the regions through which they passed. Their vocations of hunters and mast-eaters did not interfere with the natural course of the physical world. At the beginnings of authentic history Germany and Gaul and Britain were in the primeval condition.

Variable power of races as modifying agents.



UNMODIFIED ENVIRONMENT OF MAN.—VIEW OF SONMARG.—Drawn by G. Vuillier, from a photograph.

migration into Northern Europe, we shall pursue our inquiry far before we come upon another country so greatly modified by the agency of man. The southern peninsulas of Europe were early transformed from their native state into habitable territories, but the vaster regions north of the Alps and the Carpathians remained in the wild.

In general, the Celtic race accomplished but a slight transformation in the physical landscape. The Græco-Italic peoples wrought successfully in establishing themselves locally upon the soil and in changing the face of nature. Indeed, this is what is implied in civilization.

Within certain limits, the transformation of the surface of the earth is coin-

cident and coëxtensive with the march of the general fact which we call the civilized condition of man. This principle, however, has its limitations. It is only within certain bounds that man can effect any change in his environment. It is probably true that in such a country as France, or Belgium, or Great Britain, the limit of man's agency as a cosmic force has been reached. This is to say that nature will hardly feel any additional modification from the continuance of the established status in these countries. Of course, if civilization should decline, there would be a reversion to the primitive condition, as has actually occurred in other quarters of the globe.

It is, then, the civilizing Ruddy races which have effected the largest modification in the surface of the earth, and by this means have given a certain direction to the ebb and flow of nature. The changes effected primarily in the southern parts of Europe, and, in later times, throughout the whole continent, have been more conspicuous than those presented in other portions of the ancient world. Along the northern shores of Africa, except in the extreme northeast, only slight modifications were made by the races occupying these countries. It should be noted that the earth is much more refractory in some parts, much less susceptible of receiving and expressing the agency of man, than in other parts.

There are three general features on the surface of the globe that strongly resist the influence of its inhabitants. These are the mountains, the desert, and the sea. Perhaps a slight exception ought to be made in the case of the

desert; but the mountains and the sea are absolute. It is possible, indeed, that all the deserts of the world may finally be reclaimed by the agency of man, but the mountains will hardly ever submit to his dominion. As to the ocean, its exemption from human authority has been happily discovered by the poets. Here the human race loses completely its power and ascendancy.

“Man marks the *earth* with ruin—his control  
Stops with the shore; upon the watery plain  
The wrecks are all thy deed, nor doth remain  
A shadow of man's ravage, save his own,  
When, for a moment, like a drop of rain,  
He sinks into thy depths with bubbling groan,  
Without a grave, unknell'd, uncoffin'd, and un-  
known.”

The narrow countries of Northern Africa were held between the mountain ranges and the Mediterranean. These two facts determined the climate and the aspect of nature. The Hamitic peoples who built the primitive states on these shores effected but a slight change in the physical environment. The Teutonic races in the north of Europe have accomplished a great work in the transformation of nature. This region was exceedingly obdurate as it stood in the primeval ages. But the race which was precipitated along the Baltic was as persistent as the physical world was forbidding. In one part the primeval forest, dark and ominous, and the great sluggish rivers, rolling down their beds of ooze, were the enemies of progress and development. In another part it was the ocean, surging back and forth over the lowlands, alternately covering and uncovering the vast and coveted regions which were only exhibited for a few hours at a time. The Teuton made a league against the woods and the sea. The one he destroyed, and the other he

Modification of the earth correlative with civilization.

Europe more than Africa changed by human agency.

Great modifications effected by the Teutonic races.

forced back and compelled to stand aloof. If Northern Europe could be viewed with a telescope from the interplanetary spaces, a great change would be noticed in this region of our world-

Semitic and Hamitic tribes we shall find but little modification in the track which they have pursued. This is partly attributable to the nature of the countries into which they threw themselves



INABILITY OF BLACKS TO MODIFY ENVIRONMENT.—AFRICAN TOWN ON RIVER.—Drawn by Riou.

disk from the dark and dolorous aspect which it presented in the prehistoric ages.

We thus note that the conspicuous changes which have been effected on the surface of the earth by the agency of man have been measurably limited to the great belt through which the Aryan races flowed to the west. If we take up the

in their primitive migrations. The circuit of Arabia furnishes little opportunity for the agency of man as it respects the landscape. At the present time it may readily be observed how little, on the whole, the Arabs, from their manner of life, and particularly from the nature of the countries which they hold, have been able to transform the physical condition of the earth.

But apart from the fact that nature in a treeless and riverless region does not invite the transforming power of man to play upon her features, there has been much in the character and instincts of the Hamitic and Semitic peoples averse to that kind of exertion which modifies the surface of the earth. It is true that the Hamites and Semites, especially during the ancient activities of these races, were great builders, and in some instances large producers from the soil. But the mere fact of building does not bring about the transformation of the landscape. In the lapse of time the structures which men rear go down to dust, and things are as they were before, particularly in a country such as Egypt, rainless, cloudless, snowless, treeless. However greatly the building energies of the early race might display themselves, the country itself would be but little modified. It is doubtless true that the valley of the Nile has suffered as little change in its physical condition, under the dominion of the many races which have succeeded each other there, as has any other part of the globe.

In general, the countries into which the Hamites and Semites were dispersed were less subject to the vicissitude of climate and more uniform in aspect than the variable and changeful lands to which the Japhetic nations were assigned by their destiny. It will be conceded that in Syria, notably in the Mediterranean states of Palestine and Phœnicia, the Semites accomplished a considerable change in the physical condition of the earth. If we may trust the ancient descriptions which tradition has handed down of the aspect of these lands, it will certainly appear that great

modification has been produced by the agency of the peoples dwelling therein.

If we turn to the Black races of mankind, it will be perfectly reasonable to assert that they have effected, in the countries to which they were distributed, no perceptible changes in the conditions of their environment. The Negro races inhabiting the great central belt of Africa have never shown a disposition to struggle with the forces of the natural world and to subordinate them to the purposes of life. The same is true of the Hottentots. Along the great African rivers the forests stand as they were from the beginning. The towns are built in the forests by the river banks and nature is unchanged. Though the country is peopled and occupied, it is in no sense *possessed* to the extent of mastery and dominion. The same is true in Australia and Melanesia. We speak, of course, of the influence of the native races in these countries. It is a mere truism to assert that barbarians so low in the scale as the Australian and Papuan races neither would nor could modify the surface of the earth by their industries and enterprises. The great difference, indeed, between the barbarian and the civilized states is that in the one the man is the master and in the other the slave of the natural world.

On the whole, we see that the great modifying influence of man on his physical environment has been exerted most largely by the Ruddy races, in their progress to the West. The Brown races in Southern Asia have effected certain changes of like kind in the aspect and conditions of the outer world; but these results have been rather incidental to the massing of vast populations within small areas of territory than from any direct and energetic assault of man on the nat-

Hamitic and Semitic genius unfavorable to physical change.

Countries of Hamites and Semites not susceptible to modification.

Modifying influence of races graded from Ruddy to Black.

ural world. In other regions, the Brown races have in no wise modified the nature of the earth or directed the forces and conditions of their environment. The nomadic Turanians and the Polynesian islanders have submitted themselves to the laws of the material world, and turned their whole activities to other fields of exertion. The Black races, as we have seen, have in a still less degree influenced the physical surroundings where they have held their career. They have simply yielded to the blind elements of the natural world, and have resisted the swirl of the forces to which they were exposed only so far as to cling to the surface of the earth and maintain thereon a precarious existence.

If we seek for the reasons of this diversity in the relations of the different races with the planet on which they hold their career, we shall find, first of all, that the severer aspects of nature in those countries where the Aryan races have been dispersed have invited and provoked the energies of man to the conflict. This is to say that life—mere life—has a harder contest under the conditions which have been imposed on the Ruddy races than in other parts of the world. We have seen that the Black races have all been tropical in their natural development. Under the influence of the blazing sun the earth brings forth in the tropics, and the eater eats. He has no need to subsist upon the heavy carbonaceous and nitrogenous foods which are a *sine qua non* amid the rigors of the north. There is much of the same condition in the Orient and in the islands of the Pacific. It still remains a disputed question whether the higher energies of civilization can be displayed under the effeminating influences of southern climates. However this may

be, it is certain that the vigor and antagonistic spirit of man have been most highly provoked by the bluster and cold, not to say the fury, of northern climates. Thus far in the history of the world Egypt and Carthage furnish the only conspicuous examples of really vigorous peoples who have arisen without the spur of the frost and the sting of the snowflake.

There are also certain subjective reasons for the preëminence of the Aryan race as a modifying force on the surface of the earth. These peoples have an instinctive curiosity to scrutinize and manage the elements of nature. The Aryan, from our first acquaintance with him in the shadows of prehistoric ages, has been curious to know, to theorize, to experiment with the phenomena and laws of the material world. In the most primitive epoch of his activity he created a mythology in explanation of the aspects and conditions around him. From the time of the awakening of his tribal consciousness he was on the alert to note, and even to record, the movements and caprices of physical nature. He was quick to discover the identities and antagonisms of natural facts, and thus were laid the foundations of those classifications which, in the riper ages of the world, have become science.

In this respect the Aryans have been strongly discriminated from the peoples of Brown descent, and still more strongly from the Black races of the tropics. It is doubtful if any such thing as natural science has ever suggested itself to the inquiry of thinkers among the Brown peoples of mankind. Doubtless the highest degree of knowledge possessed by any branch of this family is that to which the Chinese have attained, and it

The countries of the Aryan races have favored development.

first of all, that the severer aspects of nature in those

Subjective reasons for the strong evolution of the Aryans.

Natural science unknown to the Browns and the Blacks.



is certain that among them the natural | families of men the Aryan race is al-  
sciences are either utterly wanting or | most equally distinguished by its scien-



MODIFICATION OF ENVIRONMENT BY APPLICATION OF NATURAL FORCES.—HYDRAULIC MINING.

else in so crude a condition as to merit | tific tendency and attainments. The  
no attention from the Western nations. | disposition of the Semitic peoples, and  
Even from the Hamitic and Semitic | of the Hamites in their best estate, as

among the Egyptians, has been, from the first, to look at nature as a caused phenomenon, and pass immediately to reflection on the nature and character of the *Cause*; while the Aryan mind has had almost a passion for scrutinizing the phenomena themselves, for determining the relations of physical facts, and discovering the laws by which they are governed.

This subjective difference, as will readily be seen, has led to the scientific ascendency of the Aryan races and to their domination over the earth. That is, the Aryan peoples have mastered the laws of phenomena and subordinated the forces of nature so successfully as to turn them upon their environment, and to compel nature to operate against herself for the benefit of her most intelligent creature. The modification which these peoples have effected in the general aspect of those parts of the world where they have held their career has been resultant from their instinctive curiosity to know and handle the forces of the natural world. If for a moment we contemplate the hydraulic miners at their gigantic task among the gorges of the Sierras, with the uplifted brazen nozzle of their hose throwing a volume of more than a hundred square inches of water, compressed into the destroying impact of a solid column, against the granite mountain side, hurling and hurtling the bowlders and débris as mere sand flying before the blast, we shall see the Aryan mind displayed at its topmost bent and in its most characteristic activity. This intellect delights in attacking the environment and crushing it into subjection. And in this respect it is totally unlike the quiescent and adjustable intellect of the Brown or the Black races.

Still again we may note a second instinct, or at least a subjective quality, in the Aryan peoples which has given them their energy as a modifying force on the surface of the earth. This is

Extreme sensitiveness of the Aryan races to want.

*their sensitiveness to want*, and the powerful reaction which such want produces in arousing them to exertion. The stomach was the prehistoric schoolmaster, and hunger was the first professor of natural science. Under the influence of these austere but capable instructors the Aryan responded more quickly than the other pupils of the universal school. The energy displayed by the Aryan races under the influence of hunger, of cold, of need in general, has been a matter of astonishment in all ages. Bodily and mental want has acted upon this race like a passion upon the individual man, and the tremendous exertions growing out of this hunger of body and spirit have told like a storm on all the wild forests and hills and river banks where the Indo-European tribes have made their abodes.

The inquiry will at once arise whether this curiosity to scrutinize the processes of nature and to direct her energies, whether this keen hunger, this anxiety to feed and clothe and build against inclemency which the Aryan race has ever exhibited, is not in the nature of an *effect* rather than a *cause*. Have we not here—thus may ask the reader—a substitution of a result for its antecedent force? Has not such instinct in the Aryan race been developed by the very antagonisms with which it has had to contend? Has not the hunger arisen from the very exposure and wasted energy which has come to the half-barbarian wanderer in the wilds of Northern Europe? Doubtless there are many reasons that may be assigned,

Are Aryan instincts and characteristics effect or cause?

many arguments that may be constructed to answer these questions in the affirmative, thus making it appear that the subjective conditions among the Aryan peoples from which we have deduced their modifying energy in the physical world are not really subjective conditions at all, but merely superinduced modes of activity. But, on the contrary, if we look profoundly into the problem, we shall see still better grounds for admitting the subjective ethnic distinctions which we have here assigned to the people of the Indo-European race.

For, in the first place, it was a matter of *choice* and *preference* on the part of the migrating tribes. In fact, all the peo-

Ethnic preference determines much in race development.

ples of the world, if we except only the colonizations of modern times, have

been distributed to their respective quarters of the globe by the unreasoning and but half-conscious choice and preference of the peoples themselves. Why, otherwise, should a tribe of primeval half-barbarians prefer to depart toward the north and enter the bleak regions of storm and snow and desolation? Why should others prefer to traverse the desert? There was at the first no compulsion, no contrivance. There was preference only. The ethnic forces were working out their own results. The long lines of tribal migration, as traced over the surface of the earth, were determined in their course and extent by the choice and instinctive dispositions of the moving masses. True it is that every race of living beings is acted upon by the conditions of the environment, and many second natures are produced by these external causes. But the preference which impels a given animal to adopt a given habitat as his home, is an instinctive choice, not determined, as a rule, by the influences of the external world.

So in a larger degree the rational animal man. The Esquimaux cling to the ice floes, struggle with the walrus, live in their snow huts, and, indeed, suffer all

Races choose conditions and conditions react on races.

the hardships of the polar circle because *they choose to do it*. And the huge Patagonians, bounding among the rocks at the extreme of the continent, are there from choice, and remain from a tribal preference, for which no explanation other than itself can be assigned. All the selections of the intermediate territories of the world have been made originally by the same unreasoning preference of the original tribes that occupied them. We thus see, after allowing all due influence to the reactionary effects of nature upon man, that there were fundamental activities in himself which led him to choose his environment and to fix himself in certain conditions and in certain relations with the physical world.

There are not wanting in recent times a large class of profound thinkers who ascribe the march of civilization to the disposition in some advanced races of men

Great part of human development based on the knowledge of nature.

to acquaint themselves with the laws of phenomena, and to make those laws available in the administration of life. It would be, doubtless, too much to grant the truth of this theory without restrictions and limitations; but that it expresses a great section of the whole truth can hardly be denied. The last two centuries have been conspicuous in the whole history of the race by the rapid development of scientific knowledge and the consequent subordination of the forces of the natural world to the will of man. It is one of the great secrets of progress, and it has belonged to the Aryan race. It is they who have entered into the arcana of the physical environ-

ment and extracted its principles of action. They have preserved and recorded the invariable sequence in which one natural fact succeeds another, and have given to this sequence the name of law. From this they have deduced the recurrence and the expectation of recurrence among the phenomena of the outer

It would be trite to enlarge upon the advantages which the highest races of men have derived from their knowledge of physical nature and the laws by which it is governed. As between this knowledge and the general fact called civilization, defined as it is in our mod-

Concomitancy  
of science and  
the civilized  
life.



MASTERY OF MAN BY NATURE.—A BOAT WRECK.

world, and have availed themselves of all the advantages derivable from the knowledge of what is to be. The man who knows what will happen is wise and strong. He who does not know what will happen is foolish and weak. This is said of man in his relations with the natural world. What he understands, he can control. What he can control, he can use. What he can use, is beneficial. Benefit is health and wealth and renown.

ern languages, it were hard to determine which of the two more powerfully stimulates the other. A certain kind of civilization may exist without the prevalence of scientific knowledge, and a certain kind of scientific knowledge may prevail without inducing a high grade of civilization. But, on the whole, the two are concomitant. The more the man knows the more does he develop and direct the civilizing forces. The

more he uses the forces of civilization the more he knows of the principles by which universal nature is controlled and directed.

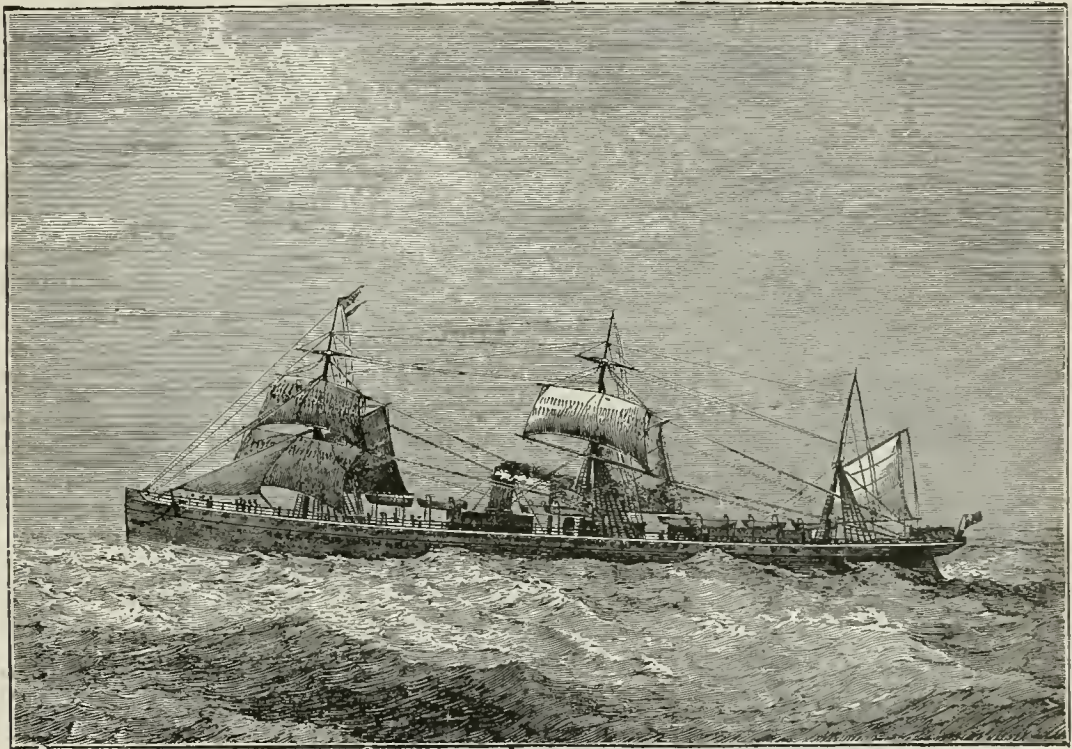
As compared with the other races, the Aryan stock has been preëminent in these respects. The distinction between them and the Hamitic and Semitic families of men on the line of scientific achievement is sufficiently broad, and

Scientific pre-eminence of the Indo-European races.

Indo-European, families of mankind on the other.

It is believed that the differences in the intellectual habits and achievements of the several races as viewed from a general point of observation are most distinct and striking with respect to this great fact of natural law and the connection of man with the material world. In general, barbarians and half-civilized

Knowledge of natural law a condition of perpetuity.



MASTERY OF NATURE BY MAN.—A SCREW STEAMER AT SEA.

when we look at the Brown races of Asia and Polynesia and at the Black races of Africa and Melanesia, we can but be struck with the strong contrast between the indifference of the latter to natural law, their inability to control and direct for benefit the forces of the material world on the one hand, and the breadth and profundity of scientific knowledge and the astonishing benefits derived therefrom by the Aryan, or

peoples are utterly subject to the forces of physical nature. It is not impossible that the weakness of the old forms of civilization, their want of perpetuity, was chiefly attributable to the prevailing ignorance of the laws of phenomena; and it is probable that the strength and permanence of existing institutions are correlated with the prevalence or the non-prevalence of scientific knowledge. This is to say that at least *one* of the conditions

of perpetuity among the institutional forms established by mankind is the knowledge of the physical laws by which the world is governed, and the sympathy and concord of man with those laws in the exercise of his activities.

out of Mesopotamia directly to the west and were there developed into the Hebrew and Arabian nations, seem to have dwelt in their mental activities upon the nature and character of the intelligence which preceded and formed and directed



SEMITE CONTEMPLATING NATURE.—Drawn by Paul Hardy.

it was hinted on a preceding page that the Semitic mind had shown itself more concerned with what may be called the Cause of nature than with natural phenomena themselves. From the earliest ages of history the peoples who came

The Semitic mind seeks personality in nature.

not only the isolated facts and processes of the material world, but the world itself and universal nature. It appears to have been in the nature of the Semitic mind to ascribe *personality* and *intelligence* as the cause of phenomena and to pass over the phenomena themselves, their

relations and dependencies, to reflect upon the character and will and work of the personal agent behind the aspects of the material world.

Following out this fundamental concept, the Semitic seer of the primitive world would proceed to the immediate establishment of relations between himself and the personal intelligence beyond the tangible forms of nature. That is, human relationship, according to his views, would spring up, not between man and physical laws and phenomena, but between man and that agent who stood above them. We can easily discern the strong religious tendency which would at once arise from the existence of such a disposition of mind, and we may perceive with equal clearness the absence of scientific knowledge from a system of thought thus originated.

In these facts may be readily discovered the bottom principles of what has been called, in the philosophical and religious discussions of the present century, Semitic monotheism. More properly, however, we should say that the fact indicated is the theory of *immaterial causation*, without respect to its singleness or multiplicity. If we examine the Semitic nations, at our first acquaintance with them, in Chaldæa and Assyria, we shall find that they were polytheistic in their religious development—not polytheistic in the same sense with the Græco-Italic peoples of Europe, but in the same sense with the Hamitic Egyptians. It was the peculiarity of both the Hamitic and Semitic races that they ascribed to the phenomena of the material world immaterial intelligent causes.

This view of the universe and its administration is totally different from polytheism as it was developed by the

Aryan nations. In course of time the Aryan also arrived at the concept of immaterial and intelligent causation. But in the earlier ages of these peoples they

This notion differs totally from Aryan polytheism.

looked simply at phenomena and gave names thereto, and the names passed, according as the phenomena were vast and majestic, into the catalogue of deities. Aryan polytheism was the result of the combined tendencies of primitive natural philosophy and linguistic growth and decay. It is not intended in this place to elaborate, but only to point out the difference between the fundamental ideas of the Semitic and the Indo-European races. The former conceived of the cause apart from the phenomena and antecedent thereto. The system of religion, therefore, as developed in Mesopotamia, and even transmitted to the West, was an immaterial kathenotheism, as distinguished from the material polytheism of Europe.

The primitive Hebrew fathers revolted against this system because it was polytheistic. Their revolution consisted in the substitution of the monotheistic idea as the bottom fact in the universe. The Hamites never proceeded thus far in the religious evolution. They therefore remained identified in their beliefs with the Mesopotamian people; and the Egyptian system of religion differed only from the Chaldæan in its more elaborate development and its finer philosophical expression. The attempt of certain modern scholars to make it appear that the Aryan Dyaus Pitar of India, the Zeus of the Greeks, and the Jove of Rome were fundamentally the same concept with the Elohim of the Hebrews, is to misconceive the whole question, to confound phenomenon with noumenon, and to obliterate the differ-

And makes man to be related and bound thereto.

Notion of spiritual causation peculiarly Semitic.

Misconception of modern philosophy respecting such difference.

ence between a material and an immaterial causation of nature.

If we look among the Brown races for the highest expression of their thought on the subject we are here considering, we shall find a totally different view of both premises and conclusions. The Chinese and Japanese as the oldest and most thoughtful of the early Brown peoples of Southern and Eastern Asia, gave little heed to the aspects of nature or to the interpretation of what we call natural phenomena. Neither did they concern themselves to seek for causes behind these phenomena, either material or immaterial. As a result, the Chinese have never produced a highly inflected mythology, or what we may properly call a religion. They have risen in their evolution as far as ethics and morality, and on these lines of development have proceeded as far as any other people.

From the first it appears that the Chinese mind has been most concerned not with the facts of nature, but with the facts of life. Their native religions have been simply elaborated systems of ethics. Confucianism is not a religion in the sense in which that word is employed by the Western nations. It is simply a code of human morality as deduced from the life and teaching of the most illustrious sage of the people. The imported Buddhism has in great measure lost its spiritual and subjective peculiarities. In the concept of the Chinese mind it has been transformed into harmony with the older systems native to the nation. If the Chinese can be said to worship at all, it is the worship of life and duty and obligation rather than the adoration of any objective being, whether the same be the highest expression of

some supreme thing, as the sky, or of a great Spirit behind and above all aspects of earth and heaven. It will readily be seen that such a view is radically different from the bottom notions upon which the great religious systems of Western Asia and Europe have been erected.

In their concept of nature and of the author or authors of nature, the Black races have been lowest of all in the scale of rationality. In fact, it has been authentically disputed that some of these peoples have any concept of a moving power among the objects of their sense perceptions. As a general statement, the Blacks in their native condition have risen as high as fetichism and no higher in the religious evolution. Hereafter we shall note with more particularity the peculiarities of their superstitions, and mark out the divergence of their thought from that of the Brown and Ruddy races.

Turning from the subjective differences of mind and thought among the races of antiquity to their *objective activities*, we find a corresponding divergence and distinction of character. The diversity of men of different races in their modes and purposes of action is among the most striking features by which they are discriminated. In what may be called *the spirit of adventure*, for instance, the various races have had each its own distinctive character and method. Some have taken to the water, chosen the maritime life, sailed afar to distant coasts and islands, and made the sea a familiar spirit. To others, the ocean has been a terror, while the continental vastnesses have invited to exploration and even to peril. To other branches of the human family both sea and land have appalled and paralyzed the adventurous

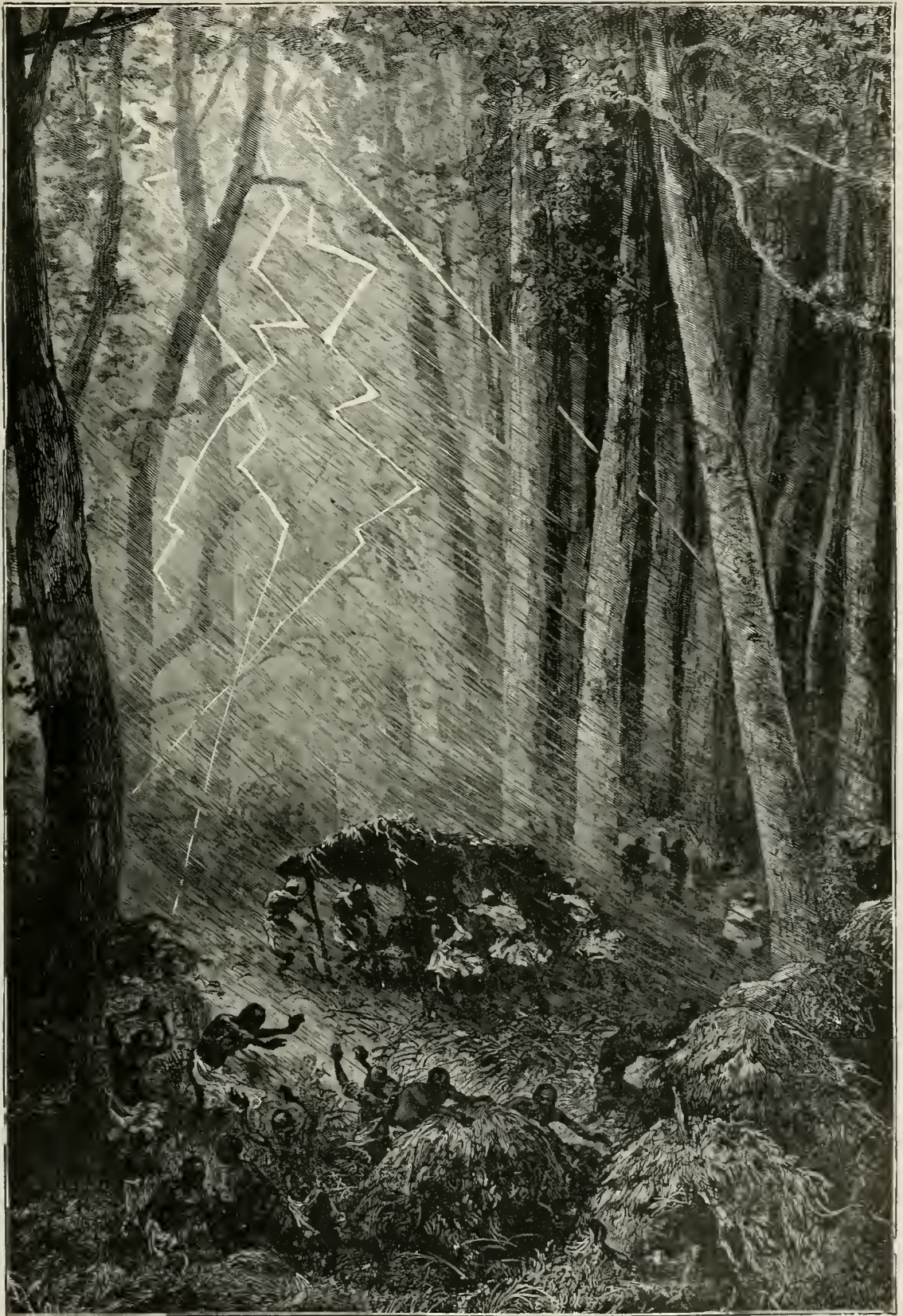
The Brown races have little mythology or religion.

The Black races still lower in the scale of religion.

Philosophical view of Chinese system of thought.

Difference of races respecting the spirit of adventure.





THE BLACKS FEAR NATURE.—STORM IN AFRICAN FOREST.—Drawn by Riou.

energies. Such peoples have shrank back from the enticements of exploration and the wild liberty which it affords. They have settled into the safest and most convenient nooks, and shielded themselves from the opposing forces of nature by what barriers soever they could discover in a given environment.

In these respects, we find again that the Ruddy races have been superior to the correlated branches of the human family. It can not be said that their adventure has carried them as far as in the case of the nomadic peoples of Asia—those great Turanians of the Brown race who have drifted through all parts of the greatest of the continents. But the activities of the Aryans have been characterized by greater energy and more rational method. Their migrations have been directed by a purpose, at least a half-formed purpose, to seek for better things and gain the mastery. The Hamites have given a few conspicuous examples of adventure, as when, in times of Pharaoh Neku II, they circumnavigated Africa twenty-one centuries in advance of Vasco da Gama.

The negative side of adventure is timidity. Adventure is courage. It implies the facing of danger, the willing exposure of the bodily life for the sake of advantage, or even for the mere sake of freedom from restraint. The latter qualities have belonged preëminently to the Ruddy races. It can not be said that the Brown peoples of Northern Asia are lacking in courage. On the contrary, they have contributed some of the most warlike and fiery spirits which the Western nations have had to meet in combat. But the bravery of the Brown races as it was manifested in the barbarian era was lacking in rationality and the conscious

purpose to achieve advantage by victory. The conquests of the Turcomans, hurtling down from the Altai upon the terrified and somewhat effeminated population in Southwestern Asia and Eastern Europe, succeeding as conquests and then sinking into an inane and torpid condition from want of rational purpose and deliberation of method, are at once the striking example and the epitome of the spirit of courage as it has been manifested by the Brown races of mankind.

A volume could not suffice to trace out all the diversities of action among the different families of men. The present chapter is devoted merely to a general view of the most conspicuous traits in which the people of one race have differed from those of another. On the whole, the superiority of the Ruddy peoples over the other varieties of mankind, in their masterful relations with the physical world, in their concept of natural phenomena and the laws by which they are governed, in adaptation of means to ends in gaining and maintaining a dominion over the earth, and in the exercise of an adventurous and rational spirit, giving them preëminence and leadership, is undeniable and sufficiently striking.

It may appear, at first glance, a long departure from the subjects which we are here considering to the discussion of *the bodily form and physical activities* of the various peoples of earth. Men have differed according to race not only in their view of the world and in their attitude toward the laws of matter, not only in their concept of the primary principle from which all things have proceeded and by which all things are governed, not only in their notion relative to duty, obligation, and destiny, but also

The Ruddy races strongest in the adventurous disposition.

the correlated branches of the human family. It can not be said that their adventure has carried them as far as in the case of the nomadic peoples of Asia—those great Turanians of the Brown race who have drifted through all parts of the greatest of the continents. But the activities of the Aryans have been characterized by greater energy and more rational method. Their migrations have been directed by a purpose, at least a half-formed purpose, to seek for better things and gain the mastery. The Hamites have given a few conspicuous examples of adventure, as when, in times of Pharaoh Neku II, they circumnavigated Africa twenty-one centuries in advance of Vasco da Gama.

Courage of the Browns divorced from rational purpose.

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Undeniable and striking ascendancy of the Aryans.

Ethnic diversity in bodily form and activity.

in the material organism in which for the period of life all thought is resident and from which all forms of activity proceed. In fact, the bodily form and features of the different races are the most conspicuous single circumstance as well as the easiest criterion by which those races are distinguished the one from the other.

We are not able to penetrate through the shadows of the prehistoric ages to a time when these very tangible evidences of ethnic divergence did not exist as they exist to-day. Time and again we have repeated what is perfectly well known to historians and antiquaries, that the very oldest monuments which modern times have inherited from antiquity bear mute but indubitable evidence to the fact that, in the earliest ages to which we can in any wise penetrate, the physical divergence of the different branches of mankind was as conspicuously and deeply cut in determinate outlines as at the present time. It is worth while, then, to note with some care the general peculiarities in physical structure of mankind, and to point out the features by which one race of men is most notably and permanently discriminated from the others.

In the first place, as to the bulk and stature of the human body. It will be found on an examination of the facts within reach of the inquirer that very great diversity exists among men of different races in these respects. On the whole, it does not appear that the people of antiquity were specially different in stature and weight from the peoples of modern times. It might be difficult to determine whether the race, considered as a whole, tends, in its evolutionary

Such diversity dates back to the earliest ages.

Great diversity in the stature and bulk of men.

processes, to the production of larger or smaller individual members of the species.

Tradition has preserved the shadowy recollection of both giants and pygmies in the ancient world, and from the monumental delineation of figures we are able to determine that the average peoples were about of the same stature as those of to-day. Among the Assyrian and Egyptian sculptures this fact is abundantly illustrated. But while this is true, it is clear that, on the whole, the smaller peoples of antiquity, as well as in modern ages, were among the aborigines and barbarous tribes, while those of great stature and gigantic bulk were derived from the progressive and well-developed families of mankind.

This will appear at first glance as an evidence of the truth of the evolutionary process. Casually, it may be observed that the body of man has been developed from a comparatively insignificant race of ancestral savages. It is known to the biologist that all existing species of horse have been derived from a single prehistoric typical animal known as *Hipparion elegans*; and it is also known that this primitive animal was of very small stature, so small, indeed, that it would seem impossible that the enormous Norman or Clydesdale stallion of our day could have been derived from so diminutive an ancestor. There is one circumstance, however, which breaks the analogy so far as the development of the human body is concerned; that is, that the most intellectual and powerful peoples, civilly, socially, and politically considered, have not been those of largest stature. This is to say that if the evolutionary process is to be accepted as an explanation of

Correlations of mind and body in evolution.

the large size of some races as compared with the diminutive stature of others, there is a clear break in the analogy of bodily and intellectual evolution—a thing that may be difficult of explanation.

It is not intended in these pages to enter into the abstruse and difficult questions of biology. Such matters

absolute proof exists of a smaller race of people than these. The native Australians and some of the inhabitants of the Melanesian islands are no more than four feet in stature, and are slender in proportion. These examples may be taken as a *minimum* of size for prehistoric and existing races of men.



THE TARPAN (FIRST REMOVE FROM THE PRIMITIVE HORSE).

may be remanded to specialists and to the skill and scholarship of the future.

The lowest limits of size in the human race.

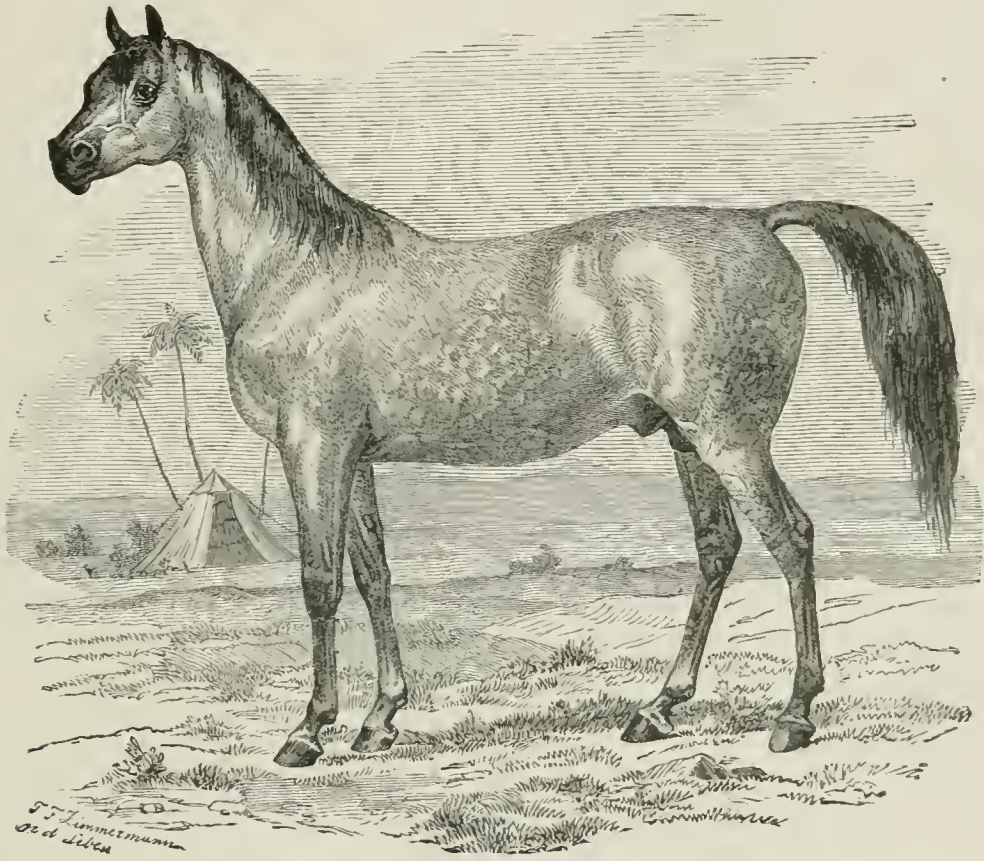
It is sufficient to note the great diversity in the size of the members of different races. In a preceding book it was noted that the prehistoric folk who were buried in the stone boxes along the banks of the Cumberland, in North America, were no more than three and a half feet in stature. It is doubtful whether any

In considering the other extreme, we come to the half-mythical and half-historical giants of the heroic ages. Nearly all races have transmitted to posterity some account of exceptionally enormous specimens of the race, and in some traditions we have accounts of whole tribes conforming to the gigantic pattern. It is impossible to give an authentic average for the stature of the so-called

Maxima of stature; giants and gigantic races.

giants of antiquity. Goliath of Gath was reputed to be nine feet nine inches in height. We have hints in Homer of towering warriors who might well be called gigantic. Some of the largest specimens of the human race have in modern times been brought out of Syria. The Teutones and Gauls were, among barbarians, notoriously huge

ick William I. His regiment, known as the Potsdam Guards, was made up of men gathered from all parts of Europe, the smallest of whom was over seven feet in height. They reached a maximum of nine feet, and it is perhaps not beyond the truth to assign an average of eight feet for the whole regiment. We may accept this,



AN ARAB STEED (GREATEST REMOVE FROM PRIMITIVE TYPE).—Drawn by T. F. Zimmermann.

in body. The paragraph in Cæsar's *Gallic War*, wherein he recites the ridicule which the Gaulish warriors of the Aduatuci bestowed on his Roman legionaries on account of their diminutive stature (*brevitas nostra*), will not be forgotten.

The most conspicuous example of an assemblage, or collection, of giants within the historical era was that resulting from the caprice of Freder-

then, as the *maximum* stature of our race, though possibly exceptional instances may have shown greater height.

Whether the Blacks have contributed any specimens worthy to be classified as giants can not be stated with certainty. Among the Brown races, the most conspicuous examples of greatness of size are given by the Asiatic Mongoloids in Patagonia. Many of these exceed

Largest examples of human beings among the Browns.

seven feet in stature, and it is known that among their far ethnic kinspeople, the Chinese, equally exaggerated specimens of mankind have been found—this, too, among a people who are conspicuously below the average in stature.

To generalize these results, we find very great departures from the common standard of size among the ancient peoples. The same phenomenon recurs in

**Aryan peoples reach the highest average stature.**

modern times. This variation extends not only to individual members of the

human species, but to whole races. It appears that, considered as races, there were smaller peoples in the prehistoric than in the modern world. It would also seem that in ancient times the exaggeration of size above the average standard was as conspicuous as in recent ages. On the whole, the White races are larger in stature than any other people. Among these, the Aryans are conspicuously above the average; and of the Aryans, the largest are those who have been exposed to the rigors of northern climates, but not in the high latitudes.

As between the barbarian and the civilized state of man, there is not much

**Geographical situation and the size of the body.**

difference as to size. On the whole, the barbarian is larger, on the average, than

his contemporary from the civilized states. Geographically, the distribution of the largest races has been in the temperate zones. Beyond a certain degree of cold the human family has been somewhat dwarfed, rather than stimulated into extraordinary growth. The polar people are small in stature. The insular populations of the world present the same variations as those of the continents. The primitive Saxons of our ancestral islands were huge in body and

highly muscular. The Japanese, similarly situated, are small in stature and delicate in development. On the whole, there was not much difference in the stature and muscular power of the three great branches of the Ruddy race. The advantage was in favor of the Aryans, and the Hamites appear to have been somewhat weaker and smaller than the Semitic peoples; but the distinction was not great.

The races of men have generally preserved a given type and standard of form and stature from our earliest acquaintance therewith to the present

**Form and stature of men have been preserved from antiquity.**

time. The sarcophagi of Egypt, the dish-covered tombs of Assyria, and the burying grounds of Chaldæa have made us acquainted with the stature and proportions of at least three peoples of remote antiquity. The Assyrians were not taller than the average of modern peoples, but were exceedingly stout and muscular, like the Romans. The Chaldæans were of the average height and form. The mummies of Egypt are below the average standard in height and in general proportions.

If we descend from the general form and stature of the different peoples of ancient and modern times to consider some of the special features by which they have been characterized, the first to attract our attention is the size, shape, and capacity of the head. This organ, indeed, is about the only one with which the historian and ethnographer need to concern himself. The established fact that the intellect of man resides in his brain, and is correlated in its manifestations with that organ, and the additional fact that the mind is the agent of all that has been accomplished by the human race, may warrant us in looking at the cranial development of the different

peoples as an interesting study in ethnic history.

There is a constant relation between the size and formation of the brain and the active energy of the race. The facts connected with this important study have been gathered from many sources, and may now be studied on the scientific basis. It is found that there is an ascending ethnic scale of cranial development, beginning with the Australians and Papuans and proceeding upwards, through the Black races of Africa, to the Asiatic and Polynesian Mongoloids, and thence to the Ruddy peoples of Europe and America. It will not be considered a materializing digression to note this fact, to dwell upon it, and to point out the perfect correlation existing between the average capacity of the brain and the grade of civilization to which the people of that average have attained. The law is: small brain, little achievement; great brain, great achievement. It is not necessary to refer the progress of civilization to the mere physical fact of cranial growth. A more rational view is that the larger display of mental power is correlated with the size and activity of the organ by which that mental power is expressed.

It has been found that a large variability exists among the races with respect to the volume and weight of that organ upon which all thought depends. The size and the capacity of the brain in the different races of men have been carefully examined, and the results tabulated in a form that may be easily apprehended. The following table, presenting these results in a concise form, is from Winchell's *Preadamites*, and may be regarded as an accurate and indisputable summary of the best that is known

Winchell's table of cranial capacity of races.

relative to the race gradation of men on the line of cranial capacity:

TABLE OF CRANIAL CAPACITIES.

No. of Specimens.	RACES.	CUBIC CENTIMETERS.			Authority.
		Men.	Wom-en.	Aver-age.	
<b>I. RUDDY RACES.</b>					
570	Aryans of S. W. Europe..	1,576	1,395	1,485	Broca.
38	Europeans.....	.....	.....	1,534	Morton.
293	Britons, Anglo-Saxons, Swedes, Irish, Netherlanders.....	.....	.....	1,482	Davis.
901	Ruddy Races, mean capacity.....	.....	.....	{ 1,500 1,466	
<b>II. BROWN RACES.</b>					
22	Chinese.....	1,518	1,383	1,450	Broca.
21	Chinese.....	.....	.....	1,452	Davis.
18	Mongols.....	.....	.....	1,421	Morton.
12	Esquimaux.....	1,539	1,428	1,488	Broca.
7	Asiatic Esquimaux.....	.....	.....	1,488	Dall.
6	N. W. American Esquimaux.....	.....	.....	1,270	Dall.
101	Greenland Esquimaux.....	.....	.....	1,250	Bessels.
126	Esquimaux, mean capacity.....	.....	.....	{ 1,372 1,286	
61	Chinese and Mongols, mean capacity.....	.....	.....	{ 1,441 1,442	
187	Mongoloids, mean capacity.....	.....	.....	{ 1,403 1,338	
<b>III. BLACK RACES.</b>					
85	Negroes, W. Africa.....	1,430	1,251	1,345	Broca.
79	Negroes of Africa.....	.....	.....	1,304	Morton.
12	Dahoman Negroes.....	.....	.....	1,452	Davis.
176	Negroes, mean capacity..	.....	.....	{ 1,387 1,300	
18	Australians.....	1,347	1,181	1,264	Broca.
15	Australians.....	.....	.....	1,295	Davis.
33	Australians, mean capacity.....	.....	.....	{ 1,279 1,276	

From the foregoing schedule it will be seen that the native Australians are the lowest type of men in cranial capacity, being inferior in this respect to the

Deductions from the tables; lowest forms of man-life.

Negroes by an average of eighty-four cubic centimeters. The table does not include the Hottentots as a separate study. These people, as a matter of fact, have a cranial development intermediate between the Australians and the Negroes. Again, it will be noted that the Mongoloids have an average capacity of eighty-two cubic centimeters in excess of the Negroes, while the average capacity of the Aryans is forty-four cubic centimeters above the measure of the Mongoloids. It will also be observed that the preceding table does not exhibit the relative size of the brain of the Papu-

ans, but from other sources this has been found to be above that of the Australians, and nearly identical with that of the Hottentots.

It may well be confessed that this physical index discovered in the capacity of the brain for the several races points distinctly to a certain grade of rational activity and progressive power in each people. Here, then, is the fundamental fact of a certain quantity of brain forces expended in the administration of life among the various peoples of the earth. The same is correlated with other peculiarities of anatomical structure. It is found that the cranial cavity is very variable in its shape, conforming in its proportions and relative distribution of parts to the general configuration of the skull. And this is typical in each of the primary races. It is not the place to enter into any elaborate illustration of the definite angles and peculiarities of the human skull, or to describe by comparisons its various approximations to the crania of other animals. Such discussion belongs to special scientific treatises, and the results derivable therefrom could play but a small part in the ethnic history of mankind.

The same is true of the other bodily organs. It is well known that the lower types of the human family approximate in various degrees to the form and organism of certain quadrumana, and that these close analogies, even identities, have given rise to much speculation about the connection between the bottom selvage of the human race and the upper margin of the animal kingdom. How near together these two edges of life may approximate, or how far apart they may be found to lie, it is not the duty of the historian, or even the ethnog-

Selvage of mankind and the lower animals.

rapher, to determine. Certain it is that the highest types of men have a very marked divergence from all species of quadrupeds, and it will certainly be admitted that the lowest orders of mankind have in them at least the potentiality of a rational, and possibly an elevated, life.

The nearest approach in anatomical structure in the human species to the lower orders of nature is found in the Bushmen of South Africa, the native Australians, and the Papuans of Melanesia. Specimens of men have been found among the native races of Central America and in South America almost equally near akin on the physical side with the simians and other superior orders of animals. The peculiarities which constitute this physical affinity of man with the brutes are well known. The arms of the lower orders of men are very long, reaching to the knees or below the knees when the person is erect. The hands also are spread out and set on the wrists after the manner of forefeet in the quadrupeds. The feet are strikingly animal in their structure, having a long heel and so flat an instep that the whole bottom of the foot is pressed on the ground. Rising from these expressionless parts of the body to the features of the face, we find them also strongly marked with animal characteristics. The chin in many cases is scarcely better developed than in the chimpanzee, and the forehead slopes back from the brow with scarcely greater elevation than is found in the orang or ape.

Approximation of certain Blacks to the simians.

From these low grades of development in the human form, there is a gradual ascent from the level of the Hottentot and Australian, through the Negroes and the barbarous aborigines of South



America and the Pacific islands to the Esquimaux, thence to the nomadic races of Asia, and thence to the highly-developed physical form of the Europeans.

Hints in low races of future development.

It should be noted, however, that occasionally among the natives of Polynesia and South America, and also among the native races of North America, an exceptional example of high personal beauty of form and feature will be discovered. Such instances may be regarded as the premonitory outgoings of nature relative to what the race may become in its better stages of development.

We have now arrived at that point in the inquiry where the general view which takes in the higher relations of the races descends into particulars and widens to infinity. Were we to pursue the subject further in the present chapter, it would be to consider what may be called the tangible parts or evidences of civilization as illustrative of race character in different ages and countries. As already said, the three great means of supporting and developing human life are food, clothing, and shelter. The manner of man's activities in procuring these essentials of his own existence and the perpetuity of his kind would demand in its exemplification a great amount of space and variety of inquiry.

On the side of food, the problem would begin with the appropriation of the simplest vegetable products by the primitive races, and would end with the most highly elaborated and carefully prepared tissues of animals. This is to say that food begins with the starchy elements in vegetation, just as they are distilled and manufactured by nature, in vegetable cells, and ends with the highest form of nitrogenous product

Range of ethnic differences in procuring essentials of life.

in the animal kingdom. To procure the latter requires all the refinements of skill and contrivances of art. On the side of clothing, the question is first with the appropriation of the skins of beasts, the mere transfer of the natural covering of a dead animal to the body of a living one. It ends with the finest and most delicately wrought fabrics which the ingenuity and caprice of civilized races have been able to invent. On the side of shelter, it begins with a piece of bark set up at an angle between a witless savage and the rain. It ends with the villa and the palace, shining down with marble front over boughs of bending myrtle and avenues of evergreen and fountains of flashing water.

The activities of the different races of mankind have been exerted primarily in the three directions above indicated; but the methods of exertion have been as variable and multiform as the tribes of the human race. In the first place, the earth herself has been capricious in the distribution and character of her natural gifts. Men have adapted themselves to this whimsicality of the natural world. But with the progress and development of the race, they have first gone beyond and then ignored the hints of nature relative to subsistence, and have transplanted and wrought in a way suggested by their instinctive appetencies and ethnic preference.

Method of man in adapting himself to nature.

It is in this way that the human race has done so much in the way of diffusing the natural products of the earth. In his adjustment with the means of subsistence, natural and artificial, man has changed first himself and afterwards his surroundings. At the beginning he fitted and adjusted himself simply to natural conditions; but these he soon

Adjustment varies from natural to artificial conditions.

outgrew and overpassed in development. It is in this respect again that the races have shown remarkable diversity. The life of some has become highly artificial, while in others the natural life predominates as from the first. The Hamitic race in all of its development remained close to the soil. The somewhat complex life of the ancient Egyptians was, nevertheless, of the earth, earthy. No concept of Egyptian civilization is at all adequate which has not the mud of the Nile at the bottom. It was founded on the ground, and its highest aspirations rose no higher than a basket of lotus on the head of a peasant.

Among the Semites, the evolution of food took place more rapidly than that of either raiment or architecture. For some reason these peoples bestowed especial attention upon the materials upon which they subsisted. Even on their first emergence from the prehistoric shadows we find them classifying and arranging their foods, especially those deduced from the animal kingdom, by the distinction of clean and unclean. In common with the Hamites, they refined upon this idea, and carried it into their religious system. But unlike the Hamites, they were not, especially in the first stages of their development, a people much interested in architecture. The pastoral life which they adopted was unfavorable to building, and even when they settled into fixed communities and became husbandmen and keepers of vineyards, they were still indifferent to building. The records of the Semitic race would be searched in vain for even the shadows of such architectural grandeur as was displayed in the valley of the Nile or in the opposite peninsula of Hellas.

The Brown races, such as the Chinese and Mongolians, have always led a simple and somewhat primitive life. Their means of subsistence have remained primary. We may well be surprised, when we reflect upon the antiquity of the Chinese nation and upon the intellectual astuteness of the race, to note the really primitive condition of their industrial and social life. Their building is, at its best estate, a piece of Oriental elegance, never rising to the grand or sublime. Their raiment has perhaps never been changed in its character or material for a thousand years, and their food is as simple as it was in the days of Confucius. In the midst of much intellectual acumen and a certain kind of perpetual industry, they have signally failed to advance into the higher forms of physical culture and development.

The Chinese exemplify the retardation of architecture.

The Black races have scarcely attained, in their industrial and social state, to a higher level than that of aboriginal tribes. In respect of food, clothing, and shelter, they are savages, but the peaceful character of the race has forbidden the display on a large scale of either the savage instincts or the savage virtues. The Blacks have shown no skill in their native places in the adaptation of means to ends, and have, therefore, made no progress in those primary industries on which the civilized state of man is founded.

The Blacks are unprogressive in all the conditions of life.

It is the Aryan race again that has shown itself preëminent in its adaptations to the natural resources of the earth, and in improving upon the conditions and methods suggested by nature. We have already seen that the face of the earth has, to a considerable degree, been transformed by the energy and force of

The Aryans preëminent in mastery of natural resources.

character of the Aryan peoples. In no respect has their departure from the primitive condition of mankind been more marked than with regard to the resources by which life is supported and made strong. The Aryan peoples, at least the Western Aryans, have all advanced from the primitive foods to the

these, great systems of industry and commerce have been instituted, developing the energies and perfecting the skill of the most active communities in the world. The same refinement and advance may be observed in regard to the means by which the human body is defended from the vicissitudes and rigors



LOW INDUSTRIAL ESTATE OF THE BROWN AND BLACK RACES.—Post of the Grand Talibouche.  
 Drawn by Y. Pranishnikoff.

higher and more complex form of organic tissue in which the elements of subsistence are most highly condensed. The race might be defined as "the people who eat costly food." A second nature has been produced in all Indo-European countries requiring sustenance from the most costly elements of nature; and for the production and distribution of

of climate. This is said of the materials which the civilized peoples of the West employ in clothing, rather than of their skill in fabrication.

As builders, the Aryans appear just at the present age to be entering into the era of splendid and substantial architecture. Strangely enough the race, though marked by unusual skill and en-

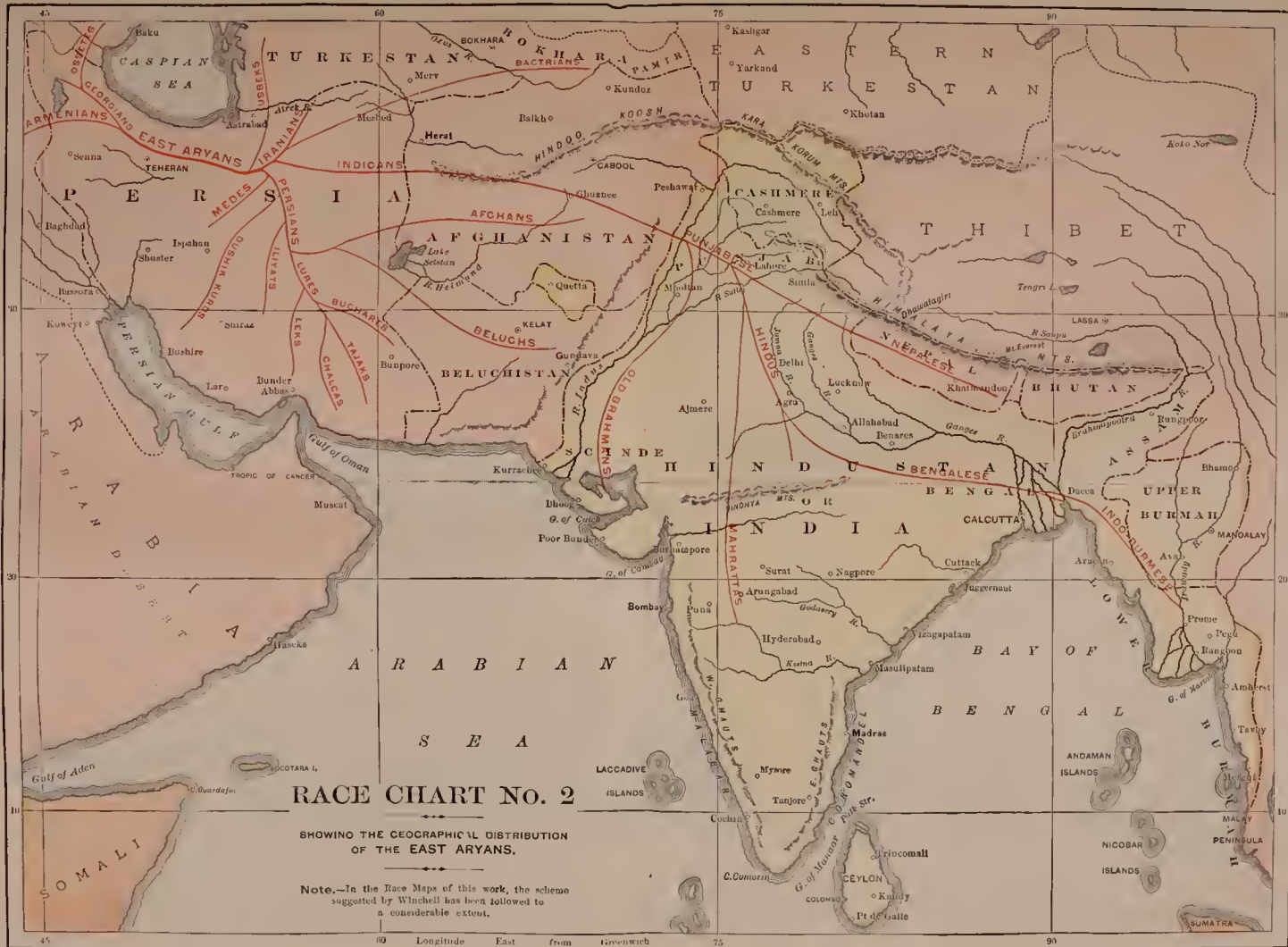
ergy in the handling of materials, has not been conspicuous in recent ages for its ability to build. Among the ancients, the only Aryan peoples noted for their preëminence in architecture were the Greeks and Romans, and the latter were only imitators of the former. The belief that even the skillful and artistic Greeks derived their architectural forms and methods from the Hamitic Egyptians seems to be well supported by historical evidence. From which it would appear that the Hamites of the Nile valley were the first great original builders—the first of the human race to create architectural monuments.

As already intimated, however, the discussion of these topics leads us immediately into the subject-matter which has been reserved for the detailed account

of the industrial and social life of the different races of mankind. We have now reached the threshold of that discussion. In the former chapters we have endeavored to delineate the primitive condition of the human race, and the tribal departures and migrations by which the race was originally distributed to the various quarters of the globe. In the current chapter we have endeavored to look down, as from a high point of view, upon the various families of men, and to note a few of the leading features by which they are distinguished. We shall now take up for consideration the details of the methods and manner of life among the principal families of mankind, and shall attempt to depict the essential facts and some of the peculiar incidents in the past and present condition of the leading divisions of our race.







**RACE CHART NO. 2**

SHOWING THE GEOGRAPHICAL DISTRIBUTION OF THE EAST ARYANS.

Note.—In the Race Maps of this work, the scheme suggested by Winchell has been followed to a considerable extent.



## RACE CHART No. 2.

### EXPLANATION.

THIS Chart shows the geographical spread of the East Aryan family of mankind. (For the connection of this stock with the whole race of mankind, see Race Chart No. 1, at the proper point of departure, to the left, above.) The point of departure for this division is indicated by the heavy red line at the foot of the Caspian Sea, near Teheran.

The East Aryans, from this region, departed to the right hand; while the West Aryans (see "Armenians," "Georgians," "Ossetes," etc.) departed to the left. The movement extended eastward until the stricture between the Caspian Sea and the Persian Gulf was passed, when the race branched out in many directions.

The northern division, now represented in Turkestan, was the Usbeks. To the south were the old races of the Medes and Persians. The ancient Persians, as will be seen, developed into several modern families. Out of this line sprang the Afghans, and further to the south the Beluchs. Far to the north, from the original Iranian stem, arise the Bactrians, one of the oldest families of this division.

The migratory stem of the East Indian races is indicated by the word Indicans. From this stem arise the Punjabese; and from this stock, in turn, the old Brahmans, in the valley of the Indus; and the great Hindu family, farther to the East. From the Punjabese stem, we have the modern Nepalese. From the Hindu stem, we have the great races of the Mahrattas, the Bengalese, etc. From the Bengalese division, at its easternmost extreme, we have the Indo-Burmese family, which is the remotest Asiatic division of the East Aryan races. The Chart covers about fifty degrees of longitude, and twenty degrees of latitude.





## Part Third.

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### THE RUDDY RACES.

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## I.—THE EAST ARYANS.

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### BOOK V.—THE IRANIANS.

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#### CHAPTER XXXIII.—ELEMENTARY CHARACTER AND RELIGION.



UR oldest kinspeople, reckoning by antiquity of descent, are discoverable along the farthest horizon of history on the plateau of ancient Iran. The

country corresponds in general with modern Persia. It must be borne in mind that the political boundaries of antiquity were not generally so definitely drawn as in the modern world. The Semitic races in Western Asia and the Greeks in Eastern Europe were the first to set up termini, and thus to estab-

lish definitely the metes and bounds of a political state.

The impulse which carried the Old Iranians southward from the primitive Aryan nidus in the country about the lower Cas-

The inquiry may begin with the Iranians.

pian has already been described. We are now to look with some care at the people of the Iranic family, and to note their ethnic peculiarities. It will not be forgotten that at the time of their first dispersion in Iran they were still, as a race, fundamentally identical in character with the other eastern branch of our ancestral kindred.



IRANIAN LANDSCAPE.—PLATEAU OF MALIMIR.—Drawn by G. Vuillier, from a photograph

which was carried into the Punjab and thence down the river valleys of India.

Ancient Iran invited to the nomadic life. This was the first impress which the environment made upon the primitive tribes of our race. At the time of their coming into these open highland regions they had already domesticated the horse and several other species of animals. But the horse was the special

companion of the Iranian on his excursions, and it is worthy of note that through all ages of history the preëminence of the Persian steed has been maintained. A household had been organized after the manner which has ever since prevailed among the Aryan races. The relations of fatherhood and motherhood, of sonship and daughtership, had been established, and the home of the group was a tent at first, and a more permanent abode afterwards.

Not only were the common animals known to the primitive Iranians, but also the common cereals and vegetable products. One point of divergence between this branch of the human family and their intimate kinsfolk, the Aryans of India, was with respect to the wild animals, the capture of the same in the

chase, and their use for food. The country of Iran was in its natural features and resources promotive of the chase. It was inhabited by all the common varieties of wild beasts peculiar to the plains and mountains in the temperate zone. To the pursuit of these the Iranian tribes gave themselves with zest, and soon became proficient in the capture of even lions and bears and tigers. Another method of life opened to the East-

Plateau of Iran invited to horsemanship and outdoor life.



ANIMAL LIFE OF PERSIA.—MOUNTAIN SHEEP OF KEROUT.  
 Drawn by Tofani, after a photograph by Madame Dieulafoy.

ern Aryans, who gave themselves up to the quiet of the agricultural and domestic life; and it is from this point that one of the striking divergencies in the languages of Iran and India may be noticed. The domestic animals are named in common by the two peoples, while the wild beasts are generally designated by distinct terms invented after the separation of the races.

The Iranian life thus presented some diverse and peculiar aspects. It was in one respect the half-barbarous life of the chase, and in another respect the civil-

The desert Iranians become hunters: the Indicans agriculturists.

izing life of the field and the garden. In proportion as the first prevailed, the old nomadic and migratory impulse of the race was stimulated into activity; in proportion as the other became predominant, the people were aggregated into settled communities and began to build cities and states. It is worthy of note that the origin of several world-wide varieties of fruits, such as apples, peaches, and plums, has been assigned to Iran.

Both methods of life combine in the race character.

cient race took the course of a subsidence from the nomadic into the agricultural and pastoral life. The change was very gradual, and had been nearly accomplished at our earliest historical acquaintance with the Medes. A more permanent style of building had supervened, and many other evidences of a rising nationality were seen as early as the eighth century before our era.

The sedentary life takes the place of the nomadic.

Before proceeding to delineate the manners and customs, the religious and social state of the Old Iranians, it will be well to describe the personal character of the race. Herodotus and Xenophon have given us full accounts of the appearance of the Medes in their day, and we may conclude that the type was the same which had prevailed from the



ANIMAL LIFE OF PERSIA.—AN OX OF THE BISHOPRIC.  
Drawn by A. L. Clément, after a photograph by Madame Dieulafoy.

It is quite likely that the primitive Medo-Persian peoples were the first to cultivate and improve these valuable products of the vegetable kingdom.<sup>1</sup>

The social evolution among this an-

<sup>1</sup> The definition of "apple-eating animal" might be given to the Old Iranian and to all of his Asiatic and European descendants. The word *apple*, beginning with the Zend and Sanskrit *ap p'hala*, meaning "fruit of the water," or "juicy fruit," is common in nearly every dialect of the Aryan languages! It might be difficult to point out any other term of like universality among the names of the things eaten by men.

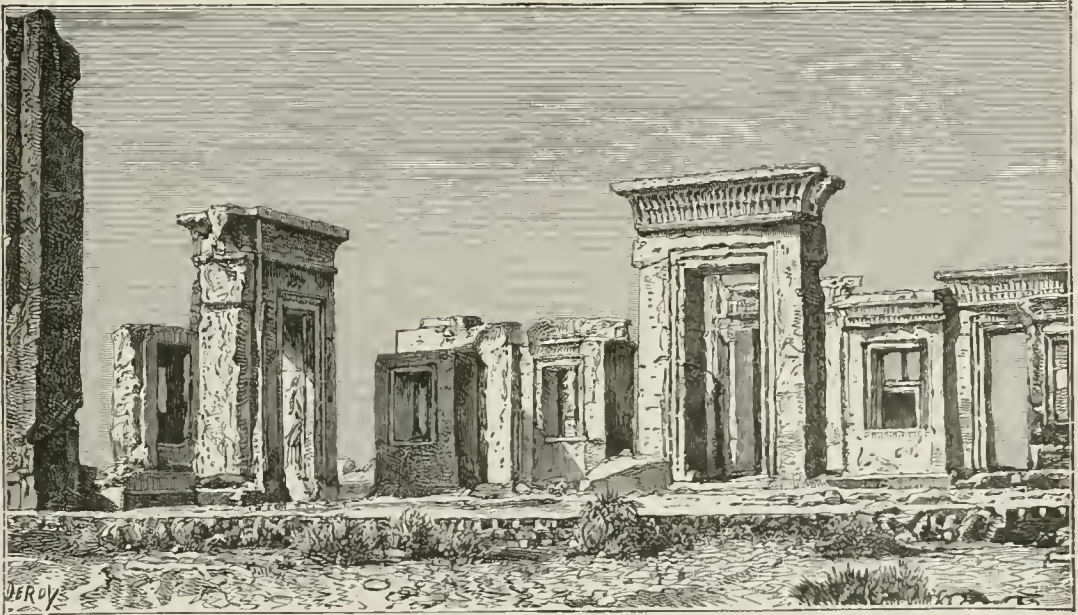
time of the original tribes. The sculptures of Persepolis also have preserved the person and features of the race, giving us perhaps the most authentic and permanent representation of the ancestors of the Indo-European family of men.

Ethnic and personal character of the Iranians.

The ancient Iranian was tall and well formed. In personal grace and physical nobility he was almost the equal of his kinsmen, the Hellenes of the West. In strength and activity he was the peer

not only of his contemporaries in Mesopotamia and Hellas, but of any rival in any age of the world. The features were dignified and finely drawn. The forehead was high and straight. The nose was developed on a line with the frontal bone, after the manner of the Macedonian face, and was prominent and well formed. Sometimes the organ had that imperious and hawklike shape which reappeared among the Romans of a later age. The beard was manly and

stantly exposed to the reactions of nature than were these progenitors of great races. True, the climate was not auspicious for an out-of-door life. Storms were frequent, and the winters of Parthia, Margiana, and Bactria were tolerably severe. But neither the rain blast of summer nor the rigors of the winter season were sufficient to extinguish or repress the nomadic freedom of the race. To scour the plains on horseback became a second nature to the Iranian,



REMAINS OF IRANIAN BUILDING.—RUINS OF THE PALACE OF DARIUS, AT PERSEPOLIS.—Drawn by A. Deroz, after a photograph by Madame Dieulafoy.

heavy, and the hair abundant to superfluity. The Iranian women were admired for their beauty and grace even by the critical Greeks. In dignity of personal carriage, they are represented to have borne themselves after the manner of the barbaric queens of the heroic ages of history.

The environment of the early Iranian tribes brought them into constant contact with the open aspects of the natural world. Their life was outdoors. Perhaps no people have been more con-

stantly exposed to the reactions of nature than were these progenitors of great races. True, the climate was not auspicious for an out-of-door life. Storms were frequent, and the winters of Parthia, Margiana, and Bactria were tolerably severe. But neither the rain blast of summer nor the rigors of the winter season were sufficient to extinguish or repress the nomadic freedom of the race. To scour the plains on horseback became a second nature to the Iranian,

and his preference for chasing wild beasts took the form of a passion. As late as the beginnings of authentic history, not only the evidences, but the actual example of this kind of life was still to be observed. In the times of Herodotus the nations of Iran had not

Tribal divisions of Persians as given by Herodotus.

yet settled into permanence or affixed themselves to given districts of territory. They were divided into tribes, some of which had located their settlements and fixed their institutions within definite territories, while others roamed

The race constantly exposed to the influences of nature.

at large. Among the Medes, the Father of History mentions six tribal divisions: the Busæ, the Paretaceni, the Struchates, the Arazanti, the Budii, and the Magi. The Persians were, in like manner, divided into the Pasargadæ, the Maraphians, the Maspian, the Panthialæans, the Derusiæans, the Germanians, the Daïns, the Mardians, the Dropicans, and the Sagartians. The last four tribes were still nomadic in the times of Herodotus, while the others had settled on the soil and given themselves to husbandry. The tribes were subdivided into smaller clans, and these into gentes, or households. In this condition of affairs, which we may accept as correct for the middle of the fifth century B. C., we may readily recognize another example of that transforming process by which the family is succeeded in regular order by the gens, the tribe, and the race.

At a very early period the intellect of the Iranian nations reacted under the influences of growth and environment, and began to display itself with considerable vigor. It is to this circumstance, indeed, that the importance of the race in after ages is to be attributed. It was not, indeed, in the direction of architecture and art that this primitive race exhibited its best powers. On the contrary, it may be truthfully alleged that the Medes and Persians were inefficient as builders and artists. It appears that the æsthetic sense was weak, and that even as late as the earlier stages of Medo-Persian nationality the evidences of architectural structure are few and meager. In all Persia the foundations of but two cities have remained to after times, in illustration of the building and decorative capacity of the people. In Media not a single structure has left a

Feebleness of architectural evolution among the Iranians.

influences of growth and environment, and began to display itself with considerable vigor.

trace. It is true that this paucity of architectural monuments is to be accounted for in part by the use of wood rather than stone as the building material of the Iranians. It is believed that the ancient Medes employed neither stone nor brick in their edifices, relying wholly upon wood and the metals even for the palaces of their kings.

It was on the side of the literary evolution that the Iranian mind first displayed its energies. It fell to chanting the aspects of the natural world and to

Early motion of the literary impulse in the race.

inventing metrical expression for the mysteries above the material aspects of nature. Already, before the partition of the Indic and Iranic nations, the language had been well developed. It had an extensive and flexible grammar and an abundant vocabulary. Its descriptive elements admitted of inflection, and its verbal structure indicated the niceties of action in time and manner. With this vehicle of language on his tongue and the vision of supernal nature above him, the Old Iranian began to elaborate that system of religion and philosophy which has transmitted to the modern world an intellectual interest in the people by whom the system was produced.

The language of the Iranic branch of the human family, as preserved in its most ancient books, is known as Zend, and the great Bible of the race, out of which its subsequent religious and literary development proceeded, is called the Zend-Avesta. It is in eight books, which embrace as their subject-matter the same general topics as are presented in the Old Testament. The themes are laws, covenants, prayers, songs, and ceremonies.

Language and subject-matter of the Zend-Avesta.

The Avesta may be called the Iranian Bible. Its oldest portion is included in

the Gâthâs, or "Songs," many of which are very nearly identical with the hymns of the Indic Veda. This fact would indicate that the Gâthâs had been chanted by the primitive Aryan race before the separation of the Iranic and Indic families. If we look into the spirit of the hymns, we shall find them to be the exuberant expression, the fervent utterances of the primitive worshippers, awe-struck under the mysteries of nature, exclaiming in highly figurative language, and pouring out praise and prayer to the invisible powers of nature. It is as though the primeval singer had turned up his face in adoration to airland and skyland on high, praising the goodness and magnificence of the majesties above, and making petition for blessing and peace.

The hymns of the Avesta are polytheistic. The powers on high are many, not one, and seem to be devoid of personality. These powers were good, not bad—at least in the earliest concepts of the race. The divine attributes of the heavens—deities, if we may call them so—bent auspiciously over the worshipper, and he adored because of the benefits received and expected. The supernal powers were called Ahuras, and were regarded as the life-giving influences of the world. It may be noted here as a fact beyond dispute that dualism, or the recognition of evil powers in the universe set over against the good, is a later concept of the human mind, and does not belong to the really primitive systems of belief. Among no people of the world was dualism more fully developed or the evil powers raised to higher rank than among the Iranians. But the evolution of this system followed the real body of the national worship as expressed in the earlier Gâthâs as the

shadow follows the substance. The evil hierarchy was the invention of a later age, and was set over against the beneficent powers of earth and air and sky as if to oppose them and to thwart their benefits to men.

The Gâthâs are gathered from that general division of the Avesta called the Yaçna. The more important part of the sacred writings, however, is known as the Vendidad, which corresponds in general outline with the Pentateuch of the Hebrew Bible. It contains in general an account of the genesis of things and the laws for the ethical government of mankind. It embraces, besides, the ceremonial code, in which the rites and processes necessary for avoiding evil and expiating sin and impurity are prescribed. The whole is presented in the general form of dialogue, or colloquy, between the supreme Ahura, called Ahura-Mazdâo, and his favorite servant, named Zarathustra, who is a prophet. In his Iranic name we recognize at once the Zoroaster of tradition. To him Ahura-Mazdâo reveals his will in answer to questions and prayers; and by him the purposes and laws of the supreme being are revealed to the people of Iran.

The Yaçna is of a widely different character. In this are included expressions of praise and adoration peculiar to the Iranian worship. It is the devotional part of the Zoroastrian Bible. As already said, it contains the most ancient element of the whole Avesta. There can be no doubt that the primitive hymns included in this collection were sung by the Indian Aryans and the Iranians while they were still a common people. This aspect of the hymnody of Zoroastrianism raises again the disputed

Theme and method of the Vendidad.

The beneficent Ahuras are celebrated in the Gâthâs.

The Yaçna throws light on disputed ethnic relations.

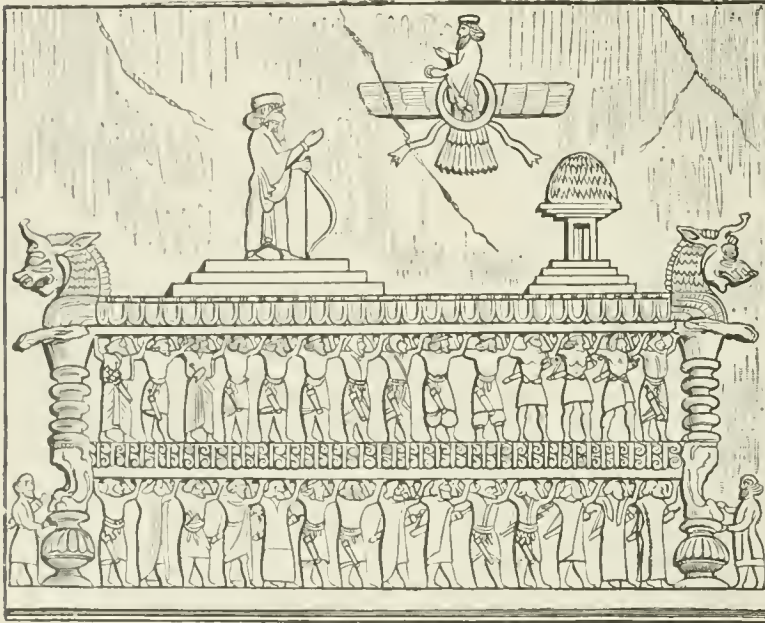
question as to whether the Iranians went together with the Indic branch of the race into the Punjab, and then, from schism or other cause, parted company with their kinspeople and turned into Iran. This view has been stoutly maintained even by Professor Max Müller. But on the whole it appears more rational, considering the geographical situation and the much greater extent of the migratory movement into India, that the two races divided on the plateau, leaving

beneficence are ascribed, in exclamatory language, to the powers on high. More frequently the subject-matter of the Gâthâs is in the form of prayer. Of

Hymns of the Yaçna; Müller's comments.

these, the great German Orientalist, Dr. Martin Haug, has made a translation into German, from which a rendering into English has been easily effected. The general integrity of the translation is attested by Müller, who sums up the results as follows: "Many of the pas-

sages as translated by him [Dr. Haug] are as clear as daylight, and carry conviction by their very clearness. Others, however, are obscure, hazy, meaningless. We feel that they must have been intended for something else, something more definite and forcible, though we can not tell what to do with the words as they stand. Sense, after all, is the great test of translation. We must feel convinced that there was



PERSIAN KING WORSHIPPING AHURA-MAZDÂO.

the Iranic division behind, while the Indic families made their way through the Hindu-Kush or the Himalayas to their destination. However this may be, the common element in the old songs of the Iranians and in the Veda can not be denied or ignored, and the fact points unmistakably to a common religious ceremonial earlier in its origin than the division of the races.

The hymns of the Yaçna are devotional. Sometimes the utterance of the worshiper is merely praiseful. The attributes of goodness and love and

good sense in these ancient poems, otherwise mankind would not have taken the trouble to preserve them; and if we can not discover good sense in them, it must be either our fault, or the words as we now read them were not the words uttered by the ancient prophets of the world."

It can but be of interest to the general reader to examine a few specimens of some of these primitive prayers, representing as they do the most ancient invocations of mankind. The

Specimen translation of the Gâthâs.



following four sections are from the Gâthâs:

1. "This thing will I ask Thee.  
Tell Thou it to me aright, Thou living God.  
How rose this world?  
By what means are the present things supported?  
That spirit, the holy Vohu-Mano, O true, wise spirit,  
Guardian of the beings who ward off evil,  
He is the promoter of life."
2. "This thing will I ask Thee.  
Tell Thou it to me aright, Thou living God.  
Who was in the beginning the father and creator of truth?  
Who made the sun and stars?  
Who causes the moon to increase and wane, if not Thou?  
This would I know, besides what I know already."
3. "This thing will I ask Thee.  
Tell Thou it to me aright, Thou living God.  
Who is holding the earth and the skies above it?  
Who made the waters and the trees of the field?  
Who is in the winds and storms that they so quickly run?  
Who is the creator of the good-minded beings,  
O Thou wise?"
4. "This thing will I ask Thee.  
Tell Thou it to me aright, Thou living God.  
Will your friend Sraosha [Angel of Light] recite his hymn to my friend Vistâspa, O Thou Wise?  
Will he come to us with the good mind,  
To perform for us true actions of friendship?"

It has been mentioned that a considerable portion of the Zend-Avesta is in the form of colloquy, or dialogue, in which Zarathustra appeals to Ahura-Mazdâo for wisdom and benefits, and the latter replies with revelations of peace and beneficence. The following specimen from Dr. Haug's translation will sufficiently illustrate the form in which the subject is presented:

"Zarathustra asked Ahura-Mazdâo after the most effectual spell to guard against the influence of evil spirits. He was answered by the supreme spirit that

the utterance of the different names of Ahura-Mazdâo protects best from evil. Thereupon Zarathustra begged Ahura-Mazdâo to reveal to him these names. Ahura-Mazdâo then communicated to him twenty of his names, of which the following are examples: The first is Ahmi, meaning 'I am;' the fourth is Asha-Vahista, meaning 'the best purity,' or, perhaps, 'purest and best;' the sixth signifies 'I am wisdom;' the eighth, 'I am knowledge;' the twelfth, Ahura, meaning 'the living one;' the twentieth, 'I-am-who-I-am Mazdâo.'

After this revelation, Ahura-Mazdâo then continues:

"If you call me at day or at night by these names I shall come to assist and help you; the angel Sraosha will then come, the genii of the waters and the trees." Mazdâo then reveals to his servant another series of names by which evil spirits, bad men, witches, Peris, and other enemies of the human race may be thwarted in their bad designs. Such titles as protector, guardian, spirit, the holy one, the best fire priest, etc., are communicated as the talismanic symbols by which men are to be saved from the influence of the evil powers.

It is believed that at least all the earlier parts of the Avesta proceeded from Zoroaster himself; that he was, in brief, the primitive lawgiver and prophet of the Iranian race. It is evident, moreover, that he held his career while the Indo-Iranic peoples were still a single division of mankind. So that the scheme of religious thought which we have here presented belongs rather to the Old Bactrians than to either of the branches of Eastern Aryans that proceeded therefrom. It will be of interest, therefore, to consider briefly what may be called the Bactrian deities, or those objects of

Example of  
Haug's transla-  
tion of the Zend-  
Avesta.

Zarathustra appeals to  
Ahura-Mazdâo for wisdom  
and benefits, and the latter

Relation of Zo-  
roaster to Ira-  
nian theology.

adoration which were deemed by the ancient people of the highest order among the supernal powers.

In so far as one supreme being was recognized above the rest, his name was Ahura-Mazdâo. The name Ahura is associated with life and light. As the sun is the supreme object of the visible universe and illuminates the whole, so

Place and offices of Ahura-Mazdâo.

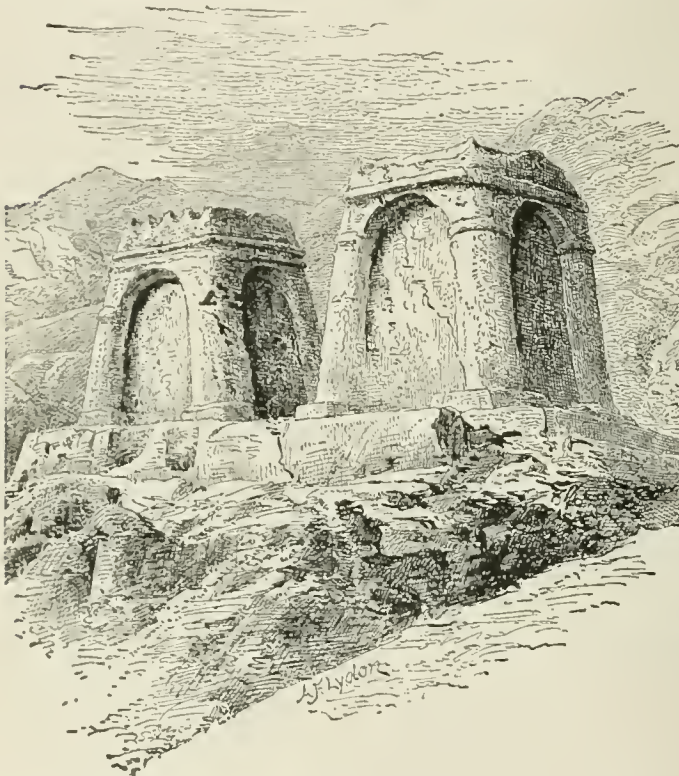
Ahura-Mazdâo. The name Ahura is associated with life and light. As the sun

good fortune were given by Ahura-Mazdâo. These good gifts were withheld from the evil-minded and the wicked. He was a spirit, and approximated in his attributes to the Hebrew Elohim, for which reason there was always a religious affinity between the later Medes and the Hebrews. The careful reader of the Old Testament will note that the two races were in sympathy, even in matters where sympathy was generally impossible.

Ahura-Mazdâo had his retinue of ministering angels.

They were about him in a dwelling of light, and carried out his will respecting the race of men. One of these hierarchs, greater and brighter than the rest, was called Sraosha. He was pre-eminently the Angel of the Light, and, since light reveals all things, Sraosha was the revealer of the will of Mazdâo. Primarily, he was merely an attribute of the Most High, one of his shinings forth. Another of these attributes was called Vohu-Mano, meaning "the good mind;" another was Mazda, meaning "the wise;" and the third was Asha, mean-

The retinue of angels; divine attributes become personal.



FIRE ALTARS OF THE OLD ZOROASTRIANS.  
From *Magazine of Art*.

Ahura-Mazdâo was the highest and brightest. The concept did not rise to the level of monotheism. Mazdâo was the great god of the race, and was regarded as the living creator of all. In general, he was the giver of blessings both temporal and eternal. Such blessings as earthly honor, preferment, and such subjective good as wisdom and intelligence came from this immortal source. Health and virtue, wealth and

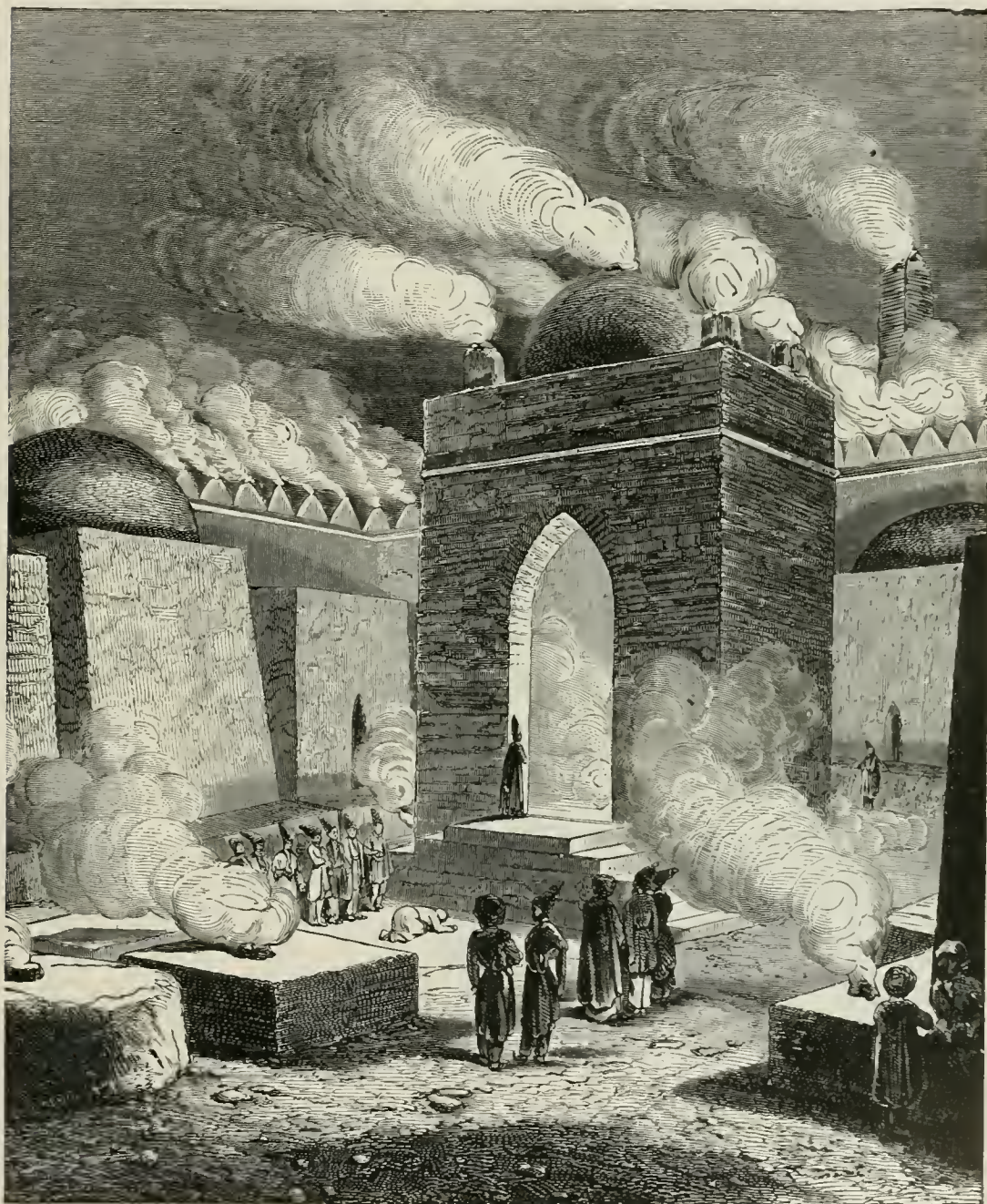
ing "the true." It was as if the attributes of the primitive Godhead were detached into personalities, under the figure of angels, or messengers.

After Sraosha, the next of the divine beings, as conceived by the primitive Iranian, was Armati, meaning "the earth," who was the same as the Gaia, or Demeter, of the Greeks, and the Ceres of the Romans. The earth was con-

Myth and worship of Armati.

ceived to be a beneficent power. From the mere physical fact of giving food and yielding increase, the mind of the

the contest with physical nature man was helped by the invisible spirit of the earth. When the adverse forces of the



PARSEE TEMPLE OF FIRE AT ATECH-GA.—Drawn by M. Moynet.

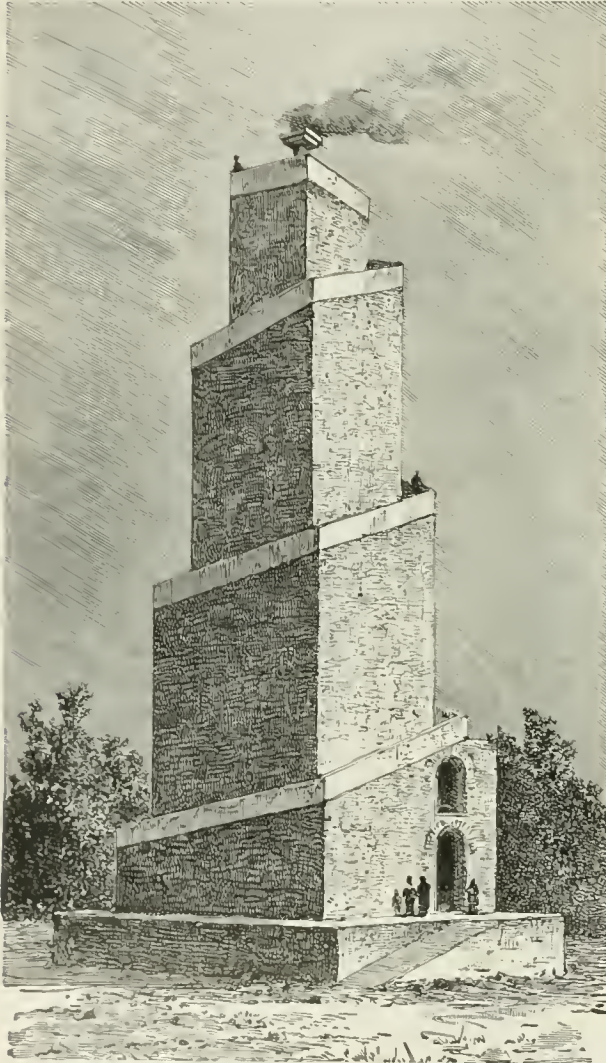
Old Iranian passed to the general notion of a good being who befriended man and aided him in maintaining life. In

material world gave back under the exertion of man, it was Armati that aided him to get the victory. Armati

gave the seed of the plant and the fruit of the orchard-bough. When the earth was covered with green grass and blossoms, Armati gave the blessing and clothed her habitation with verdure.

produced. It was a development rather. At the first there was a nature worship, pure and simple. It was by refining upon this natural system of belief that

The personal deities arise out of nature worship.



FIRE TOWER OF ATECH-GA, AT FIROUZ-ABAD.  
Drawn by Taylor, after the restoration by Madame Dieulafoy.

Whatever good thing had its root in the bosom of the earth and yielded its benefit to man, was the gift of this generous, beautiful angel of the world.

The scheme of religious belief and service here outlined was not the most primitive form which the Iranian mind

the hierarchy of Mazdão and his subordinates was developed. In the earlier ages, while the Iranians and the Aryans of India still sojourned together, the simple powers of the natural world were adored and worshiped. These powers came to be regarded as living beings over and above the visible aspects of nature. The first was called Indra, meaning "the storm;" Mithra was "the sunlight;" Armati, as we have seen, was "the earth;" Vayu was "the wind;" Agni, "the fire;" and Soma, "intoxication." These forces or facts of the natural world were adored as the suitable objects of worship, and the deities thus created were common to the Hindus and the Iranians.

In the beginning it was simply a nature worship, under the garb of polytheism. The

Separation of the powers and beginning of dualism.

gradually to higher levels. The materialistic element gave place to the spiritual. The separation between the visible aspect and the invisible power became more distinct. At the same time dualism began to appear. It was discerned that the powers of nature

are both good and bad. Some are beneficial to men and others disastrous to his interests. The former attracted human affection, adoration, worship. The latter excited human fear, dread, aversion. To the beneficent powers the Iranians gave the name of Ahuras, and to the evil

spirits the name of Devas. Such was the genesis of the gods and demons of the primitive Aryan world.

Full of interest to every thoughtful mind are these toilsome processes by which our ancestral race, in the prehistoric ages, gained at length a loftier view of themselves and of the universe in which they were appointed to live. The struggle upward of the Old Iranian mind in its endeavor to reach higher concepts of the natural world and of the powers by which it is governed may be noted with constant admiration. The ascent was spiritward. By degrees the worship of these primitive peoples was lifted from the contemplation of material forms to the adoration of spirit and duty. It was, in its very lowest aspect, an advance from the consideration of matter to the consideration of force. The mind, in its search for truth and stability, ceased to dwell upon the visible form, and passed to the invisible essence. The form was wind, or thunder, or sunlight, or fire, but the essence was truth, or purity, or wisdom, or life. Through all the emblems of this most ancient form of faith it is possible for the modern student to discover a constant tendency to refinement and to the substitution of spirit for material form.

Philosophically considered, the march of the human mind from matter to spirit passes through a stage of symbolism. It is doubtful whether any stage in the human evolution can be cited in which the concept of spirit has been substituted *at once* for the concept of matter without the interposition of symbolical imagery. There is always a period in the development of mankind, passing out of unconscious into conscious states, more particularly in the progress from a merely

material into the ideal life—a period in which emblem and allegory and myth are built into the bridge which spans the chasm between the things that are seen and the things that are eternal.

In the instance before us we may select the myth of the Earth as an illustration of the method by which the mind rises to higher views and fixes itself in contemplation of the supernal powers.

The Earth and the metaphor of the cow.

Armati, "the Earth," was represented under the metaphor of a cow. At first view such an image may appear grotesque. But the most life-giving of all substances with which the primitive man was acquainted—and, forsooth, the modern man has found none better—was drawn from the udder of the cow. Like her was the great earth. Out of it came the streams of life. All the life-producing elements were given from the ground. So Armati was a cow. But the cow was alive. She had a breast, a spirit, a soul. Therefore the earth had a soul. Armati was pervaded by the directing principle of life—a form of belief which reappeared in after ages, in the *ánima mundi* of the Græco-Italic philosophers.

Now this soul of Armati was called *Geus Urva*, "soul of the cow." And here arises the myth of *Geus Urva*. Man, inspired and directed by Ahura-

Elaboration of the myth of Geus Urva.

Mazdão, when he came to plant seed in the ground, cut the breast of Armati with a plowshare. Then the *Geus Urva*, or soul of the cow, cried out in anguish, and appealed to the angels on high to defend Armati against her brutal ravishers. But the mighty angels, understanding the purpose and thought of Ahura-Mazdão, would not interfere to save Armati from the wound of the harrow and the plowshare. She was left to

Symbolism intervenes between form- and spirit-worship.

suffer and to moan without alleviation of her anguish. But in recompense for her sorrow, she was given the flowers and fruits and waving harvests to hide the wounds in her bosom.

Mention has already been made of the Devas. There was a hierarchy of the

Ahriman and  
the hierarchy  
of the Devas.

Bad as well as of the  
Good. Over against Ahura-  
Mazdâo was placed Ahri-

man, the Iranian Satan. He was the foe not only of the good powers on high, but also of man. The world was a battlefield between the benevolent and malevolent spirits. Here again we may see the evolution of a concept, proceeding from material to immaterial images. At the first it was the physical world that was divided between the power of light and darkness. In the world of matter dualism is a fact, and perhaps a necessity. While there is day, there is night. While there is sunshine, there is storm. While there is a balm of summer, there is a blast of winter. While there is dew, there are hailstones. While there is blossoming mead, there is blasted harvest. While there is plenty, there is starvation. While there is good, there is bad. While there is life, there is death. The ascent from the opposition and antagonism of material things to the antagonism of things ideal and spiritual is inevitable while the aspects of physical nature are unchanged and the laws of human thought retain their integrity.

Out of these conditions the Old Aryan mind constructed its world of Devas, its hierarchy of malignant spirits. Ahriman was at the head. The rest were graduated in descending orders of malignity, to the small sprites that troubled the dreams of childhood. Ahriman was a demon. He was the Bad Mind of the universe. Indra and Siva, taken from the pantheon of the Brahmans, were his

counselors, who presided in the malign parliament whence the black armies of earth and heaven were ordered forth to debase and destroy the children of men.

No tribe of men on the face of the earth has been found without its intoxicant. Neither primitive barbarian nor modern savage has failed to find the substance and the process by which the nervous

Intoxication  
and the wor-  
ship of Soma.

system may be artificially excited and the mind distraught with the flying fancies of stimulation. Some of the oldest hints of mortal tradition have transmitted the story of drunkenness and the knowledge of the means by which it was produced. Among the Old Iranians the plant of the East, called *Asclepias*, was discovered, the juices of its pith extracted, and turned by fermentation into wine. He who swallowed it was lifted with a sudden delight into the realm of delirium. His heart throbbed and his vision was exalted, while wild landscapes of fairies and phantoms flitted before his eyes. Certainly, said he, this is the gift of a god. It is divine. It is the blessed secret of the immortals, and its name is Soma. Let us drink again and worship Soma. Of a certainty the gods drink and are drunken. Soma is the only good thing which the gods have given us.—Such was the hilarious dream which

“Brought death into the world, and all our woe  
With loss of Eden.”

Under the influence of this system of religion the Old Iranians rose to a high level as it respects practical ethics and morality. It may well be doubted

High morality  
of the primitive  
Zoroastrians.

whether any other primitive race of men were superior to the Bactrian ancestors of the Aryan peoples as it respects the common virtues of life. The

laws of Ahura-Mazdâo, as revealed by Zarathustra to his people, demanded piety toward the gods and honest endeavor among men. Truth and purity were regarded as the fountains of all good. A life without virtue was worthless. True, the thing called virtue by the best pagans of the ancient world was very different in sense from the narrow and technical meaning of the word in modern times. It was the virtue of strength and courage, the virtue which defended the weak and shielded innocence.

According to the Iranian system the actions of men were judged by their motives. Conduct was praised or condemned according to the intent from which it sprang. The simplest pursuits of life were infected with morality. To till the soil was a religious duty. The destruction of weeds and brambles was a thing pleasing to Ahura-Mazdâo. The people of Iran were exhorted to turn from the barbarism of the nomadic life and to seek their subsistence from the bosom of the earth, the breast of that generous Armati, from which came the milk of life to her hungry children. Tillage was, therefore, a duty of religion. Zarathustra enjoined it in his precepts, and piety demanded that men should love and cultivate the earth.

As in the case of all other religions, that of the ancient Iranians soon required a retinue of priests. Some must be set apart to attend especially to the worship of the gods. In this system there were three divisions in the priesthood. First, the Kavi, or Prophets, were supposed, by their discipline and communion with the Ahuras, to be versed not only in the lore of the present, but in the things of the future. This office was a part of

that general scheme of benefit which underlay the whole fact of early worship. The fundamental idea was that of *advantage* to men; and secondly, the avoidance of evil. The primitive man worshiped because he conceived it to be of advantage to him to do so. He wished to stand well with the powers of earth and air, to be in alliance with them, to conciliate their favor. Afterwards he wished to avoid, even to propitiate, the evil forces of the world, and to thwart the malevolence of the bad-minded deities.

One may well be astonished to see how completely all ancient forms of religion are permeated with this narrow consideration of personal advantage.

Imperfection of primitive religious concepts.

Those high and unselfish considerations that are urged upon the minds of modern peoples by religious teachers were unknown in the primitive world. There was, indeed, in the mind of antiquity no perception or sense to which such exhortations and inducements would have appealed at all. The old tribes, still struggling with the rank conditions of unsubdued environment, thought only of advantage, how they might for the present be benefited, how gain might be had and misfortune avoided.

Even among the Semitic nations the same low concept of the relation of man to the power on high existed. As late as the time of the composition of the

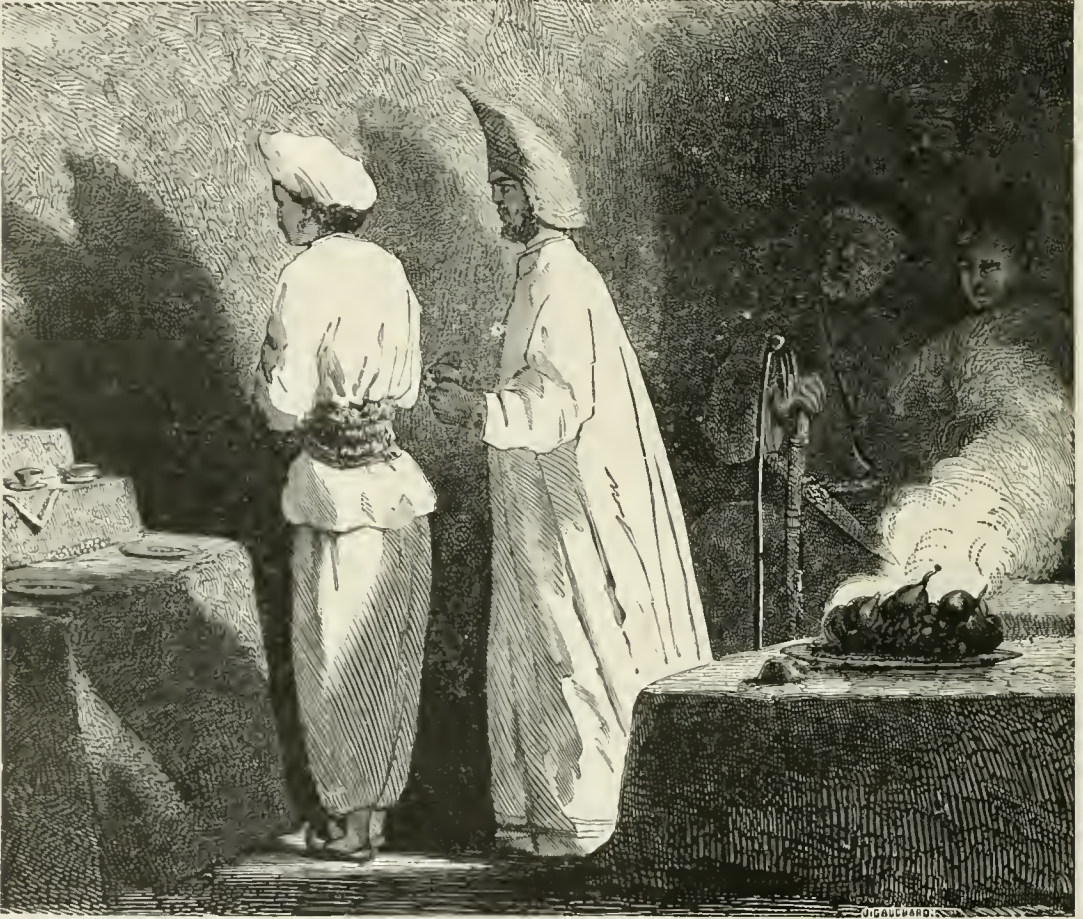
Even the Semites had low notions of worship and duty.

Pentateuch the Hebrew race had risen no higher than this earthly view of the profitableness of religion. In the twenty-eighth chapter of Deuteronomy the summary of the whole argument in favor of the expediency and rightfulness of religious service to Jehovah Elohim is set forth in an extended catalogue of benefits to be gained and evils to be

Evolution of the order of the Kavi.

avoided, not a single one of which rises above the level of mere temporal advantages on the one hand or physical afflictions on the other. This is all the more surprising when we reflect on the high concept which the Hebrew race had of the nature and attributes of Deity.

added the natural curiosity of the human race to know mystery and to see the invisible. The Kavi were supposed to be in communion, at least when exercising their priestly office, with the Ahuras, especially with Mazdâo and Sraosha, and from such intercourse with the powers



GUEBER CEREMONIES AT TEMPLE OF ATECH-GA, NEAR BAKAN.—Drawn by M. Moynet.

This notion of advantage underlay the prophetic office of the Iranian Kavi. It was beneficial to foreknow what was to come. The Iranic people, with such revelation of the hereafter, might better adjust themselves to the conditions of the physical world, and thereby more easily gain its benefits and avoid its evils. To this bottom motive in the institution of prophecy must be

Fundamental ideas of the office of Kavi.

on high they gathered their revelations for men.

The second class of Iranian priests were known as Karopani; that is, "Sacrificers." The notion of contributing something to the gods from the abundance of the earth is one of the most primitive of the religious concepts of mankind. It implies mutual advantage. Men, hoping to receive favors

Sacrifice intended to supply the deities with food and raiment.



from the powers of earth and heaven, give something of their own goods in return. The fruits of the field are brought and laid upon the altar. Favorite animals are led forth and presented to the deities.

There are two correlations here which may be noticed with interest. First, that the deities—in this case, the Ahuras—are supposed to require *for food* the same things that are agreeable to the appetites and wants of men. Very rarely do the things sacrificed represent any other element than that of food value. Among some primitive peoples articles of clothing, the hunter's gear and weaponry, were given in sacrifice. But generally there was a strict conformity of the things offered to the articles of food most desired by the sacrificers. With the growth of æsthetic tastes flowers were added, but generally those articles of the vegetable and animal kingdom which were used by the people to sustain life were given as an offering.

Among the Old Iranians, such articles were fruits and grains and certain animals, particularly the horse. The latter

The things sacrificed; gift of the horse.

was a notable departure from the usual order. The horse was sacrificed not as an article of food, but as the most valuable of the possessions of the worshiper. Without the horse his journey from place to place could not be made. Without him the hunt would be reduced to a mere struggle of man with the wild beast, and without him war would be impossible. So the horse must be given to the Ahuras as the most acceptable gift.

The second notion above referred to is that of the *method* of transferring the gifts from the visible hands of the givers to the invisible hands of the Ahuras.

Fire has been a possession of all the races of men. Its general office is to make the visible forms of things invisible by combustion. Fire employed as the agent of transformation. This transforming force was therefore employed in all the sacrifices of the primitive world. The thing given was committed to the flames, and disappeared. By this process of divine commerce the fruit of the earth or the slaughtered animal was transferred to the immortals. As a rule, however, *not all* of the thing sacrificed was committed to the flames. The shrewd wit of the primitive worshiper still dallied with the idea of advantage to himself. A part of the offering was reserved for the priest. As for him, he could readily make a tradition that by eating of the sacrificial offering he sat at a common table with the gods. This ingenious casuistry would be accepted as a verity, and the giver of the sacrifice would be satisfied.

The third group of Iranian priests were known as the Ricikhs, or the "Sages." They were the The primitive philosophers of the Iranian race. early philosophers of the race. In the religious

evolution the Iranian mind conceived it wise to draw along with the development of ceremony the incipient learning of the age. A class of hierarchs, known as the Ricikhs, thus arose, as natural philosophers, interpreters of earth and air and heaven, not seers in the prophetic sense, for that was the office of the Kavi, but wise men in the interpretation of all things secular and material—teachers of the commonplace and natural.

Nature worshipers in the primitive ages are little disposed to building temples. It is only in subsequent stages of development that a system of religion, founded on natural concepts, requires

the erection of houses for the deities. In the beginning all worship is conducted in the open spaces, under the arch of heaven. Among the Old Iranians, the hilltops were chosen as the most

East Aryans preferred the open air for worship.

revealed in all their grandeur and beauty, that the earliest priests of the Aryan race stood up and chanted their Gâthâs and offered prayer. It was a long time before the temple-building epoch arrived in the history of the two branches of the East Aryan race. It is perhaps impossible for the modern inquirer to transport himself into the consciousness of this ancient people, and to feel *the reasons* which were sufficient for performing the services of religion in the open air and which forbade the localization of worship in a temple. Even to comparatively late epochs in the history of this race the palace of the king always outshone the temple of the gods. To the present day the hilltops back of Bombay smoke with the fires of the Parsees, with no roof above save the Indian sky.

Nature worship did not inculcate immortality. The doctrine of the continuous existence of the soul after death rose slowly and through many tortuous processes of thought from the primitive naturalism of the Iranian race. It is surprising to view the indifference of all the Aryan peoples of antiquity to the question of a life after death. When the powers of the natural world had been separated from its physical aspects and elevated into the character of Ahuras, they were regarded as immortal. But even this aspect of the old natural theology was not

Notion of immortality of later date.



PRESENT STATE OF FIRE-TOWERS AT ATECH-GA.  
Drawn by Taylor, after a photograph by Madame Dieulafoy.

suitable places on which to build their altars and offer their sacrifices. It was on these high places, from which a view of a great horizon could be obtained, where sun and earth and air were

dwelt upon before the classical ages. It came at length, however, to be perceived that the gods, in order to be of permanent benefit to their worshippers, must be immortal. Otherwise, death

might intervene and all advantages cease forever.

From the immortality of the gods, it was but a step to the concept of the immortality of the soul. In the later development of Zoroastrianism such belief became prevalent, and the teachings of the Magi were largely based upon the belief in an existence of the souls of men after death. But in the earlier ages duty and obligation were enforced by the Kavi and the Sages of Mazdão on the simple grounds of benefits to be gained and evils to be averted. The concept of an eternal existence had not entered in; the horizon of religion, as it was believed and practiced by the Old Iranians, was coincident with the horizon of life, and the religious ceremonial was all prepared and performed with the expectation of earthly benefits.

In the attempt to gather the outlines of the prehistoric life of a people, and to depict the same as one complete image to be looked upon by living races of

men, the writer is many times embarrassed in selecting those features which are most likely to make a distinct and lasting image. In the present case we have dwelt at some length upon that Old Iranian faith which had Ahura-Mazdão for its supreme spirit and the Zoroastrian Bible for its apocalypse. We have done so for the reason that this system of belief and practice was a fundamental element, if not indeed the very life, of Iranic development and nationality. The rising institutions of the race took form and fashion from the religious system of Zarathustra. One of the strongest forces by which the impulses of the nomadic life were held back and finally bound down to the pastoral and agricultural career, by which the settled tribes gradually became predominant over the hunters, and by which institutional forms took the place of mere tribal chaos, was the unity of religious beliefs and practices common not only to the Iranians themselves, but also to their kinsmen in India.

Iranian religion  
foreeran national  
development.

#### CHAPTER XXXIV.—SEX AND MARRIAGE AMONG THE ARYANS.



It will now be of interest to say something of the relations of man and woman among the forefathers of the Indo-European races.

The perpetuity and, indeed, the very existence of the human family depends upon the fact of sex in the species. The complete mankind is divided into two parts, the man and the woman. By a beautiful coördination, and perhaps what may be called a nat-

ural division of labor, the procreation and the bearing of offspring are divided as might be a piece of work in economics. The duty of perpetuating the race is separated into parts and given to two instead of to one. In this respect mankind share in the general analogies of nature. Nearly all animals and plants reproduce by sex. In some cases the whole procreative act is accomplished in a single individual of the species, but, as a rule, it is divided between two

Importance of  
sex and sex  
union in race  
history.

The laws by which the two coöperate in this vital effort to maintain the species of which they are themselves the units are all-important, and must ever constitute one of the most interesting studies to which the reflective mind may be devoted.

tain that no one of these has been used by all as the first, or primal, method of maintaining human existence. The facts seem to warrant the belief that some of the primitive races have instinctively employed one plan for the

union of the sexes, and others another plan. The four methods referred to differ among themselves materially. They are unlike considered as plans of procreation, and are diverse in the social results to which they lead.

The first is the scheme of sexual union in which men and women are miscellaneously joined in the procreation of the race. It implies little more than the instinctive and temporary union of the male and the female in the other races of animals. It signifies that after this temporary



IRANIAN FAMILY TYPE.

Drawn by Tofani, after a photograph by Madame Dieulafoy.

In the human family four general schemes of propagation have been employed by various tribes of men while still under the dominion of the unconscious forces peculiar to the childhood of the race. It is almost cer-

Four methods  
of sexual union  
among races.

relation, resultant in the birth of a new member of the species, the relation shall cease as it respects the parents, and that each of them shall thereafter enter into new unions with other members of the species, and so on

Communal system of marriage; its impermanence.

throughout the productive period of life.

Impermanence is the feature of such a connection of the sexes. It extends even to uncertainty as to the male parentage of all offspring. It makes the woman the mother of many children by different men, and the man the father of many children by different women. The system is known as communal marriage, and it may well be regarded as the most barbarous, if not the most primitive, of all the forms of procreative union between the sexes.

The second scheme is that in which one man selects two or more women as his wives and by them multiplies his kind. The relation once established is supposed to be permanent during the procreative period of life. This makes the man the central fact in the propagation of the race. From him the lines of life diverge through several members of the opposite sex, and are spread wider and wider as the process goes on, to the second and third generation, until his blood is almost infinitely diffused. After some generations vast multitudes would trace backward, through different mothers, their descent from a common father. To this scheme of multiple marriage is given the name of polygamy—a word which the discerning tongue of the Greeks has contributed to the vocabulary of the world.

The third plan of union between the sexes is like the last, except that the position of the parties is reversed—exactly reversed as to parentage, but not as to results in offspring. In this third scheme several men are married to one woman. She, and not the man, becomes the central fact in whom the lines of life converge. In all other schemes the lines

Nature of the polygamous scheme of union.

Antecedents and results of polyandrous marriage.

are divergent toward posterity, but in this—such is the nature of the union—the course of all the forces of procreation is toward the woman. As to the offspring, the mother, as in all cases, is known; but the paternity is undiscoverable. Each child has a single unit for its mother and a multiple factor for its father. In some tribes all the brothers born of a single mother are married in common to one woman. But when it is said that all the *brothers* are so wedded to one, it must be remembered that the brothers in question have a multiple paternity; that is, they are not brothers in the sense that men are brothers in the monogamic relation, or even in polygamy. In other tribes not only the sons of a single mother are wedded to one woman as her husbands, but all of the members of the tribe are in like relation with her. Among many of the North American aboriginal nations the woman is *the wife of the tribe*. This system is called polyandry, a term which is self-definitive of the relation.

The fourth plan of procreative union is called monogamy. It is the joining of one man to one woman and of her to him. The relation thus established is distinct from any of the three preceding. It is especially different as it relates to offspring. It signifies an ascertained parentage in both maternity and paternity. It signifies that all the children born of one woman have a single father, and that all the children born of one father have a common mother. The relation is so easily apprehensible that it need not be described, either in itself or its results.

Monogamy determines both lines of parentage.

It should be remarked that the sexual usage in different nations adopting different schemes of procreative relationship is particularly tenacious, and is generally

maintained with scrupulous exactitude by the sentiment of the given people.

All races have and maintain a sexual code.

Monogamy is by no means regarded as more essential to the welfare of the race

by those peoples who practice it than are

members of the tribe would be regarded not only as scandalous, but as destructive of the welfare and happiness of all.

We can not pass from this analytic view of the nature and methods employed by different peoples in perpetuating the

race without noticing the bearings of the subject on certain controverted questions. The principal of these is the historical priority of the several plans of marriage enumerated above. The problem is not so important in itself as in its relations to another question. It is easy to perceive that if monogamy be the first great method of mankind, then the family, which is the second unit in ethnic development, precedes the gens, the gens the tribe, and the tribe the race, in the order delineated in a former chapter. But, on the other hand, if the system of polyandry should be the primitive method of union, then, undoubtedly,



OLDEST TYPE OF THE MARRIED WOMAN—A CHALDEAN.  
Drawn by Mlle. de Lancelot, after a sketch by Madame Dieulafoy.

the other schemes of union by the respective races among whom they prevail. There has never been found a tribe of savages so low in the human scale as not to have a certain sexual code, any departure from which by the mem-

bers of the tribe would be the first in the order of development, the gens second, and the family the last stage in the human evolution.

If the ethnographer of to-day is com-

Historical priority of marriage systems considered.

pelled, with the data before him, to decide this important question, he will be obliged, in view of all the facts, to express the belief that some of the primitive races of mankind have adopted one of these schemes, and others another. This is to say that in certain families of men the monogamic principle employed from the beginning has led from the family to the gens, from the gens to the tribe, and from the tribe to the race, while in other branches and under different conditions instinctive ethnic preferences have led to the adoption of communal marriage, or more particularly to polyandry, by which the general course of the race development has been exactly reversed, beginning with the tribe and passing by way of the gens to the final establishment of the family.

It has been the custom to say that monogamy originated, or was at least given its first authoritative expression, among the Romans. It can not be denied that from a very early age the monogamic relation was formally recognized by the Latin race as the one valid law of sexual union. It is equally certain that the extension of Roman power over all the countries around the Mediterranean and far into the East compelled the acceptance of this feature of social organization. Monogamy became thus intimately associated with the bottom principles of Christianity, and after the decline of the empire the law of single marriage, the union of one man and one woman for life, was carried throughout the world, wherever that system of religious belief found a footing. But it is doubtful if such is—if such was—the actual beginning and establishment of the monogamic relation among mankind.

The Greeks were monogamists. In general, the Oriental nations were polygamists, but in the West the opposite principle prevailed. Among the Gothic races, also, as far as custom had been formulated into law, it appears that the principle of single marriage was universally recognized. The primitive institutions of the Celtic tribes in Western Europe have not been well ascertained, but we have reason to believe that among them also the law was monogamic. The Greeks did not elevate woman to a high rank or make her, in any sense, the social equal of man, but they were not polygamists. Neither were the primitive Aryans of India. We have already seen that the Old Aryan Housefolk of the Indian valleys were organized into families on the monogamic basis. The system of naming which they used to express the family relations precludes all idea of communal or polygamic practices among them.

The same is true in Iran. As far back toward the bottom of the Aryan nidus as we are able to penetrate the relation was one man for one woman and one woman for one man. While men are in a tribal state, such a principle can never be carried into full effect. All modern nations have had cause to appreciate the extreme difficulty of maintaining in its integrity the system of monogamy as against the natural license and vagrant instincts of the race. If the system has thus had to contend with many diverse forces in the higher forms of society, how much more may we expect it to have had an imperfect form among prehistoric nations!

It is true, then, that the Romans were the great authoritative promoters of single marriage in the ancient world, and

Some tribes adopt one method and some another.

obliged, in view of all the facts, to express the belief that some of the primitive

Other Indo-Europeans practiced single marriage.

Difficulty of maintaining monogamy against license.

that the Christian religion was at least the vehicle of the diffusion of that plan of union among the nations of the earth. But it may be safely asserted that the system is peculiar to the Aryan race. For some reason it accords with the instinctive sentiments of nearly all people of Indo-European descent. The attempt to introduce and to maintain some other law of sexual union among the Indo-European races has been always combated not only by the statutory principles and positive laws prevalent among them, but also by the bottom instincts of the race.

It remains, therefore, to look briefly at the reasons that may be assigned for the preference of one system of marriage over another. What are the circumstances, the facts, which induced some of the primitive tribes of mankind to adopt monogamy, others polygamy, and still others polyandry, or even communal marriage? It might well be thought that human beings in the unconscious state, placed under like conditions and confronted with a problem so natural and inevitable as that of procreation, would all alike solve the question in a given way, and adopt a common ethnic code governing the manner and even the details of this great central fact in the perpetuation of the race. Such, however, we shall not find to have been the natural and necessary order in the evolution of human society.

A close study of the conditions under which the races of men were originally placed will show great diversity in their situations. It may be perceived that the motives which, unconsciously to themselves, played upon the first men and women in different parts of the earth

Single marriage peculiar to the Aryan races.

Facts tending to determine marriage systems considered.

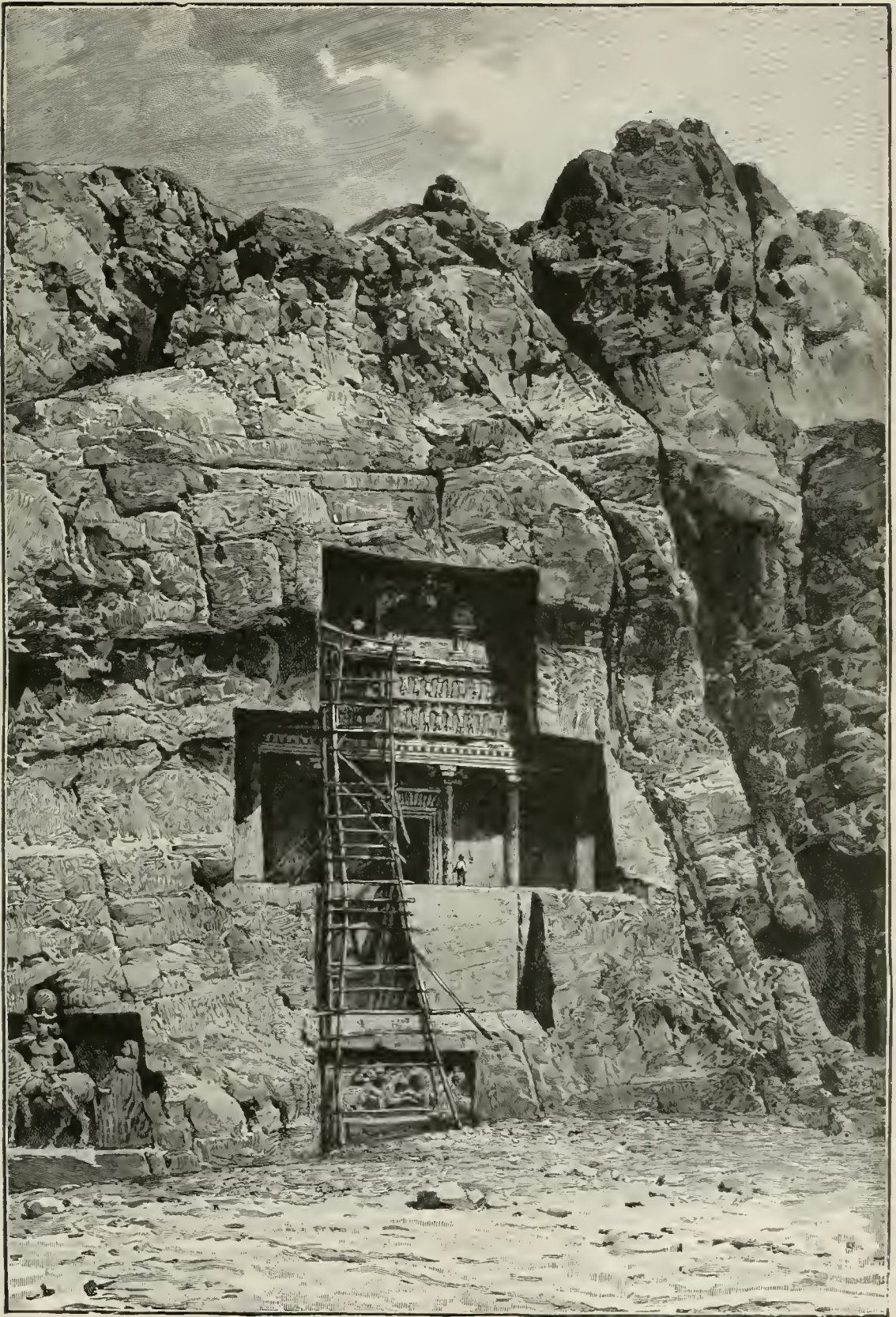
Conditions antecedent to the monogamic method.

were very diverse and even antagonistic. From the beginning the unconquerable instinct of the mother was for the preservation of her child. The instinct of the father also tended to its preservation, but not with so great force as on the mother's side. Under certain conditions the sustenance of the child was so easy as to be almost natural. Under other circumstances, it was a work of difficulty and labor. In the latter case, a repugnance to offspring would arise among primitive people, and would presently become so strong as to suggest destruction. As soon as barbarian fathers should adopt this method of lessening the number of those whom they must support and with whom their households were encumbered, a natural selection would lead to the destruction of the girls and to the preservation of the boys. By this means the tribal society would soon have a preponderance of males and a paucity of females. This is a monogamic condition. Such a state is the antecedent of single marriage.

Under such circumstances several men would compete for a single woman. The strongest would obtain her, partly by his strength and partly by her preference for him as the best. He who obtained could generally defend. The man thus married would become a party of the first part, and those whom he had surpassed in competition a party of the second part, both obliged to the maintenance of the union thus established. Each of the party of the second part would hope in turn to obtain some other woman as his own, and thus to become a party of the first part, in a compact to which his competitors were a party of the second part. Here are the foundations of a natural league on the part of all to support and maintain monogamy.

Nature of the forces whereby monogamy is confirmed.





FORM OF ROYAL TOMB IN POLYGAMOUS COUNTRY.—Drawn by Taylor, from a photograph.

Under other conditions a wholly different state of circumstances might arise. In a warm and fertile island or in a fecund Oriental valley—where nature brings forth in abundance all things soever which are desired by man, where her resources seem exhaustless and the eater has but to lift his hand to the bending bough to gather what fruits he will, where the genial atmosphere and the equability of the seasons requires no clothing and suggests no permanent shelter, where even the infant, before it leaves its mother's breast, begins to gather from its environment all manner of natural foods adapted to its wants—the law of life and of the maintenance of life is almost reversed from what it is amid the hardships incident to adverse regions. In such circumstances the maintenance of offspring, however numerous, could not be regarded as a task. Neither father nor mother could be much embarrassed even by a multitude. The suggestion of reducing an overplus by destroying it would not arise. The unrestrained impulses and the unlimited results of human instinct would take their natural course, and no one would feel the burden. In the choice of their sexual mates men would not be limited to one by a confederation against him of the parties of the second part. The females of the tribe would be at least equal in number to the males. The stronger and more vigorous men would take two women or more to wife, and there would be no league against them by a disfranchised minority. The strong man would thus originate two, three, or many branches to his family. The weak man would perhaps have none. In other words, here is the antecedent state and condition of polygamy; and, as a matter of fact, the institution so called has gen-

Certain other conditions tend to establish polygamy.

arise. In a warm and fertile island or in a fecund Oriental valley—where nature brings forth in abundance all things soever which are desired by man, where her resources seem exhaustless and the eater has but to lift his hand to the bending bough to gather what fruits he will, where the genial atmosphere and the equability of the seasons requires no clothing and suggests no permanent shelter, where even the infant, before it leaves its mother's breast, begins to gather from its environment all manner of natural foods adapted to its wants—the law of life and of the maintenance of life is almost reversed from what it is amid the hardships incident to adverse regions. In such circumstances the maintenance of offspring, however numerous, could not be regarded as a task. Neither father nor mother could be much embarrassed even by a multitude. The suggestion of reducing an overplus by destroying it would not arise. The unrestrained impulses and the unlimited results of human instinct would take their natural course, and no one would feel the burden. In the choice of their sexual mates men would not be limited to one by a confederation against him of the parties of the second part. The females of the tribe would be at least equal in number to the males. The stronger and more vigorous men would take two women or more to wife, and there would be no league against them by a disfranchised minority. The strong man would thus originate two, three, or many branches to his family. The weak man would perhaps have none. In other words, here is the antecedent state and condition of polygamy; and, as a matter of fact, the institution so called has gen-

erally prevailed under the circumstances above enumerated.

As to communal marriage, it appears to be merely the sexual chaos of tribes in whom the human sentiments peculiar to this relation have not yet appeared. It would be difficult to point out any particular in which this system differs from the method of union instinctively chosen by the lower animals. The existence of such a method, if method it may be called, implies the existence of tribes of men between whom and the animals there is only a small diversity of physical form and the possession by the one of larger capacities than by the other. It is a state of nature, pure and simple, and has only been found among peoples whose advance from absolute savagery has not proceeded so far as the institution of any definite social forms. We shall hereafter have occasion to speak further of this state in connection with some of the tribes by whom simple communal unions are the only custom and law of marriage.

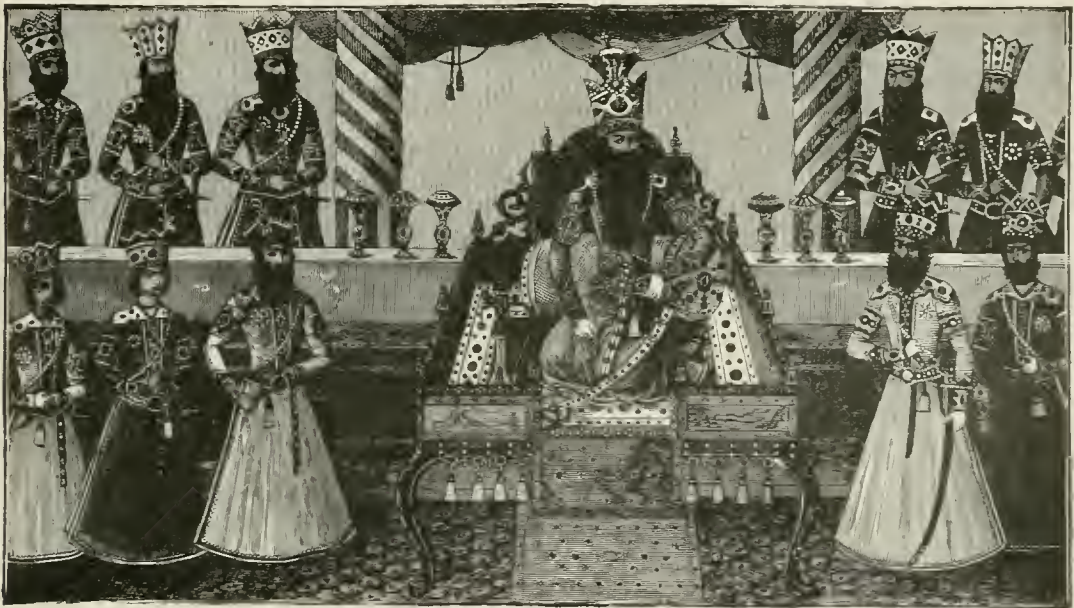
Communal marriage the result of sexual chaos.

The natural antecedents of polyandry are hard to trace. This form of union has prevailed in different parts of the earth to an extent not understood or appreciated until recent investigations have brought the matter to light. The majority of all the Indian races of North America employed polyandry as the bottom fact in their social structure. The same method of marriage prevails largely in the Polynesian islands and in other quarters of the globe populated by races of Mongoloid descent. Some suggestions may be offered, however, relative to the obscure origin of this, which to the enlightened understanding seems the most repulsive of all forms of

Paucity of females must have preceded polyandry.

union between the sexes. In the first place, there must have been antecedent to the origin of the custom a paucity of females, either from some perversion of the laws of birth, or from the destruction of female infants. If the latter, it may have occurred either by the will of the parents or by natural causes. Sufficient data are not accessible to indicate which of these circumstances has led among certain of the primitive tribes to the excess of males. Such an excess being granted, we can conceive that

mother. Among Aryan nations, however, the rivalry of brothers is not less intense, even deadly, than between strangers. But for some reason among the polyandrous tribes, the rivalry of the males has not taken the same course. Perhaps this may be accounted for on the ground of the smallness of the divisions into which the Polynesians and the American Indian tribes have generally been parted. Where a given totem has embraced but a few wigwams, a few warriors, and still fewer women,



POLYGAMOUS FATHER AND HIS SONS.—FATTALLY CHAIR.—Drawn by H. Chapuis, after a photograph by Madame Dieulafoy.

several males would compete for the possession of one woman, and to this extent the antecedent condition is identical with that among monogamous barbarians.

But from this point the analogy breaks. For in polyandry, instead of the strongest competitor taking and keeping the prize to the exclusion of the rest, the rivals make a league to have the woman in common. The facts show that the rivals are in the first place the brothers born of some common

it might have been disadvantageous for the warriors to go into deadly rivalry over the question of marriage. It may have been found among tribes thus weak that it was advantageous to husband the meager resources of force and tribal vitality by assigning two or three warriors to a given woman in the bond of a friendly husbandry. Whatever truth there may be in these conjectures, which are put forth as tentative explanations of the institution in question, polyandry exists as a large fact in the primitive history of mankind. It has

Smallness of  
tribal division  
favors polyan-  
drous system.

doubtless been practiced by a greater number of aboriginal tribes and races than has polygamy or communal marriage itself.

A question of great importance relating to vital statistics and to a still deeper law of biology has been raised with respect to the tendency of these several forms of marriage on the proportion of male and female births under each. It is conceded that generally through the kingdom of life the ratio is equally maintained, under equal conditions, between the male and female members of a race. There can be little doubt that mankind in the monogamic relation obeys the general law, and is perpetuated by nearly equal increments of the two sexes. The same may be said of communal marriages. Among the tribes where this usage holds, infants are born in equal proportions in either sex. The great question is whether in the two intermediate systems of polygamy and polyandry the opposing methods of union tend to perpetuate themselves by producing in one an excess of female births and in the other an excess of males.

That such is the result has been stoutly maintained. It has been averred, and many facts have been cited in substantiation of the principle, that in polygamy a tendency to an excess of females is at once discoverable. This is to say that nature provides for the continuance of the system by giving, as the fruit of the multiple marriages of one man, a considerable preponderance of female children. It is also alleged that in polyandry the system perpetuates itself by the production of an excess of males. But both of these principles have been strongly controverted, and facts have

been adduced which would seem in given cases to establish the law of equal birth under both the systems mentioned. There are some physiological reasons for believing that the first of the two arguments is better maintained, and, on the whole, the true one. But the question is still obscured with much doubt, and must be remanded to future investigation for a final decision.

This digressive study relative to what may be called the primary or bottom organization of society among the various tribes and races of mankind has been brought in in this connection once for all, that the reader, at the beginning of the delineation of tribal and national life may have, as in a chart before him, the diverse plans or methods of sexual union, and the consequent perpetuation of the human family in the various quarters of the globe. The Old Iranians were monogamists, with only such departures from the law which instinct and custom had provided as are incident to the general lawlessness of mankind.

With this monogamic principle the religious elements which were developed by Zarathustra and the Kavi entered into combination, and, as the nomadic life gave place to a settled state, the old provincial nationality of the Medes may be said to have begun. We are here examining the very roots of human history. The opinion is confidently advanced that there was something in the instinct and something in the environment of the primitive Aryan race, in its old Bactrian nidus, before the Veda was the Veda, before the Avesta was the Avesta, which impelled to the union of man and woman in the procreative relationship on the monogamic, or single marriage, principle. And from this remote period, below the daydawn of hu-

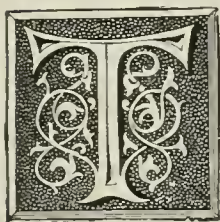
Bearing of marriage systems on proportion of the sexes.

Do polygamy and polyandry perpetuate themselves?

Monogamy reinforced by the Iranian prophets.

man history, that principle has remained instinctive in the race and in all its branches. Doubtless, in some particular instances the old bottom law of Aryan thought and preference on this subject has been subverted by environment and association, and has been supplanted by one of the other principles of sexual relationship, but the exceptions will be found, on the whole, rather to verify and illustrate than to abrogate the general law.

## CHAPTER XXXV.—HISTORICAL DEVELOPMENT OF THE IRANIANS.



HUS far in the course of the present work little attention has been paid to chronology. No effort has been made to fix, with even approximate certainty,

the time relations of events. This course has been fully justified by the fact that the events referred to have been either absolutely prehistoric, or else located along the farthest horizon of

Question of dates in Old Iranian history.

formal history. Nothing certain as to dates can be offered for such shadowy parts of the annals of the human race. Chronology is one of the special devices of history. It is said to be one of the historical eyes through which all things are seen. Perhaps we are now, however, arrived at a point when something may well be said as to the approximate time when the Old Iranians merged into the dim morning light of antiquity.

On this subject we are fortunately in possession of some distinct points of observation. It is conceded that the

Probable place and epoch of Zoroaster

Medes were the oldest historical expression for the ancient Iranian race. Concerning the antiquity of the Medes, we are able to draw at least a vague outline. According to Polyhistor, following and repeating Berosus, Zarathustra, or Zoro-

aster, was the first of a dynasty of eight Median kings ruling in Chaldæa in the very earliest ages of history. Indeed, with the exception of the Egyptian annals, this is the farthest point of light which the historian is now able to touch, as he looks into the mist-covered dawn of human affairs. The Chaldæan dynasty referred to was the second which had ruled in the old empire at the mouth of the two Mesopotamian rivers. It was composed of eight kings, Zoroaster being the first; and there are good reasons for fixing the limits of this dynasty between the years 2286 and 2052 B. C. At the close of this period it appears that the foreign, that is the Median, domination in Chaldæa was broken and the throne regained by native princes. It has been customary to make the date of Zoroaster about coincident with that of Abraham, but the current chronology would hardly admit of this construction. It may be accepted as approximately correct that the founder of the Old Iranian faith flourished at about the time indicated above.

One of the principal errors into which the occasional student is likely to fall relative to the relations of ancient events is to fix them, as it were, on a flat surface, without allowing for perspective. In the present case, it must be remem-

Historical students do not sufficiently consider perspective.

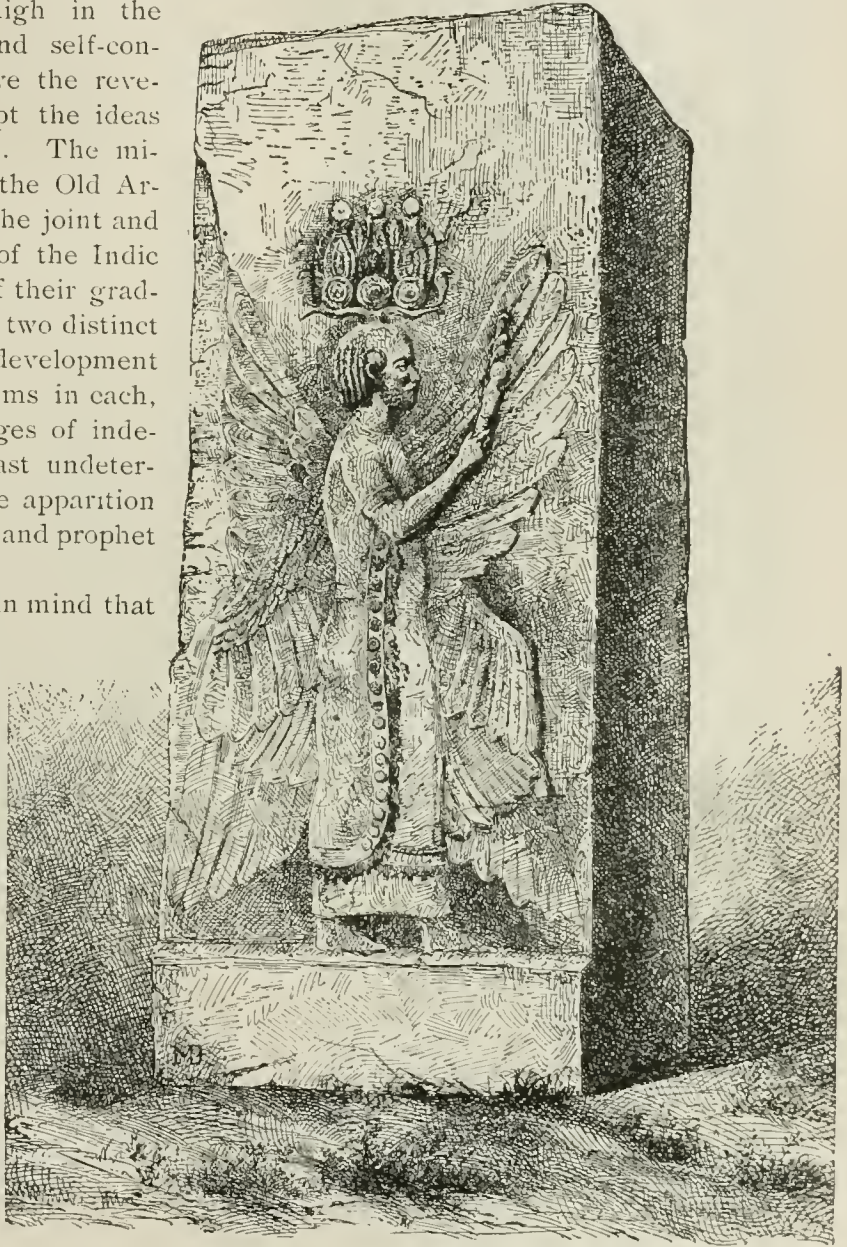


PLATEAU OF IRAN.—THRESHING WHEAT.—Drawn by Laurent Desrousseaux.

bered that there was necessarily a long Iranian history *before* the time of Zoroaster. There was already an organized people, developed from the tribal state and sufficiently high in the scale of unity and self-consciousness to receive the revelations and accept the ideas which he brought. The migratory period of the Old Aryan departure, of the joint and common progress of the Indic and Iranic races, of their gradual separation into two distinct families, and the development of institutional forms in each, all preceded by ages of indeterminate, or at least undetermined, duration the apparition of the great teacher and prophet of Ahura-Mazdão.

reached by this method of investigation. The astronomer, acquainted with the laws of physics and with his calculus before him, feels into the depths of invisible

It must be borne in mind that the Old Iranians, of whom we are here speaking, are a prehistoric people. That is to say that their life and history have been developed by what may be called historical parallax. The data in possession of the ethnographer and historian are sufficient to construct an accurate outline for the career of many peoples whose actual annals nowhere exist in the liter-



OLD MEDIAN TYPE—CYRUS THE GREAT.  
Drawn by Madame Dieulafoy after the sculpture.

Possibility of developing historical outlines by parallax  
ature or among the monuments of mankind. Nor is there any uncertainty about the process of the results which are

space and grasps the unseen planet, determining its mass and velocity with an exactitude which in a less cultivated age would be set down as miraculous. To

the sight of the well-instructed ethnologist, or even well-versed historian, the outline of prehistoric nations, their ca-



TYPE OF ANCIENT IRANIAN KING—DARIUS AND THE LION. Heliogravure, after a photograph from the sculptures, by Madame Dieulafoy.

reer and character, are as plainly discernible as are the unseen worlds to the vision of the astronomer.

We may, first of all, discover the Old Iranian in the person of the Mede. The Median nation is the earliest apparition into the actual foreground of the ancient

The Old Medes the first forms of the Iranian evolutions.

Bactrian Aryans whom the natural eye has ever seen. For how long a period the Iranian race continued to expand and become fixed in institutional aspects before the actual historical emergence of the nation it is impossible to determine. So far as existing records are concerned, our first acquaintance with this people may be set at the latter half of the ninth century before our era. It was at this time, in the reign of Shalmaneser II of Assyria, that an expedition was carried out across the Zagros into Media, where the Assyrian army succeeded in taking several cities, slaying the inhabitants, and carrying off the spoils of victory. From this time forth a formal history of the Median power, until its amalgamation or absorption in the rising dominion of Persia, may be authentically constructed. It is not here that we have to do with historical narrative proper. There is a difference to be observed between an account of the social, civil, and military movements of nations, and an ethnic history of mankind. It is here essayed to develop the latter, and we have only to deal with the race aspects of the questions arising before us.

Monarchy came with tribal consolidation in Iran. It is fairly well established that the first authentic ruler of the kingdom was Phraortes, who reigned from about 660 to 633 B. C. Long before this

Rise and progress of Iranian monarchy.

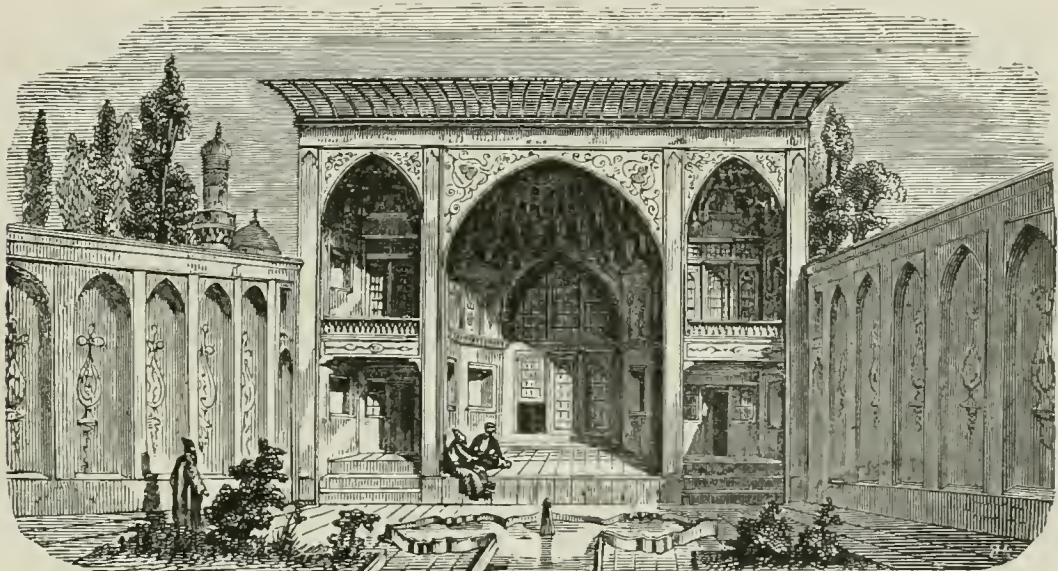
time are seen the shadows of the kings walking. Herodotus accepted some of them as real. Ctesias extended the list backwards, arranging a fictitious dynasty to the first quarter of the ninth century B. C. Names and dates are given. We



are introduced to Arbaces, Maudaces, Sosarmus, Artycas, Arbianes, Artæus, and finally Deïoces, which last stands in the dawn of the reality. The rest are fabulous, and are to be ranked with the mythical kings of Greece and Rome. From Phraortes, however, monarchy as an institution may be regarded as established among the Old Iranians. The great reign of Cyaxares followed, and the civil power was consolidated. Then followed the reign of Astyages, 593–558 B. C., at which latter date the relations

fact much nearer to unity of character than the term Græco-Italic, applied to the two branches of the Southern Aryans in Europe. In Iran the language, manners, customs, and growth of society, civil and political, the religious belief of the people, and, indeed, all the elements of development were the same for both Medes and Persians, with only such slight differences as were incident to territorial separation and environment.

These historical references are made



COURT OF PERSIAN MONARCH (ROYAL PALACE OF ISPAHAN).

previously existing between Media and Persia were totally reversed by the genius and warlike daring of the young prince Cyrus, who subverted the throne of his grandfather Astyages, and removed the seat of government to his own capital in Persia.

But the race was one, not two. Medo-Persian stock was not materially different in its two branches, the chief diversity being in the date of development. The Persian sprang last and grew highest. The term Medo-Persian must be understood to express an ethnic

merely to impress the truth that monarchy was a fundamental fact in the evolution of the Iranian race. The central principle was not only monarchic, but absolute. It was a tyranny on a large scale, and nothing more autocratic or cruel has been seen in the way of government among men. The genesis of the system was military. It was a warlike chieftainship, grown great and established in a local autocracy, surrounded with luxury and the implements of despotism. It is not intended in this connection to enlarge upon the

Warlike form of Iranian institutions.

Order of the Medo-Persian development.

particular features of the old Medo-Persian imperial government. It is sufficient to note its existence as one of the striking aspects of ancient civil society.

The absolute and cruel character of the institution had two roots of bitterness. The first was in tribal warfare, arising from leadership in which the mythical kings gradually arose to wider and still wider dominion until all the Iranian countries were consolidated in one. The second source of the characteristics

War passion and cruelty the attributes of the race.

tial foes, or to conciliate them, or to beat them by subtlety became a necessity of the national life. It was a perpetual warfare with demons, and the actual warfare with men soon gave the enemy the character of devils.

The wild freedom of the race during its tribal stages of development, the bloody conflicts of the chase, the reactions of the dreary desert in summer and of snowstorm in winter, all intensified the instincts of the people, and added to the

Ferocity of the Medo-Persian soldiery.



MEDIAN SOLDIERS.—Gravure by Bazin, after a photograph of the bas-relief of Chapour.

of the Medo-Persian power was deduced from an inherent intellectual and moral quality of the race. It had been a cruel and vindictive race from the time of its separation from the Indie family and the establishment of the principle of dualism in the national belief. As soon as the Old Iranian priests had developed the evil hierarchy of Ahriman and his bad angels, the people came to regard themselves as in a constant conflict with the adverse powers of earth and heaven. To put down these terrestrial and celes-

vindictive malevolence of their character. The ferocity of the Median soldiers became proverbial in all nations where their name was known, and as late as the time of Augustus, Horace, in his *Secular Hymn*, could find no stronger historical reference in illustration of the power of the empire than to cite the subjection of Iran :

“Now by the sea, and on the land, *the Mede*  
Fears the strong squadrons and the ax of Rome!”

While this civil evolution from the primitive tribal condition of the Old Ira-

nians into a despotic monarchy had been in progress, a counterchange was occurring in the religion of the race. It was a change to a lower and idolatrous level.

It is easy to note the process by which the high concept of Ahura-Mazdâo and his court of hierarchs was brought down again to a coincidence with material objects. The first and greatest of these was the sun. It may be frankly confessed that sun worship is the highest and most rational form of idolatry. Even modern science has verified that conception of the ancients which made the sun the lord of day and the origin of life. As the dominant object of the material universe, he has naturally attracted the wonder, the awe, and the reverence of all primitive peoples.

In a country such as Iran the ascendancy of the orb of day would be especially striking. The Zoroastrian idea that Ahura-Mazdâo was the living one, and that his prime angel, Sraosha, was the lord of light, brought both con-

cepts into close affinity with the sun as the king of physical nature. His warmth and radiance were qualities most sensible and grateful to the bodies of men, and it was easy to ascribe to him the attributes of a godhead. The Old Ira-



PERSO-MOHAMMEDAN TYPES—ARAB CHIEF IN THE HOUSE OF A SHEIK.  
Drawn by E. Renjat, after a photograph by Madame Dieulafoy.

nian beliefs took this course, and the next descent brought in the element of *fire*. It was a symbol and analogue of the sun. It was the sun localized on the hearthstone and the altar. One

may easily perceive the whole course of degeneration from Sraosha to the flame of fire.

By the time of the Medo-Persian ascendancy under the Achæmænian kings, the transformation from original Zoroastrianism to fire worship was complete. The great Persian armies which were led by Darius and Xerxes to the West, except in so far as they had gathered out of the satrapies on the hither side of Mesopotamia, were all worshipers of fire. The religious ceremonial of the Persians had taken that fixed form which it has maintained to the present day. The Parsee altars on the hilltops of Fars and Yezd, and the smoking summits seen here and there in Bombay, are at once the remnants and illustrations of the striking but idolatrous ceremonial which was already established when the Medo-Persian race was dominant throughout Western Asia.

It is the purpose of the present book, devoted to the subject of ethnic charac-

ter, to note not only the peculiarities and race distinctions of the ancient peoples, but also to delineate the character and peculiarities of their descendants. The Ancient Iranian character survives in descending races. Old Iranians have their representatives in the races distributed between the Caspian and the Indus. If we glance over the whole field we shall find that the Western peoples of this group have best preserved the lineaments of the ancient stock, while those of the East, next to India, are graded off into the Oriental type. This is true not only of physical, but also of mental and moral characteristics. The Iranian peoples next to Hindustan pass almost imperceptibly into the character of the Indian races. The religious propagandism of Islam has carried the faith of the Prophet and the institutions of his followers into these regions as well as into India, and the result is manifest in the establishment of common customs and in a modification of the old national character.

## CHAPTER XXXVI.—ETHNIC DIVISIONS AND CHARACTERISTICS.



If we enter the west of what was ancient Iran and begin an examination of the present representatives of the primitive stock, we shall find first of all the Armenians. The central locus of this race is now found in Astrakhan, that portion of European Russia next the Caspian. Even in this region the ancient Iranian blood has been considerably deteriorated with Semitic and Turani-

The language and literature known as Haikanic.

an admixture. The language, called the *Haikanic*, from Haiks, the name of the Armenians in the vernacular, has been developed into an independent tongue, strictly Iranian in its origin and in most of its characteristics. A literature of some merit has sprung up, even in the absence of national unity. The ancient writings have been edited and translated into the vernacular, and a considerable intellectual activity is otherwise shown by the people.

In their complexion and person the Armenians are not very different from

the peoples of Southern Europe. They have fair features, and are regarded as a handsome race. The hair is abundant in quantity, black in color, sometimes straight and sometimes curled. The forehead is low, but well shaped, the face oval, the eyes full of expression and prominent, the lips thick, resembling those of Afghans. What is called the expression of the Armenian face is divided between the features of Southern Europe and those of India. In stature, the people are rather above than below the average of mankind, are lithe in form and agile in action. The Armenians are taller than the Afghans and the Beluchs. Here we have again a grading down of the physical forces toward the east, the people of the Indian border being lower and less active than they of the west. The odd circumstance of large and clumsy feet must not be overlooked in noting the bodily peculiarities of the Armenians.

This people are peculiarly tenacious of ancient customs. They have preserved, even from remote antiquity, a considerable part of the social and religious life of the Old Iranians. Their laws are like the common law of the English-speaking race, derived from precedents of common life, reaching back to the times of tribal dispersion. The peculiar dress preserves many of the features which were peculiar to the age of the Persian ascendancy. As a general fact, the Iranians have always been disposed to wear a high dress for the head, a sort of tiara, of which illustrations may be seen in the everyday costume of the

Persians, both men and women, and of nearly all the peoples as far east as India. The outer garments of both men and women are loosely worn, and descend below the knee. The men have trousers, and are belted at the waist. On the whole, the effect of the costume

*մունքները կատարեն՝ որպէսզի իր աշակերտը ըլլան :*

*Կուն քեզի համար որոշելու ես, կամ ընդունիլ՝ և կամ ձգել. կամ Աստուած ընտրելու ես, և կամ սատանան : Կաղաչեմ որ ինքզինքդ բոլորովին աս գործին տաս, և ան ալ անմիջապէս, քանզի վաղը քու կդ չէ : Մի՛ ջանար կէս կէս քրիստոնեայ ըլլալու. քեզ կը վստահացնեմ թէ բնաւ ճշմարիտ խաղաղութիւն՝ հանգստութիւն և ուրախութիւն պիտի չը տեսնաս, թէ որ ուզես մէկ ձեռքովդ երկինքը բռնել և միւս ձեռքովդ աշխարհքը : Եւ մէն բան ձգէ, կորսնցուր քու կեանքդ որ նորէն գտնաս : Յետուն պէս ըսէ, «Իսցց ես՝ ու իմ տունս Ահոյան պիտի պաշտենք :» Ու եթէ աս ընտրութիւնը ընես՝ լերջին օրը դուն քեզի դէմ վկայ պիտի ըլլաս, թէ*

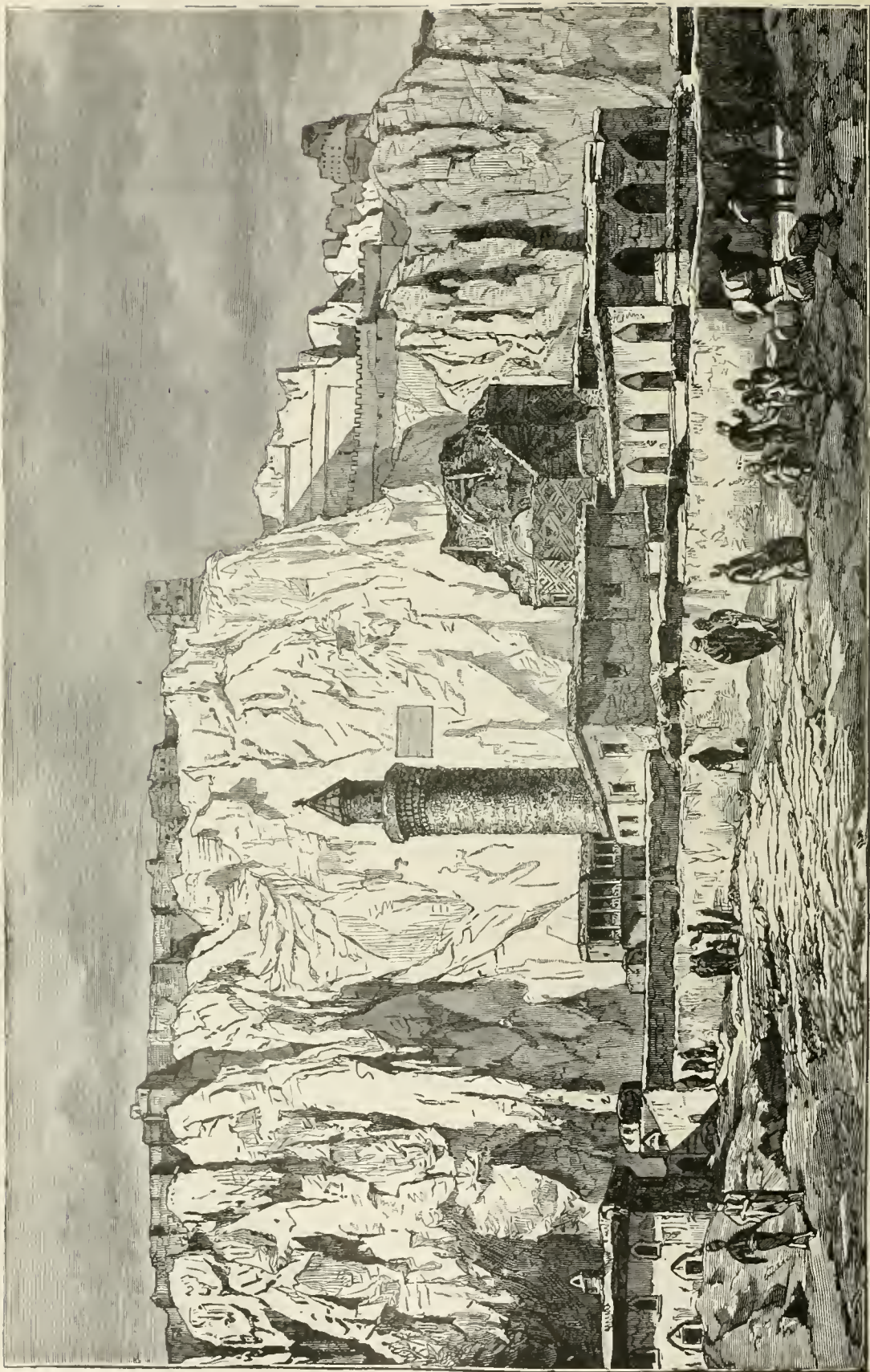
SPECIMEN PAGE FROM ARMENIAN BOOK.

is rather Oriental than suggestive of the apparel of Western peoples.

The Armenians are a shrewd and rather intellectual race. Intellectual qualities of the race; spirit of independence. Were it not for the effects of old traditions, religious and social, they would have the capacity of a good modern development. They are brave and adventurous, good soldiers, and especially noted for their ability in

Armenians preserve the semblance of Old Iranian life.

ular dress preserves many of the features which were peculiar to the age of the Persian ascendancy. As a general fact, the Iranians have always been disposed to wear a high dress for the head, a sort of tiara, of which illustrations may be seen in the everyday costume of the



SCENE IN ARMENIA.—Rock of VAN.—Drawn by Th. Devrolle, from nature.

the transaction of business. In general, they present what many ethnographers have chosen to call the Caucasian type of mankind at its best estate.

In common with the other peoples of Western Iran, the Armenians exhibit a

dividual in their character and as little subject to restraint as were their prehistoric ancestors.

For this reason it is somewhat difficult to generalize on the subject of manners and customs where the same are



ARMENIAN ARCHBISHOP—TYPE.—Drawn by Y. Pranshnikoff.

certain spirit of independence and love of liberty. They regard valor as the principal virtue of life. In the cities of Armenia society is well organized, but in the open regions, especially in those parts where the country becomes mountainous, the population consists of vigorous shepherd tribes, who are almost as in-

so variable in different districts, One thing may be noted with peculiar interest, and that is the complete change in the method of disposing of the dead.

Change in the method of disposing of the dead.

Zarathustra required that the bodies of the dead should be exposed on high, in a kind of tower or building erected for

that purpose, so that birds of prey might gradually devour them. It was conceived that this, of all possible methods, was least likely to contaminate the elements. It was held that earth burial would pollute the ground. To submerge the body in rivers would defile the water, and to consume them by fire

the old method as no longer practicable. If they are Mohammedans, they employ the plan in vogue among the followers of the Prophet; if Christians, they adopt the Christian manner. In either case the burial is in the earth. There is generally something of Oriental fantasy attending the circumstance of death, something of Semitic clamor, and also traces of aboriginal superstitions. In October the Armenians have a festival, which they call the Feast of the Dead. On such occasions the cemetery is lighted with fires, kindled here and there. Tapers are set on the graves, and the women abandon themselves to weeping and wailing.

Mohammedan and Christian usage has supervened.

Over the Armenian graves tombstones, on which are cut the effigies of rams, horses, or lions, are set up, a custom as ancient in its origin as the tribal dispersion of the Iranian race. It is evident that such sepulchral imagery preserves the primitive belief in sacred animals and their guardianship over men. One of the earliest superstitions of the human race was that of the power of certain animals to intercede with the gods. We shall see that in Egypt, and even among the Greeks and Romans, there was a prevalent sus-

picion that the ram was an efficacious mediator between the deities and human kind.

Character and sense of grave-stone effigies.

The ancient nomadic life of Iran is best preserved by the Lures, another branch of the race, having its central locus in Luristan, but spreading therefrom northward and northeastward, through

Certain Persic types represent the ancient race.



ARMENIAN FAMILY—TYPES.

Drawn by A. Sirouy, after a photograph by Madame Dieulafoy.

would poison the air, and even heaven. The Zoroastrian plan, finding as it does a strange reflection in the method adopted by some of the American Indians, was thus produced as a means of preserving the purity of the elements against the noxious influence of dead bodies.

The modern Iranians have given up



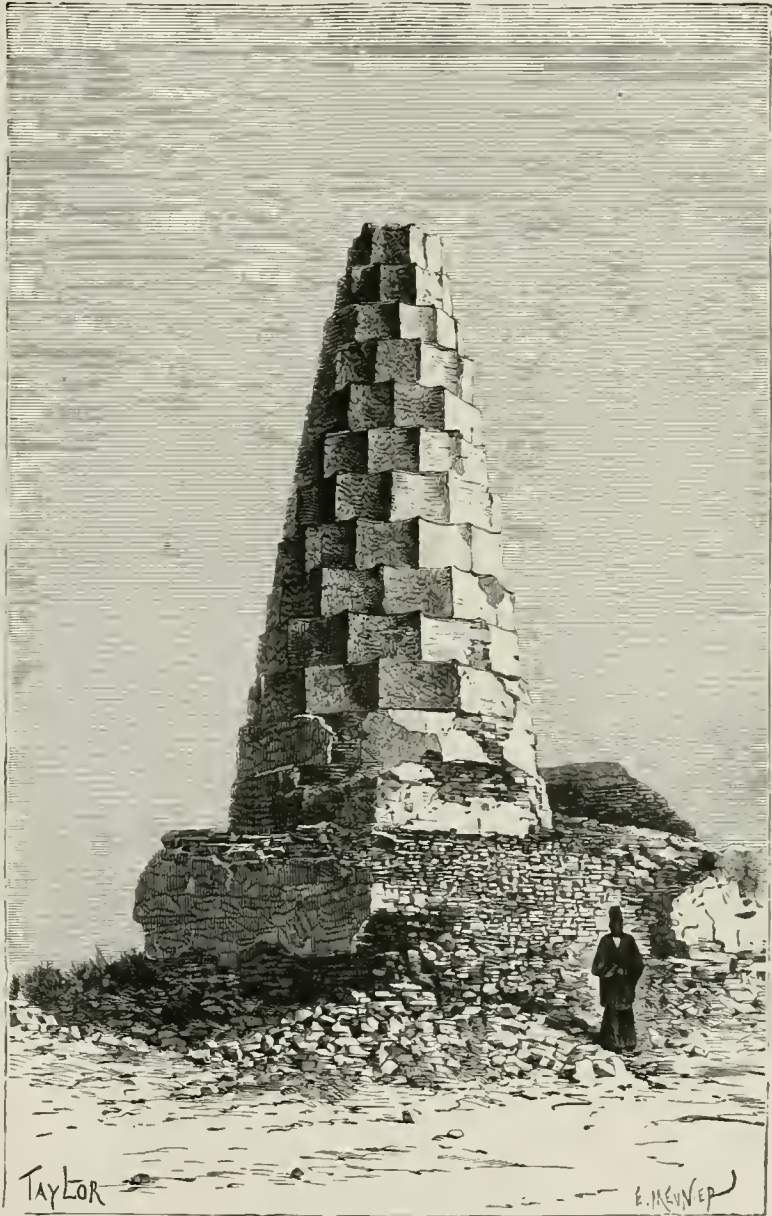
modern Persia as far as the Caspian, and into the province of Mazanderan. These people are in many respects like the rude classes of the Armenians,

and settle into fixed pursuits; but such is not the case. Wandering tribes still possess the country, dwelling in tents, owing allegiance only to their own

but are still more nearly allied with the inhabitants of Kurdistan on the west. With the latter people the Lures have many things in common, not the least of which is the thieving disposition for which the Kurds are proverbial among all peoples. It is noticeable that among the Lures many ancient customs of the Iranians are preserved, and this in despite of their conversion to Mohammedanism. One tribe, called the Guranes, are associated with the Dushik Kurds as a sort of peasant caste distributed among them. On the western coast of the Caspian sea another group of the same people, called the Tats, are found. Indeed, the Lures are scattered through the whole of Northwestern Persia, as that empire is now constituted, and far out into Kurdistan, to lake Van and the upper valley of the Tigris.

One might well suppose, glancing at the fruitful and luxurious valleys of Luristan, that any people long dwelling there would abandon the nomadic life

chiefs, and engaged in almost constant warfare. Of these, the most conspicuous example is the ferocious Bakhtiari, whose name is proverbial in Western Asia. The only town of any im-



TOMB ON THE BORDER OF KAROUN.

Drawn by Taylor, after a photograph by Madame Dieulafoy.

portance within the limits of Luristan is Khorramabad, which is said to contain a thousand huts. The place is rudely fortified, and possesses the palace of the chieftain of the Lures.

Prevalence of the wandering life in Luristan.

The next great division of the Iranic

sivan, or Persians. They are the most widely distributed of any of the existing Iranic families. They are even dispersed into districts far beyond the limits of their own countries. Their language is Persian, and is the best representative, or rather lineal descendant, of



MOURNERS WAILING.—Drawn by Y. Prani-hnikoff, after a sketch of Madame Carla Serena.

race, distributed eastward of the Lures and the other western Persian tribes, includes the Tajiks. These people are spread from Kabul northward to Badakhshan, to the table-land of Pameer, and into Bokhara, in Central Turkistan. On the east they lie against the Afghans and Beluchs. Westward, they spread into all Central Persia, and are called Par-

Place and character of the Tajiks, or Parsivan.

the ancient Iranian speech. By them also was preserved, until the conquest of the country by the Mohammedans, the deteriorated or fire-worship aspect of the old Zoroastrian faith. After the conquest they became Mohammedans, the old religion being preserved only by the Guebers.

In stature, person, and complexion the Tajiks are intermediate between the

Armenians and the Kurds on the one hand, and the Afghans on the other.

Stature and ethnic characteristics of this people.

They are not so tall or agile as the one, and not so dark-skinned and Oriental as the other. They are comparatively small in person, but heavy in build. The limbs, and especially the feet, are large, and the face broad. The features,

rior in appearance to the intermediate race.

But the Tajiks, perhaps best of all, preserve to modern times the general character of the ancient Iranian race. The Armenians compete with them in this respect. The old customs and manners of Iran have come down by way of

They present strongly the Old Iranian traits.



BAKHTIYARI TYPES.—Drawn by G. Vuillier, from a photograph.

however, are good, if we except the mouth, which is large and coarse. The type is not by any means so favorable in the judgment of Western peoples as that of the nations of the Caucasus. Even the Kurds are larger and handsomer than the Tajiks, and some ethnographers pronounce the Afghans, who are not infrequently of good stature, to be supe-

the Tajiks and Kurds of Persia, and represent to the modern inquirer a tolerably authentic transcript of antiquity. It is quite likely that many features of the costume of the modern Persians, such as the old tiara, or high cap, which was worn by the subjects of Cyrus the Great, are more faithfully preserved in the current styles than is the Persian character

and person upon which they are exhibited.

The cruelty and tyrannical disposition of the Medo-Persians in the times of the greatness of the race has already been referred to. Even this bad nature has suffered a terrible degeneration, and is more repulsive in the coarseness,

Cruelty and  
fierceness of the  
Persic stock.

to the trying exigencies through which the Iranian peoples have passed. The Mohammedan conquest was of itself a sufficient shock to destroy nationality; and the substitution of Islam for the Old Iranian faith aggravated the calamity.

The modern Persians may be ranked among the principal races of Asia. In Western Asia they compete with the



USBEK AND TADJIK TYPES.—Drawn by A. Ferdinandus.

treachery, and immorality of the modern Persian character than in its ancient aspect of fierce brutality. The race is avaricious and untruthful. There is little intellectual development; and if corruption of heart and life were the only term definitive of savagery, the whole race might well be dismissed as savages. Much of this degradation, however, must undoubtedly be attributed

Turks and Russians for the first place in ethnic importance. The race, however, lacks homogeneity. It is more mixed than either the Turkish or the Russian stock. In Central Persia the ancient race of Iranians is represented in tolerable purity in the descendent people. But all around the borders this is not true. On the west, and particularly the south-

Race character  
of the modern  
Persians.

west, there is a strong admixture of Turkish blood. On the north and northeast the Mongol stock of mankind has made itself felt and given a tinge to the race complexion; while on the side of Afghanistan and Beluchistan, Indian or Hindu characteristics are plainly discoverable.

The Persians at the present time num-

ber hardly fewer than four million. They constitute the great intermediate body of Persians, and are the element upon which the Shah's government most relies in the matter of the Persian army. The national forces, however, are recruited to an extent from the wilder tribesmen; while the official classes, commanders and the



KURD TYPES.—Drawn by F. Courboin, from a photograph.

ber approximately eight million. Of these nearly two million are townspeople. About an equal number are Iliyats, or nomads, of whom we shall presently speak. Between these two extremes of stationary citizens and wandering tribesmen there is a large intermediate class of villagers who are more sedentary than

Classes and conditions of the Persian population.

like, are derived from the townspeople or citizens who correspond to the aristocracy of Western Europe.

No class of the Persian population is of greater interest to the traveler and ethnographer than the Iliyats, or wandering herdsmen. Of these, the manner of life is pastoral rather than agricultural.

Ethnic place and manner of life of the Iliyats.



FALCONER OF THE SHEIK.—HINDU-PERSIAN TYPES AND COSTUMES.—Drawn by A. Sirouy, from a photograph by Madame Dieulafoy.

They are organized into tribes, of which the name is legion. Over each tribe is set a hereditary chieftain, who commands in war and peace. His authority is quite absolute. The manner of life has respect to a division of the country into pastoral districts. Each tribe has its own district, and the same may be said of the minor clans and families. Though all wander about with their flocks, obeying the suggestion of the season as to pasturage, the wandering is within the limits of the clan lands. Each tribe has its own section in the hill-country, and to this region it betakes itself with the coming of spring, and there the tents are pitched until with the advance of the season a removal to better grounds is necessary. But each tribe in its wanderings must confine itself to its own section.

The social and domestic life of the Persians has been derived from the institutional forms of Mohammedanism. Soon after the rise of Islam in Arabia and its spread into Syria the Crescent was carried victoriously into Persia. A religious conquest of the race was soon effected, and the faith of the Prophet was substituted for the former paganism. It was the incoming of a Semitic religion, and of the usages thereto belonging, into an Iranian, that is, and Aryan, country. The event was not unlike the previous conquest of Europe by Christianity. In either case we have an Aryan people accepting from Semitic prophets and their followers a new religious system.

Islam brought with it polygamy. We have hitherto remarked upon the fact that Persia is the line of ethnic breakage between the Orient and the West. By race the Persians were inclined to the usages of the Indo-European family of mankind. But by the religious con-

test they were led to adopt the theory of Mohammedanism. This brought, within certain limits, the system of multiple marriage. There is thus a counter force playing upon the domestic life of the race. Polygamy, though prevalent, has not been so universal as in Arabia, Egypt, and Turkey. The Persian family and household, however, are organized on much the same basis as in the countries just named. The domestic usages are largely of the Arabian and Egyptian type; but are in part determined by the ethnic instincts and Old Iranian biases of the race.

The Persian family is better in most of its features than that of the Turks. With an equal degree of culture and refinement the Character of the Persian family; the women. comparison would be still more favorable to the former people. In the homes of the better class of Persians there is elegance of manners, luxurious surroundings, and many forms of comfort. The children are reared at first by nurses, and are afterwards committed to the schools under charge of Mohammedan instructors. The women are in great measure secluded, and are partially veiled in public. Notwithstanding the serious and rather sinister expression of the Persian face, the countenance of the woman is often regular and beautiful. The artist in search of fine types of beauty and elegance, even after he has studied the faces of the women of Cashmere and Georgia, may well pause to admire the sweetness and warm expression of the Persian women.

Just as the social system of the Persians has been derived from Islam, so also the architecture of the Architecture of Persia derived from Mohammedan styles. country has been copied from the Mohammedan countries. The original type of this manner of building was arabesque; but

Social and domestic life derived from Mohammedanism.

Polygamy substituted for the ancient monogamy.



MUSSLMAN NURSES AND CHILD—TYPES AND COSTUMES.  
Drawn by Adrien Marie, from a photograph by Madame Dieulafoy.



this style has suffered considerable modification in the hands of Persian architects. In the building of mosques and tombs the Arabian manner has been well preserved. Indeed, the forms and ceremonial of Islam made this necessary. The minaret is everywhere a part of the Mohammedan church and religious establishment. If the circular domes are not also a necessary part, they are at least a part established by the usage of eleven centuries. These features of building assert themselves strongly in the major architecture of the Persians. Some of the finest edifices of this style are the tombs of the Persian great, seen in many cities and sacred places.

One of the most remarkable of these structures, typical of all, but

Tomb-building  
of the race; the  
burial tower.

preëminent by its vastness and elaboration, is the tomb of Iman

Mousa at Kazhemeine. This remarkable edifice is surrounded with buildings of stone or marble, but rises above them with its four minarets and two domes in a manner at once majestic and beautiful. Others of the Persian tombs, like that of Zobeide, are derived as to their style from the building of the ancient Iranians. That people, as the reader knows, invented the burial tower on the top of which the dead were exposed to be devoured by birds. This pagan form of disposing of dead bodies was Zoroastrian in its first intent, as it is Parsee in its last evolution. The form of the burial tower has been transmitted to Persian architecture, and though greatly modified in the hands of the builders of the last eight centuries, it still reappears in tombs. In such struc-

tures the ground plan is hexagonal. This form is carried up sloping slightly to a considerable height, and is then surmounted with a sharp pyramidal tower of stone shooting upwards much in the form of the ancient burial towers



YOUNG LADY OF ISPAHAN—TYPE.

Drawn by Adrien Marie, from a photograph by Madame Dieulafoy.

of the Zoroastrians. The materials of such building are cut stone and bricks.

The smaller architecture of the Persians has but little interest to the traveler.

The houses of the people are square in ground plan and have flat roofs. This

Aspect of Persian houses and towns; interior decorations.

gives to the structures the appearance of cubes. The materials are wood, brick,

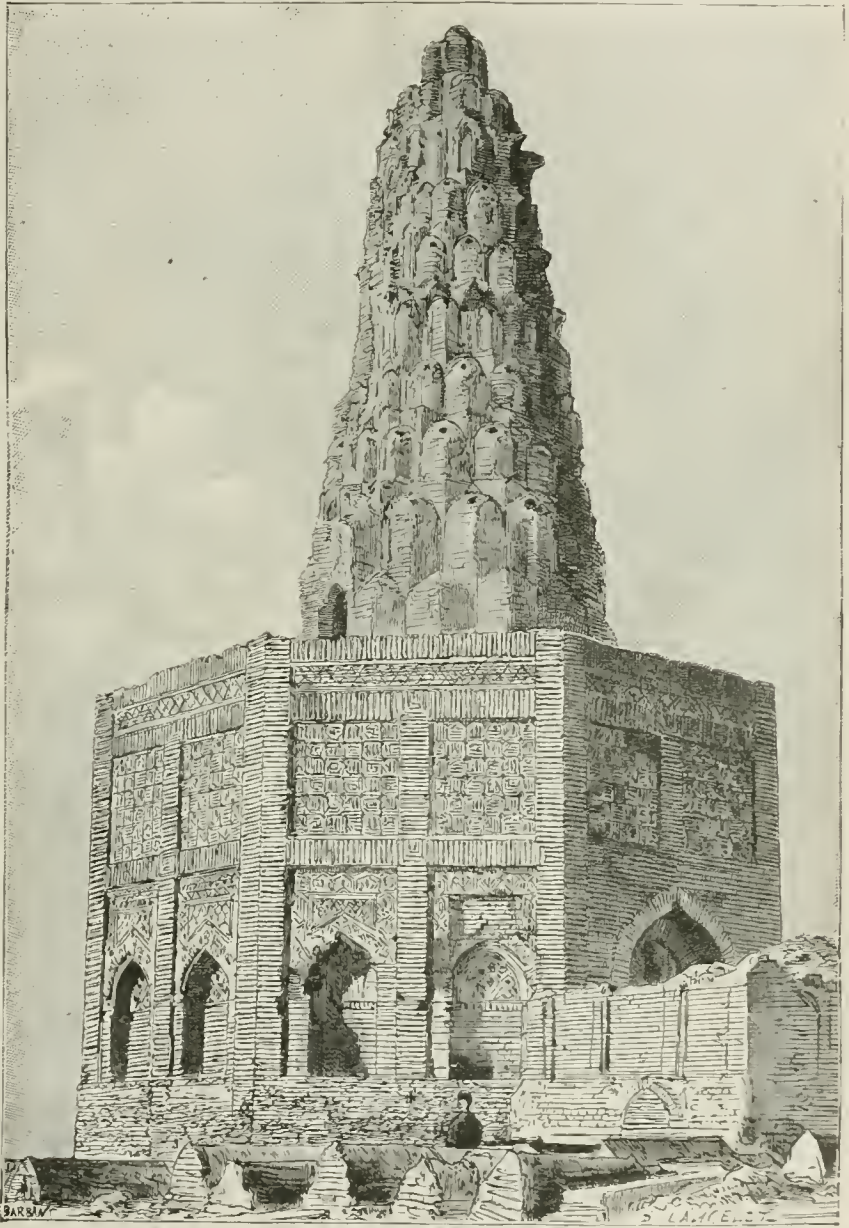


ARCHITECTURE OF THE PERSIANS.—TOMB OF IMAN MOUSA, AT KAZHEMEINE.—Drawn by Barclay, from a photograph.

and stone. White is preferred as the color of the exterior. The plan is uniformly followed, and the appearance of buildings is correspondingly monotonous. The Persian town or city is unattractive in itself, though the surroundings are beautiful. It is the custom to plant gardens and orchards around the towns in close setting against them. The abundance of rose trees and other flowering shrubs in the gardens and yards make the towns to appear embowered. Viewed from a distance the picture thus afforded is sometimes exquisite. But within the cities the illusion is dispelled. The streets are never improved. They are merely narrow roads of clay, and are always either dusty or muddy. They are too narrow as a rule to permit of the passage of wheeled vehicles, and are uneven for want of paving.

The disposition and tastes of the Persians, however, have compensated for the lack of beauty without by elaborate

and luxurious furnishings within. There is much that is Oriental in the interior decorations and arrangement of the houses. The tapestries are exquisite,



PERSIAN STRUCTURE.—TOMB OF ZOBEIDE.

Drawn by D. Lancelot, from a photograph by Madame Dieulafoy.

with sofas and ottomans on every hand. Especially on the women's side of the court is such richness displayed. The arrangement of the apartments betokens

ease, indolence, leisure, pride, and indulgence. These are the qualities of the race.

The character of the Persian language has already been indicated in the account of the parent Iranian speech from which

the ancient grammar and the substitution of prepositional forms. The new style of speech began with the national poet Firdusi, and has been perfected by the poets and romancers of the present century. The course of the language is in strict analogy with the movement by which Latin has become Portuguese and Anglo-Saxon been transformed into English. The Arabic literature has meanwhile performed for Persian almost the same office of refinement and foreign ornamentation as that of Norman French interfused with our own tongue.

The governmental system of the Persians is the result of an evolution extending Governmental system reaches back to classical ages. backwards to the classical ages. Persia has had a continuous civil history for at least twenty-three centuries. The administration has been many times transformed with the successive revolutions and changes of race in the country. Nearly always the government has been a despotism with few constitutional checks or limitations. This was true as far back as the ascendancy of the Achæmenian kings. The modern system was virtually instituted with the Mohammedan conquest of Persia in the eighth century.

At the head of the government stands the shah, who is at once emperor and vicegerent of the

الحکم خدایتعالی باری از بر نه تیار ساخته بر سر  
نیزه نهاد بعده هر کسی که از مار گزیدگان بر و نظر  
کرد زنده ماند \*

بیان مابونجی از توریث موسی بر آورده

شده است •

لیکن خداوند میفرماید که در حق خود بر آء نشان دادن  
بوده است سرین تقدیر لازم است که آسانیکه توریث  
را می خوانند و کلام خدا می انگارند و قبول می نمایند  
برین سخن خیال کنند که در توریث خبر خداوند  
عیسی مسیح است و توریث یک هزار و پانصد  
سال قبل از آمدن خداوند مرقوم گردیده بود \*  
چون عیسی مہودیان را فرمود که در توریث و  
زبور و دیگر کتب انبیا تلاش نمایند بنا بر اینک  
شما همگی گمان میکنید که در آن کتب جهت شما  
حیات ابدی است و آن هر کتاها برای من

SPECIMEN PAGE OF PERSIAN BOOK.

it is descended. The order of linguistic development has been from Sanskrit to Zend, from Zend to Old Persian, from Old Persian to the current speech. The common features and peculiarities of the Aryan tongues are seen in the decay of

Linguistic evolution; influence of Arabic.

Prophet. He occupies much the same relation to the people as does the sultan of the Turks to his subjects, but is less restricted by law and constitution.

Place of the shah; his absolutism.

He exercises the right of absolute government, and implicit obedience is ex-

acted so long as his rule and mandates do not conflict with the Koran and its interpretation.

Civilization has sufficiently advanced in Persia to compel some conformity of the political system to the usages of modern governments.

This has resulted in a ministry as a means of executive administration. The ministry, however, is almost wholly dependent upon the will of the shah. He removes and appoints the members of his council in a manner arbitrary and capricious. Some ministers easily obtain the royal favor and exercise great power in the state. Others have little influence, and are used by the stronger in the promotion of their own ends.

The departments of government have been organized with some show of regularity. There

Departments of administration; organization of the army.

is a ministry of war, and others of interior and finance, foreign affairs, justice, worship, and telegraphs. The

ministers are nobles of high rank, and are set around the throne in a way to add to its reputation and glory. Persia, however, has in her governmental system hardly entered into the family of civilized nations. The skill of the shah and his advisers in statecraft is very limited; and ignorance and passion hold sway in high places.

Under the imperial administration the army is organized and is fairly efficient.

It is recruited by conscription and poorly paid. One of the means adopted by the shah to obtain continuous and faithful service is to withhold the pay of the soldiers and to keep them long in arrears. The Persian army numbers over one



NASR ED DIN SHAH—ROYAL TYPE AND COSTUME.  
Drawn by H. Thiriat, from a photograph.

hundred thousand men, of whom about a half are infantry, one third cavalry, and the remainder artillery, etc. The system of revenue is tolerably well organized, and the credit of the government is sufficient to enable the shah and his ministers to make loans in the money markets of the world.



TYPES AND COSTUMES OF THE ZAGROS HIGHLANDS.—MITCHELD OF TAURIS AND HIS OFFICERS.—Drawn by Tofani

The manners and customs of the Persians have been derived in part from the Derivation of manners and customs; varying characteristics. ancient race character, and in part from the institutions and influences of Islam. From the latter source has been deduced the easy-going habit of the Persian in his intercourse and manner of life. In this respect he departs greatly from the habits of his kinsmen in Europe. Contrary to common report the Persians are affable and polite, at least such as are refined by the influences of cities and the scholastic pursuits. The different races inhabiting Persia present types quite diverse as it respects manners and usages. Those of the northern provinces and in the northwest, where the race spreads out to the Armenian highlands, are rougher and more uncouth in person and life, while they of the south and of the principal cities have been civilized into forms of ethnic life much more polite and attractive.

Slavery is a common form of Persian society, though the institution is not strictly based on either color or race. Slavery and the slave market among the Persians. The slaves vary greatly in complexion and belong to several races. Those imported from Abyssinia are of greatest value. Somaliland has contributed to the slave population, as has also the interior of Africa. The slave market is always open and the institution is quite universal, but is less barbarous than the corresponding forms of servitude in other countries. The slaves are regarded as a kind of protected class, and to this extent share the common treatment which is extended to children and domestic animals.

The costumes of the Persians are

picturesque and not unattractive—according to Eastern standards. Men wear a cotton garment fastened in front and falling below the heels. It fits loosely about the person, having wide sleeves and no collar. Several colors are used in dyeing such garments. Trousers are worn by the higher classes, especially by

Materials and styles of costume; rank indicated thereby.



FANATICAL TYPE AND COSTUME.—DERVISH OF THE TIGER-SKIN.

Drawn by A. Ferdinandus, from a photograph by Madame Dieulafoy.

the military orders, among whom Western fashions begin to prevail. The outside garment is a shawl, generally of some fine material like silk or satin. The length and quality of the garments, particularly of the cloak worn by nobles, indicates the rank of the wearer. Priests,

merchants, townspeople, storekeepers, and professional men are distinguished by the long cloak which generally falls to the heels. The costume of the shepherds and country people is more simple in structure and of cheaper materials. The custom of shaving the hair at the crown is common though not universal. The face, except in the case of ultra fashionable men, is unshorn, the beard being one of the distinguishing features of the race.

The costumes of the women are pretty, and are Oriental in their main features. The ladies of high rank wear shoes of colored leather, while the men, particularly the soldiers, are booted in the manner of Eastern Europe. Arms are permitted to the greater part of the population. The tribesmen of the open country generally go armed. Most of them carry what is called a kammah, or dirk, dangerous to the enemy. These knives the wearers are said to use in a hacking manner, not stabbing or thrusting as is the usage of those who kill in the West.

Painting the face is customary only on important occasions or with fashionable ladies. The cheeks are painted and the eyebrows improved according to the taste or whim of fashion. The type of beauty most admired is the circular countenance and complexion. The Persian women are much smaller than the men, and are noted for their tiny hands and feet.

Directly between Persia and India lie the Afghans. They call themselves in the vernacular, *Pukhtanah*, from Pukhtu, the native designation of the language. It is here that the Iranian race is graded off into India. The most southern

division of the Afghans included the Lohanis, who are distributed on the east of the Suleiman range, where they maintain a nomadic life in tribal separation. The Eastern Afghans are known by the name of Berduranis. They also have tribal divisions, and approximate the Indian character. Southward of Cabul live the West Afghans, divided into the two principal tribes of Ghilzaïs and Duranis, the latter occupying the south-western angle of Afghanistan.

In person, the Afghans are described as being of medium stature. They have short necks, making the head appear to rest upon the shoulders. Their complexion is dark, and the skin has that glossy, velvety character peculiar to the Black races. In the flat nose there is another hint of southern admixture. The lips are thick, and the line of the eyes horizontal.

Throughout the whole of Afghanistan there is a considerable element of foreign population, and the intermixture of this with the native blood has greatly modified the personal character of the race. The women have handsome features, suggesting the faces of Jewesses. They are much fairer than the men, sometimes rosy, though more usually pale. They wear the hair braided, plaited in two long tresses, with silken tassels at the ends. The influence of Mohammedanism has driven the women into seclusion, but intrigue and violence frequently prevail over superstition, and in parts of the country there is much license between the sexes.

The whole population of the country is divided into about a dozen tribal organizations. These conform to the clan in character. The Duranis and the Ghilzaïs have already been mentioned.

Apparel of women; arms and arm-bearing of the Persians.

Painting the face and the type of beauty.

Ethnic place and character of the Afghans.

General features of the race; foreign admixture.

Tribal divisions of the race and their manner of life.





HUZAREH TYPES.—AFRIOIS ATTACKING ENGLISH TROOPS.—Drawn by Emile Bayard.

The Yusufzaïs live in a hill tract north of Peshawer, where they maintain a semi-independence. They are regarded by the Afghan chiefs as among the most turbulent race with whom they have to deal. The Kakars, also in Southeastern

In several parts of Afghanistan wandering colonies of Persians known as Kizilbashis have settled.

They bear the character of Persianized Turks, and speak the Persian language. They are

*Distribution and character of the Huzareh.*

found chiefly in the towns, where they maintain themselves as merchants, physicians, and scribes. Many of them are enrolled in the Afghan cavalry and in the Indian regiments of the English army. The Huzareh dwell in the mountain country, in the northwest of Afghanistan, among the spurs of Hindu-Kush. Their dwellings are frequently found as much as ten thousand feet above the level of the sea. It is evident that the tribe has been infected with Mongolian influence. It is thought that Mongoloid tribes came from the East with Gen-



PERSIAN SCHOLAR—TYPE.—HAJI MIRZA-UGHAZZI.

Afghanistan, are comparatively independent. Their country is very difficult to explore, and but little is known of their manner of life.

ghis Khan and settled in this region.

The Huzareh are tributary to the Afghan princes, but they rarely pay their stipend except under compulsion

of arms. They are an exceedingly immoral people, having many of the vices

Their immorality; other tribes of East Iranians.

of ancient paganism. They

are, however, good soldiers when reduced to discipline, exhibiting the proverbial courage of mountaineers. Many of their manners remind the traveler of the ruder class of Swiss peasants. There is a Huzareh yodel sung by them, after the manner of the Swiss. Other tribes are called the Eimauk and the Hindkis. In the latter term it is easy to see the word Hindu concealed under a vernacular form. They represent certain immigrants from the East, who are scattered over Afghanistan, where they form in many villages and towns quite an important element in the population. They are bankers and traders in lands.

The language and literature of the Afghans have both been infected by many foreign influences. The Mohammedan conquest of the

Language of the Afghans; beginnings of literary development.

country greatly corrupted the tides of the old national

life, turning them into new channels. The admixture of alien elements among the people and their institutions has induced much uncertainty even as to the ethnic classification of the race; but the language is unmistakably Aryan, of the Indo-Persian branch. The vernacular speech, or Pukhtu, prevails everywhere except in Herat. There has been a considerable literary development in modern times. A history was composed by Shaikh Mali as early as the first quarter of the fifteenth century. Poetry has been cultivated by the Afghans. Khush-âl Khan, the chief of the Khattaks, was recognized as a bard as early as the reign of Arungzeebe. The foreign infection above referred to, and traced to the Mohammedans, is noticeable in the vernacular Afghan history, in which the

people are said to be *Bani-Israil*, that is, children of Israel. The tradition is so elaborated as to give a race descent from the Hebrew patriarchs. This fiction is intertwined with the oldest books of the Afghans, as far back as the sixteenth century. In one of the histories Afghanistan is said to have been settled by King Solomon himself, who gave his name to the Suleiman mountain!

The manners and customs of the Afghan race are in most respects in close analogy with those of Western Iran. They are the same with the Tajik customs and traditions, with such exceptions and modifications only as have been imported by foreign influence, particularly by the conquest of Islam and the intercommunication with India.

The next great branch of the modern Iranians includes the Beluchs, or native peoples of Beluchistan. Here again the language spoken, called in

the vernacular *Baluchkee*, indicates unmistakably

Place of the Beluchs; race infection on the side of India.

the common ethnic descent of these people with the Persians. Indeed, the dialect is so much like New Persian as to point to the fact of a very late separation of the Beluchs from the West Iranians. Here, as in Afghanistan, the people have been infected to a great degree in language and institutions by contact with India. Indeed, there is a dialect spoken by the Brahoes which is manifestly derived from the languages of the Punjab, and not from an Iranian source. All along the border there is a great admixture of the two races, and the prevalence of a common Mohammedanism has tended to a community of institutions and ethnic character.

In person, the Beluchs are of about the same stature with the Tajiks. Many of them are above the average height. The prevailing bodily form is lithe, and



*Emile Bayard*

NORTHERN BELUCHS—TYPES.—MOUNTAINEERS OF THE WESTERN HIMALAVAS.—Drawn by Emile Bayard, from a photograph.

not suggestive of great physical strength.

The people are inured to great and rapid changes of season and climate peculiar to the country, and are exposed by their out-of-door life to many hardships. They

Personal features and race traits of the Beluchs.

bear fatigue, and are capable of long marches and endurance of hunger. They are a brave and predatory race, restless, and addicted to war. The physiognomy is strongly marked, the complexion is almost as dark as that of the Hindus, the nose is broad and flat, the forehead low. The hair and beard are abundant and coarse; the hands and feet, large and heavy, in which feature they are strongly discriminated from the Aryans of India, whose extremities are fine, even to delicacy.

The Beluchs have preserved in their character, and even cultivated, the element of cruelty and barbarous outrage which we have noted as peculiar to the Old Iranians. Their social life is marked

with many strange customs. They regard hospitality as the prime virtue. A stranger calling at their huts is sure to be entertained as a guest, fed and lodged with all the care which the family

are able to afford; but no sooner has he left the protection afforded by this traditional fiction of the East than he is attacked and robbed, or even murdered.

In all industrial pursuits the Beluchs are indolent and unenterprising, but no



WOMEN OF CHIRAZ—TYPES AND COSTUMES.

Drawn by Adrien Marie, from a photograph by Madame Dieulafoy.

sooner is war announced than all the latent energies of the race are excited to fierce action. In times of peace they are dissipated, giving their whole time to gambling, smoking tobacco or Indian hemp-seed, and chewing opium. The in-

Social customs; industrial pursuits and dissipation.

terdict of Islam keeps them from the use of spirituous liquors. They are voracious in appetite, devouring immense quantities of flesh, half raw, and filling themselves with other crude articles of food. They season their victuals with capsicum, onions, garlic, and other strong and stimulating flavors, until one unaccustomed to such fiery condiments could in no wise swallow the burning mass.

a method derived from the Levitical law, as modified by the practice of Islam. The old Hebrew usage which required the widow to be taken to wife by the surviving brother is repeated in the Beluch custom. The funeral ceremony demands a watch over the dead body for three successive nights, during which the kinsfolk and friends of the deceased spend their time in revel and feasting.



DOMESTIC MANNERS OF THE BELUCHS.—INTERIOR OF TENT.—Drawn by Emile Bayard, after Vambery.

Mohammedanism has gradually encroached upon the old instincts of the Iranian race. Slavery is universal, each petty chief having as large a retinue as possible. Polygamy prevails. Even the hill peasant will have as many as eight or ten wives, and the number is increased with the ascending rank of the man. Young women are obtained by paying cattle or sheep or goats to the father. The marriage is performed after

Slavery and the slave trade; marriage and ceremonies.

The dress of the Beluchs is similar to the Tajik costume already described. They wear for under-garment a shirt, generally of blue or white calico, buttoned at the neck and reaching below the knee. They have wide trousers, which are open at the ankle. The head-dress consists of a turban, which is generally a high silk or cotton cap, quilted and fitted to the head. The chiefs and their relatives wear white

Dress of the Beluchs; the peasant garb.

tunics of chintz, which are lined and padded with cotton. The peasants depend for warmth upon a surtout, in which they envelop themselves. The cloth is manufactured coarsely from a mixture of the hair of goats and the wool of sheep. The dress of women is little discriminated from that of men. The trousers of the former are very wide, almost like a skirt around each limb, and are made either of silk or of a mixture of that substance with cotton. The Brahoes, or Hindu Beluchs, have a costume very similar to that of the Beluchs, but of a poorer quality of material and simpler in fabrication.

Within the broad region inhabited by the modern Iranians many subordinate races are found, each with its local peculiarities of character and development. In the far west, high up in the passes of the Caucasus, are found the Ossetes, who call themselves *Iron*, that is, Iranians. They are so strongly discriminated in personal character from their neighbors and from all other of the peoples of the plateau as to suggest a foreign race descent; but their language is Iranian, and they are evidently of the same stock with the other Armenians, the Tajiks, and the Kurds. In stature they are below the average, but are very thickset and strong. The hair is either blonde or red, and the complexion is as fair as that of the Germans. In religious faith and practice the Ossetes are associated with the Armenians, and their habits of life are similar to those of the peasant class of that people. They are mountaineers, and, like all races in such situations, have a less compact social development than do the races of the lowlands and plains.

We may now glance for a moment at the geographical region over which the

Iranic Aryans are distributed in their modern estate. A line drawn from the northwestern extremity of the Persian gulf into Syria, and thence to the Black sea, would mark the western limits of the dispersion. On the north, the range of the Caucasus, the Caspian, the northern boundary of Turkistan, and a line drawn from the Middle Oxus to lake Balkash, are the boundary. On the east, the general limit is the Indus, from its head-waters to the mouth; and on the south, the Indian ocean and the Persian gulf.

The great countries within these limits are Persia, Turkistan, Afghanistan, and Beluchistan. The races inhabiting these are independent in development and political form, but are all primarily peoples of a common origin. Around the borders, especially on the east, the admixture of foreign elements has been so considerable as to modify, and in some parts reverse, the original ethnic character. The largest foreign force which the Iranians of all these regions have suffered and the greatest modification in their national aspects have been produced by the impact of Moham-medanism. By this agency a great part of the original traditions and ceremonies of the Iranians, especially in Beluchistan, have been supplanted with Semitic institutional forms of a totally different nature.

Into some districts of ancient Iran the lines of the primitive migration have carried the Brown, even the Black, races of antiquity, as in the case of the Brahoes in Northeastern Beluchistan, around Kelat, who are a people of Dravidian descent. All of these elements have left an ethnic detritus in the countries

Geographical regions occupied by Iranian Aryans.

Character and ethnic place of the Ossetes.

Principal countries; modifying influence of Islam.

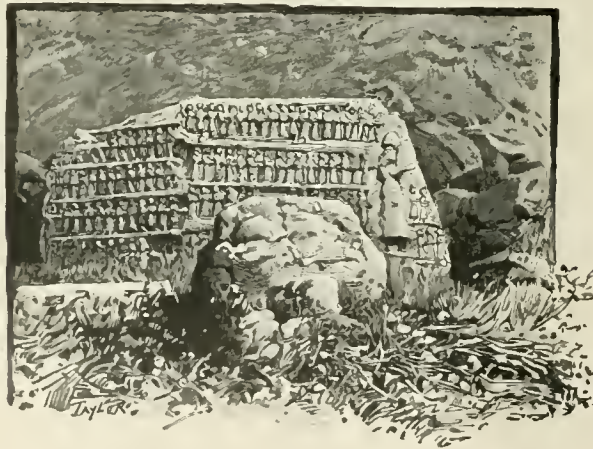
Black and Brown admixture with the Iranians.

over which they have passed, and these elements have been absorbed by the Iranians, with a consequent change in personal character and tribal development.

After the Tajiks, who are the most widely distributed of the modern Iranians, the Afghans are next in breadth of dispersion and in numbers. They are estimated at about four million nine hundred thousand souls. This includes the inhabitants of Turkistan and of several adjacent provinces, who have a common ethnic character. The Beluchs number about half a million. They, most of all, have suffered from the in-

termixture of foreign races, and are most conformed to the character of the peoples of Hindustan.

Here, then, we shall conclude this cursory outline of the race which contends with the Indic Aryans for the rank of eldest among our ancestral Asiatic household. We have endeavored in the current chapter to revive, as far as possible, an image of the Iranians in the garb of their ancient life and in process of prehistoric evolution. From this we have proceeded to the consideration of those modern peoples who best represent the primitive stock. We shall now pass to their kinsmen in the valley of the Indus.

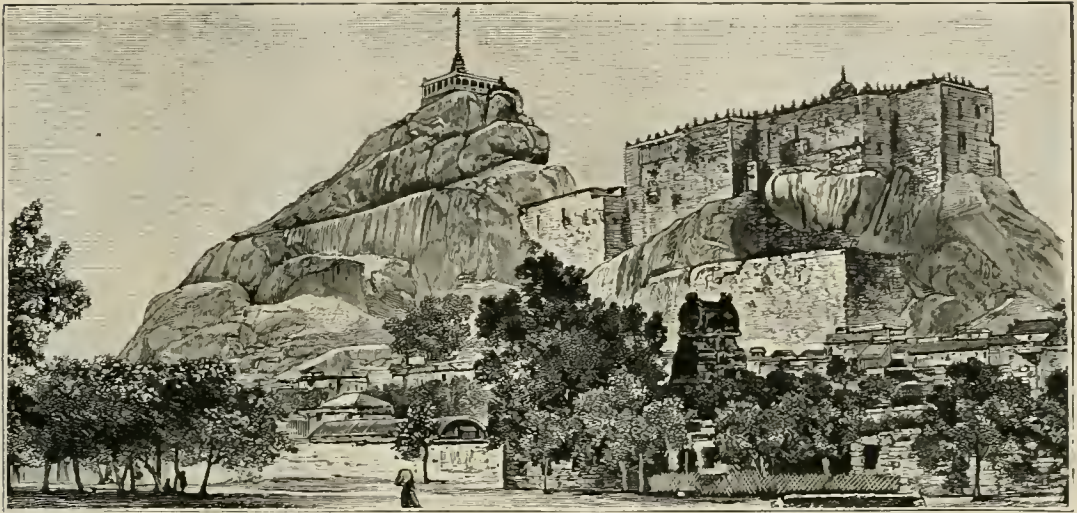






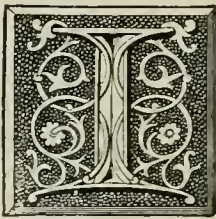


EAST ARYAN ART WORK. Indican Designs.



## BOOK VI.—THE INDICANS.

### CHAPTER XXXVII.—HOUSE PEOPLE OF ARYA.



It is our purpose in the current chapter to present as much as may be gathered relative to one of the most interesting types in primitive civilization. This is the method of life, the structure of the household, the form of domestic and social economy adopted by the primitive Aryans of India. Since the building of a house for an abode, and the dwelling

Reason for the caption "House People of Arya."

together therein of one man and one woman with their children in the method of that persistent and glorious fact called the family, constitute the leading feature, the form and substance, of the life of this far-off division of our own race, the caption employed for the present chapter will be the "House People of Arya."

Before entering upon the formal elucidation of the social life of this people, it is desirable to note the features of the country in which the great structure of

Indian civilization was planned and developed. We must not depreciate the influence of physical nature upon man and his institutions. On the contrary, it is frankly conceded that the reactionary effect of universal nature on the senses and intellections, and even on the emotions and passions of mankind, is one of the greatest elements in determining the course and character of human development.

Reactions of nature on man and his institutions.

The country in which the house builders of ancient Arya were destined, most of all, to display their native dispositions and acquired activities, may well serve as an illustration of the potency, not to say domination, of nature over man.

The name INDIA is of recent origin. If we consult the native tongues of the East, we shall find no single word sufficiently comprehensive to define the

Derivation and sense of the name India.

country which we are now to consider. The name which in Sanskrit would most nearly describe the vast region which

the modern nations call India, would be *Bhārata-varsha*, signifying the land, or kingdom, of Bhārata. The latter is the name of a legendary monarch of the Lunar dynasty, whose dominion, according to the Indic mythology and tradition, was perhaps as wide as the aggre-

of the Sanskrit *Sindhu*, or *Hindu*, meaning rivers; and this is the fundamental sense of the nomenclature. "Rivers" was the name which the primitive Aryan folk, coming into the upper valley from the table-lands of Iran and through the gateways of the Hindu-Kush, first



VIEW IN SAPTA SINDHU.—THE MOUNCHI-BAGH.—Drawn by G. Vuillier, from a photograph.

gate of countries now called by the general name of India.

The name Hindustan has been frequently used by geographers to designate a region much broader than the limited country lying north of the Vindhya mountains; but such usage is no longer warranted. The name India is the smoothed and melodized Greek form

The Sapta Sindhu of the Old Indicans.

gave to the country now known by the designation of Punjab, or Five Rivers. It is thought, however, that the very oldest designation given by the immigrating tribes to this region was Sapta Sindhu, or Seven Rivers, the two streams additional to the five of the Punjab being the Indus on the one side and the Saraswati on the other. At any rate, it was into this country of many rivers—so

many that they constituted the leading geographical feature, and impressed themselves first of all upon the imagination of the new folk from the north-west—that the Old Aryans came from their native seats at a time far more remote than we are able to measure by any existing system of chronology.

These tribal immigrants came ultimately, as we shall see in another part of this work, out of ancient Bactria. For a long time after their departure from their primitive seats they maintained a nomadic, or rather a sort of pastoral, life on the broad plateaus of Iran. Perhaps the extent of their wanderings in this region will never be ascertained; but in process of time, as they made their way further and further to the east and south, they descended into the valley lands of the Upper Indus, and thence made their way down the Sapta Sindhu until the whole region between the Punjab and the sea was dominated by their influence.

Great were the climatic and other changes which they experienced in this migration; and it is easy to discover, by an examination of the ancient Indic and Persic mythologies and by a comparison of the one with the other, to how great an extent the mythology and tradition of the migratory Aryans was modified by their *débouchure* into the valleys of the east. The somewhat austere and simple ideas of Zoroastrianism immediately broke out into an inflected mythology, almost as variable in its forms and development as that of Greece; and this, no doubt, is traceable to the multifarious aspects and phenomena of nature as she exhibited herself in India, in contrast with her half-desert singularity on the Iranian table-lands and deserts.

India is a country very variable in its climatic conditions. The sky is broad and open, flecked with clouds, and invaded at intervals by storms. The heavens by night are, at least in the uplands, almost as blue and starry as those of Mesopotamia. The rainfall varies with the season and the district, being less than thirty inches in some of the drier parts, and much more than sixty inches in the lowlands near the sea. But first of all, something should be said of the general relations and geographical features of the vast region stretching from the borders of Afghanistan to the dependent mountain spurs which divide Assam from Burmah.

The extreme breadth of the country called India is about twelve hundred miles, and its extent from north to south fully fifteen hundred miles. India is the central of the three great peninsulas which drop from the backbone of Asia into the southern ocean. It is the Italy of Asia, but an Italy on a vaster and grander scale than that which depends from the Central Alps into the Mediterranean. The general shape of the Indian peninsula is a triangle, having its base set firmly against the tremendous buttresses of the Himalayas, and its apex extending far into the warm waters of the tropics. The southern point of the country reaches to the eighth parallel of north latitude; and its northern limit lies under parallel thirty-five. Within these vast boundaries there are three distinct geographical areas. First, the great uplifted mountain region, from the double ridges of the Himalayan summits to the hill-country at their foot. Second, the great river plains, embracing the larger part of the country, and bearing through various channels the streams of

Variability of climatic conditions in India.

Origin and wanderings of the Indican immigrants.

Extent and physical features of the country.

Aryan mythology modified by the new environment.

the Punjab, of the Brahmaputra valley, and of the valley of the Ganges. Third, a peculiar, triangular table-land, called the Deccan, rising from the river plains just mentioned, and held in place between the Narbada and the Kistna rivers and the range of the Vindhya on the north.

It is not needed in a history of man to enter into the minute details of geography; but the general features of the country are of prime importance to the understanding of human development. It is necessary here to note, first of all, the inaccessible barrier of the Himalayas, shutting off India from connection with the rest of Asia. The average height of these mountains is at least nineteen thousand feet, and they have few gateways by which the country lying to the south may be approached. It is believed that the Indic Aryans came, in part at least, through these mountain fastnesses when they first reached the region of their future abode and development. If so, however, the migration must have been one of excessive toil and danger, and, the river valleys having once been reached, the mountain gates behind would seem to close, never to be reopened.

Thus we find that the Old Aryans of the East, having completed their migration, found themselves isolated from the rest of mankind and placed in a region well suited for race development. It is not needed, in this connection, to dwell upon the fact that these people were the last of the tribes to leave their old Bactrian abode, and that they had less of the migratory or roving disposition than any of their kinsfolk who removed from the same region, at earlier dates, into the plateau of Iran or the far European islands and peninsulas of the West.

The instinct of remaining—what the philosophers would call the *animus manendi*—was thus stronger with the Indic Aryans than with any other branch of the great family to which they belonged. They were more localized in their dispositions, and less adventurous than the kinspeople with whom they had been associated from the beginning. They now found themselves in beautiful river valleys and fertile uplands backed by mountains, well suited to promote the growth and expansion of those qualities which race instinct and innate preference had given them. They were alone among the peoples at a date much more than two thousand years before the Christian era. All the circumstances of their situation tended powerfully to develop a type of life peculiar in every feature.

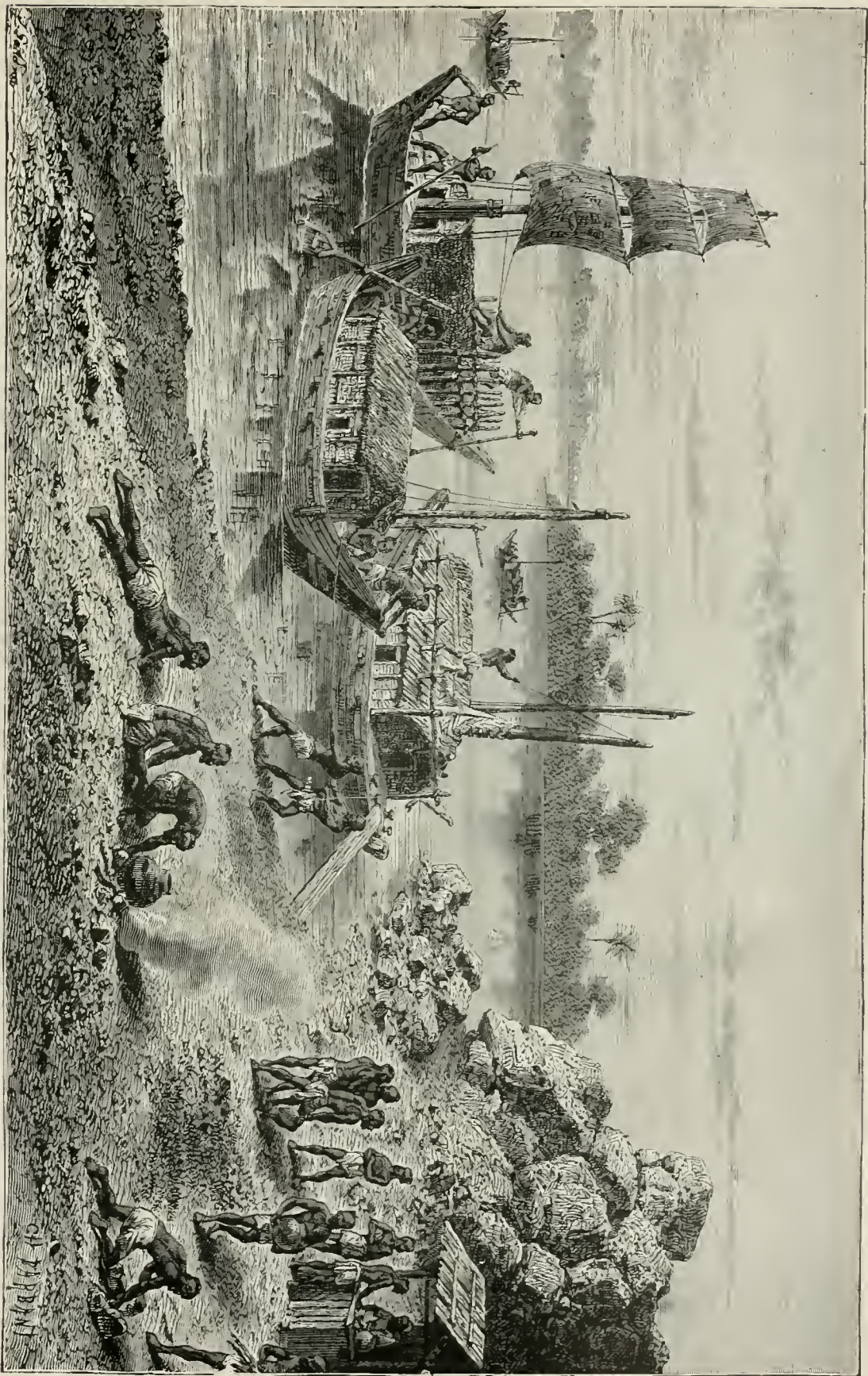
The Indicans become more localized than others.

It is not intended in this place to sketch the character of the Indic mind and philosophy, except in so far as the same may have appeared in its most rudimentary stages. The present chapter is devoted to the primitive condition of the race as it is revealed to us in its earliest aspects and conditions. Let us, then, proceed to note as much as may be authentically gathered of the primitive condition of these old peoples of the Indian valleys.

On their reaching the regions which they were to inhabit, the Aryan folk from the northwest found already in the country an aboriginal people which they had to crowd out of their way. It is not known by how much aggression and force these aborigines were driven from their seats. Nor can it be well ascertained to what extent the future race was modified by the absorption of the primitive tribes of the country.

The immigrant Aryans find aborigines in the country.

Circumstances tending to isolate the Indic race.



IN THE VALLEY OF THE GANGES.—RIVER AND BOAT SCENE.—Drawn by T. Galdrau, from nature.

Those who have investigated the subject most closely differ in their estimates of the extent to which the future people of India were influenced in their blood and character by contact with the old tribes whom they overcame and dispossessed of their native seats. Perhaps the best judgment is that which assigns but a small modification on account of the absorption of characteristics from the primitive races. The situation, doubtless, was not very different, in some respects, from that which another Aryan people, after nearly four thousand years, discovered by their impact on the aboriginal races of the New World. The great adventurers from Western Europe, precipitating themselves upon the eastern coasts of North America, settling there and planting a new civilization, were not greatly modified, either at the beginning or at any subsequent period, by their contact with the Red men whom they displaced from the country. In some other regions conquest has given a different result. The Latin races, victorious over the provincial peoples who held Europe in the time of the Roman ascendancy, assimilated freely with those whom they conquered and subdued. As already indicated, it is not now possible to determine with exactitude how much of the original human life of India was absorbed into the new Aryan life which came by migration and conquest.

The caption of the present chapter has already hinted at what may be regarded as the primary characteristic of the primitive Aryans of India. They were *the builders of houses*, the makers of homes, the organizers of families. This is the distinctive feature of that primitive life which we see afar in the valleys of the East, and also of the semitribal

House-building instincts of the East Aryans.

life which we behold in process of evolution among the early Medes and Persians, the Greeks, the Italic races, and even the Teutonic tribes of the north. They were all makers of houses—houses above ground, built from the material furnished by nature, and constructed with special reference to the permanent abode and comfort of a single household.

It may well surprise us to reflect that the primitive houses of the Indian valley, built by a branch of our ancestral races long before Sanskrit was Sanskrit or Greek was Greek, had the same general form and substance and design as the houses built by the wanderers and pioneers of the New World in the seventeenth century of our era. There has always been a close sympathy between the man of Arya and the tree. He has always looked upon the tree as his friend. He has seen in it the possibility of protection and comfort and plenty. He has used it as the auxiliary of his development. Already, on his entrance into the Indian valleys, he knew how to create a house, to frame a structure out of the trunks of trees. The Old Medes had learned this lesson on the great plateau, and it is not a little instructive to note the fact that antiquarian research has not until the present day discovered a single Median structure left to us in ruin or tradition which was not made of wood.

Stone buildings and buildings of bricks were things somewhat repugnant to the first instincts of the Eastern Aryan races. These forms of structure came only by development and discipline, and belong to the æsthetic periods of national life. To fell the tree, to cut and square the trunk, to put it in place in

Sympathy of Aryans with the tree; skill in wood structure.

Name of the house, and ideas associated therewith.



four solid walls, and put a roof over the space for an abode, was the fundamental idea with the Aryan peoples. He called it his *house*, a word which is common to every branch of the great Aryan speech, from the oldest to the youngest. Nor are we able to discover a period of tribal life so remote that the house was not the tangible evidence and bottom fact. Of the exact forms which the structure assumed, we have no precise information; but the general nature of the primitive abodes of our own race, as distinguished from those of the Semites and Turanians, was as defined above, and its purpose was to constitute a fixed home for a man and a woman, with their offspring.

The man was called *pitar*; in Greek, *pater*; in Anglo-Saxon, *fæder*; that is, father.

The father was the fundamental fact of the household. The word means the protector. And it is upon this idea that the whole structure of Aryan society, ancient and modern, is founded. The father protects his house and household. They are his. The idea is that of a nest. He is the roof above it. He defends it. His arm is bared for its protection, and his faculties are all vigilant lest harm come to his abode. He is the stem around which the whole structure is gathered and developed. He is the

singular core of the household to which all the rest adheres and without which it falls instantly into disintegration and ruin. His life is the constant barrier between it and all harm. His valor and strength are the safeguards and guaranty of his own place, which stands apart from the rest and holds his treasures. In all the tribes which have sprung from that original Bactrian fountain, bubbling up with human fecundity in remote pre-



PRIMITIVE BUILDING OF THE INDUS VALLEY.—HOUSE IN THE KOULOU.  
Drawn by G. Vuillier, from a photograph.

historic ages, *fatherhood* and *protection* have been inseparable synonyms.

As a necessary adjunct to this central fact called the father in the Aryan household, was the institution of monogamy. Single marriage was the rule from the beginning. The union of one man with one woman, perpetually devoted the one to the other, was the fundamental concept of the creative relation and of the outward fact called the home. It appears, moreover, that this union among the Aryan peoples has always been based on the sentiment of affection.

Nature of the household; the paternal name.

The fact and sentiment of single marriage.

A preference, loving and tender, has always existed, at least a preference of the man for the woman. It is doubtful, indeed, if the preference of the woman for the man has ever been wholly ignored in any Aryan tribe. It is true that the idea of ownership, the belief and practice that the man was not only

strong contradistinction to the polygamous practices of the Semitic races and the polyandry of many of the barbarian families of mankind, the single marriage of the Aryan household stands preëminent. Further on we shall see that this principle of monogamy was so strong

The Aryan household preëminently monogamic.



MODERN HOUSES OF THE SAPTA SINDHU.—VILLAGE IN THE KOULOU.—Drawn by G. Vuillier, from a photograph.

the possessor but the *owner* of the woman, has prevailed among many of even the leading peoples of our race. But a close study of primitive conditions will show that even at the earliest emergence from barbarism some—even much—deference was given to the sentiments and instincts of the woman.

However this may be, the monogamic relation is certain and definite. In

among the Greeks and Romans as to be by them communicated and forced upon the prevalent social, political, and religious systems of the world.

In the valley of the Indus the primitive Aryan household was organized on these principles. A house was built. A father declared himself.

Institution of the family; office of the mother.

He took on woman in marriage. He became her

protector and the defender of the house where she dwelt and where he dwelt with her. When the child was born, his fatherhood was emphasized. He was the protector also of the child—of the children. They grew around him. He was the center of the primitive home, its defender from harm, and the fundamental fact of its existence. And this brings us to consider the mother in her office and character as she is revealed to us in the Aryan dawn.

The mother in Arya was the *producer*, that is, the producer of life. She was the genetrix, the wellspring. When the name of mother (Sanskrit *mâtā*) was first given her, she was thought of as the blessed origin of being, the bearer of the new living form which the father was to acknowledge and protect.<sup>1</sup> As to her own being, it was wedded to that of the man. She lost her name and her family relationship by her union with the man. She was taken out of the household to which she belonged in girlhood and transferred to the man. To this extent she became his. At least, she was *of him*, and her identity was henceforth merged with his in the household which they had founded. But the household took its origin in him, bore his name, and was under his protection and sovereignty.

We are able, by means of linguistic study, to penetrate the inner life of the primitive house of Arya, and to discover its methods. The names given to the son and the daughter indicate, as clearly as can be, the offices which they held in

The son and the daughter; significance of their names.

primitive house of Arya, and to discover its methods.

The names given to the son and the daughter indicate, as clearly as can be, the offices which they held in

the family. The ideas upon which the organizations depended are clearly shown by the words employed to define the household relations. As for the son, he was called *sumu*, meaning the begotten, and the thought was that as the begotten of his father he was to be his successor and representative. He was named accordingly; and we are thus able to see at the very foundation of Aryan life the notion which the primitive father had of his male offspring.

The daughter was named on a different principle. They called her at the first *duhitar*, a term of endearment, significant in its first intent of the tenderness with which the girl-child was regarded. Her place in the household was affectional. She was the darling from her birth, and this relation of loving tenderness she continued to bear in the family until her transplanting out of it to the side of her husband. But while she continued to be *duhitar*, the daughter, she also, in maidenhood, took on another name or names significant of her place and duty. Instead of being called *duhitar*, she was nicknamed *milkmaid*, and by this simple fact we are let into a section of the daily life of the household. It was her duty, on arriving at mature maidenhood, to milk the cows and goats, and her duty in this respect was so clearly defined as to warrant her nickname milkmaid. By this title she was called without disparagement, and her original office has been carried with the fragments of speech into several modern languages.

If we scrutinize more closely the method of life pursued at the beginning by the Indic Aryans, we shall find them to be a people of the soil. They lived from the resources of the earth produced by cultivation. In these

Predominance of the agricultural instinct.

<sup>1</sup> The fundamental unity of the idea of mother among all the Aryan peoples is shown by the identity of the word in the different languages—thus: Sanskrit, *mâtā*; Old Persic, *mâtā*; Greek, *mētēr*; Latin, *mater*; Old Slav, *mati*; O. H. Ger., *muotar*; Gaelic, *mathair*, etc., etc.

migrating tribes the agricultural impulse was dominant from the first. They were peculiarly a people of ground-

itive life of the Aryans is so strongly marked as to have left its own demonstration and history in the languages spoken by the different races of this stock. Nor can it fail of interest, even to the unlearned reader, to note the proof and illustration of the agricultural aspect of Aryan life by an examination of that group of words which exhibit the fact most strikingly.

The word Aryan is from the Sanskrit *Arya*, meaning "noble." It signifies the nobility of the agricultural caste in ancient India. The plowmen were the noble people, and were so called by themselves from the beginning. The root AR means to plow, and this signification is traceable in nearly every dialect of Aryan speech. In Latin *ar-are* was to



HOUSE PEOPLE OF ARYA—THE DUHITAR.

culture. They plowed the glebe. It was their vocation to plant seeds and develop the growing stalk to maturity and fruitage. This peculiarity of the prim-

plow. In Greek *ar-oun* had the same meaning. Even in Old English we have the expression to *car* the ground, mean-

Meaning and application of the word *Arya*.

ing to plow. In the forty-fifth chapter of Genesis occurs the expression, "There shall neither be *caring* nor harvest." This signifies, "There shall be neither *plowing* nor harvest time." Ancient geographical names in all parts of the Aryan world have preserved the traces of this word. The old name of Thrace was *Ar-ia*. The ancient name of the

vocation of the Aryan race. The names of men in various parts of the world have carried forward the same noble tradition; and that great German leader with whom Julius Cæsar contended for the mastery of Europe was called *Ar-iovistus*. All these facts prove beyond doubt that the vocation of this great branch of the human family was agri-



HOUSE PEOPLE OF ARYA—THE TILLERS OF THE SOIL.

Median and Persian plateau was *Ir-an*, meaning the land of the Aryans. The name of *Irc-land*, formerly written *Eirc-land*, preserves the same root, and the poetical name *Er-in*, sometimes supposed to mean the land of the west, is only the same word, and signifies the land of the plow. Aye, the very word *car-th* is doubtless the same, preserving in its spelling and pronunciation the unmistakable evidence of the primitive

cultural, and this at a period before the breakup of the ancient tribes in the original seats of Bactria. They were the people of the plow long before the Hellenes were known to history or the ancient Medes had appeared as a power on the Iranian plains.

The general character of the early life of man is largely discoverable by his relations with the other animals. From his appearance on the earth, be the

mode and the time of that appearance whatever it may, he has been in close affiliation with the lower orders of being. The distinction between wild and domestic animals is doubtless fictitious. All animals at the first were wild. Some species have, in process of time, been tamed by the superior wit and contrivance of man; and the creatures thus domesticated have acquired the instinct of docility. The peculiarities of the Old Aryan life of India are again revealed in the character of the animals which they succeeded in subduing. They are those peculiar to the agricultural life. The horse was their servant long before their migration from the Bactrian uplands. Tradition has preserved even into the dawn of authentic history the story of the horses of the Medes and Persians. The Indic Aryans were equally the masters of this noble animal, but with them he was bred and reared rather for the service of the field and the household than for swiftness in flight or the charge of battle. The horse in the Indian valleys partook in course of time of the mild and docile qualities of the people, and obeyed somewhat the influences of his environment.

So also of the cattle and the sheep. Both were domesticated and drawn around the Aryan house. From the earliest days of the migration wild cattle still existed in the uplands of Persia and perhaps in the mountain countries of the north; but the kine of the valleys were domesticated, and were used for food and service more than fifteen hundred years before the conquest of Alexander. Likewise, the goat was among the tamed animals of the primitive Indians. He was eaten as to his flesh, and from the ewes was derived the principal

supply of milk, with its secondary products of butter and cheese. So also was the dog—but not the cat—the constant companion of these people. Indeed, the whole life of the Aryan household was of the strictly agricultural type; and it may well surprise us to find represented in the daily curriculum of the oldest tribes of our race so many of the features, the methods, and characteristics of the modern family.

Strangely enough, it does not appear that the ancient Aryans of India were much acquainted with the wild beasts of the woods. At any rate, such acquaintance as they had seems to have been gained after the departure from their kinsfolk of the highlands and their coming into the Indian valleys. These facts we know again from the testimony of language. The names of the wild beasts are generally different in the different Aryan languages. If the bear, for instance, or the wolf had been familiar to the tribes before the migration from their original seats, they would have given him a name, and that name would have been common in the various dialects arising from the common source. So also of the other fierce beasts of the woods. But we find that the wild creatures have each a specific name in the different Aryan tongues, from which the nonacquaintance of the primitive folk with such beasts is clearly inferred.

If we glance at the implements and utensils of the Old Aryan household, we shall find another illustration of the peaceful agricultural life which they led. The various implements of tillage are named in common by the different Aryan folk who used them. The plow, the rake, and the hoe, the iron ax and sickle, and many other of the imple-

Relations of the  
Indians with  
tame and wild  
beasts.

Names of wild  
beasts different  
in various Aryan  
languages.

The agricultural  
life indicated by  
the domestic an-  
imals.

Names of imple-  
ments also show  
the manner of  
life.

ments of husbandry were manifestly in use by the immigrants who peopled ancient India. But here again we find a different result when we look at the names of the implements of the chase and of war. The name of the bow and arrow, the spear, the lance, and the sword are different in the different dialects which sprang from the common source; and we are able by such means to discover that hunting and the still

at eventide. It is unmistakably true that the leading features of the primitive Aryan home of India had an outline of identity with those of Greece and Italy, and even of the Teutonic fastnesses of the north and the oak woods of Britain. Unto this day many words still live in India and in England that had a common birth and common meaning before the separation of the ancient tribes from the Bactrian homestead, and these words



HOUSE PEOPLE OF ARYA—THE AGRICULTURAL LIFE.

more exciting vocations of war were phases of life comparatively unknown to the primitive Aryans, and only superimposed upon their ancient agricultural life at a later date and under foreign influences.

War and the chase were not the native pursuits of these peaceable people; and the very nomenclature of their household and garden utensils is sufficient of itself to establish their character as men of the field by day and the hearthstone

Indications of a peaceable and domestic race character.

and forms of speech bear unmistakable evidence of the common primitive life which all these tribes inherited from a common ancestry. The name for house is the same in all. So also the names for father and mother, for son and daughter, for dog and cow, for heart and tears, for ax and tree, for plow and doorway—all are common in their origin and meaning in the whole group of Indo-European languages. And thus are we able, by linguistic research and careful comparison, to draw from the

prehistoric shadows a tolerably accurate outline of that primitive life which was led by the Aryans of India before the Veda was sung, and even by their own ancestral tribes long before the Zend-Avesta had taken form in the minds of the Iranian bards and philosophers.

Thus we see, in a very remote prehistoric age, certainly as much as two thousand years before our era, the incoming of certain migratory tribes into the great country which we call India. We see them settling there and developing according to the laws of their own instinct and the influences of their environment. We see them building houses and organizing families on the basis of monogamy. We see them localized in their abodes and in close relation with the soil, from which they derived their subsistence by means of regular cultivation. We see them devoting themselves to the pursuits of peace; employing the domestic animals and using the implements of husbandry,

Synopsis of the aspects of life in Old India.

driving the oxen to the plow and bearing the milk pail from the goatfold at evening. We see them but little acquainted with the chase and little disposed to the dangers and excitements of war, a peculiar people, given to peace and dreading the hazards and alarms of conflict and battle. We see them following from generation to generation, even from century to century, the same primitive methods of life until, in the process of time and with the rise of more aggressive and adventurous peoples in other parts of Asia, their national life is at last thrust into the faint dawn of authentic history. Then it is that the priest is heard chanting the songs of the Veda, and the old philosopher of Arya begins to teach his mystic beliefs to dreaming followers in the valleys of the East. When we arrive at this juncture in the history of the Indic races, it will be time for us to pass from the purely primitive aspect of Aryan life in India to consider its tribal and historical relations—as will be done in the following chapters.

## CHAPTER XXXVIII.—RELIGION.



N the entrance of the Old Aryans into the Indian valleys all the ethnic harmonies of the race were softened into a minor key.

There was a loss of intellectual force, with a gain of imagination; a loss of bodily energy, with a gain of activity; a loss of adventure, with a gain of dreaming. Every element of the originally robust Aryan character, as it had shown itself through all the stages of drifting from the Bac-

General effect of the migration of the East Aryans into India.

trian homestead through the mountain passes into the Punjab, was toned down and soon forced, by a new discipline, to vibrate to a softer chant. Every force of nature conspired by its reaction on the faculties of man to abridge freedom, cool passion, assuage tribal heat, and diffuse a calmer mood.

We come now to consider the old life of India, always an obscure problem in the history of mankind. We have already considered those ancient migratory movements which carried down the peoples of our ancestral race, by successive waves into the Punjab, and thence





BOATING BY MOONLIGHT ON THE INDUS. — Drawn by G. Vuillier from a photograph by Burke.

southward and eastward to the ocean and the mountains. We have even noted some of the original conditions which surrounded the immigrants and conduced to the formation of a new race character. The attentive reader is by this time tolerably informed with respect to the ethnic inheritance which the Aryans brought with them into India; of their dispositions and peculiarities, and the beginnings of the institutional form which they carried along on their way from the highlands of Iran into the lowlands of Sapta Sindhu. It shall now be our object to take up the transplanted life of the Old Aryans, and to note its evolution into new forms peculiar to the East.

We are here on the threshold of Brahmanism. Perhaps it will be well first of all to note the peculiarities of this ancient faith, and especially its divergence from the system of Zoroaster. The term is derived from the Brahmans, the sacerdotal caste of the Hindu family, who have, from the most ancient times, been the custodians of the national faith, preserving its dogmas and directing its ceremonial. In their hands—such is their antiquity and such their influence over the destinies of Indian civilization—both the linguistic and the religious development of the Indian race have been determined, and it is interesting to note the almost perfect parallelism of the changes from the Old Aryan tongue to the modern languages of Hindustan, and the corresponding inflections of the old religious beliefs into the forms and ceremonials of the existing races of India.

The doctrines of Brahmanism are summed up and contained in a body of sacred writings, under the collective name of the Veda. The word signifies

“knowledge,” or “revelation.” Perhaps the older portions thereof are the oldest written compositions now in possession of the human race, unless we should except certain parts of the Chinese literature, concerning the antiquity of which the Western peoples are not well informed.

The Veda consists of four parts, or collections of sacred texts, called Sanhitas, or Mantras. The texts include not only expositions of doctrine and revelations of the gods, but also hymns and incantations and prayers and sacrificial forms peculiar to the national religion. The first major division of the whole work is known as the *Rich-Veda*, commonly written Rig-Veda; the second is the *Saman-Veda*, or Sama-Veda; the third is the *Yajush-Veda*, written Yajur-Veda; and the fourth, the *Atharvan-Veda*, or Atharva-Veda. Each of these greater parts has its peculiarities, and the whole covers a vast epoch as it relates to the time of composition.

In addition to the sacred texts proper, there is a large mass of prose writings attached thereto called the Brahmanas. The subject-matter of these relates to the ceremonial application of the sacred texts, the proper method of conducting the rites, and other practical and expository matters. There are two other kinds of commentaries or appendages to the Vedas, called the Aranyakas and the Upanishads, the former of which are analogous in subject to the Brahmanas, being in the nature of a comment and explanation upon the sense and proper usage of the sacred books. The Upanishads, however, are more philosophical in their character. They contain the great body of speculations on the problems of life and of destiny, particularly

Nature and  
extent of the  
Vedas.

Indic religious  
system devel-  
oped by the  
Brahmans.

Additional writ-  
ings connected  
with the sacred  
text.

that part of philosophy which relates to the universe and its religion. These commentaries and expositional parts of the Hindic Bible come down to a comparatively recent date, from which circumstance the sacred language of India may be studied entirely from the religious texts. Nearly every inflection and linguistic development which has taken place from the most ancient Sanskrit to Hindustani may be gathered and understood from an examination of the Vedas, with their accompanying gloss and commentaries.

It is the Rig-Veda which constitutes the essence of the whole. It corresponds with the Gâthâs of the Avesta, containing the hymns and other lyrical effusions of the earliest Aryan settlers in India.

It is clear, however, that these most ancient songs differ greatly among themselves in date of composition. Some of them represent the language in its oldest aspect, and others are of a later date; but all are ancient, and belong to that primitive period of religious and linguistic history in which the thought of the ancestral race was still in native efflorescence, freeing itself from the bosom of man in ejaculatory expressions, apostrophes, and hymns of praise to the gods. Quite unlike the Rig-Veda are the three other divisions of the sacred books. The Sama-Veda and Atharva-Veda are ritualistic in character. They either explain, illustrate, or apply the doctrines of the older hymns, or repeat them in more modern phraseology.

Much has already been said relative to the bottom character of the Old Aryan worship. It was based upon

Vedaism based on the adoration of nature.

a reverential regard for the powers of nature. The grand and striking phenomena of the physical universe struck upon the con-

sciousness of this early race with peculiar power, and the heart of the people burst out in adoration and praise. Doubtless in its very earliest aspect the religious system thus produced was merely a nature worship, having for its objective realities the sublime aspects and processes of the material world.

Generally, the vision of this early people was lifted to the air and sky. Atmospheric phenomena particularly affected the senses and attracted the reverence of the Old Indians. Higher still were the heavenly bodies. The effulgence of the sun poured down upon a sensitive race and warmed them into gratitude and devotion. There was in a very early age a division of the powers of the universe similar to that discerned and developed by the Greeks. There were powers of the earth, powers of the air, and powers of heaven. For a long time the polytheistic aspect of the system was maintained, and it is not until we reach the tenth book of the Rig-Veda that we find an effort on the part of the worshiper to elevate one particular deity to the rank of an omnipotent God.

Natural reverence for the air and the heavenly bodies.

We have already called attention to the mode by which, in the worship of the powers of nature, the mind, ever in process of expansion, labors to separate the force behind the phenomenon from the phenomenon itself. This happened in the case of the Indians. Their system was elevated from the merely physical aspects of the universe to the invisible powers which control and direct. These were henceforth worshiped. Names were given to them, and a hierarchy was established, having a supreme head in the sky god called Dyaus Pitar, or Heaven Father. We thus see in the extreme East a religious evolution which

The mind seeks to separate matter from spirit.

reached the same result as that which was subsequently attained, without historical contact, by the kindred Aryans of the Græco-Italic race. Dyaus Pitar is the same as the Greek Zeus and the Roman Jove.

The system of worship adopted by the Indic Aryans was noted for what may be called its *prayerful* character. Its essence was invocation, and even the gloss and commentary, so abundantly elaborated in the books accompanying the Veda, are nearly all devoted to the proper exposition and form of prayer. The whole system presents man in a reverential attitude toward the gods, pouring out his devotions, sometimes in praise and what may be narrowly defined as worship; but generally the substance of the devotional act was an appeal to the powers above, a prayer for benefit, for grace, for wisdom. The word *Brahma* is said to signify "devotion," or "prayer."

It must not be understood that this simple and essential element in the theology of India was not subject to development, in the hands of the priests, into a vast and incomprehensible formulary. On the contrary, the inflection of ceremony was never carried to a higher degree than by the priests of the Old Indic faith. Not only was the form of the prayer, its subject, and its method to be carefully defined, but the philosophical concepts of the worshiper must be regulated and mingled with his devotion, in order that a true religion might be illustrated in his life.

The second idea was that of the efficacy of sacrifices. The earnest prayer properly expressed could hardly fail to bring to the worshiper an answer from the gods, but the pleasure of the latter

was enhanced and their purposes toward men made more auspicious by the giving of gifts on the altar. Thus a sacrificial system was demanded to supplement the system of prayers; and for the conduct of the ceremonies and sacrifices orders of priests became necessary, who, by the multiplication of their own functions and dignities, increased the number and reputation of their caste. Professor Max Müller has enumerated four classes of priests required in the conduct of solemn sacrifices:

1. The officiating priests, manual laborers, and acolytes, who have chiefly to prepare the sacrificial ground, to dress the altar, slay the victims, and pour out the libations.
2. The choristers, who chant the sacred hymns.
3. The reciters, or readers, who repeat certain hymns.
4. The overseers, or bishops, who watch and superintend the proceedings of the other priests, and ought to be familiar with all the Vedas.

It is the purpose in the present work to make as few excerpts as possible from existing writings. It has been the plan rather to summarize and to place in the best light the *substance* of such documents as would most demand attention in the course of an ethnic history. At this point, however, it seems fitting to present some examples of the Vedic hymns in English. Only so much will be given as may familiarize the reader with the phraseology of these ancient songs and with the worshipful spirit in which they were chanted, in the faint dawn of history, by the old bards of India. The selections are made from Müller's translation of the Vedas. The first is from the fifty-third chapter of the first book of the Rig-Veda.

The prayerful element in the Vedic worship.

Development of worship and use of sacrifices.

Extracts from the Veda; hymn to Indra.

## I. HYMN TO INDRA.

1. Keep silence well! We offer praises to the great Indra in the house of the sacrificer. Does he find treasure for those who are like sleepers? Mean praise is not valued among the munificent.



SAKYA MUNI.

2. Thou art the giver of horses, Indra, thou art the giver of cows, the giver of corn, the strong lord of wealth; the old guide of man, disappointing no desires, a friend of friends; to him we address this song.

3. O powerful Indra, achiever of many works, most brilliant god — all this wealth around here is known to be thine alone: take from it conqueror,

bring it hither! do not stint the desire of the worshiper who longs for thee!

4. On these days thou art gracious, and on these nights, keeping off the enemy from our cows and from our stud. Tearing the fiend night after night with the help of Indra, let us rejoice in food, freed from haters.

5. Let us rejoice, Indra, in treasure and food, in wealth of manifold delight and splendor. Let us rejoice in the blessing of the gods, which gives us the strength of offspring, gives us cows first, and horses.

6. These draughts inspired thee, O lord of the brave! these were vigor, these libations in battles, when for the sake of the poet, the sacrificer, thou struckest down irresistibly ten thousands of enemies.

In the following hymn the invocation is to Agni, the god of fire. As we have seen, this deity was perhaps the most lineal descendant of the ancient Aryan *Mazdâo*, being the earthly representative of the sun, shining on the hearthstone and from the altar place. Agni was regarded as the guardian of the house and the messenger of intercourse between gods and men, having thus the character of the *Hermes* of the Greeks. Since flame was the devouring element in the offering of sacrifices, Agni was regarded as the divinity of the altar.

Worship of  
Agni; hymn  
in his praise.

The following invocation is from the sixth chapter of the second book of the *Rig-Veda*.

## II. HYMN TO AGNI.

1. Agni, accept this log which I offer to thee, accept this my service; listen well to these my songs.

2. With this log, O Agni, may we worship thee, thou son of strength, conqueror of horses! and with this hymn, thou highborn!

3. May we thy servants serve thee with songs, O granter of riches, thou who lovest songs and delightest in riches.

4. Thou lord of wealth and giver of wealth, be thou wise and powerful; drive away from us the enemies!

5. He gives us rain from heaven, he gives us inviolable strength, he gives us food a thousand-fold.

6. Youngest of the gods, their messenger, their invoker, most deserving of worship, come, at our praise, to him who worships thee and longs for thy help.

7. For thou, O sage, goest wisely between these two creations [heaven and earth, gods and men], like a friendly messenger between two hamlets.

8. Thou art wise, and thou hast been pleased; perform thou, intelligent Agni, the sacrifice without interruption; sit down on this sacred grass!

The worship of storm was a peculiar feature of the religion of Old Arya. It can not be said that this phase of the original cult re-appeared in the mythology of the Greeks and Romans, at least in a distinct form, but storm worship was a conspicuous element in the devotions of India, as it had been, to a certain extent, among the *Iranians*. The storm gods were



GOD OF FIRE.

known as the Maruts, and the following hymn, from the thirty-ninth chapter of the first book of the Rig-Veda, will sufficiently illustrate the nature of the adoration which was paid to them:

Cult of the storm; hymn to the Maruts.

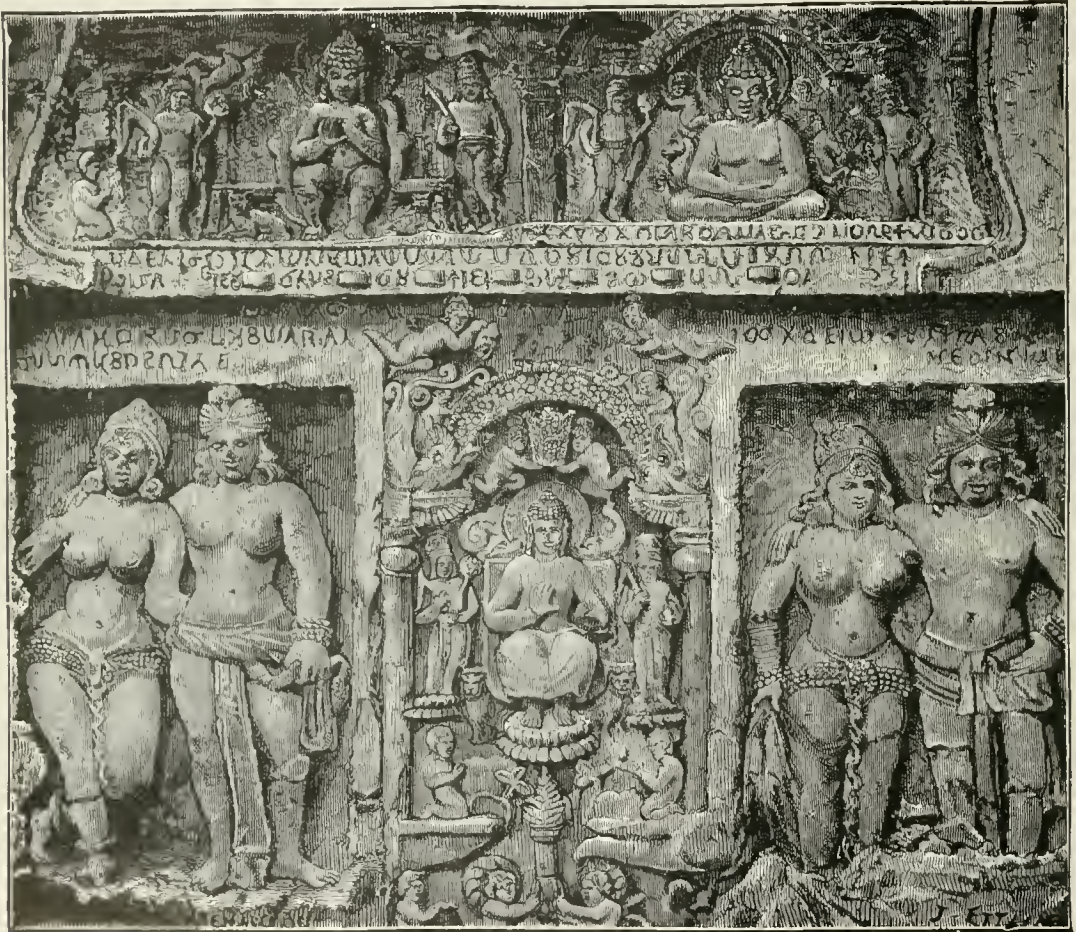
III. HYMN TO THE MARUTS.

1. When you thus from afar cast forward your measure, like a blast of fire, through whose wisdom

5. They make the rocks to tremble, they tear asunder the kings of the forest. Come on, Maruts; like madmen, ye gods, with your whole tribe.

10. Bounteous givers, ye possess whole strength, whole power, ye shakers. Send, O Maruts, against the proud enemy of the poets, an enemy, like an arrow.

One of the tenderest aspects of the natural world is the dawn of the day. This phenomenon appears to have im-



SCULPTURES FROM A PORCH AT KARLI.—Drawn by H. Catenacci, after Grandsire.

is it, through whose design? To whom do ye go, to whom, ye shakers?

2. May your weapons be firm to attack, strong also to withstand! May yours be the more glorious strength, not that of the deceitful mortal!

3. When you overthrow what is firm, O ye men, and whirl about what is heavy, ye pass through the trees of the earth, through the clefts of the rocks.

4. No real foe of yours is known in heaven or in earth, ye devourer of enemies! May strength be yours, together with your race, O Rudras, to defy even now.

pressed itself upon the senses of all early races of men. In the Greek mythology Daphne, the "dawn," was chased around the earth by her lover

Myth of the dawn; hymn to Ushas.

Apollo. In the Indian system the myth reappeared under the name of Ushas, first adored as a visible aspect of nature, and afterwards elevated into a

living being and impersonated as one of the gods. From the seventy-seventh chapter of the seventh book of the Rig-Veda the following hymn to Ushas is presented :

IV. HYMN TO USHAS.

1. She shines upon us, like a young wife, rousing every living being to go to his work. When the fire had to be kindled by men, she made the light by striking down darkness.

2. She rose up, spreading far and wide, and moving everywhere. She grew in brightness, wearing her brilliant garment. The mother of the cows [the mornings], the leader of the days, she shone gold-colored, lovely to behold.

3. She, the fortunate, who brings the eye of the gods, who leads the white and lovely steed [of the sun], the dawn was seen revealed by her rays, with brilliant treasures, following everyone.

4. Thou art a blessing where thou art near; drive far away the unfriendly; make the pasture wide, give us safety! Scatter the enemy, bring riches! Raise up wealth to the worshiper, thou mighty dawn.

5. Shine for us with thy best rays, thou bright dawn, thou who lengthenest our life, thou the love of all, who givest us food, who givest us wealth in cows, horses, and chariots.

6. Thou daughter of the sky, thou highborn dawn, whom the Vasishthas magnify with songs, give us riches high and wide: all ye gods protect us always with your blessing.

We will conclude these extracts from the oldest division of the Indic scriptures by presenting two hymns to Va-

runa, from the eighty-sixth and eighty-ninth chapters of the seventh book of

the Rig-Veda. This deity was the god of the waters, or of the Western world, as it was understood in the Hindu myth. In the philosophical imagery of the Brahmans, Varuna was represented as a four-armed man, riding on a fabulous sea monster, bearing in his right hand a rope and in his left a bludgeon:

V. HYMN TO VARUNA.

1. Let me not yet, O Varuna, enter into the house of clay; have mercy, almighty, have mercy!

2. If I go along trembling, like a cloud driven by the wind; have mercy, almighty, have mercy!

3. Through want of strength, thou strong and bright god, have I gone wrong; have mercy, almighty, have mercy!

4. Thirst came upon the worshiper, though he stood in the midst of the waters; have mercy, almighty, have mercy!

5. Whenever we men, O Varuna, commit an offense before the heavenly host, whenever we break the law through thoughtlessness, punish us not, O god, for that offense.

Second hymn:

1. Wise and mighty are the works of him who stemmed asunder the wide firmaments. He lifted on high the bright and glorious heaven; he stretched out apart the starry sky and the earth.

2. Do I say this to my own self? How can I get unto Varuna? Will he accept my offering without displeasure? When shall I, with a quiet mind, see him propitiated?

3. I ask, O Varuna, wishing to know this my sin. I go to ask the wise. The sages all tell me the same: Varuna it is who is angry with thee.

4. Was it an old sin, O Varuna, that thou wishest to destroy thy friend, who always praises thee? Tell me, thou unconquerable lord, and I will quickly turn to thee with praise, freed from sin.

5. Absolve us from the sins of our fathers, and from those which we committed with our own bodies. Release Vasishtha, O king, like a thief who has feasted on stolen oxen; release him like a calf from the rope.

6. It was not our own doing, O Varuna, it was necessity, an intoxicating draught, passion, dice, thoughtlessness. The old is there to mislead the young; even sleep brings unrighteousness.

7. Let me without sin give satisfaction to the angry god, like a slave to his bounteous lord. The lord god enlightened the foolish; he, the wisest, leads his worshiper to wealth.

8. O lord Varuna, may this song go well to thy heart! May we prosper in keeping and acquiring! Protect us, O gods, always with your blessings!

The foregoing examples will be sufficient to illustrate the spirit in which some of the earliest apostrophes of mankind to the immortal gods were uttered. It is denied by the translator that the system of religion whose fundamental ideas are expressed in these prayers is polytheistic. He also would deny that they are an expression of monotheism.

Theory of Varuna, and his hymns.

Muller's views respecting Vedism; later Vedic hymns.

As a term definitive of their real nature, he suggests *Kathenotheism*, which would imply that the deities of the Indic race were the personified attributes of a single godhead, that is, several under one. This, however, is to enter into the niceties and hair-splittings of that theological and philosophical controversy, the refinements of which, even when most carefully expressed, have proved of but little advantage to the human race. It will, however, be a fitting conclusion to these extracts from the Indic Bible to repeat some verses from another part of the same translation. They correspond to the Hebrew Book of Genesis rather than to the Psalms, as do the Vedic hymns already quoted:

RIG-VEDA, BOOK X, CHAPTER 121.

1. In the beginning there arose the golden Child—he was the one born lord of all that is. He established the earth and this sky. Who is the God to whom we shall offer our sacrifice?

2. He who gives life, he who gives strength; whose command all the bright gods revere; whose shadow is immortality, whose shadow is death. Who is the God to whom we shall offer our sacrifice?

3. He who through his power is the one king of the breathing and awakening world; he who governs all, man and beast. Who is the God to whom we shall offer our sacrifice?

4. He whose greatness these snowy mountains, whose greatness the sea proclaims, with the distant river; he whose these regions are, as it were, his two arms. Who is the God to whom we shall offer our sacrifice?

5. He through whom the sky is bright and the earth firm; he through whom the heaven was established, nay, the highest heaven; he who measured out the light in the air. Who is the God to whom we shall offer our sacrifice?

6. He to whom heaven and earth, standing firm by his will, look up, trembling inwardly; he over whom the rising sun shines forth. Who is the God to whom we shall offer our sacrifice?

7. Wherever the mighty water clouds went, where they placed the seed, and lit the fire, thence arose he who is the sole life of the bright gods. Who is the God to whom we shall offer our sacrifice?

8. He who by his might looked even over the

water clouds, the clouds which gave strength and lit the sacrifice; he who alone is God above all gods. Who is the God to whom we shall offer our sacrifice?

9. May he not destroy us, he the creator of the earth, or He, the righteous, who created the heavens; he also created the bright and mighty waters. Who is the God to whom we shall offer our sacrifice?

Space would fail to extend these quotations from the ancient religious writings of the Indic Ar- Brahmanism becomes an incomprehensible mythology.

to what extent the same were originated after the incoming of the immigrant peoples into India, or to what extent they had already been formulated at an earlier period. As frequently happens in the case of religions, the old system of nature worship, spiritualized and elevated in the hands of the primitive seers of the East, soon fell into degeneration in the hands of the Brahmins. A volume could not contain an account of the changed and changing aspects through which Brahmanism passed from its old form, as expressed in the Vedic hymns, to its later inflections and incomprehensible refinements, as elaborated by the Brahmanical priesthood. It became a mythology rather than a religion. The old spiritual concepts gave place to vague and even ridiculous myths, irrational in their subject-matter and preposterous in their application. The old religion grew into the most enormous body of ceremonials and formalities which were ever, perhaps, devised by the ingenuity of a priestly order.

We have accepted Max Müller's view that the original faith of India was *Kathenotheism*,<sup>1</sup> that is, a system of many

<sup>1</sup> The word *kathenotheism* is derived from the Greek *kata*, "under," *henos*, "one," and *theos*, "god;" that is, a pantheon of many gods under one supreme godhead.



deities under one, the latter being the supreme being of the universe, and the former his impersonated attributes. In the hands of the Brahmins, this concept finally took the form of a godhead, composed of a triune person, or persons, called the Trimurti, the first of whom was Brahma, the creator; the second, Vishnu, the preserver; and the third, Siva, the destroyer of all things. This trinity was represented, not as a single person, as in the Christian theology but as three deities, in intimate union of relationship. They presided gloomily and in a fatalistic sense over the destinies of human life.

While the concept of Brahma as the supreme deity of the Indian pantheon was evolved, another notion, of a philosophical rather than religious nature, had appeared.

What brahma was and what it became.

The word *brahma*, as a neuter noun, became impersonal, and was used by the philosophers to denote the sum of all nature, the germ of everything that is, the one thing that embraces everything. The idea is especially difficult to grasp. The incisive intellect of the Western nations, requiring clear definition in everything, does not readily apprehend the meaning of this brahma, and when we attempt to clear our understandings by an examination of the Vedic commentaries, such as the Upanishads, we are generally confused rather than enlightened. The book known as the Kēna-Upanishad says of this impersonal brahma: "Eye, tongue, mind can not reach it; we comprehend it not, we can not teach it to anyone; it is other than all that is known and all that is unknown."

The speculations of the Brahmins relative to the meaning of the term would, in their turn, demand volumes of explanation. They have a mysterious syllable, *ôm*, which contains a peculiar trinity of sounds, and by this they symbolize the brahma. This inexplicable explanation

Speculations and refinements respecting the *ôm*.



KAMI-RATI.

tion is in its turn made the subject of commentary, and the Mandukya-Upanishad is wholly devoted to explanations of the sense of *ôm*. As illustrative of the abstruse and involved ideas after which the authors seem to struggle, the following paragraph is quoted: "Ôm is immortal. Its unfolding is this universe; is all that was, is, and shall be. Indeed, all is the word *ôm*; and if there is anything outside of these three manifestations, it is also *ôm*. For this all is

Brahma; this soul is Brahma. This soul has four existences."

Having once developed the notion of this nenter brahma, as an expression for the sum of all nature, the concept soon became the *end* of the religious system. This is to say that while the original system was active in its character, the

that nature came into her present forms, the agencies by which the world was made, and man, and everything that is. It was the problem of active creation, of the invisible effort by which universal nature was reared into its present form. But with the latter

Later Brahmanism puts the end for the cause.

Brahmanism, this kind of speculation was supplanted by another directly the reverse. The question now became, not in what manner and by what agency nature was reared, but to what *end* the universe is tending, into what state all the material aspects of animate and inanimate nature will fall at the conclusion of the universal career.

This species of inquiry at length predominated over the other, and the Brahmans began to teach the final condition of the universe, including man. They called it brahma, using the same term that they had em-

ployed as the name of the creator of all things, but in another sense. Henceforth the aim and endeavor of the worshiper must be, not so much to acquaint himself with this creator and his will, as to know that other brahma which stands in shadowy outline at the further verge of nature, ready to receive and swallow up

The believer must know the brahma which is to receive him.



BRAHMA AS THE FOUR-FACED BUDDHA.  
Drawn by E. Tournois, after a sketch of Delaporte.

degenerate form was passive. The mind, instead of resting upon Brahma, as the creator of the universe, came to rest upon brahma as the end of the universe, including man.

The early Aryans of India, in common with all their related peoples in the West, gave themselves to speculations about the origin of things, how it was

all forms and aspects of the visible universe.

No contrast can be stronger than that which is thus offered between the

into moods of meditative gloom and sheer brooding over the desperation of human life. A sort of astrology sprang up in place of the vivid concepts which



CYCLE OF TRANSMIGRATIONS ACCORDING TO A THIBETAN IMAGE.

bright and happy Vedic religion as it existed in the days of the old poets who sang the primitive hymns of Arya, and that fatalistic spell which has fallen upon the mind of India, transforming it

Contrast of the old and the newer Brahmanism.

the old bards had had of the visible powers of nature. The whole spirit and genius of the Indic race were turned to the darkest problems and most inscrutable mysteries of destiny and fate.

As a natural consequence of this

brooding over the transmutation of one form of visible nature into another, and so on and on to the final plunge into that brahma which they regarded as the end, even as the other Brahma was the beginning of all creation, there arose the notion of the transmigration of the human soul. The concept of a gradation up and down through all animate nature took firm hold of the mind, already bound in fatalism. The human race was divided into castes, and these became a part of the system of the world. All living creatures were the progeny of Brahma, and they must pass through the intermediate forms of life in order to be resolved into brahma again. Brahma is the origin, and brahma is the destiny of all, but the stages through which each living creature must pass are as various as the forms of life.

Each living thing is born according to the deeds of that from which it is descended, and each living thing fixes, by its deeds, the state of that future living thing which is to be born therefrom. Animate nature has its orders through which the souls of men must pass in their ascending and descending stages of transformation. The lowest order of living things includes insects, fishes, serpents, tortoises, dogs, and asses. The next order has elephants, horses, lions, boars, Sudras, and other races not speaking the sacred language of India. The third grade of creatures includes thieves, actors, Rakshasas and Piçachas. The fourth order comprises athletes, dancers, armorers, drunkards, and the Vaisyas. The fifth includes the Kshatriyas, kings, great soldiers, speakers, the Gandharvas and the Asparases. The sixth class has the Brahmans, dev-

Source of the doctrine of the transmigration of souls.

so on and on to the final plunge into that brahma which they regarded as the

otees, gods, and the great Rishis. The seventh has only Brahma himself. Such are the several orders of living things.

Brahmanism recognizes the sinfulness of man. For this sin there must be expiation. No such thing as redemption is recognized. All sin is balanced against so much punishment, and the expiation must be by the sinner himself. Man, however, may do something to free himself from the consequences and tendencies of his actions; either put himself in the ascending scale of transmigration, or in the descending scale which leads to the condemnation of his life to some of the lower orders of being in his next existence. Thus the soul may make its way upward until it is taken back into brahma, or may descend into insects, worms, and reptiles.

Doctrine of sin and of expiation.

The Brahmanical theory of sin is very different from that of the Western nations. It is essentially uncleanness, as distinguished from cleanness, which is righteousness. Pollution is the fundamental concept of offense against Brahma. Things are holy or unholy in proportion as they are clean and unclean, but the definitions of that which is clean or unclean sounds strangely to the understanding of the West. The highest notion of defilement is that which comes from the touch of the dead, the excretions of the body, the circumstances of birth, and of everything relating to the sexual life. The cleanest of living creatures is the cow. She is not only clean, but holy, and is incapable of defilement. The remedy for sin is penitence, fasting, mortification of the body, prayer, and recitations of the Veda. One of the greatest pollutions is drunkenness. He who so sins is compelled to drink boiling rice water unto death.

Notion that sin and uncleanness are one.

Theory of metempsychosis and gradations of living forms.

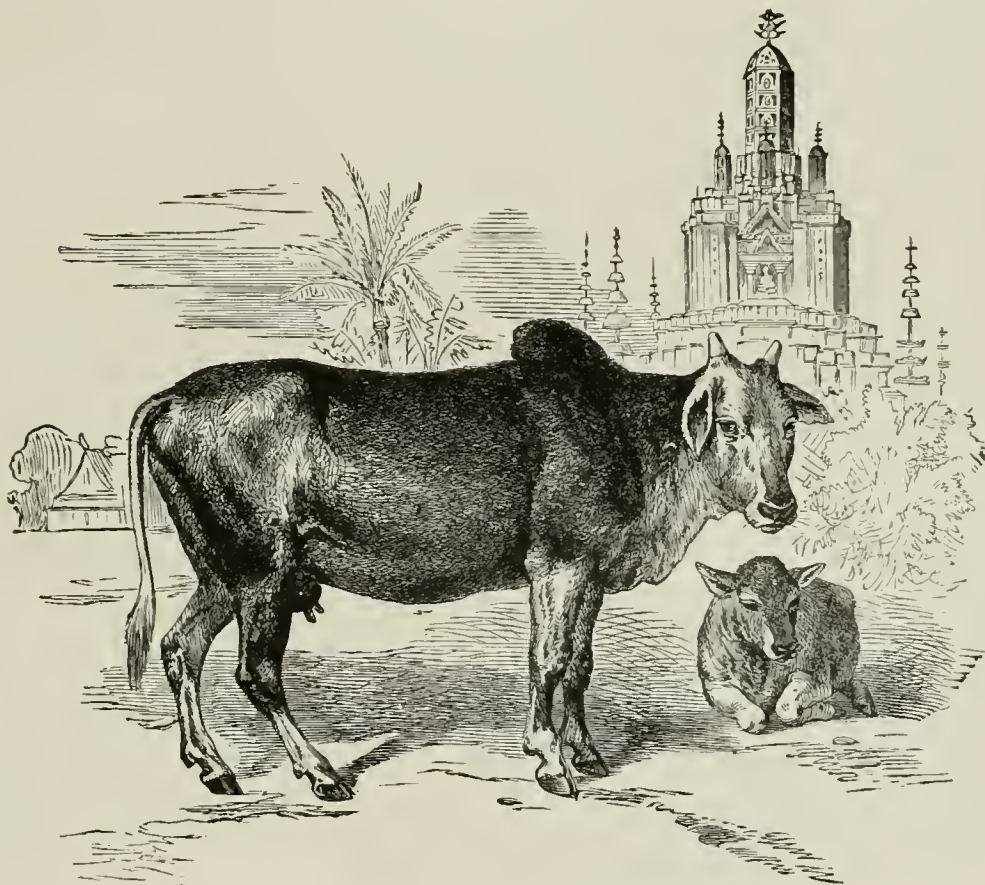
descended, and each living thing fixes, by its deeds, the state of that future living thing which is to be born therefrom.

So far as earthly punishments are concerned, they are adjusted to the prevalent false theories of sin. Offenses done against the holy things are punished in the highest degree. The murder of a person belonging to a lower caste may pass with slight retribution, but the killing of a cow is a mortal

Punishments adjusted to the false theory of sin.

One of the concepts peculiar to Brahmanism is that of the incarnation of the deities. It is known by the name of *avatar*. On many occasions the great gods of the Indic pantheon have passed into the form of animals or men. Vishnu, the "preserver," has had ten avatars assigned to him, following each

Doctrine of the incarnation, or the avatars.



THE SACRED COW OF INDIA.—Drawn by A. de Neuville.

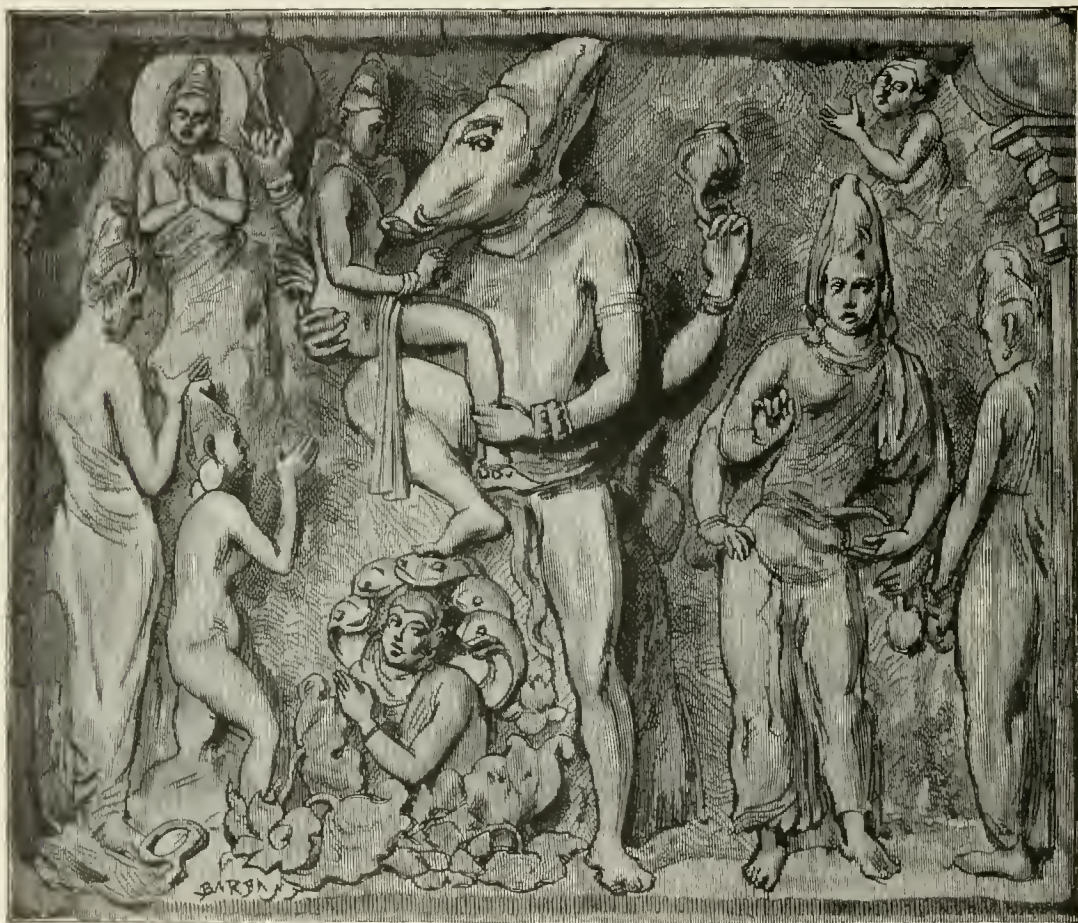
crime. One who kills a Brahman with intent must thrust his own head three times into the fire, until he die. If the killing is unintentional, he shall build a hut in the woods and live alone for twelve years, carrying the skull of the slain man in his girdle. So throughout the whole list of human misdeeds the same irrational and ill-adjusted methods of punishment are employed.

other in an ascending scale. In the first three instances he was incarnated in the form of animals, namely, as a fish, as a tortoise, and as a boar. In the fourth earthly revelation he was the Manu lion. Then began the human avatars. In the fifth estate Vishnu was a dwarf; in the sixth, a hero; and in the seventh, a Ramchandra and a Krishna. Buddha himself was an incarna-

tion. It is also believed that Vishnu will ultimately appear on earth in his own person. This will happen when the highest age of man has been reduced to twenty-three years. When Vishnu shall come he will be called Kalki, and will possess eight supernatural powers on the earth. This great avatar

equal with Brahma and Vishnu. Siva was identified with Rudra, god of the storm, just as Vishnu took the place of Indra in the older mythology. The Brahmanic system represents Siva as dwelling at times with the human race, but never as incorporated in earthly

Place of Siva  
in the Indian  
pantheon.



VISHNU IN THE FORM OF A BOAR.

is to occur at the end of three hundred and sixty thousand years, as time is reckoned by men, or one thousand two hundred years as it is reckoned by the gods.

It appears that Siva, the third person of the Brahmanical trinity, was an old god of the Dravidian race before the incoming of the Aryans. By them this divinity was raised to the rank of co-

form. His place in the mythological system is that of destroyer, and hence his genesis from the storm god of the Old Dravidians. His power is symbolized by the trident, while in his hands he bears a lasso or sling, an antelope, and sometimes a flame of fire.

Ethnic history does not demand more than an outline of the religious beliefs which the ancient kindreds of mankind

adopted for themselves and their posterity. It is only while religions are expressive of the subjective states of the mind that they are really an ethnic condition. When they pass into objective ceremonies and institutional forms, they become a part of the subject-matter of general history. In this connection, as in the account of the Iranians, we offer no more than a sketch of that primal faith which was developed by the early bards and rhapsodists who, with upturned faces, chanted the praises of the gods in the valleys of India. In course of time, both in Iran and in India, an age of commentators and mere grammarians succeeded to the age of poets, and lifeless ceremony took the place of living inspiration. From this time forth the ethnologist has but little concern with the inflected forms, the mere outer garb which the Brahmans flung around the ancient religion of the East.

One other topic remains to be considered before the Vedic system of religious evolution is dismissed. The spirit of the old faith had died out many centuries before the Christian era. On the tongues of the priests even the apostrophes of the old rhapsodists and seers had become an echo and a mockery. It was under such circumstances, in the latter part of the sixth century B. C., that the great reform was instituted which was destined to carry on its tide more than thirty per cent of the human race. It originated with Sākya Gautama, commonly called the Buddha, Prince of Kapilavastu, in Northern India. But the reform, like that of Luther in the West, was already prepared, in its elementary conditions, by a reaction in the mind of the upper classes against the

To what extent religions are part of ethnic history.

Apparition of Sākya Gautama the Buddha.

absolutism and uselessness of the Brahmanic order.

The career of Gautama is now accessi-



SIVA AS MAN AND WOMAN.

ble in many forms to English readers, and need not be repeated. It was, in general, that of a sincere and elevated mind, highly sensitive in its organization and inspired by philanthropy, re-

Career and evangelism of the "Enlightened One."

bellings against the current religious system of his country and people. He retires, as if into the desert. He muses long on life and destiny. He communes with himself and with the invisible Spirit. He struggles and writhes in anguish and despair. Light breaks into his understanding. He becomes the Buddha, the "Enlightened One." He



NEPAL BUDDHA IN BRONZE.

Drawn by P. Sellier, from the collection of Le Bon.

takes that name and returns to his people as a teacher. He would substitute for the intolerable mass of formalities and philosophical dogmas of the Brahmans a new code of thought and morality. He would teach the living way. First a few, and then multitudes, follow him. He becomes, even in his life, a great leader. His work is well begun. The burden is upon him. He leaves to others what he could not him-

self accomplish within the limits of a mortal life. He goes again alone to the woods and deserts. He journeys on, and at last, wearied with the burden of thought and oppressed perhaps with the sorrows of the race, he sits down by the root of a tree, and there, alone, gives up his spirit and enters into Nirvana.— Such is the origin of that great system called Buddhism, which is now professed by 31.2 per cent of the human family.

The reform thus instituted was almost identical in its nature with the Protestant revolt which roused Europe from her stupor in the sixteenth century.

Parallel of Buddhism with Western Protestantism.

Buddhism is essentially the Protestantism of the East. It is to the older Brahmanism what Protestantism is to the Catholic Church in Europe and America. If we look at India the parallel may be carried still further. Buddhism did not achieve, or at least maintain, a great success in the country where the older system of faith prevailed. Brahmanism had taken too deep root in the soil of India to be exterminated by a counter revolt. Just as in Italy the ascendancy of Rome has ever been maintained, so in its central seat the power of Brahmanism remains to the present day.

While Buddhism had temporary and local success in the land of its origin, its great triumph was achieved by its dissemination in foreign lands. It swept eastward and northward to the limits of the furthest oceans, carrying with it a great proportion of the Mongoloid races of mankind, but the elder faith held its own against the innovation in the valleys of India, and continued to bear up its vast system of inane speculation as the better theory of life and destiny.

It is impossible to convey to one who has not personally acquainted himself



with the degradation of the Brahmanical faith and practice an adequate idea of its debasing character. Its ceremonies are not only offensive to the human

interest. The usage until recently much in vogue was sutteeism, or the devotion to death of the widow of a dead husband on his funeral pyre. This was regarded and is still regarded, as an act of the

understanding, irrational and foolish as expressions of religious faith, but they are disgusting to taste and indecent to the eyes of morality. The degeneration of the system is complete, its ruin overwhelming. Whatever potency it may have had in former centuries to purify the theory and practice of human life, or even to control its violence or moderate its excesses, has long since passed away, and inane ceremonies and ridiculous dogmas are all that remain. These, however, are sufficient to uphold the Brahmanical ascendancy in

India, and until this is broken, neither Buddhism nor any other system of faith can penetrate the gloom and despair of the Indian mind.

A few instances of the external, visible aspect of Brahmanism may prove of

highest merit. The woman was taught to believe that by immolating herself in this manner she should enjoy thirty-five million of years with her husband after they had both gone to Brahma.

Practice of sutteeism; the rite not obligatory.



INDICAN FUNERAL PYRE AND SUTTEE.

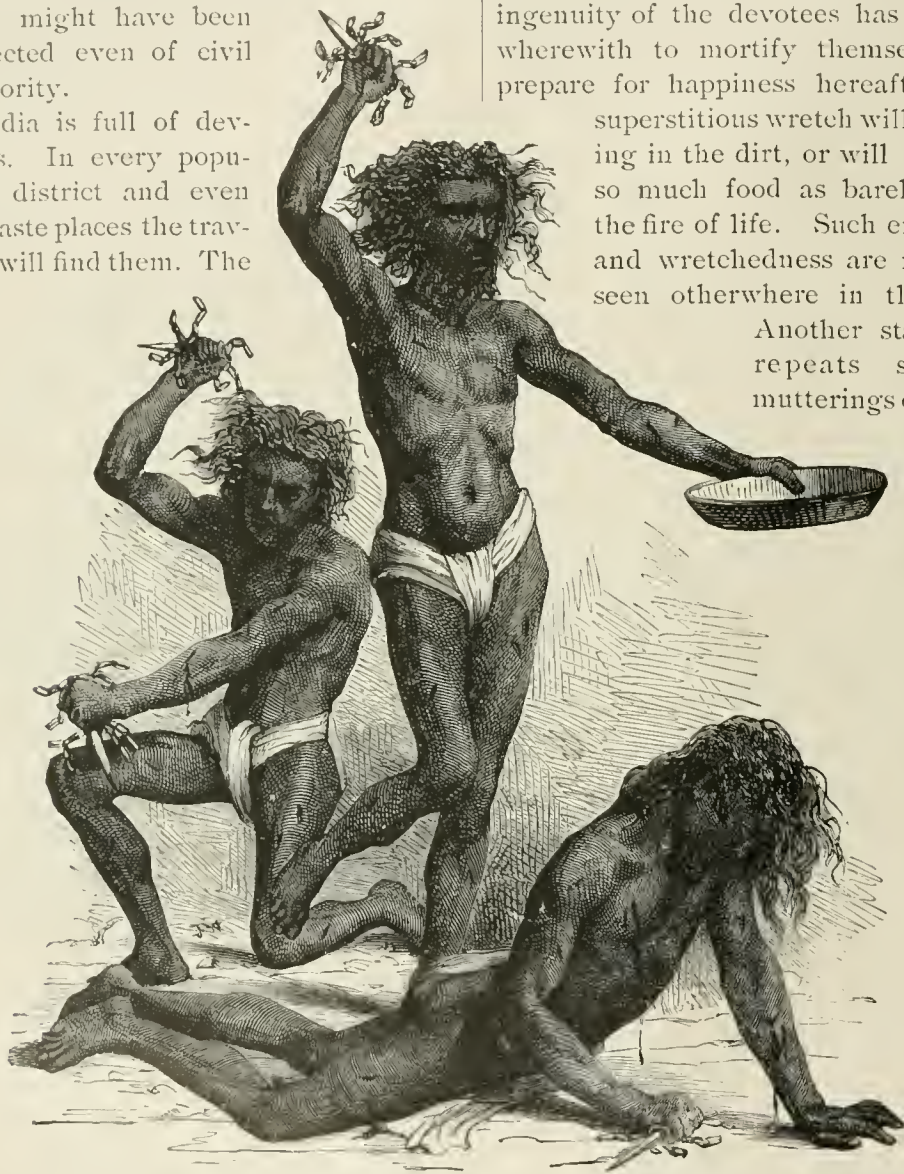
After a Persian miniature.

For the credit of humanity, the system was never obligatory. The sacrifice was voluntary; but the superstitious despotism over the mind of the victim was sufficient to enforce it with more energy than might have been expected even of civil authority.

India is full of devotees. In every populous district and even in waste places the traveler will find them. The

from sin or impurity rests upon the soul of India like a pall. The space of a chapter would not be sufficient to enumerate all the forms of bodily degradation and mutilation which the depraved ingenuity of the devotees has invented wherewith to mortify themselves and prepare for happiness hereafter. One superstitious wretch will sit starving in the dirt, or will take only so much food as barely to feed the fire of life. Such emaciation and wretchedness are not to be seen elsewhere in the world.

Another stands and repeats senseless mutterings out of the



INDIAN DEVOTEES.—JOGEES WOUNDING THEMSELVES.—Drawn by Emile Bayard, from a photograph.

idea is similar to that which in the Middle Ages drove the monks and anchorites into isolation and poverty. The notion that the mortification of the body is meritorious as a means of salvation

Usages and self-inflicted torture of the devotees.

sacred books. A third goes about with a living snake drawn through a slit in his tongue. Another hangs a weight to some bodily organ until it is drawn out of all semblance to nature. Another thrusts an arrow or a sword through his

limbs, and still another holds up his hands with nails and spikes driven through them.

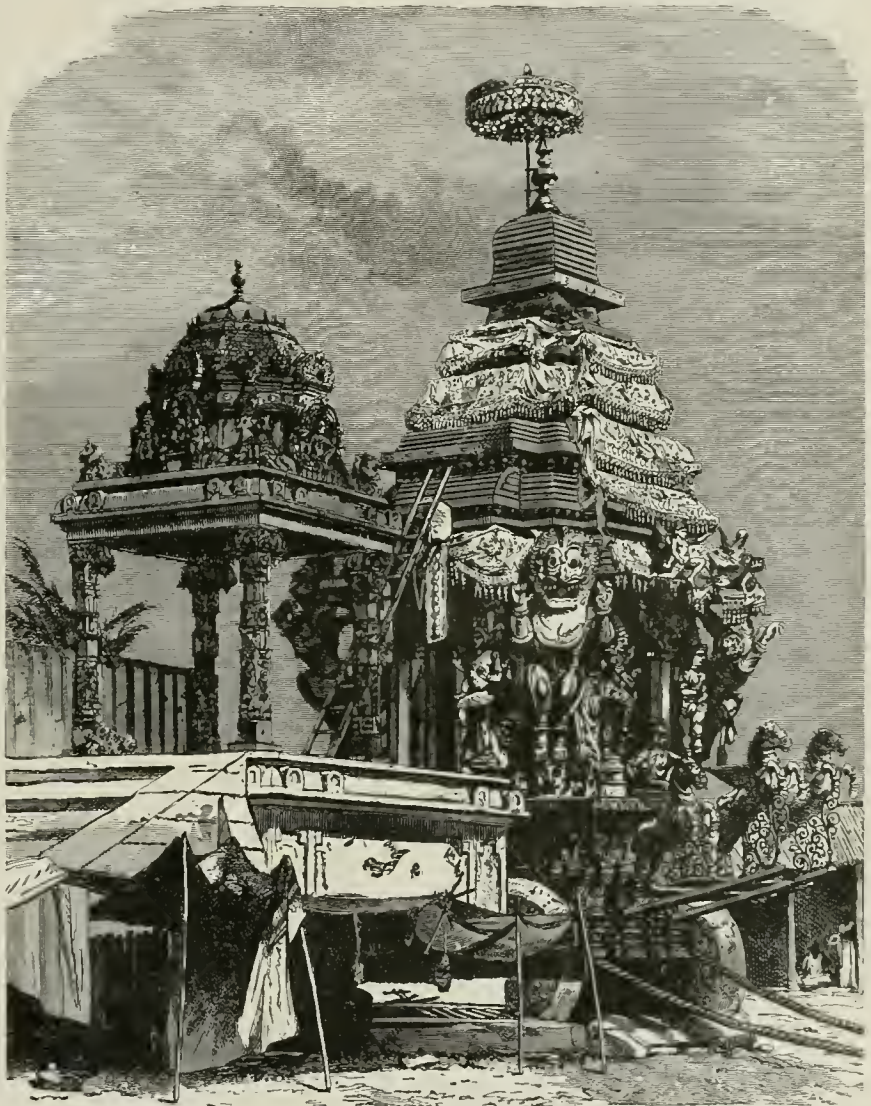
The distortion of the body into some horrible and repulsive form is thought to be most efficacious. Many devotees

take a strange attitude and hold it by force of will until the freedom of the given organs is destroyed. Some will hold up an arm straight above the head for days and weeks and months, until it becomes wasted away and rigid as bone. Others, by contortion, twist their muscles out of shape until they are no more able to return to symmetry or perform their office. And so on and on through an endless variety of tortures and torments self-inflicted by a superstition which admits of no limit or palliation.

Not only has the Brahmanical system fallen into this degraded aspect; it has sunk to absolute immorality and indecency. Perhaps no single ceremony better illustrates the debasing level to which

the national religion has descended than does the ceremony of Juggernaut. This is primarily the name of a town of Bengal, on the northwest coast of the bay of that name. The true word, however, is Jagannâtha, meaning "the lord of the

City and annual ceremonial of Juggernaut.



CAR OF JUGGERNAUT.  
 Drawn by A. de Neuville, from a photograph.

world," which was the descriptive epithet of Vishnu when he was incarnated as Krishna. This gave the name to the Brahmanical temple, and finally to the town.

Juggernaut became a city of temples. The principal street is for the most part filled on both sides with religious establishments. At the further end of the main avenue, where it widens out to rather grand proportions, is situated the famous temple, most holy, perhaps, of all the shrines of Hindustan. More than a million of pilgrims come annually to say their prayers and make their offerings at this spot. Around the temple is a lofty inclosure of solid stone, six hundred and fifty feet square, covering an area of nearly ten acres. In the eastern wall is a great gate, through which the pilgrims ascend, by stone steps, to the terrace. The latter is four hundred and forty-five feet square, and on this the great pagoda rises. It is thirty feet square at the base, and the pinnacle is two hundred feet above the ground level. The structure tapers from bottom to top, and is rounded off on the summit after the Oriental manner.

Siva and Subhadra are next in eminence among the deities who are worshiped in this city. Of these gods there are wooden images painted blue, which are regarded with extreme veneration. Each idol has a "chariot," so called, consisting of a lofty platform on wheels, upon which the effigies of the deities are mounted. The chariot of Juggernaut is thirty-four and a half feet square and forty-three and a half feet high. It is supported on sixteen wheels, which are six and a half feet in diameter. The great festival of the deity occurs in March of each year, and is governed in the date of its return by the phase of the moon, like the Christian feast of Easter.

At this time the city is thronged with pilgrims from all parts of India. The cars of the different idols are drawn by the multitude through the city and for a

short distance into the country, where the idols have what may be called a summer home. In the case of Juggernaut, a long cable is attached to the car, and Scenes at the procession of the tower chariot. tens of thousands of pilgrims and worshipers take hold with their hands and draw the idol through the streets. On the platform about the effigy are the priests, who, while the procession is under way, perform with great activity the ceremony prescribed for the occasion. This consists of what may be called the abandonment of humanity. The priests go through with a series of bodily attitudes utterly disgusting and obscene, during the performance of which vulgar gymnastics the multitude witnessing the same are in the highest glee of worship.

This shameless exhibition of depravity is the essence of the ceremony, which is here cited in proof of the utter degradation to which Question of immolation under the car. Brahmanism has descend-

ed. About the chariot the throng is so great and the enthusiasm so high that rarely does the procession reach its end without some of the multitude being crushed to death under the wheels of the car. It is said—though the evidence is not definite—that devotees sometimes throw themselves under the wheels and are purposely crushed to death. It is believed, however, that at the present time this does not occur. The popular belief that mothers are in the habit of throwing their children under Juggernaut, that they may thus be sacrificed to the god, is proved to be entirely erroneous.

The ceremony above described is illustrative of many peculiar to modern Brahmanism. One of the most widespread superstitions of the present day is that relating to the Ganges. This is



SACRIFICE TO THE GANGES.—Drawn by Emile Bavard

regarded as the sacred river of the country. The belief extends, indeed, to the

Worship of the Ganges and sacrifice thereto.

whole system of streams, nineteen or twenty in number, which descend from

the spurs of the Himalayas and combine their waters in the principal river. Perhaps the superstition is very ancient. The Nile was worshiped in like manner. A great and tractable river in a primitive country thickly peopled must always have been regarded as an incalculable blessing.

In an epoch of the nature worship it is natural that the adoring instincts of men should turn to the visible source of their blessings. It may be thus that as early as the composition of the Veda the Ganges was looked upon and adored. At the present time, and for some centuries in the past, the waters of the great stream are regarded as holy. They are dipped up and carried into all parts of India that they may contribute a purify-

ing element in the sacrifices and ablutions of the altar. He who possesses a bottle of the sacred water carries with him a talisman against impurity and sin. At many places the river is made accessible to pilgrims and other worshippers by flights of stone steps going down to the water's edge, and on these the Brahmans and devotees, and often the common people, may be seen standing and worshipping the river as it flows. If the ceremonies stopped with the dipping up and bearing off of the waters for purposes of purification, or even with the idolatrous worship of the stream, there might be less cause for repugnance to the Brahmanical formula, but to be drowned in the holy river is in the nature of a blessing. From time immemorial sacrifices of human life have thus been made, especially by mothers, who bring their children and commit them to the oblivion of the floods. Civilization stands against it, but the usage still exists.

## CHAPTER XXXIX.—CASTES AND RACE DIVISIONS.



WE come now to consider the greatest single fact which the Brahmanical system has transmitted from ancient to modern times. It is the system of *Caste*.

The fact expressed by this term is not well apprehended by the Western nations.

Origin and evolution of caste among the Hindus.

It signifies the natural and fixed classification into which the vast and

growing populations of India fell, under the influences of the Aryan conquest, the Vedic institutions, and the administration of the Brahmans. Caste as it exists in India extends downwards through

all Brahmanism into the Vedic epoch, and has its roots in the profoundest soil of the prehistoric ages. Given the existing conditions in the time when the Aryan race was flung upon the aboriginal peoples of India and began by conquest to possess the land, and under the influences of the Vedic poets to organize their nature worship into invisible institutions, and the whole system of caste ensues. It is our purpose, then, at this point to trace the course of events by which the great fact of caste was built up into the social structure of India.

In the first place, it must be remembered that when the nature worship

expressed in the Vedas was given forth, it was done in a preliterate age by a class of poets. It was the language of rhapsody, poured forth in verse and committed to memory. The poem, or hymn, thus composed was taught by the rhapsodist to his son and to other bards.

Division of the Indicans under Vashishtha and Visvamitra.

A body of Vedic psalms was thus produced and transmitted orally from generation to generation. There were great singers who knew many hymns and others who could chant but a few. It was in this situation of affairs that the famous quarrel, the shadow of which is seen in the Vedic worship, arose between the two rival sages Vashishtha and Visvamitra. They disputed with each other the poetical and religious leadership of the Indic race.

Around Vashishtha, the successful contestant, and his followers

Rise and ascendancy of the Brahmanical caste.

others who learned the hymns were gathered. A clan of singers sprang up. Some hymns were potent to give victory in battle. The singers of these were specially honored. The prevailing prayer, or hymn, was called *brahma*, and the singer of it was a *Brahman*. "Who-soever," says the Rig-Veda, "scoffs at the *Brahma* which we have made, may hot plagues come upon him; may the sky burn up the hater of the *Brahmas*." Such was the origin of the Brahmanical caste, highest in rank of the four in which Indian society is divided.

In the age of conquest, when the Aryan immigrants were making their way by war from the valley of the Indus to the valley of the Ganges, the successful chieftain was next in honor to him who chanted the praises of the gods and

prayed for victory. Around each chieftain would gather a certain number who devoted themselves especially to war. Such leaders took the better portions of the land and soon established themselves apart from the body of the tribes as an independent class. They were known

Development of the Kshatriyas, or Rajputs.



A SIVAÏTE BRAHMAN—TYPE.  
Drawn by F. Regamey.

as Kshatriyas,<sup>1</sup> or "companions of the king," and they presently constituted the second caste in the system of India.

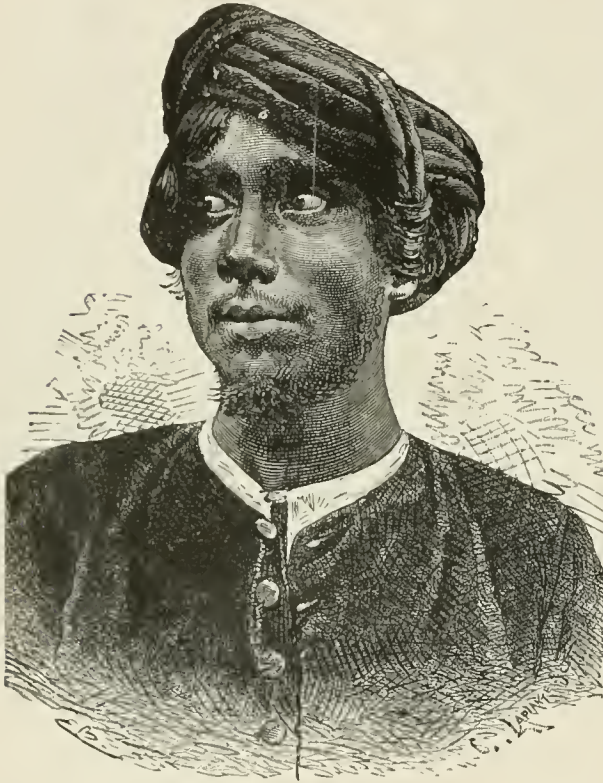
The weaker portions of the immigrant tribes settled on the soil and became husbandmen. They received the name of Vaisyas, signifying simply "the people." Without the adventurous spirit requi-

Vaisyas, or "people," constitute the third caste.

<sup>1</sup>The modern name of the Kshatriyas is *Rajputs*.

site for war, they chose to arrange themselves in secluded places and village communities, where safety was the chief consideration. Whoever in the chaos of a half-barbarous age chooses safety, chooses subordination. The class of husbandmen became subordinate to the Kshatriyas, as the latter were in some sense inferior to the Brahmans.

Caste always implies a conquered as



A SECOND CASTE PANDIT—TYPE.

well as a conquering race. The aboriginal peoples of India, especially the Dravidians, were brought into complete subjection. They were reduced to servitude. They were called "once-born" slaves, to distinguish them from the noble "twice-born" Aryan conquerors. These subjugated aborigines were known, and are still known, by the name of Sudras, between whom and the

The Sudras;  
possibility of  
caste promotion.

three superior classes of Aryan descendants there is nothing in common. Among the other three castes there is some degree of mutation. Sometimes the Kshatriyas, by learning the hymns and ceremonies of the national faith, may pass into the rank of Brahmans. An aspiring Vaisya, or husbandman, may throw off his peaceful dispositions, go to war, and possibly make his way to a place among the Kshatriyas, or warrior caste. But the Sudra is a Sudra, a slave of slaves, fixed by the fate of birth to unalterable subjection and isolation.

In the course of this outline of the religious system which has constituted one of the essential elements of the Indian

Summary character from the remotest epoch to the present view.

present day, it has been necessary to neglect all time-relations and to bring together parts which are separated by centuries. The aim has been to present distinct images by gathering certain leading features and setting them in relation the one with the other. It has been necessary, in so doing, to express important facts in a single word or reference, and to cover the chasm of ages with a clause. It will now be our purpose to look in upon the India of modern times and, as in

the case of the Iranian nations, to delineate the character of the multifarious peoples classified as the descendants of those ancient Indic Aryans who drifted by migration through the passes of the Hindu-Kush in an epoch below the morning twilight of history.

Within the limits of India, as defined in a former book, dwell about one sixth of all the inhabitants of the globe. Until within the last quarter of a century



but little was known of the multiplied millions populating these vast and untraversed regions. The ascendency of Great Britain in the East suggested, and the facilities of her government in India encouraged, an effort to make an actual enumeration of the almost limitless nations under her sway. Not, however, until 1871-72 was an effort actually made. It was attended with unusual success. The whole work was done in its principal parts concurrently in a single night. The officers of the government had arranged that every village and district in British India should return its own numbers to the registrars, and, with very few exceptions, this was

Teutonic race had reached back more than ten thousand miles into the East, had lifted up over one of the vastest and



THIRD CASTE TYPE—LANDOWNER OF KOUMAN.  
 Drawn by G. Vuillier, from a photograph.

done. The spectacle itself was worthy of commemoration. Out of the British islands in the West the strong arm of a



LOW CASTE TYPE—DANCING WOMAN, OR BAYADERE.

richest regions of the earth the rod of authority, and had now, by a single effort, accomplished what had never been accomplished before, an enumeration of the peoples under English dominion.

The result has been a better knowledge of the extent and variety of the Indian populations. The enumeration showed that British India alone contained a population of a little more than a hundred and ninety-one million, while the native states increased the aggregate to two hundred and forty million nine hundred and thirty-one thousand five hundred and twenty-one. This gives an average of one hundred and sixty-three to the square mile throughout India. The aggregate is twice as great as that which Gibbon gives for the pop-

Aggregate results; density of population.

ulation of the Roman empire at its best estate, under the Antonines, in the second century of our era.

Not only do we have thus an astounding total for the peoples of India. In

two hundred to the square mile must sustain themselves by manufacturing interests, by mines, and by the commercial industries of great cities. In India, however, this rule is turned

naught by the existence of purely agricultural populations *three times* as dense as the prescribed limit for Western peoples. The province of Saran, in North Behar, has an area of two thousand six hundred and fifty-four square miles, and no city with a population greater than fifty thousand, and yet the average is seven hundred and seventy-eight people to the square mile, and in one place the maximum rises to nine hundred and eighty-four. A careful estimate places the average for the whole valley of the Ganges, from Saharunpur to Calcutta, at five



SONTALS OF BEHAR—TYPES.  
Drawn by Emile Bayard, from a photograph.

some districts the density of the population is almost inconceivable, reaching the limit of six hundred, or even more, to the square mile. It has generally been agreed among Western statisticians that any people who surpass

hundred to the square mile, or nearly double the rate for the population of England, including her cities.

The general feature of modern India, as it relates to population, is the absence of great cities. There are in the whole

of the British Indian empire only eighteen cities of the first class, that is, having over one hundred thousand inhabitants each, and of these only two, Bombay and Calcutta, exceed half a million respectively. This will appear an astonishing fact when we reflect that in the United States of America, after only a century of national development, there are twenty-six cities of the first class<sup>1</sup> in a population of only sixty million.

Distribution of the people; absence of great cities.

tion of fifty thousand. Nowhere on the globe, with the possible exception of China and Japan, is there so vast and dense an agricultural, or country, people as in the provinces of India.

If we look at the distribution of this great mass of human beings according to the religions which they profess, we shall find first of all the prevailing Hinduism, or Brahmanism, which has its basis ultimately in the Veda and in the

Proportion of population among the castes.



VIEW IN THE PUNJAB, SHOWING THE GOVERNOR'S RESIDENCE AT SIMLA.—Drawn by G. Vuillier, from a photograph.

The disproportion thus expressed between the agricultural distribution of the ancient peoples of India and the city aggregations of Europe and America not only surprises the statistician, but affords the elements of a profound problem in the progress of civilization. The census of 1871-72 shows four hundred and ninety-three thousand four hundred and forty-four towns and villages in British India, but of this number there are only forty-four that have reached a popula-

bards of the Aryan immigration. Of these Hindus there are over one hundred and thirty-nine million. They are distributed in general throughout Southern India and in the upper valley of the Ganges. The student of history will revert readily to the many Mohammedan invasions and conquests that have been made in different parts of the countries now dominated by England in the East. Next after Hinduism is Islam, whose followers in Sindh, the Punjab, Eastern Bengal, and the Northwest provinces number over forty million.

<sup>1</sup> Census of 1880.

In the Central provinces, in Bombay, and sparsely scattered in other districts is a large element derived from the Old Dravidian population, which still professes various forms of religion of the Mongoloid character quite unlike, in ceremonies and superstitions, to the other faiths of India. These aboriginals number about five and a half million. Fourthly, the Buddhists and Jains who are confined to British Burmah number over two million eight hundred thousand. The sect called the Sikhs are found only in the Punjab, and number a million one hundred and seventy-five thousand. The Christians, who are as yet confined to the coast cities and a few isolated spots in the interior, number eight hundred and ninety-seven thousand, while certain unclassified clans, professing peculiar beliefs here and there, are registered at over half a million. It will thus be seen that the Hindus proper, or Brahmans, if we use the religious term by which they are distinguished, are more than three times as numerous as all the other religious divisions of the Indian races.

Before proceeding to the ethnic classification of the peoples of modern India, it will be of interest to notice a peculiar general feature relative to the proportion of the sexes. Of the hundred and ninety-one million of people in British India there is an excess of males over females of nearly six million. The proportion is about one hundred to ninety-four. In the province of Oudh the males are seven per cent in excess of the females, and in Bombay eight per cent. In the Northwestern provinces the excess rises to twelve per cent, and in the Punjab as high as sixteen per cent. It has been currently

Ethnic and religious elements in the census.

Excess of males in the Indian races.

believed that the practice of female infanticide so much in vogue among aborigines and in the Oriental countries has produced this result. There are places in India, such as the Meerut district, in which there have been found as many as seven boys to one girl, and in other provinces the disproportion is almost as great.

We pass on to consider the true ethnical classification of the peoples of India. The grouping of these races is most largely effected on the basis of religion and caste. Of these there are five principal divisions, each of which is widely distributed and numerous. In noticing these, we will proceed according to antiquity of occupancy in the country; that is, we will notice the oldest Indian races first and the more recent afterwards. There is, of course, some obscurity in determining the relative antiquity of ancient peoples, but linguistic science is generally a sufficient evidence of priority and order of development. Glancing, then, at the ethnic divisions of the Indian stocks, we find:

1. *The Old Dravidians and their Descendants.*—The derivation of these from the Mongoloid stem has already been noticed in a former chapter. In general, the peoples of this stock are found in the southern part of the peninsula, but branches of the family extend as far north as Chuta-Nagpur. They are, doubtless, the oldest race in India. Most of the Dravidian tribes are associated in tolerably compact settlements, but in some parts of the country, especially toward the north, they are sparsely scattered among the other races. Twelve distinct Dravidian languages have been examined and classified. These are the Tamil dialect, the Malayalim, the Telugu,

Five principal divisions of the Indican populations.

Distribution and tribes of the Old Dravidians.

the Kanarese, the Tulu, the Kudugu, the Toda, the Kota, the Gond, the Khond, the Uraon, and the Rajmahal. Each of these tongues has its peculiar

with the Bhils of Bombay on the west, and extending to the Sontals of Bengal in the east. The race characteristics of these peoples are thought by some eth-



OLD DRAVIDIAN TYPES—KHOND CHIEFTAINS.

vocabulary and grammatical structure, all different by a wide departure from the other languages of India.

2. *The Hill Tribes of Central India.*—These are the upland races, beginning

nographers to be in affinity with the Negroid family of mankind, but this is, perhaps, incorrect. They, like the Dravidians, are of Mongolian extraction,

Kolarians, or  
hill populations  
of the interior.

and belong to an original stock derived from the same stem with the Dravidians themselves. All these hill tribes are associated together by a linguistic classification, and are known by the name of Kolarians. They appear to have entered

and the Dravidians is the difference between a more ancient and a less ancient stock of people migrating into regions of the same country by different routes. Difference between the Kolarian and Dravidian races.

In Central India the two families have had considerable contact and intermixture, and in these provinces the Dravidians have given character to the race. The latter are much the more numerous, and are massed toward the south, extending as far down as cape Comorin, while the Kolarians are scattered through the northern region in isolated tribes. The Sontals, who are the easternmost representatives of the race, occupy the extreme eastern edge of the table-land of Central India, next to the valley of the Ganges. On the west, at a distance of four hundred miles, dwell the Kurkus, separated from their kinsmen by mountain ranges, great forests, and intervening tribes of Dravidians and Aryan descendants.

In Northern India, Madras, and Orissa are found the remnants of the Savars, a degenerate and mendicant people, reduced to the rank of servants, yet their name was known in the earliest ages of history, and is mentioned by Pliny and Ptolemy. The Kolarian languages are divided into nine principal groups: the Santali, the Mundari, the Ho, the Bhumij, the Korwa, the Kharria, the Juang, the Kurku, and the Savar.

There is a marked difference between the vocabulary of the Kolarians and that of their race kinsfolk, the Dravidians on the south, and the grammars of the two peoples are as distinct as those of German and Greek.

3. *The Indo-Chinese Races.*—These be-

உவகன மனது மிகவுருசோமபலாயிருக்கின்றது. இந்தசோமபலினாலுமவுகீகப்பொருளினமேலிருக்கிற சாககிரதையினாலும கெடுத்யேயலலாது ஒரு நல்மையாகிவ முண்டாகமாட்டாதே.

ஆகையாற்பொருளாகையெலலாததுன்பத்திற்கும் பாவத்திற்கும் வேராயிருக்கிறபடியினாலே அதைக்குறித்ததுதேவவசனத்திலேசொல்லியிருக்கின்ற உவமைபக்கேட்பீர்களாக.

அதாவது, “ஐசுவரியமுள்ள ஒருமனிதனுடைய காணி பூமிநன்றாயலினைநதது. அப்பொழுது அவன தனக்குள்ளே சிந்தித்துக்கொண்டுசொன்னதாவது, எனதானியத்தைச்சேர்த்துவைக்கிறதற்குவேண்டிய இடமில்லையே. நான என்னசெய்யலாம்? என களஞ்சியங்களைநான இடித்துப்போட்டு மிகவும பெரிதாகக்கட்டி எனக்குண்டான தானியமயாவையும் எனப்பொருள்களையும் அவகேசேர்த்துவைக்க இப்படிசெய்யவேண்டும். பின்பு என ஆததுமாவே! அநேகவருஷங்களுக்கு உனக்காகமிருந்தபொருள்களவைக்கப்பட்டிருக்கின்றது ஆகையால இளைப்பாறிப்பொசித்துக்குடித்தமகிழ்ச்சியாயிருவனதுநாளை எனதைதுமாவுடனேசொல்லாமென்றான. பராபரனே அவனுடனேசொன்னது, புத்தியின்னே! இந்த இராததிரியிலே உன ஆததுமாவை உன்னிடத்திற் கேட்டுவாங்கிக்கொள்ளப்படும. அப்பொழுது நீ சேகரித்தவைகளையாருக்காக இருக்குமென்றார். பராபரனில ஐசுவரியவாசுயிராமலதகைக்காகப்பொகிஷிகளைச்சேர்க்கிறவனுக்கு அப்படியே சமப

SPECIMEN PAGE OF TAMIL BOOK.

India, especially Bengal, by the north-east passes of the mountains. Their habitation geographically is along the northern and eastern edges of the triangular table-land constituting the southern half of India.

The difference between the Kolarians



GROUP OF LANDAKIS, OR HILL, HINDUS.—Types.—Drawn by G. Vuillier, from a photograph by De Frith.

long geographically to the slopes of the Himalayas, to the valley of Assam, and to Burmah. The latter country is wholly occupied by people of this stock. In Northern Bengal there are certain low castes, half Hindu and half Kolarian in their characteristics, who are also thought to be Indo-Chinese. It is evident that this

**Tribal and linguistic divisions of the Indo-Chinese.**

there are more than twenty dialects: the Cachari or Bodo, the Garo, the Tripuara Mrung, the Thibetan or Bhutan, the Gurung, the Murmi, the Newar, the Lepcha, the Meri, the Aka, the Mishmi, the Dhimial, the Kanawari, the Mikir, the Singpho, the Naga dialects, the Kuki, the Burmese, the Khyeng, and the Manipuri. These twenty dialects are allied in their

grammatical formation and vocabulary like the Romance languages of Europe. The affinities of the Italian, French, Spanish, and the Portuguese may well illustrate the analogies of Thibetan, Dhimial, and Burmese. The names of numerals, of common objects of sense, the organs of the body, and common actions are usually expressed by root words which are essentially the same in all. No accurate enumeration of the numbers speaking the Thibeto-Burmese languages has been made. It is estimated that fully forty million of people speak the Kolarian tongues in the several dialects, and doubtless the Indo-Chinese group is much in excess of the Kolarian.

The three principal Indian races which we have here mentioned, the Dravidians, the Kolarians, and the Indo-Chinese, may all be defined as non-Aryan peoples to distinguish them from the domi-

nant race. They do not, therefore, come distinctly within the range of the present discussion, which is intended to cover the Aryan peoples of India. But the presence of the above races among the Hindus proper, and the large degree of ethnic admixture which has occurred along all the lines of contact, make it desirable to refer in this connection to the aboriginal races, although



HIGH-CASTE HINDU (ANANT RAM, PRIME MINISTER)—TYPE.  
Drawn by E. Ronjat, from a photograph by Burke.

race came into Burmah and Assam by the northeast passes of the Himalayas. They have clearly had an original common home with the Chinese and other Mongolians of Central Asia. There is a similarity of dialect, in some instances so marked that particular expressions might be understood alike in Bengal and Canton. The linguistic designation of the Indo-Chinese group of nations is Thibeto-Burmese. Of this family of languages

**Dravidians,  
Kolarians, and  
Indo-Chinese  
are non-Aryan.**



they have been deduced from a Mongolian rather than an Aryan stock.

4. *The High-Caste Hindus.*—These are the dominant nations of India. In num-

Dominant Indians are high-caste Hindus.

bers they probably surpass all the rest combined.

Likewise in influence they are superior. Their intellectual, and

perhaps we should say their moral, development greatly surpasses that of any other Indic people, unless we should except the Christian colonies, and doubtfully the Mohammedans. Generally speaking, the Hindus are the lineal descendants of the Old Aryans who came, in prehistoric times, into the Indian valleys and conquered and overran the aboriginal inhabitants. At what date this occurred it is not possible to determine. The Hindus themselves believe that the Vedic hymnal was composed at or before the beginning of time. Some of their philosophers, more moderate in their estimates, place the date at 3001 years before our era. The best estimate which modern scholars have been able to make fixes the minimum of 1900 B. C. as the date for the composition of the older hymns of the Veda.

It is not possible to make the ethnic line which defines or includes the Hindus proper correspond with the caste lines which we have already drawn. Of course, the Brahmans are all included in the ethnic class of Hindus.

Ethnic and caste lines do not coincide.

The Kshatriyas likewise belong to this race; also

the Vaisyas, or at least the greater portion of them. But at this point the intermingling of races begins to show its effects, for the Vaisyas have in many parts of India absorbed a considerable

amount of foreign blood from the Dravidians and Kolarians. In some parts the Kolarians have made their way into the Vaisyas caste, so that at this point the ethnic line can no longer be made coincident with the caste line between the Vaisyas and the Sudras.

5. *The Mohammedans.*—These came by



MUSSULMAN OF CASHMERE—TYPE.  
Drawn by E. Zier, from a photograph by Burke.

conquest. They were originally Arabs, Afghans, Mughals, and Persians. In successive invasions, occurring at intervals sometimes of centuries, the followers of the Prophet have thrown themselves from the west into Sindh, the Punjab, and all the Northwest provinces. On some occasions the impact has carried

Place of the Mohammedans among the Indian races.



HINDU PRINCES—TYPES—THE MAHARAJAH AND HIS COURT.—Drawn by E. Konjat, from a photograph by Burke.

bands of invaders as far east as Bengal. These conquests have always been accompanied with religious propagandism. Islam has borne the sword in one hand and the Koran in the other. Indeed, the impulse which has carried the armies of the Prophet north, south, east, and west from the original seat in Arabia has always been rather the spread of Islam than the mere conquest of nations.

On the whole, the Mohammedan invasions in India have by this criterion been attended with success. More than forty million of people have adopted the Arab faith, and we thus have another remarkable example of the interfusion of a Semitic religion among the Aryan races. Next to the Hindus themselves the Mohammedans are the most populous division of the Indian nations. The difference in numbers, however, between them and the non-Aryan Kolarians and Dravidians is not great, but in respect of spirit and power the Mohammedans are infinitely above the aboriginal peoples of the south. Indeed, if we regard the Islamites as a caste in Indian society, it would hardly be an exaggeration to say that in pride, arrogance, exclusiveness, and bigotry they are fairly the rivals of the Brahmans themselves. **The great mass of Mohammedan population is distributed in Bengal, in Western and Northwestern India, and along the borders of those Iranian countries where the faith of the Prophet has long been in the ascendant.**

We must now, however, omit the

non-Aryan populations of India as the same belong to other parts of this work.

We shall attempt to fix our attention more exclusively upon the descendants of the dominant race known by the ethnic name of Hindus, but classified religiously as adherents of Brahmanism. It is among the Hindus that the real power and intellectual forces of the native races of Hindustan are found. The Brahmans have in their possession not only the sacred books in which the faith of the Indians is recorded, but also the philosophy, the science, and the jurisprudence of the Hindu race. In like manner they have been the creators and the custodians of the secular literature, such as it is, and of the educational forces existent in Indian society. Their exclusive claims in all of these particulars amount to a monopoly of the real life of the Indian races.

The Brahmans are close alongside the native Hindu princes, and are their counselors and teachers. Locally, they have the center of their power in the great middle region of India, just as the southern triangle has an excess of the Old Dravidian populations, and as the slopes of the Himalayas are occupied by the Indo-Burmese. The Brahmans, as the spokesmen of this dominant Hindu race, represent not only the mind, the will, the purpose, and the native power of modern India, but also the continuity of the Aryan race and the institutions of that race from the earliest epoch of human history to the present day.

The Brahmans represent the intellectual forces of the Hindus.

## CHAPTER XL.—ANIMAL AND VEGETABLE RESOURCES OF INDIA.



THE Aryans began in India as poets and warriors, and have ended as priests and peasants. The primitive aspect was one of aggression, conquest, energetic activity; the present aspect is one of submission, quiescence, passivity. There is only one point of view from which the energies of the race may be said to be unabated, and that is in the perpetual but timid industry of the people. It is now proper to review briefly the conditions of environment under which the transformation of the India of antiquity into the India of modern times has been effected.

This vast region, a peninsula in its general form and relations to the sea, has perhaps been less affected in its original conditions of climate and physical character under the great and continuous burden of population than has any other country of like extent on the globe. The traveler, the ethnographer, the historian, is to-day able, as in the times of Alexander or in the times of the Vedic bards, to scrutinize the movements and products of physical nature essentially unchanged and but slightly varying from what they were in the time of the prehistoric Mongolian aborigines.

India has always been a land of vast and varied resources. In the earlier ages of Aryan domination the conquerors were brought into relation rather with the animal life of the peninsula

than with the products of the soil. In the beginning all people must be hunters, warriors, adventurers of the hill and jungle. Here in the valleys of the rivers, in the wooded uplands, and on the slopes of the Himalayas, steep-up to the clouds, they found a variety and abundance of animal life unequaled in any other part of the earth. It is now recognized as a fact by zoölogists that a majority of all the animals, great and small, common to the north temperate belts of the earth have their origin, or at least a native place, in India. Nearly every species of creature, from the domestic fowl to the éléphant, may be found, with its pristine habits and in its original abode in the vast wilds of the Indian jungles.

To note particularly the principal animals of this great region would require a separate treatise. Here from the earliest ages the Animal life of India; tigers and leopards. lion has flourished, and from hence the striped tiger has carried the name of Bengal to every spot on the planet where a collection of wild beasts has been established or a traveling menagerie has pitched its tents. To the present day the people, even in thickly settled districts, are in mortal dread of this formidable beast, who from the days of the beginning has been known as a man-eater. Within the last quarter of a century a single tiger has killed hundreds of people before he could be destroyed. In one instance a country having an area of two hundred and fifty square miles and thirteen villages was thrown out of cultivation and abandoned from the ravages of one tiger!

Slight changes in the environment of the Indians.

Vast and varied resources of the country.

Leopards also are found in all parts of India, and being much more numerous than tigers, are on the whole more destructive of life and property. One variety, known as the Cheetah leopard, has been domesticated and trained to hunt. In the chase of the antelope this creature is used, and by its speed and

considerably troubled, with wolves. Of old time the antelope, the wild goat, and the hare were their prey, but with the increase of population and the spread of the pastoral life they turned to the sheepfold. Sometimes they attack man. As late as 1827 a single neighborhood

Country infested with wolves and jackals.



VIEW IN THE HIMALAYAS.—A MOUNTAIN VILLAGE.—Drawn by G. Vuillier, from a photograph by Baker.

activity is a powerful auxiliary to the hunter. It is said to surpass in swiftness of flight any other wild beasts in India. Its peculiarity of habit is that if it misses its prey at the first bound, it will make no second attempt, but return apparently mortified, to its master.

All the open country between the Indus and the Ganges was originally infested, and is to-day in wooded districts

lost thirty children by the ravages of wolves. Next in order may be mentioned the Indian fox and the jackal, whose hideous yell by night may be heard in most of the country districts of India. The latter animal is sought by the European huntsmen who are settled here and there in the country, for whom the jackal takes the place of the fox in the hunt of the Western nations.

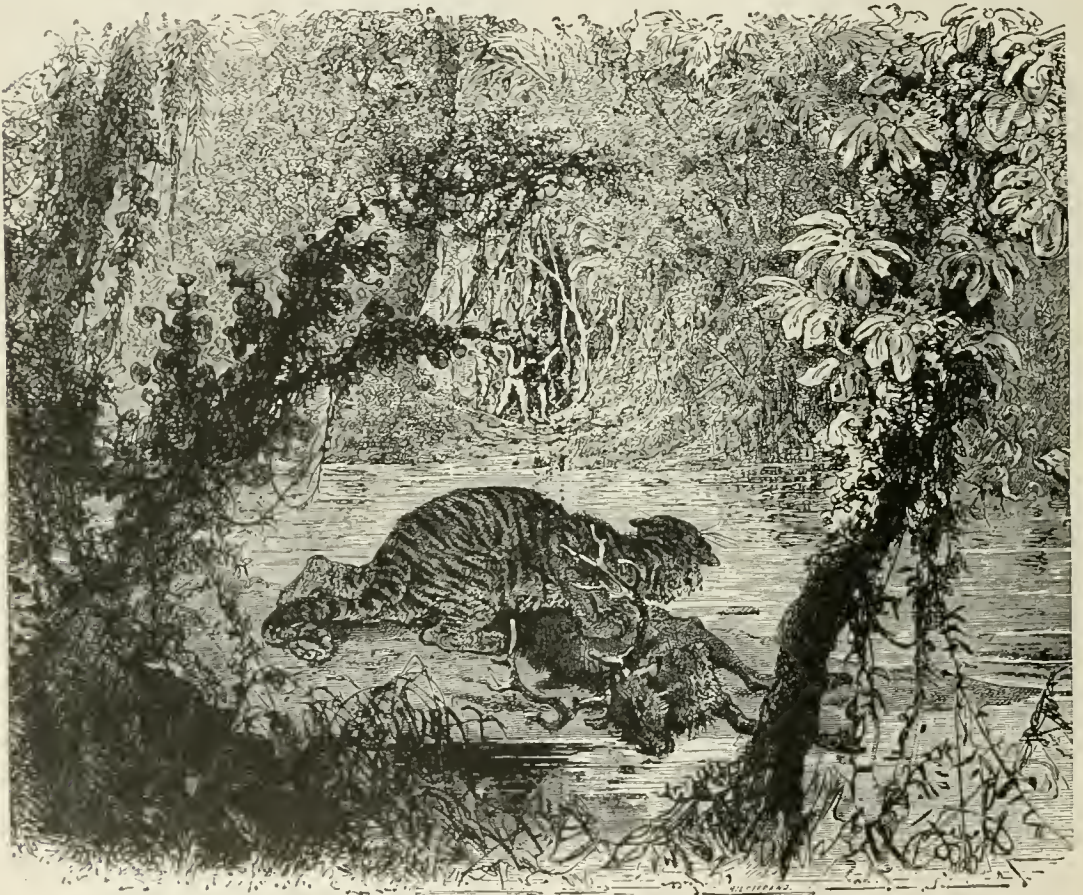
Dogs, wild and tame, are numerous. The *Canis dhola* is an inhabitant of the wildest jungles. These, indeed, are his native lair, and have been so from the prehistoric ages. Of bears, there are many varieties throughout all India. The black, or sloth, bear is found in the forests and on the mountains. This is

The *Canis dhola*,  
the sloth and  
the sun bear.

the other almost as large as the grizzly of the Sierras.

The elephant is native to all parts of the country except the Northwest provinces. His native abode is the hill-country rather than the plains. He does not much descend into the river valleys, but takes to the higher ridges. In the south-

The elephant  
immemorial in  
India.



ANIMAL LIFE OF INDIA.—STAG SLAIN BY A TIGER.—Drawn by A. de Neuville, after Delaporte.

the creature so strangely marked with a white horseshoe on his breast. The Thibetan sun bear is found along the mountain spurs, all the way from the Punjab to Assam, but never at a lower level than five thousand feet above the sea. The Malayan sun bear inhabits British Burmah, along with two other species, one of which is quite small and

ern peninsula the elephant has been nearly exterminated, but a few are still found in the forests of Coorg and Mysore, and in the states of Orissa. It was out of India that the elephants were drawn in the classical ages and trained for the shock of battle. From this source Hannibal drew his supply when Rome trembled under the march of his armies.

Four varieties of rhinoceros are found in India. Two of the species are unicorns, and two have double horns.

The principal pachyderms and ruminants.

They most abound in the valley of the Brahmaputra and in the Sundarbans. Its habitat is mostly in swampy places, and its manner of life like that of swine,

on the slopes of the Himalayas, where some of them range as high as twelve thousand feet above the level of the sea. Here also is found the ibex, even on the highest ranges of the mountains; also the chamois, in the Himalayas, from Assam to Burmah.

It would be vain to enumerate the an-



RHINOCEROS FIGHT AT BARODA.—Drawn by Emile Bayard.

or even the hippopotamus. From the earliest times the wild hog has abounded in the Indian jungles. Its habit is to hover along the edges of settlements and to gratify its predatory habits by plunging into fields and villages. In the deserts of Sindh and Kachheh the wild ass still exists, as in the times of the Aryan migration. Many varieties of wild sheep and wild goats are found

telope and the deer, with its many species, the bison, from the gaur of the Western Ghats to the gayal of the north-eastern frontier. In the latter region the bison has been domesticated, and is used by the aboriginal tribes in their sacrifices. In Burmah the buffalo is found, large and fierce. The heads of some bulls captured in modern times

Habits and size of the Indian buffalo.

have been as much as thirteen feet six inches in circumference and fully six feet and a half between the tips of the horns. The animal reaches a height of six feet, and compares favorably in magnitude with the tremendous creatures formerly inhabiting the great American plains of the West.

Of birds, there are an endless variety.

generally innocuous. The inhabitant of the safe countries of Europe has little apprehension of the deadly work of those Indian serpents, of which the cobra de capello is the imperial and venomous king. The fatality from snake-biting is everywhere increased by the superstition of the people, who generally regard the snake with veneration. The



INDIAN BUFFALOES.—Drawn by Mesvel.

The reptiles of India have been known from the earliest ages for their tremendous size and poisonous bite. The most deadly serpents to be found in any part of the world lurk in the dank jungles, along the river banks, and even in the uplands of the Deccan. It is said that all the salt water snakes of India are poisonous, while those of fresh waters are

Prevalence of reptiles; loss of life thereby.

census of 1877 returned a total of sixteen thousand seven hundred and seventy-seven persons killed in a single year by the bites of serpents.

It is against this great phalanx of animal life, fierce and malign, that the Indian races have flung themselves for thousands of years. It has been a war at once offensive and defensive, and the battle has not infrequently gone against



the man. In no other quarter of the habitable globe does the wild animal life peculiar to the primeval world stand forth against the human race, even to the present day, in such fierce and defiant antagonism as in this thickly populated India.

It is a strange reflection that after fully four thousand years of conflict, during which the great peninsula reach-

a stronger arm and better prospect of victory than does his timid, light-limbed, brown-bronze descendant.

In course of time, no doubt, every species of savage creature will be exterminated from the world. The multiplication and expansion of the human family will carry the abodes of man into the reclaimed fenlands, to the river brink.

Civilization exterminates all savage forms of life.



DEADLY SERPENTS OF INDIA.—THE BUNJARIS FASCIATUS.—Drawn by R. Kretschmer.

ing into the Indian ocean and embraced by the Indus and the Ganges has never wanted for multitudes of inhabitants, the

The Indian races have not subdued the wild beasts.

man has not on the whole held his own against the beast. It is likely that the

primitive Aryan adventurer who penetrated the jungles while the earliest poet of the Vedas was still chanting his hymns in Sindh and the Punjab, met the fierce creatures of the woods and marshes with

through the wild morass and woodland, and up the mountain slopes beyond the line of snow. The spread of civilization, as exemplified in the cultivation of the soil, in the improved means of defense, in the scientific mastery over every element in the environment, will demand and accomplish the extinction of all the hurtful races of lower animals. In some parts of the earth poisonous reptiles and savage beasts have already disappeared.

Even in the New World the rattlesnake, the viper, the panther, and the bear have either totally vanished or maintain

maintain and perpetuate the wilder and more dangerous varieties of animal existence, but this condition could soon be



THE TIGER HUNT.—Drawn by Tanley Berkeley, from nature.

a precarious existence among the mountains or inaccessible ledges of rock. The same thing will happen in India. Doubtless the country is well situated to

changed by a larger expenditure of gunpowder and a less supply of Brahmanism. Both of these modifications in the existing status of India will occur in

time, but perhaps the day will never come when the tradition, and even the historical record of the fierce conflict between human and mere animal life in this region of the world will pass away.

There is no more spectacular display of man's activity than in the tiger and elephant hunts of Hindustan. For how many centuries such exhibitions of nat-

**Spectacular character of the tiger hunt.**

ural combat have occurred it is impossible to say.

The defensive fight for life with the tremendous beasts of the Indian jungle must have begun with the apparition of the human race in the valley of the Indus. Not only the battle to the uttermost has been perpetually renewed for thousands of years, but the fight for capture has brought out the ingenuity and daring of the native races, and even taxed the skill and courage of foreigners dwelling in the land. The census of 1877 showed the destruction of a thousand five hundred and seventy-nine tigers in a single year.

The character of the tiger hunt has taxed the descriptive pen and the artist's

**Use of the elephant in hunting; the tiger's habits.**

brush. The favorite mode is from the back of the elephant. The scene has

been many times described. The hunters fix themselves with their spears and javelins and guns on the back of the huge beast and enter the jungle. The tiger is roused from his lair, and the battle begins. The elephant is trained to perform his part of the conflict. With his tusks and huge trunk made into a flail of destruction he lays about him in what is many times a vain endeavor to strike the terrible cat that springs about him. The weaponry of the Indian hunters is generally inefficient. Many lives are lost in the conflict, and the battle is usually long and

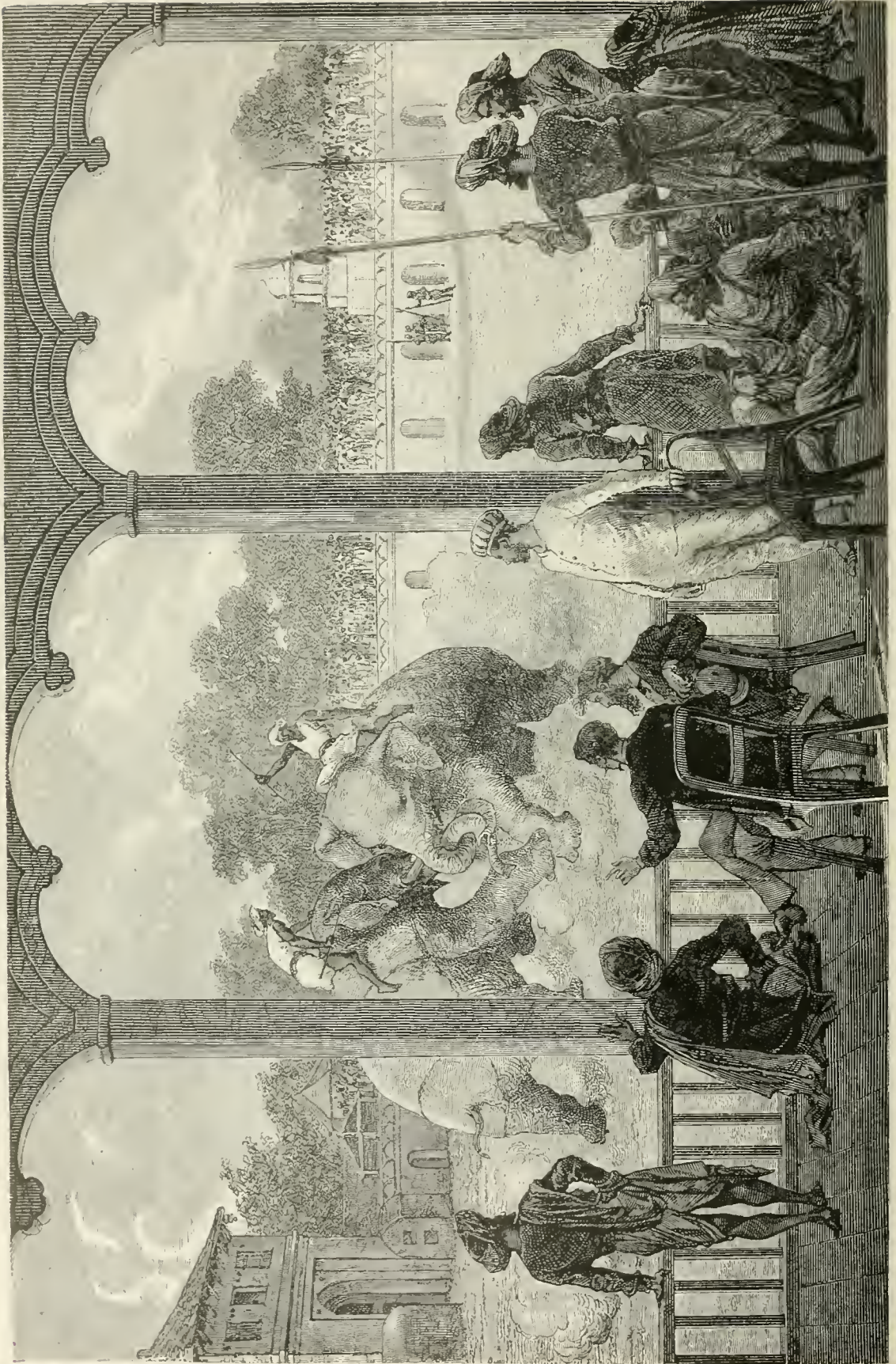
evenly contested before the tiger is slain. Another method is the construction of elevated platforms, framed of the boughs of trees in a jungle, from which height the hunters fight, as from the elephant's back. The tiger, until he is wounded or has had a taste of human blood, will escape from the presence of man; but if he is hungered, or has suffered pain at his enemy's hand, or particularly if he has wet his pink tongue with a drop of human blood, he will never desist until he has devoured his enemy, or is himself slain or captured. In Assam the tiger hunt is conducted in boats on the rivers. The spearmen thus gain a great advantage by being out of reach of the bound of their enemy and having his movements impeded in the water.

In all parts of India, except in the Northwest provinces, the elephant either abounds or may be discovered for the seeking. That part of India which fur-

Native land of the elephant; elephant hunting.

nishes the best supply is the hill-country forming the northeastern boundary between Hindustan and Assam and Burmah. Here the monster not infrequently reaches the height of twelve feet, and but for his clumsiness he would be the most formidable natural foe that man has found on the earth. The hunters must approach him on foot. Horses are generally an impediment. Several methods have been adopted of taking the elephant alive. The hunt to the death is not only dangerous in the last degree, but difficult on account of the invulnerability of the animal. Nearly all parts of his anatomy are proof against the bullet of even improved firearms. In a few spots the well-directed ball may reach the seat of life.

Generally the killing of an elephant is a tedious and barbarous work. This is now forbidden by the government of



ELEPHANT FIGHT AT BARODA.—Drawn by Emile Bayard.

British India except in cases of necessity, but the capture alive of elephants is much practiced. The taking, however, is under strict regulation of law.

Capture alive; methods of taking and taming.

In 1887-88 two hundred and sixty-four elephants were captured in the province of Assam. The profit of this work amounted to three thousand six hundred pounds sterling. It is a government monopoly. In 1873-74 Mr. Sanderson, one of the officers of the government in Mysore, studied the habit of the elephant, and devised a plan by which he captured fifty-three animals in a single hunt. The former method of taking the creature was by driving him into a pit. In this he was generally made to fall upon a sharpened stake, which worked its way into his vitals. The prevailing method is to find a company of elephants in the forest, to rouse them and drive them into a strong stockade, where they are shut up and reduced, by starvation and by the agency of tame elephants, to submission and docility. When tamed, the animals are used in the government transportation of timber and for other heavy draught and powerful exertions. They are also taught to fight, and their combats are perhaps the most spectacular and exciting contests to be witnessed in the world. Among the natives the princes and nabobs are, as they have always been, ambitious of the distinction of going about gorgeously mounted on tame elephants.

It is not to be doubted that a good deal of the timidity and fearfulness displayed by the people of India is attributable to the dangers to which they are exposed on account of poisonous reptiles and other lurking foes. The methods which they have adopted to defend themselves against such enemies are multi-

Race timidity traceable to fear of beasts and reptiles.

farious. In some districts where venomous serpents abound a plan of building is common which is determined in its main feature by the consideration of safety from reptiles. The houses are put on piles or large stakes at considerable elevation above the surface. By this means a space is left between the domicile and the earth, over which it is difficult for the fanged enemies of man to make their way. The edifice considered apart from its situation is perhaps almost identical in structure with the prehistoric lake dwellings of Switzerland.

The maintenance of a food-supply is the prime consideration with every people of the world. In a country like India there must needs be vast natural resources. The whole peninsula may be said to be inclined toward the sun. On the north the great wall of the Himalayas rises, and from the spurs of this immovable buttress the land slopes to the sea. In these majestic mountains are the treasures of the snow. Here scores of rivers take their rise, and southward tending combine their waters in the great streams which are one of the fundamental physical features of India.

Physical setting of India; the native land of rice.

The Indian valleys are as rich as any on the globe. Great, however, is the difference between them and the low-lying alluvium of the Nile and the Lower Euphrates. The river banks in India are marsh and jungle. Nature is rank in the last degree. Among the sappy and dense-growing products of the valleys many grains and fruits grow wild, which under the improving direction of man have become the great cereals in the markets of the world. As far back as the days of Pliny and the oldest naturalists of the Græco-Italic peoples the grain known by the Greek name of *oryza*, the modern rice, sprang

plentifully and wild in the lowlands of Southern India. Thus it grows to the present day; now the old native grain of the marshes is preferred by the native nabobs and princes to any of the cultivated varieties.

India has been regarded as par excellence the native land of rice. The belief is not warranted by the facts. True, the rice swamps of British Burmah are among the most fruitful in the world. In Rangpur eighty-eight per

Extent of the rice crop in different districts.

the facts. True, the rice swamps of British Bur-

the average crop is as high as two thousand five hundred pounds per acre. In 1878 the exports of this cereal from Calcutta amounted to one billion six hundred million pounds.

The rival grain of rice in India is wheat. Where the one prevails the other does not thrive. The center of the wheat-producing region is the Punjab, and it is not unlikely that here this principal food-grain of the human family was first brought out of the

Extent and character of the wheat product.



SCENE IN THE INDIAN VALLEYS.—VILLAGE OF PERTEMBOKERN.—DRAWN BY RIOU, FROM A PHOTOGRAPH.

cent of the cultivable land is sown in this single crop. In Orissa also—as is indicated by the name of the province—and in the deltas of the Godavery, Kistna, and Kaveri, as well as in the lowlands of Malabar and Kanara, rice culture is the one predominant industry and means of support. In the Northwest provinces the grain is grown successfully, but only in damp localities. But if we look at India as a whole, rice is not the prevailing crop. In the regions adapted to its cultivation, however, the yield is immense. In British Burmah

native state by cultivation to the perfected form which it has had for more than three thousand years. The quality of Indian wheat is satisfactory in the best markets of the world. It is accepted in the great mills of England as the peer of the wheat imported from the Danubian provinces and other favorite localities. The yield, as far as the same has been determined by census reports, is fairly good, averaging about thirteen bushels per acre for the whole area sown in India, as against fifteen and a half bushels for the whole of France.

Millet is next among the field crops of India. Viewed as a food of the people, it is more employed than either rice or wheat. It is claimed that millet is the most fruitful grain in the world as to abundance, and on the whole the best adapted to tropical climates. It is the most widely disseminated of any grain grown in the peninsula. Millet flourishes from Madras in the south, as far north as Rajputana. There are several varieties adapted to the different districts, but nearly all are known as "dry crops," or such as are dependent only on the natural rainfall, while rice and many other products depend upon irrigation.

By one of the strange mutations of history and of language, that fruitful maize called Indian corn has become *Indian* in reality. It is cultivated in nearly all parts of the country, and grows to perfection. Along the Upper Ganges barley is a standard crop. In the Himalayan valleys and in the Punjab oats are grown, but as yet the cultivation of this grain is experimental in the hands of Europeans. Throughout all India the oil seeds are raised in abundance. The demand for vegetable oil in India is very great. It is used for anointing the person, for illumination, and for food. The discarding of animal fats by the people has increased the consumption of the oils produced from seeds. In recent years an export trade with Europe has sprung up, and since the oil seeds can be produced as an after crop, when rice and other grains have been cut away, the production of the oils has become a source of great profit. There are four principal seeds from which oil is produced: the rape seed, linseed, sesamum, and the castor bean. The regions in which these products are most abundant

are the Northwest provinces, Bengal, and for sesamum the presidency of Madras.

No cursory description could do justice to the vast variety of vegetable products springing native or under cultivation in the different districts of India; and the same may be said of the fruits. Among the latter may be enumerated the mango, the pineapple, the guava, the tamarind, the custard apple, the papaw, the shaddock, and an endless variety of figs, melons, oranges, limes, and citrons. In nearly all of these fruits traces of the original native saps may be discovered by the cultivated palate, and they are doubtless not comparable for delicacy of flavor with the corresponding varieties produced by the skillful grafting and cultivation in vogue among the Western nations.

Already, when the traveler enters India, he finds himself in the land of spices. True, the air is not yet burdened, as in Ceylon and the Celebes, with the almost oppressive odors which spring from the groves and native woods of the tropical islands; but the Indian spices are abundant and fragrant. The principal of these products are the chili, or cayenne pepper, the turmeric, ginger, coriander, aniseed, and black cumin. Pepper is mostly produced along the western shores of Southern India, in the region known as the Malabar Coast. The spice called cardamon belongs to the same locality, but is also produced in Nepal. Betel nuts are grown in the deltas of Lower Bengal and in other parts of Southern India.

In all the more tropical parts of the country the palm flourishes. Dates have been plentiful from time immemorial. Three varieties are found: the true date,

Millet the resource of the common people.

Extent and variety of the vegetable products of India.

"Indian" corn, barley, and other cereals.

Abundance and distribution of the spices.

the palmyra, and the bastard. From the last named is manufactured the Jaggery sugar of commerce; also an intoxicating

cocoanut is not only plentiful, but abundant, ranking as a product next in value to rice. Sugar is produced not only



COOLIES AT THE COTTON MARKET IN BOMBAY.

from the bastard date palm, but also from sugar cane, which flourishes in the Northwest provinces. It requires irrigation, however, and is otherwise expensive in production. The manufacture of sugar has remained in the unskillful hands of the natives until in recent times, when facilities for making it have been produced in the Madras presidency and in Mysore.

The cotton plant is also a native of India. It has been found from the earliest times, and the product has supplied the local wants of the country within the historical era. Until the last century cotton was not exported as a prod-

liquor, which is doubtless identical with that described by Xenophon in the *Anabasis*. The true date flourishes in Sindh and the lower districts of the Punjab. Along the western coast of India the

uct from India. Here we touch upon that remarkable circumstance in the commercial history of modern times, balancing and unbalancing the trade of the world during the American

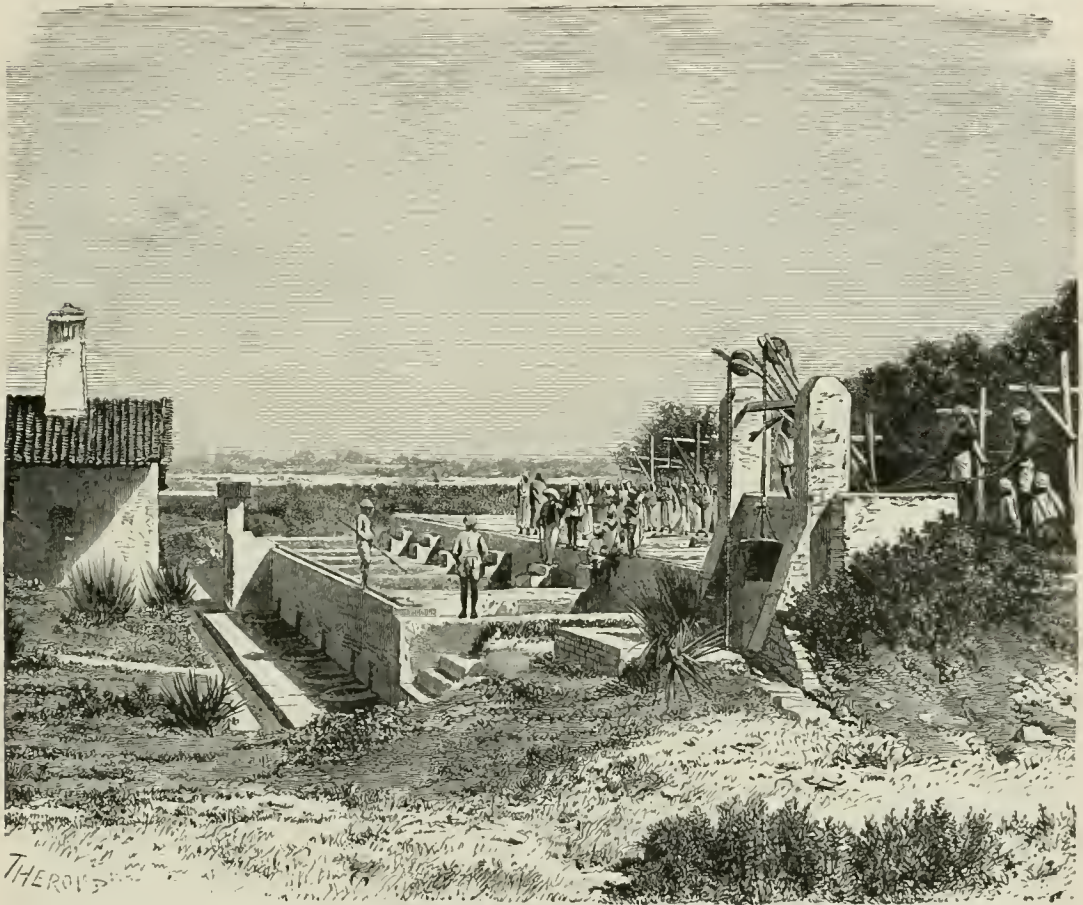
Varieties of dates; sugar and the sugar manufacture.

The Indian cotton crop and Western interests.



Civil War. It will be remembered that in Lancashire, England, seat of the great cotton factories of the United Kingdom, a crisis was reached in 1861 by the closing of the ports of the confederated Southern States. The American market was thus hermetically sealed, and the

portation of cotton had been less than three million of pounds a year, but the cotton industry suddenly sprang up under the tremendous stimulus, until 1866, when the exportation amounted to thirty-seven million. With this year, however, the stress was removed by the



INDIGO FACTORY AT ALLAHABAD.—Drawn by E. Therond.

English factories suddenly stopped for want of raw material.

At this juncture Great Britain turned eagerly to the cotton fields of India.

Cotton production stimulated by the American Civil War. With an open market, the quality of cotton produced in the East was not equal to the American product, and could not be, but in this time of extreme stringency it sufficed to supply the demand. Prior to 1860 the average Indian ex-

opening of the American market, and the Indian exportation immediately fell off to eight million a year. Perhaps no other world market of a great product, balancing at its two poles eight thousand miles apart, has ever exhibited so remarkable a fluctuation.

Next after cotton may be ranked the jute of India. It is virtually a hemp, though the fiber is somewhat coarser. The region of its production is confined

to Bengal, on the north and east. The chief seat of the product is in the valley of the Brahmaputra, where the jute flourishes in the highest degree. It is believed that no other product which has reached to the rank of an important export has done so much in a reactionary way for the comfort of the producers as jute. It is one of those peculiar prod-

The jute industry; extent of the product.

of the Brahmaputra, where the jute flourishes in the highest degree.

Of the purely European products which have been introduced into India, indigo is entitled to the first rank; but the interest in it has declined in the last quarter of a century. In North Behar the industry is as important as ever, and from this single district about half the product of the entire country is derived. The exports of the dye from

Large place of indigo in Indian commerce.



OPIMUM MANUFACTORY.—Drawn by A. Sirouy, from a photograph by Madame Dieulafoy.

nets which does not perish when placed in depot from season to season, and the supply, therefore, may be regulated by the producer according to the demands of the market. In 1872 a million acres were planted in jute, and it is estimated that the area of country in which it may be profitably produced extends to over twenty million of acres. The export from Calcutta has amounted in a single year to more than four million pounds sterling.

all India amounted in the years 1878-79 to nearly three million pounds sterling.

But the most profitable of the East Indian industries, so far as exportation is concerned, is that of opium. The valley of the Ganges and the table-land of Central India are as much a native place of the opium-producing poppy as is Persia herself. The production of opium in India is under the control of the government. In some districts the growth of

Extent, importance, and places of opium production.

the drug is free, and the opium is subjected to a duty in passing through Bombay for exportation. In the valley of the Ganges the product is under supervision of government agencies established at Ghazeepur and Patna, and at these two places the opium is manufactured for exportation. In Rajputana and

had risen to a value of nearly thirteen million pounds, and from this a net revenue was derived by the government of seven million seven hundred pounds sterling.

The tobacco plant grows everywhere in India. It may be said to flourish; all the natural conditions for the product



TEA PLANTATION IN THE VALLEY OF KANGRA.—Drawn by Paul Langlois, from a photograph.

the Punjab the drug is also produced, but only for local consumption. In the other provinces under the dominion of Great Britain the production of opium is prohibited. The census of 1872 showed an area of five hundred and sixty thousand acres in poppy cultivation. The revenue derived by the government in this year was over four million pounds sterling. In 1878-79 the exportation

are favorable; but the quality of the leaf has never found favor in the markets of the world. Indian tobacco is unable to compete with the richly flavored growth of the West Indies and the United States. Tobacco is grown, however, in all parts of the country for native consumption. In the Coimbatore and Madurā districts in Madras the variety

Indian tobacco;  
inferiority of  
the product.

of the plant from which *Trichinopoly cheroot* is manufactured, flourishes, and this is the only tobacco product which competes with that of the West in the markets of Europe. There is, however, an exportation of tobacco from Bengal into British Burmah, where the plant does not flourish. Notwithstanding the wide distribution of the growth of tobacco in India, the importation at Calcutta has amounted to forty million pounds in a single year.

Neither coffee nor tea may be regarded as native products of India. The former has been introduced within the historical period by the natives, and the latter at a time still more recent, by Europeans. The cultivation of coffee is limited to a portion of the Western Ghats and to certain districts in Mysore and Madras. The export of coffee in 1878-79 was valued at a million and a half pounds sterling. The reports of early explorers that the tea plant grew wild in the southern valleys of the Himalayas were without foundation in fact. It is only in Assam that the true *Thea viridis* will flourish without cultivation. In this region it attains the proportions of a real tree, and it is believed by botanists that here is the native place of the plant, and that it was carried hence in early times into China.

Many other products of great importance might be enumerated as belonging peculiarly to India, but the above are sufficient to indicate the general character of the grain and other animal and vegetable resources of the country. In general, everything is rank. The high heat and abundant moisture in the valleys stimulate vegetation, and bring all manner of fruits and grains to early maturity. Three crops annually are not

unusual on the same fields. In the greater part of the country the winter is not sufficiently rigorous seriously to impede the work in fields and gardens.

The rainfall ranges from twenty-four inches in the drier districts to nearly one hundred and twenty-three inches in the rice regions of the south. The rains are periodic, being the result of the monsoon, or sea wind, which blows steadily at certain seasons, bringing on and maintaining a steady and copious rainfall. It is from the occasional, though rare, failure of this monsoon that famine has at intervals possessed the land. In the years 1876-78 nearly the whole of India was afflicted by the partial or total failure of crops. In 1877 the death rate rose, on account of the famine, from six hundred and eighty thousand to a million five hundred thousand. The most strenuous efforts of the government were not sufficient to prevent widespread and dreadful starvation. For two years the monsoons failed to return at the appointed season, and the country was helpless in the grip of drought.

We are now able, from a wide view of the resources of India, of the character of the race predominant therein, of the effects which climatic and other physical conditions naturally entail on man, and of the contact and intermixture of different races, to estimate, though imperfectly, the nature and direction of the human evolution, and of the aspects which mankind would be likely to assume under such conditions and environment. On the whole, we should expect a certain degree of physical degeneration. That the climate of India is effeminating in its effects on man has been plainly demonstrated by actual observation in modern times. It

Coffee and tea not properly native to India.

Precipitation and its relations to the death rate.

Physical degeneration resultant from conditions present in India.

Is a general law that the subsidence into agricultural life from the nomadic pursuit, with its accompanying excitements of the chase and tribal warfare, exercises a deleterious effect on the physical constitution of man. It is a change from a wider and freer and less toilsome mode of activity, from a life of hazard and wild excitements, to the more localized and more laborious methods of the hus-

tending the activity of human life. What may be called the science of diet is still in its infancy. To no class of students is the subject of greater interest than to those who are curious in historical and ethnic inquiry. What is the law of the maintenance of life by food? What shall be eaten as most conducive to strength, to longevity, to the support

Importance of food-supply in relation to race character.



ASPECTS OF INDIAN LIFE.—REPOSE AT NOONDAY.—Drawn by F. Regamey, from nature.

bandman. It is not meant that the agricultural life is without great value in maintaining the physical vigor of those who follow it, but the toil and tameness which are inseparable therefrom are not favorable to the highest development and greatest vigor of the human frame.

We are here again on the very border of that world-wide problem of the relative effect and value of the different foods in sustaining the vigor and ex-

of all the virile energies of man? What may be known scientifically on this subject over and above that simple folklore which the untutored experience and tradition of human kind has transmitted to our age?

Foods have been subjected to a scientific classification. They are divided by physiologists into *hydrocarbons*, *carbohydrates*, and *nitrogenous foods*; and it is now well ascertained that each of these

classes of aliments has its particular value and relation to the physical constitution of man. The characteristic of the hydrocarbons is the presence and excess of oil. This generally exists in the form of animal fats, though oil is also a large product of the vegetable kingdom. But the most concentrated and characteristic development of this food substance is in the fatty tissue of animals. From the earliest ages men have used this substance for the support of life. It is, however, in the more rigorous climates that the appetency of the human being for animal food of this description is most intense. There is a law of natural selection which indicates a diminishing quantity of the hydrocarbons as the human race spreads toward the tropics. There is little or no natural appetite for animal oils in the warmer climates.

The second class of foods are the carbohydrates. In these there is an excess of starch or sugar, just as in the hydrocarbons there is an excess of oil. The cereals and certain ground products, such as the potato, may be taken as the standard examples of the carbohydrate foods. Rice is of this kind par excellence. It will be seen at a glance that the great products of the earth generally yield a high per cent of starch, and in so far as the productive regions of the globe lie within the temperate zones and become more intense in productive energy in the tropics, to that extent the starch-bearing foods are prevalent in the same regions. In general, the line between the hydrocarbon and the carbohydrate aliments, upon which for the most part all animated forms of existence are sustained on the earth, is practically coincident with the line which

Classification of foods; the hydrocarbonates.

The carbohydrates; what foods constitute this class.

divides the animal from the vegetable kingdom; that is, the fat-bearing animals from the field products and ground crops, which are starch-bearing.

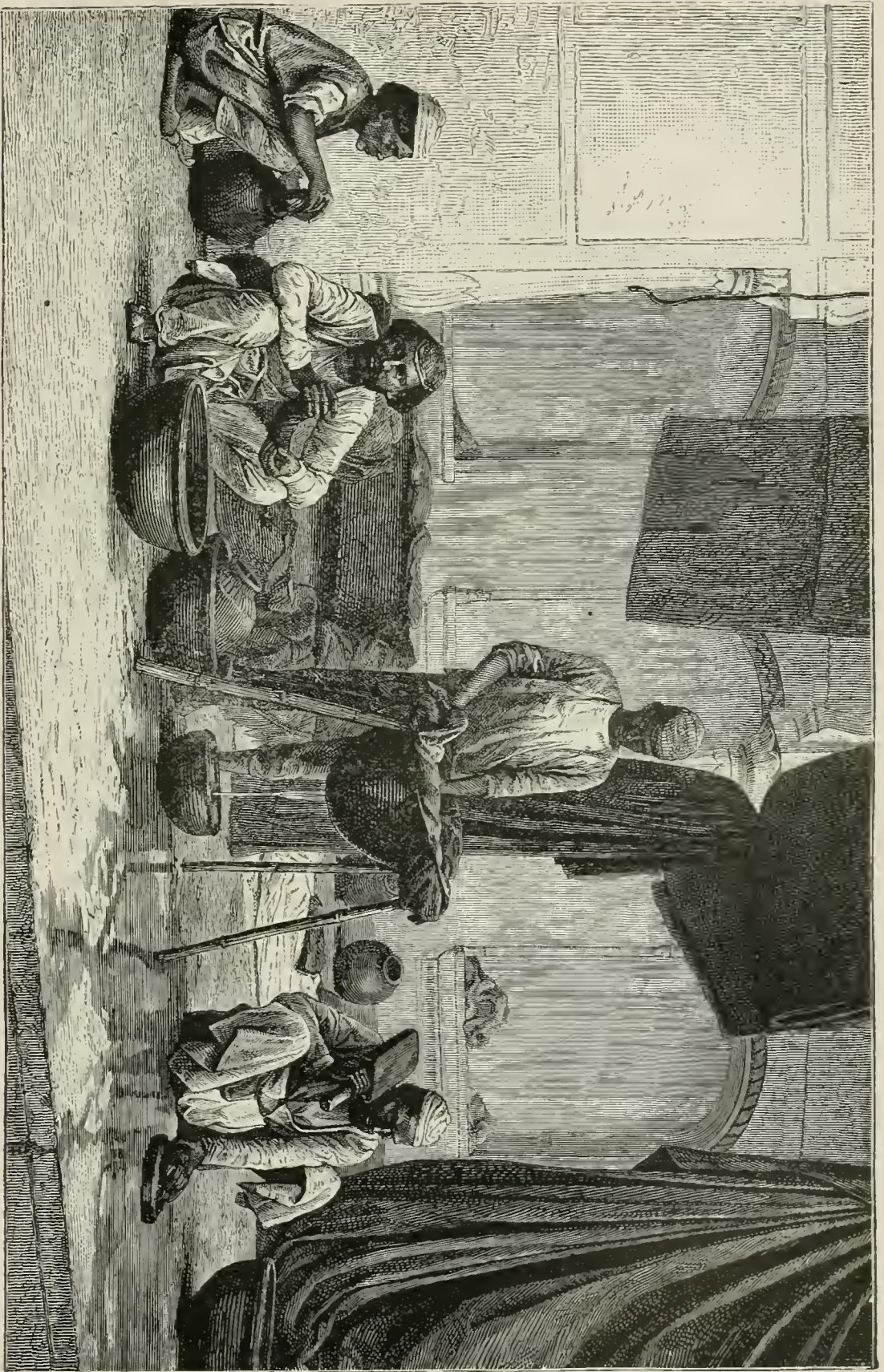
The third variety includes the nitrogenous foods. All highly organized tissue, whether animal or vegetable, contains a percentage of nitrogen. This is generally the fourth element in the quadruple compounds which constitute so large a part of the organic substances of the material world. Nitrogen occurs in all leguminous plants and grains, and particularly in the muscular fibers of all animals. It is a principal constituent of "lean meat," its presence being as constant and conspicuous in such fiber as is carbon in the fats and oils. Among vegetable products all pulse grains, such as peas and beans, are rich in the same element.

The nitrogenous class, and foods containing phosphates.

Besides the three general classes of foods here enumerated, there is a fourth class, though scarcely distinct from the others, in which certain valuable salts are the meritorious element. These are principally the phosphates of lime, of potash, of soda, and of iron, without which as constituents of human food the nervous energy of the body can not be long sustained. These salts are distributed in both the animal and the vegetable kingdoms, perhaps more plentifully in the latter (?), and it is now a well-known fact that the nervous vigor of animals turns largely upon the percentage of the phosphates in the substances upon which they feed.

Now it is the adjustment of the human race to these different classes of foods, as well as to the different climates of the earth, that determines the race tendency of every people. This is said, first of all, of the physical constitution which

Race character dependent largely on the kind of food.



DYERS OF LUCKNOW.—Drawn by A. Duyster.

will be developed in a given environment, and afterwards of the modes of activity and mental dispositions which the given people will display. In a country where muscular exertion is essential to life and welfare, and where man must brace himself stoutly against the opposition of the elements—must face angry vicissitudes of climate and season, the hardships of sterility, the obstacles of heavy forests and oozy rivers with undetermined channels—there must needs be a perpetual feeding upon those elements of nature which furnish the essentials of human energy under such conditions. Here it is that man must fill himself with an abundance of solid food. Under the action of an untutored instinct at first and the discipline of right reason afterwards, he slays the living creatures and eats their tissues and the fat.

It is in the nature of the hydrocarbon foods to supply him with heat. That is the physiological office of the hydrocarbonaceous and nitrogenous foods. all the oil-producing substances of the vegetable kingdom, and particularly of the fat of animals. By this means the superior races feed the fires of life amid the rigors of northern climates. There is an aspect in which man may be viewed as a living furnace. His stomach is a firebox; and nothing that he can cast therein flames like oil. Thus he warms himself, and goes abroad unharmed amid the terrors of the high latitudes, where all forms of life not supported like his own must inevitably perish. But he not only feeds himself with oil. If he is in a region where active exertion is demanded, where the excitements of the chase, the adventures of the wide campaign, the struggle with the obduracy of physical nature, and particularly the flaming excitements of war call out

his energies, he must support his muscular system with an abundant supply of nitrogenous foods. Hence he falls upon and devours the dry meats and the fresh tissues of slain animals, and from this source builds up anew the broken structure of his own muscles, exhausted by toil and strain.

The kind of activity contemplated under the stimulus of foods like those we have here described is not the activity of mere industry. There may be long continued assiduity of application to industrial pursuits without that kind of muscular destruction, without that combustion of the hydrocarbons, which is here delineated. The agricultural life in its milder aspects does not demand the high feeding that is an essential in heroic endeavor. It requires rather a certain steady force, such as is generated from the carbohydrate elements. All agricultural countries fall to the use of grains and vegetables, and to a certain extent abandon animal food. In proportion as the country lies well to the south, the relinquishment of the hydrocarbons will be more complete, and food will be almost exclusively drawn from the field, the orchard, and the garden.

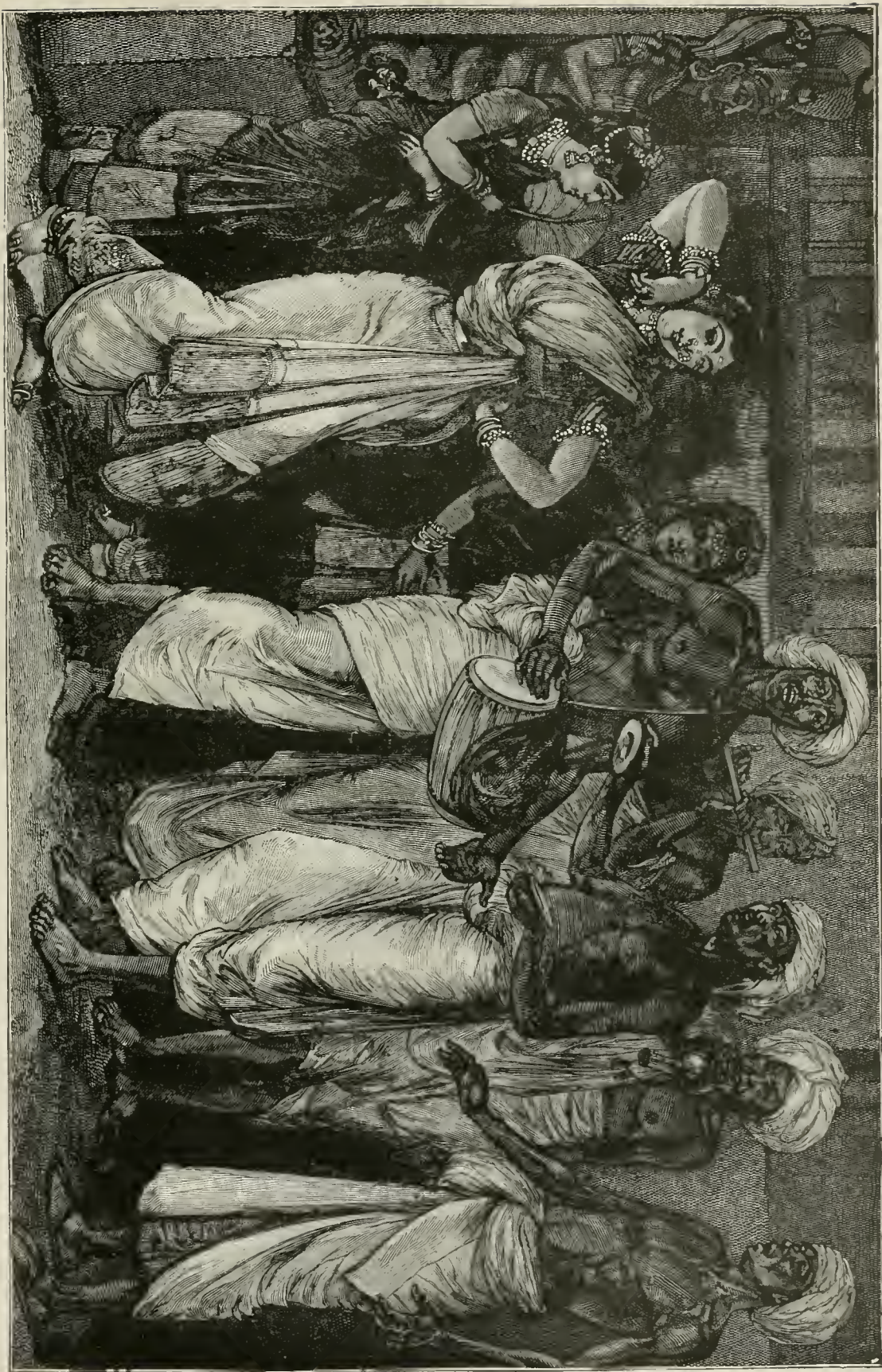
These carbohydrates are the producers of force. The starch foods taken into the human constitution pass by metamorphosis into sugar and from sugar into oil. In the last named form they are consumed. He who demands simple working energy without regard to the waste of his muscular tissue will turn instinctively to the cereals and fruits. Ultimately this tendency lands on rice and potatoes. In countries where nature brings forth abundantly of the cereals, where all ground crops are plentiful and fruits abundant, there will be an *invi-*

In what relation the carbohydrates are naturally used.

The office of hydrocarbonaceous and nitrogenous foods.

Effects of such foods on the human constitution.





ASPECTS OF INDIAN LIFE.—Dance of the BAVADRES.—Drawn by J. Regamey, from the scene.

table shrinkage of the muscular parts of all animals. Man subsisting on such a food will become assiduous in his application, even persistent in his pursuits. He may be lithe and active, supple-jointed and quick in movement, but he will be essentially weak in his skeleton and muscular structure.

Here we have the fundamental conditions which have divided the Aryan race

The Hindu body the result of the long discipline of nature.

in India from the Iranians and from the great races of the West. The Hindu body is the result of a long discipline in

tremendous energies displayed by some of the Western nations in their masterful struggle with an adverse environment in subordinating the forces of nature, in organizing the astounding apparatus of commerce, in planting political dominion even at the distance of thousands of miles from its central source, are set in vivid and exalted contrast with the timid, and effeminate exertions peculiar to the same stock of men as they have grown into mere suppleness under the influences of the Indian sun and the enfeebling tendency of the starch-bearing foods.

One must needs travel through the Indian kingdoms to be properly impressed with the physical character of the people. The high-caste Brahmans, especially in the north, have preserved to some extent the fine stature and manly bearing of their Aryan forefathers; but as a rule, the people



HINDU JEWELER AT WORK.  
Drawn by A. de Neuville.

the hands of nature. It has been constituted under the enervating influences of a semitropical or wholly tropical climate, combined with the results of the substitution of the carbohydrates for the hydrocarbons and nitrogenous foods of the great northern peoples.

As the man is individually, so is his tribe, his nation, his race.

Same laws hold of the race as of the man.

India is not wanting in the display of active and persistent industry, but the industry itself is as feeble as it is persistent. The

are not only low, but slender. They are weak-muscle, and have nothing left of that aggressive physical force which the old stock possessed in its ancestral home and which has been so strongly developed in the Indo-Europeans of the West. It is claimed that Hindu laborers are as industrious as any in the world. Their assiduity can not be denied, but assiduity is not strength. The race is weak. It lacks in courage and audacity. It has fallen into a

Weakness of the Hindus resultant from sustenance and climate.

passive condition which has in it neither power nor progress.

It is held by a certain class of thinkers that no people can ever be powerful and progressive whose principal subsistence is on rice and other starch-bearing products. This is looking at the problem of life as merely a physical phenomenon. It does not take into consideration those other elements which we have previously discussed. It is sufficient to repeat that a race of men as it presents itself in modern times is the *joint* product of two principal forces, one of which is subjective or instinctive in the race itself, and the other an objective, or reactionary physical force, including the elements of climate, food, and shelter. The Hindus have been thus evolved from the old prehistoric condition in which we beheld them in their Iranian homestead and in their migrations to the East. They have been carried forward on the line of race development by the force of instincts which have determined in large measure their mental and moral characteristics, and by physical agencies which have given to the race its visible aspect and character.

Among the other physical conditions that have modified the race constitution of the Hindus may be mentioned the peculiar minerals of the country. In ancient times, and to a limited extent at the present day, India is the country of precious stones. Besides the usual deposits of the metals which provoked at a very early day a considerable degree of skill in metallurgy, the diamond mines and other deposits of those rare stones which have been classified as precious have attracted the cupidity and excited the pride of the Hindu race. Without diamonds and other gems of great value

Precious stones in relation to race character.

such a thing as Oriental magnificence could hardly exist. Barbaric state, such as Eastern monarchs in the Middle Ages and even in modern times are wont to maintain and which constitutes so large an element in personal despotism, could hardly continue without the blaze of precious stones. Indeed, no civilized society in the world has as yet freed itself from the illusion of diamonds. The name of Golconda, the old capital of the Deccan, has passed into the literature of all nations as a synonym for that kind of splendor which blazes from precious stones.

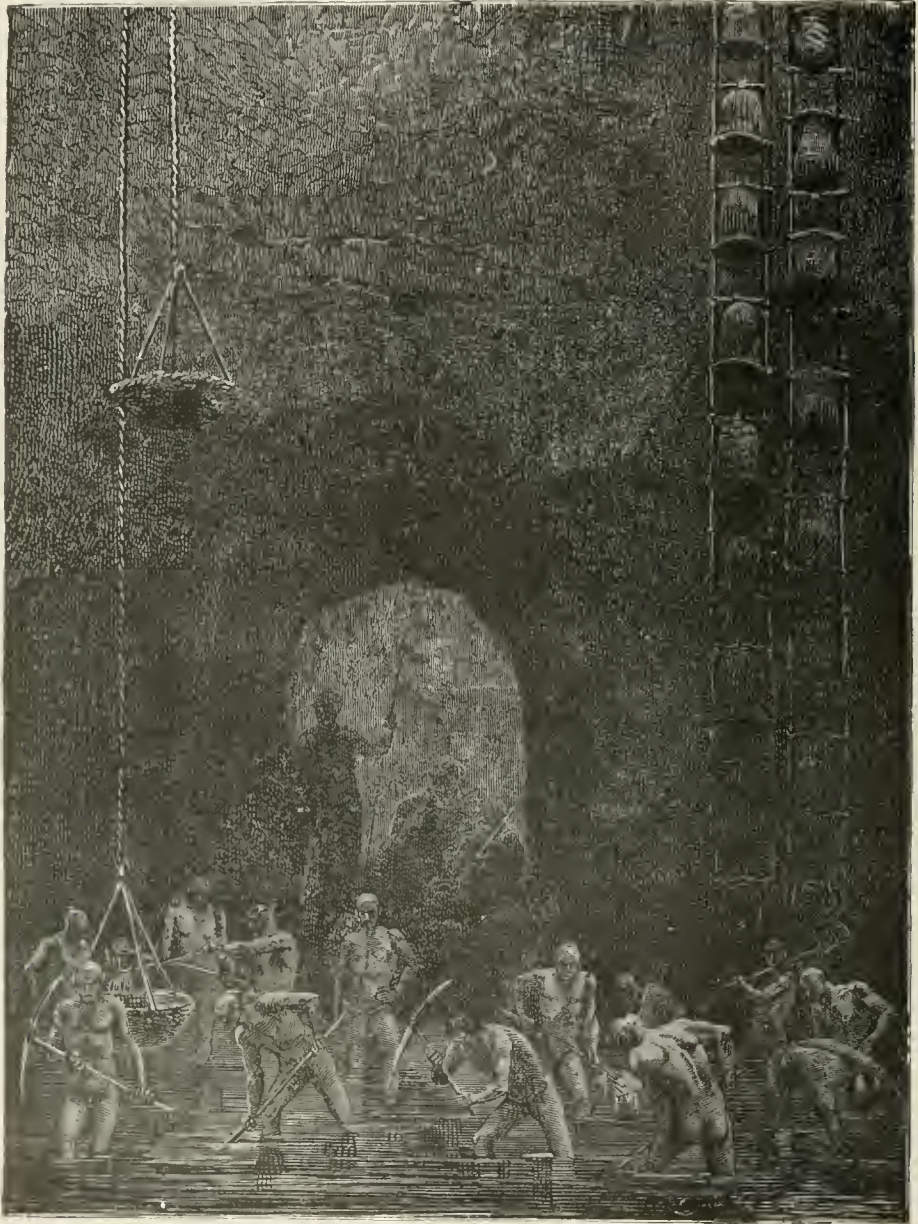
True it is that recent investigations have destroyed a part of the traditional glory possessed by this city as the native place of diamonds, but it was nevertheless the greatest seat of gem-cutting and precious stone work known in the Middle Ages, and perhaps in the history of the human race. Not without its effect upon the character of the Hindus as a people was the gathering, the wearing, the exhibition, and the commerce in precious stones. All this imparted much of the Oriental character to Indian civilization. The nabob of today has many traits which depend, if not for their existence, at least for their manifestation, on the presence in his country of precious mines, with the treasures of which he maintains his grandeur and pride. It was this form of barbaric magnificence which contributed to Milton's pictured page one of his gorgeous images:

Golconda the seat of diamond gathering and stone-cutting.

"High on a throne of royal state which far  
Outshone the wealth of Ormus and of Ind."

The attention of the reader has been called to the fact that iron is the last of the great metals now in use to be discovered and extracted from the matrix.

The forbidding and refractory character of the ore impeded the manufacture of iron until long after the other metals | the most useful of the metals. Iron mines abound in all parts of India. There is scarcely a district between the



DIAMOND MINE OF PUNNAH.—Drawn by Emile Bayard.

that exist in the native state had been brought out and employed in the arts. It was in this land of India that the Aryan race first succeeded in mastering the difficulties in the way and brought forth

The working of iron originated in India.

mountains of Assam and the southern parts of Madras in which mines are not abundant. The ore is purer than that of almost any other region in the earth. It is this circumstance, together with the antiquity and ingenuity of the race, that

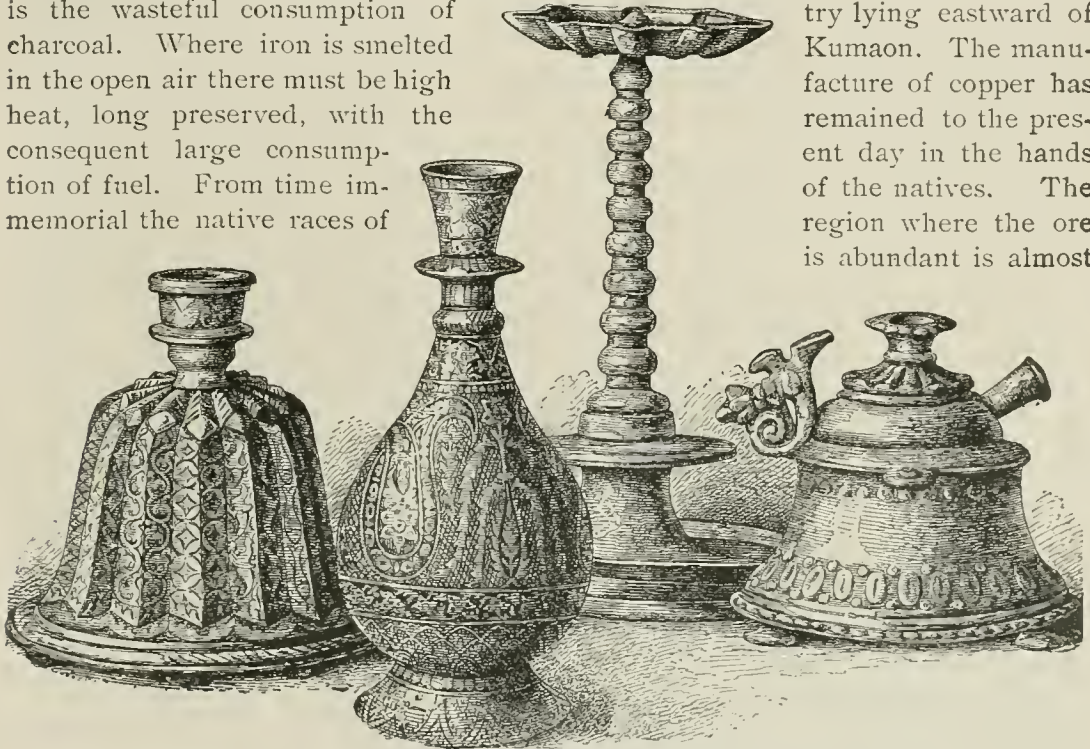
has made India the first country of the world in which iron has been manufactured.

The indigenous method of smelting the ore is still preserved. The very same processes which were employed at the beginning of the historical era are still in vogue. The great drawback upon the success of the method employed is the wasteful consumption of charcoal. Where iron is smelted in the open air there must be high heat, long preserved, with the consequent large consumption of fuel. From time immemorial the native races of

Method of smelting and excellence of product.

appear that this metal was in use before this time. From India the knowledge of the processes of smelting the ore, and the superiority of the metal thus obtained over every other employed in the arts, was in course of time recognized even to the extreme limits of Europe.

Copper mines are also frequent in India. The best of all are found in the skirts of the Himalayas, in the hill-country lying eastward of Kumaon. The manufacture of copper has remained to the present day in the hands of the natives. The region where the ore is abundant is almost



COPPER VESSELS OF HINDU WORKMANSHIP.—Drawn by Schmidt, from the originals.

India have succeeded in producing one of the purest and best articles of wrought iron known to men. Since the creation of the East Indian empire, much foreign capital has been expended in establishing works and collieries in the country; and modern science applied to the problem of extracting the ore has greatly increased the quantity, but not the quality, of the metal. It was after the incoming of the Aryan population into India that the manufacture of iron was discovered. It does not

inaccessible, and the capital of the West has not yet made its way into the country. The deposits are worked by the miners of Nepal, according to the methods which have become traditional through lapse of time. In many districts old abandoned copper mines are found, indicating the antiquity of the knowledge of copper in India. The process of working is primitive and simple. Holes are carried into the earth, following the vagaries of the deposit,

Mining of copper and method of manufacture.

until the region is burrowed as if gigantic conies or rabbits had selected the place for their cities. When the ore is taken out it is pounded up with an iron sledge and smelted on the spot of its delivery.

It is not needed that the lead mines of the Himalayas and the Punjab should

**The Indian lead mines; antimony and petroleum.**

be described. Tin is found in Burmah, where the ore runs as high as seventy per cent of pure metal. The mines are worked by the Chinese, with whom all improvement is innovation. Antimony is found in the hill-countries of the Punjab, and also in Mysore. In Burmah rich deposits of petroleum have been discovered, and the annual yield in the hands of European enterprise has risen to eleven thousand tons. In the Punjab the petroleum wells are managed as a branch of the public works.

The river beds of India are generally laid with a nodular form of limestone.

**Distribution of stone; soil not suitable for pottery.**

This rock has subserved the usual purposes from the earliest ages. At the present time it is taken up and employed in large quantities in macadamizing roadbeds. In the Khasia hills in Assam there are limestone quarries from which building material has been immemorially taken. In Bankura, also,

there are valuable ledges of the same stone. The lower valley of the Ganges has suffered the same inconvenience as did that of the Euphrates and Tigris after their descent to the alluvial plain. In the Ganges valley there is no limestone, nor indeed any adequate building materials. The soil, moreover, is not suitable for the manufacture of either bricks or pottery. Since the domination of Great Britain was established in India, pottery works have been built in Bardwan, but these are devoted only to the manufacture of drainage pipes and the coarser form of stoneware.

In all the vast upland region between the two principal rivers of India, building stone is abundant. In Rajputana that pink marble out of which the old temple and palace of Agra were reared is found. In Godavery and Narbada sandstone <sup>Quarries of marble, slate, and mica.</sup> abunds, and Southern India is rich in granite. Since the incoming of European capital the slate quarries have been opened, also mines of mica and talc. Finally, the hills of Orissa and Chuta-Nagpur abound in a variety of indurated potstone, out of which vessels of utility and others of ornament are manufactured with that skill for which the art of India is famous.

## CHAPTER XLI.—ETHNIC CHARACTERISTICS.



WHEN a race of men has long occupied a land so varied in its resources and physical character as India, it is natural, inevitable, that there shall be a diverse ethnic development. The people of one part of the country will be

formed upon conditions different from those in another. In the case of a stock so conservative as that which peopled India, the diversity of social forms and of ethnic character would be strongly marked. After the settled estate had once prevailed among the tribes, each would develop on its own lines and reach

**Diverse development follows long occupancy in wide countries.**

a different result. The absorption of the aboriginal population would greatly contribute also to the divergent tend-

হেন্দা দেশের জগতের প্রতি এমত প্রেম করিলেন, যে আপনাদের অধিকারী পুরুষে দান করিলেন; যেন তাঁহাতে বিশ্বাসকারি প্রত্যেক জন বিনষ্ট না হইয়া অনন্ত জীবন পায় ।

SPECIMEN OF SANSKRIT.

ency. In a preliterate age dialectic tendencies would shoot out over the surface like growing vines, and in course of time the inhabitants of one district would no longer understand the vernacular of another.

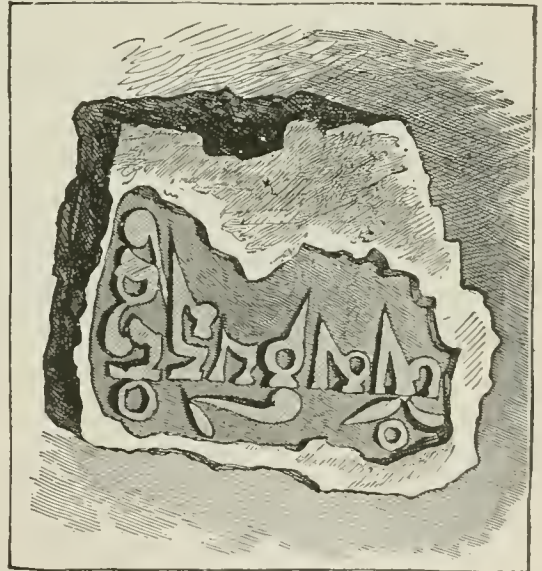
In India these dialectic departures were all made from the common linguistic form called Sanskrit. It was that sacred primitive language which grew to maturity of grammatical form and into a fixed vocabulary on the tongues of the Vedic poets. The speech once established in structure and phraseology in the sacred hymns would no longer suffer inflection, no longer present the phenomena of growth. The Old Aryan tongue became crystalized in the Vedas. It was *Sanskṛāta*, the "perfect speech." And to speak the truth, among languages developed into literary form by the genius of man, only the Greek is able to compete in the perfection of its structure and methods with the old Sanskrit as it was uttered two thousand years before our era by the Vedic bards.

This old Sanskrit literature has disseminated through all the Aryan tongues of India a common element to which we may give the name of *Hindi*, the language of the Hindus. This Hindi corresponds to the Latin stage in Western development. Hindic element in the tongues of Hindustan is much like the Latin element in the Romance languages of Western Europe and South America. As the scholar

wanders through France and Italy, through Spain and Portugal, through Wallachia and Brazil, he sees and hears evermore the movement and rhythm of the old Latin tongue out of which the vernaculars of all these people have grown into literary forms, diverse among themselves, but common in a single origin. So also with the Hindic element in the languages of India.

As are the languages, so are the peoples. Perhaps the first and most distinct ethnic division of the Indic race is the Cashmerians. They are the best representatives of the early Indicans, and through them the clearest retrospective glance may be had at the race character of the original Aryans who peopled the Punjab. Only in one respect do the Cashmerians fail best of all to represent and reflect the ancient and essential character of the Indic branch of the Aryan family of men. In religion they

Cashmerians well represent the early Indicans.



SACRED INSCRIPTION FROM THE VEDA.

have largely apostatized from Brahmanism and accepted the faith of the Arabian prophet. They have thus become in-

fectured on the religious and linguistic side of their development by foreign influences deduced from the Arabian desert, from Islam, from Shem.

The Cashmerians are the most northerly division of the Hindu race, being above the inhabitants of the Punjab. They have developed their own tongues, their own manners, their own institutions, having, of course, a common basis with the other Hindu races. Many of

क्योंकि ईश्वरने जगतको ऐसा प्यार किया कि उसने अपना एकलौता पुत्र दिया कि जो कोई उसपर विश्वास करे सो नाश न होय परन्तु अनन्त जीवन पावे । 1

विंदित्रि परभेसुठ नै जगत् नु भक्तिज  
पिभाठ बीज, जैसुम नै आपला  
खिल्लेज पत्र चिंज; उं उरेख जै सुम  
पर पञ्चित्त, उिम चा नामना उहे, मगहां  
मन्दीपर जौल पाहे । 2

VARIANT FORMS OF SANSKRIT.

1. Hindi; 2. Punjabi.

them have retained the old faith of the Brahmans.

Perhaps the climate of Cashmere has been more favorable to the maintenance of the original character of the race than in any other district of India. The range of the thermometer does not reach above eighty-five degrees F. at noon in summer time. The heat, however, is oppressive, owing to the stillness of the summer air. In winter the temperature sinks much below the freezing point, and snow is abundant. The conditions are such as to favor physical perfection. The Cashmerians are not only the handsomest of the Indian races, but are fairly esteemed among the peoples of the West. The men are tall, sinewy, and robust. It is conceded that the complexion of the women is one of the best, if not the fair-

est, in the world, and the female features possess many other elements of beauty.

The people of Cashmere are noted for their gayety of demeanor. They are fond of pleasures. Music and dancing are the prevalent amusements, but literature, especially in the form of poetry, is cultivated. The Cashmerians have obtained, and perhaps retained, one of the worst reputations as it respects moral character that any modern people of like development has possessed withal. Not that they are sunk in debasing vices. Quite on the contrary, their manners and social criteria are so high as to be accepted even in the civilized countries of the West. In respect to manners, the Cashmerians may be properly styled the French of India; but they are the most cunning, and perhaps the most avaricious of modern peoples, and their fame for lying is infamous. Cashmere has suffered to an unusual degree within the present century by natural disasters and the half-natural visitations of pestilence and famine. The country is visited with earthquakes; and it has been estimated that since the establishment of the British East Indian empire the population of certain districts has been reduced to one fourth of the original number.

The people of the Punjab lie in ethnic character close to those of Cashmere. Indeed, there is no natural line of demarkation between the two countries either in geography or ethnic development. Mohammedanism, however, has not gained the ascendancy in the one country as it has in the other, and the dialectical difference between the language of the Punjab and that of the Cashmerians is sufficient to classify the peoples as distinct. The population numbers nearly twenty million. The country is suffi-

Intellectual and social life of the Cashmerians.

Points of divergence of Cashmerians and Punjabese.

Climate and environment have preserved the race integrity.



ciently irregular in outline to have preserved, as in Cashmere, many of the original features of the Aryan race. In both language and religion they lie nearer to the primitive type than do the Cashmerians. Not only have they resisted the propagandism of Islam, but they have a strong antipathy for the fol-

Next in order of the Indian populations may be mentioned the great race of the Mahrattas. They are so called from the Sanskrit name Maharashtra, the ancient <sup>Distribution of the Mahrattas.</sup> designation for the "Great Kingdom," or region. The country inhabited by them extends from the Ara-



VIEW IN CASHMERE.—VALLEY OF THE TIRTAN.—Drawn by G. Vuillier, from a photograph by Bourne.

lowers of the Prophet, whom they despise as aliens in faith and nationality. As the original seat of the earliest Aryan institutions, the Punjab will ever remain a field of interest for the ethnologist and historian. It is, geographically speaking, to the Aryan nations what Italy is to Southern Europe—the ancient seat whence conquest spread and institutional forms were exported to foreign parts.

bian sea on the west to the Satpura mountains in the north. It includes the larger part of Western and Central India. By this designation are covered the provinces of Comean, Kandashesh, Berar, the British Deccan, half of the Nizam's Deccan, and a part of Nagpur.

Within the limits here defined, the Mahratta population numbers about twelve million. Considered as an eth-



*Emile Bayard*

ASPECTS OF CASHMIRIAN LIFE.—DANCING GIRL OF SERINAGUR.—Drawn by Emile Bayard.

nic term, Mahratta is not definitive. Neither is it the name for a particular social caste or a given religion. It is rather one of those wide terms which history demands in the definition of a race somewhat composite in ethnic elements, and even diverse in religious and social qualities. Still the diversity is not sufficient to warrant a division into separate tribes. The common tie which binds the several peoples living within the regions defined above is language. They speak the Mahratti, one of the most widespread of the modern Indian tongues. In common with the other Indic languages, it is a dialectical form of Hindi, differing only from Hindustani as French differs from Italian. Though the tribes of Mahrattas are somewhat distinct in the different provinces, they are all true Indicans. We have Mahratta Brahmans, Mahratta Rajputs, and Mahratta Kumbis for the names of the several castes, all Mahrattas, but having nonintercourse with each other, from the same prejudices which prevail in other parts of India.

In so far as the Mahratta race has fallen under the dominion of Great Britain, as in the Deccan, it has preserved to a considerable extent the features of the original stock from which it is descended; but in the Nizam's Deccan the people have yielded to the Mohammedan pressure, and to that extent have taken the character of the Islamites. In other districts the race is comparatively pure. Of these, Kolhpur, in the Southern Deccan, is perhaps the best example. The states of Sinde, Indore, and a part of Gujerat are nominally native, but have been considerably subjected to foreign influences. The native Mahratta princes and the attachés of their barbaric

courts are Mahrattas, but a large part of the people are Hindus from other regions.

The Mahratta Brahmans may be named as the best exemplars of the qualities and character of the Brahmanic caste in all India. In physical, intellectual, and moral development they are Brahmans at the best estate. The traveler can but be impressed with the serene countenance, the majestic walk, the lithe, straight figure, the high forehead, and features regular—almost Grecian in outlines—of these leading representatives of the an-

Mahratta Brahmans the highest type of Hindus.

कां तर देवाने जगावर एवढी प्रीति केली कीं, त्याने आपला एकुलता पुत्र दिव्हा, यासाठीं कीं जो कोणी त्यावर विश्वास ठेवितो त्याचा नाश होऊं नये, तर त्याला सर्वकालचें जीवन व्हावें.

SPECIMEN OF MAHRATTI.

cient priestly order. The British government has found them the most able and energetic of all the natives of the empire; and he who visits India curious for instruction relative to the language, literature, and tradition preserved in the Sanskrit books, will find the Mahratta Brahmans to be the best of all his sources of information.

All of the castes are represented among the Mahrattas. The Kshatriyas, or the Rajputs, are not numerous, and seem to maintain a rather precarious existence between the two preponderating castes of Brahmans and Sudras. The latter, lowest of the four great strata in which Indian society is divided—lowest with the exception only of the Pariahs, or serf caste, whose business it is to handle the dead—have preserved so many features of the aborigines and of the Scythians, who on several occasions have invaded

Variation in character from foreign impact.

The lowest classes of Indic society.

the country, as to constitute them almost a distinct race. Indeed, an ethnic analysis would show them to possess a comparatively slight admixture of Aryan blood. But the Sudras of the Mahratta region, as in other parts of India, have conformed so much to the structure of the dominant castes as to be classified

are said to be exceedingly boorish in manners, and to have the looks of clowns. As compared with the inhabitants of the Punjab and the Cashmerians, the Sudra class of Mahrattas are physically weak and mentally inferior. They have vigor and tenacity without strength. They are essentially a race of



GROUP OF MAHRATTAS—TYPES.

with them as a branch of the common family.

The contrast in features and person between the Sudras and the Mahratta Brahmans is sufficiently striking. The Sudra countenance is wanting in all those features of elevation which are possessed by the superior caste. They are small in person, though in common with most Indian races they are lithe, active, wiry, and able to endure. They

Contrasts and comparisons of Sudras and Mahrattas.

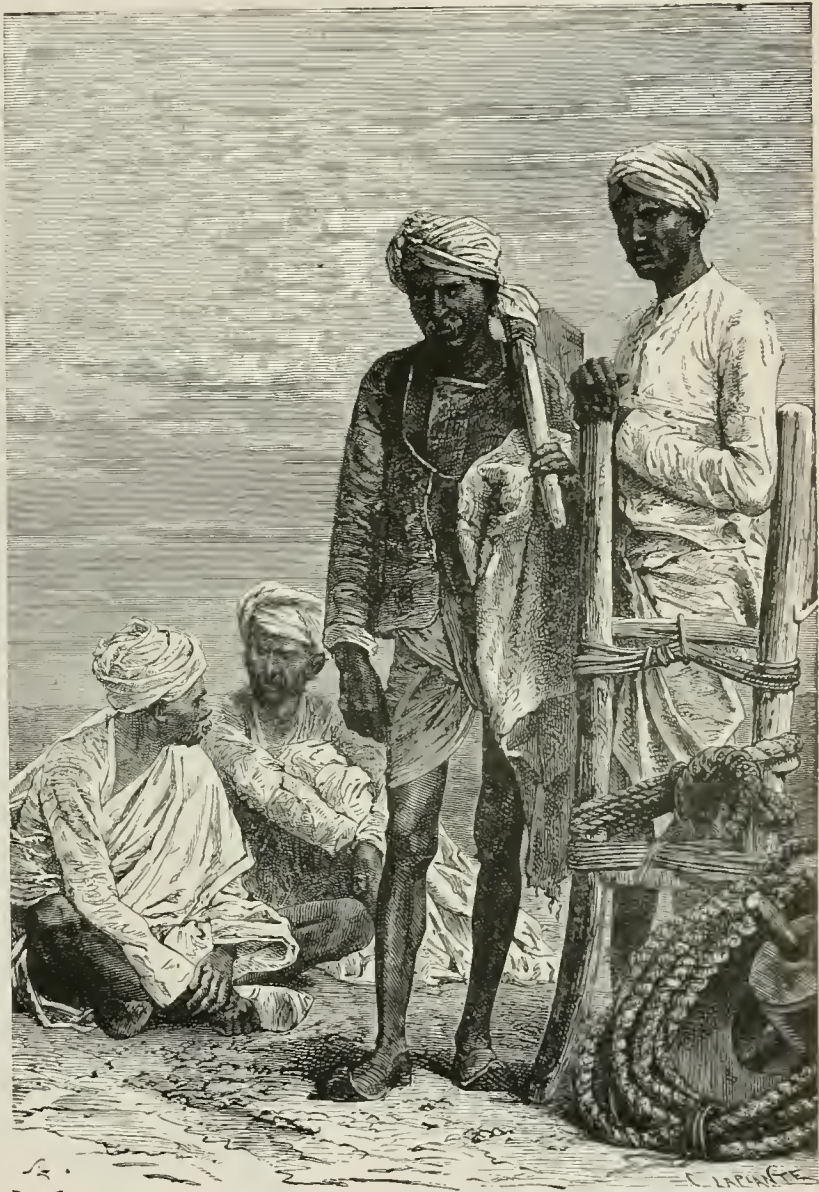
mountaineers, and have in common with that class of people in every country of the world the qualities of courage and independence. They have but a slight social or political organization in their native places; but they have submitted to the discipline of the empire, and under the command of English officers have become an excellent soldiery. In the pursuits of life they are herdsmen, cattle raisers, drivers of stock and vehicles, rather than husbandmen or tillers of the

soil. They have some skill as weavers and manufacturers of armor, but have not otherwise distinguished themselves in the practical arts.

and from the Himalayas to the Vindhya range.

It will already have become clear to

Geographically speaking, India and Hindustan are coëxtensive, identical. In a certain popular sense Hindus and Indians are convertible terms; but if the meaning of Hindus be determined by linguistic evidence, we shall find that not all Indians are Hindus. Hindustani, or Urdu, is a dialect of that mediæval Hindi which is the term for the second origin of all the Indic languages, as Sanskrit was the original root. Hindi is to Hindustani as the old *Langue d'Oil* is to French. Again, Hindustani is only one of the seven Aryan languages spoken in Northern India. The other six are the Punjabi, the Sindhi, the Gujarati, the Mahratti, the Bangali, and the Oriya. So if we reckon as Hindus only those whose vernacular is Hindustani, we



PEASANTS OF THE DOAB—TYPES.  
 Drawn by Emile Bayard, from a photograph.

Ethnic and linguistic relations of the Hindu peoples.

shall find them occupying a territory of about two hundred and fifty thousand square miles, reaching from the Gandak on the east to the Sutlej on the west,

the mind of the reader that generalizations with regard to peoples so widely dispersed and so differently developed as those of India are wellnigh impossible. Beginning with differences of person

Difficulty of generalizing ethnic traits of great populations.

and running through the whole gamut of human attributes, there is so great diversity that only a few general outlines of the Hindu character can be presented with anything like accuracy. In

who followed the army of Alexander, or rather constituted a part of it, in the great campaign into the valley of the Indus, were as shrewd in their kind and hardly less fertile in descriptive ability

गालों देना, दुबेंचन कहना, यही पाप है। पराई स्त्री को और कुट्टि से देखना और मन में बुरी चिंता करनी पाप है। चोरी और ठगविद्या करनी औरों को बुराई और छति हानि करनी और किसी से डाह और बेर रखना पाप है। झूठी किरिया खाना झूठ बोलना जूआ खलना पाप है। परमेश्वर के दिये ज्ञये से संतोष न करना औरों की किसी वस्तु का लोभ करना पाप है। सो हम पापों को कहालों वर्णन करें जबलों तुम सच्चे परमेश्वर को न पहिचानोगे और अपने पापों से उदास न होओगे और उस की दया को जो उस के धर्म पुस्तक में लिखी है ग्रहण न करोगे तबलों जा कुछ करते हो सब के सब पाप ही में गिने जाते हैं। और पाप करना परमेश्वर से बैर करना है उस को तुच्छ सनभना उस का द्रोही बन्ना है। यद्यपि उस में इतनी सामर्थ्य है कि बुह क्षणमात्र में आकाश और पृथिवी को नाश करसक्ता और फिर दूसरा बना सक्ता है परंतु जैसी उस में सामर्थ्य है वैसा उस में संतोष और धीरज भी है नहीं तो यह कव हो सक्ता कि तुम पाप करके उस के बैरी होके जीते चलते फिरते आराम और चैन करते। पर निश्चय जानो कि बुह नित्य संतोष न करेगा सदा तुम्हारे पापों को न देखेगा वरण मरने के पीछे तुम्हारा न्याय करेगा। सो हे मित्रो इन बातों को सोचो और मन से बूझो अभी से चिंतायमान होओ अभी से परमेश्वर के क्रोध से बचने की चिंता करो क्योंकि

than were the savants who accompanied Napoleon on his invasion of Egypt.

The results were similar in both instances. Macedonia in the one case and France in the other was enriched with a great store of in-

Brahmans and Sudras represent extremes of Hindu development.

formation drawn from the old and abandoned mines of the East. The Hindus of to-day are the same in personal appearance as they were in the days when they were described by the invading Greeks. This view is more true of the Brahmans than of the lower castes. The representations in the old Indian sculpture preserve the identical figure, the form, the features, and much of the apparel of the modern descendant of the Old Aryans. The Hindus, then, are of middle size. From this stature the Brahmans depart in one direction and the Sudras in another. That is, the Brahmans are fully up to or beyond the average height, while the Sudras and other lower caste peoples are below that standard—much below it. Ethnographers have estimated the aver-

SPECIMEN PAGE OF HINDI BOOK.

mere physical characteristics the generalization is especially difficult. Personal descriptions of the Hindus are as old as the first contact of the Greek race with that remote region of the world. The astute observers—such as Nearchus—

age height of the Hindus, considered as a race, at one hundred and sixty-three centimeters, or sixty-four inches in English measure. This, perhaps, is a little above the average of the Japanese.

ATTENDANTS OF THE RAJAH AND GUARD OF TANJORE—TYPES.—Drawn by F. Keganey, from the subjects.



The bodily organs of the Hindu are symmetrical, but light. The limbs are often delicate, so slender indeed as to suggest weakness according to the stalwart Western criterion. As the traveler passes from the plains into the hill-countries, however, he comes upon more vigorous tribes. In Rajputana, and other districts similarly situated, the average height is greater and the bodily weight and strength are augmented. The complexion varies from almost white, through dark yellow, to bronze, or even to a sooty black. The last-named color is always indicative of foreign admixture, the absorption of that Old Dravidian stock which contributed the aborigines. There is a general intensification of the skin pigment as we proceed from the north to the south, from the mountain spurs to the burning coasts of Southern India. To the latter influence, that of climate, some ethnologists have been disposed to attribute the whole variation of color. It is true that among the Dravidians themselves, that is, the old population, so far as it is preserved in anything like ethnic purity, considerable diversities of color appear. Some Dravidian women are said to be almost white, but on the whole the race is

Bodily characteristics of the Hindus; the color.

dark-hued, so much so as to have furnished the larger part of the intenser color to the southern divisions of the Aryan population.

The Hindus have preserved the straight or wavy and glossy black hair which the Old Aryans brought down from the highlands. The abundant beard is also well preserved in the descendants of the ancient stock. The habit of the country is to shave, except as to the upper lip, and tonsure of the head is common with the men, only a few curls being preserved at the poll and on the temples. Classified by the shape of the skull, the Hindus are mesocephalic; that is, the head is medium between the long-skull and the short-skull type of cranial development. The face is oval. The forehead is open, and indicative of good perceptions. It is rare to see in India a contracted and corrugated brow. Hindu eyes are large, dark colored, brown, or black. The eyebrows are curved into two arches. The nose is rather after the pattern called Roman, having not infrequently the aquiline contour which gives an imperious expression to the countenance. But this haughty feature is developed principally among the Brahmans.

Special features of head and countenance.

## CHAPTER XLII.—ARCHITECTURE, MANNERS, GOVERNMENT.



If we look at the objective forms which are the expression of the ideal life of the Hindu, we shall find much of interest—some things to admire.

Doubtless the most conspicuous fact in which the ideal life of man is expressed

is architecture. It stands, as we have seen, in the triple category of necessities, the other two being food and clothing; but inasmuch as man is more than an animal, his shelter is more than a house. From the mere physical fact of shelter, the abode of the human race rises rapidly into higher forms; and elegance is added to necessary structure.



The Hindus have been immemorially noted for the extreme elaboration and extravagant taste exhibited in their build-

India. The style in general is Oriental. Flat roofs are the prevailing form, with projecting balconies and verandas. The



INDIAN ARCHITECTURE—FLAT-ROOF STRUCTURE.—BAZAAR OF KHOJA SYND.— Drawn by H. Clerget

ings; and the same is true of their plastic arts. The traveler must needs feel himself in the western twilight of the Orient as he begins to scan the architecture of

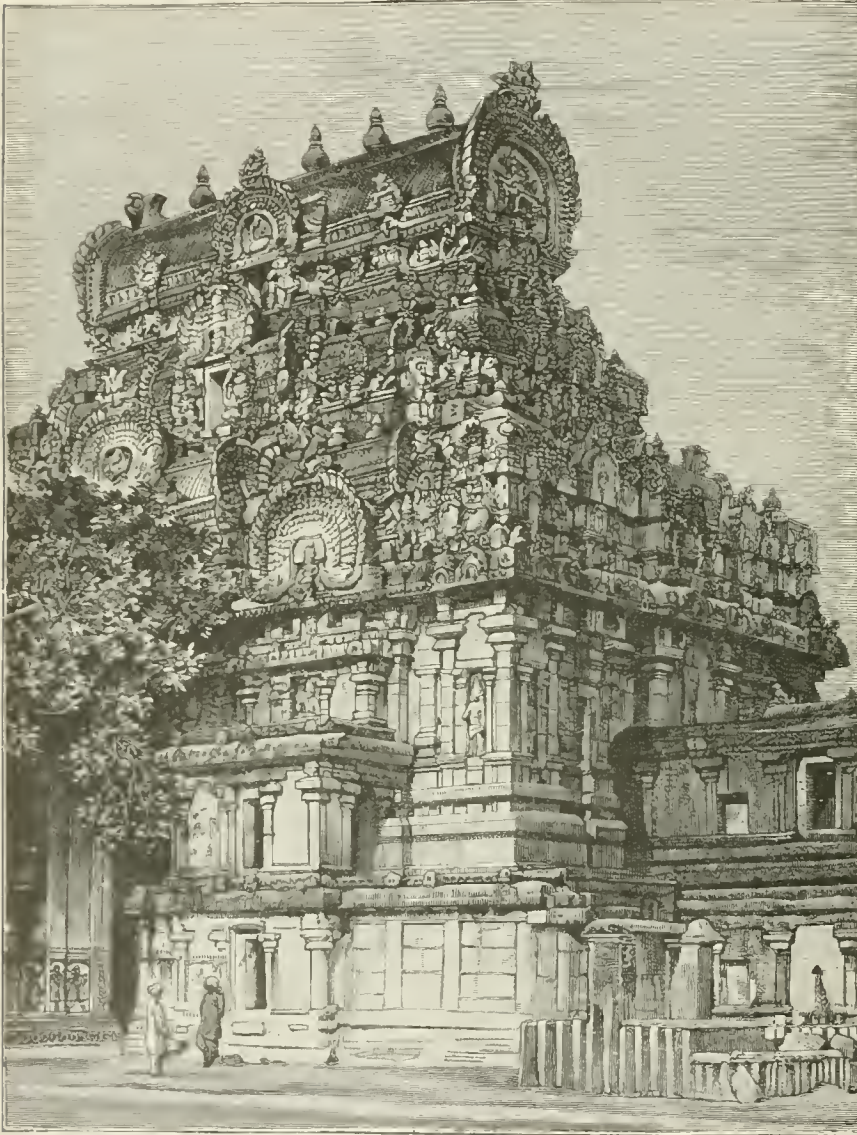
name of the latter is from the Hindu vocabulary, and both the fact and the word have been carried into all Western nations. In connection with the Hindu

residence is nearly always found a garden, and in this is displayed the same kind of elaborate taste which we find in the permanent architecture of the country. The arbor, the trellis, the curious

Extreme elaboration of the Hindu architecture.

put the people much out of doors. The same fact gives lightness to all classes of structure; but in a country subject to storms, strength as well as lightness must be consulted. Of the common

Lightness of structure related to climate and outdoor life.



INDIAN ARCHITECTURE—ELABORATION OF ORNAMENT—GOPURAM.  
Drawn by F. Regamey, from the original.

grotto, and many other parts of the gardener's art are only the details of the larger architectural art which has been developed by the Indian builders.

It is in the nature of warm climates to

is not the place to give an extended account of the old temples of the country, but an illustration may be drawn,

The isle and cavern of Elephanta.

once for all, from the famous isle and

and low-caste Hindus, the houses are plain and simple in design. In these the idea of shelter is predominant over what in the higher grades of society becomes ornamentation and elegance. It should be said, however, that the style of living among the rich, even Brahmans of the highest rank, is more simple than among Western peoples of like wealth and magnificent tastes.

The ancient architecture and sculpture of India may almost take rank with that of Egypt, if not for abundance, at least for majesty. It

cavern of Elephanta. This island is situated about seven miles from Bombay. Within it are found the remains of those celebrated Hindu sculptures and excavations which have preserved to us the best notion of the ancient art of the race. Near the shore stands a colossal statue of the elephant from which the name Elephanta was given

Unfortunately, many of the effigies of Elephanta have been mutilated or destroyed by the Portuguese vandals and the Mohammedan zealots of later times. Some of the statues, however, have been tolerably well preserved.

In the center of the cavern is the colossal bust of the Trimurti, or Hindu Trinity: Brahma,

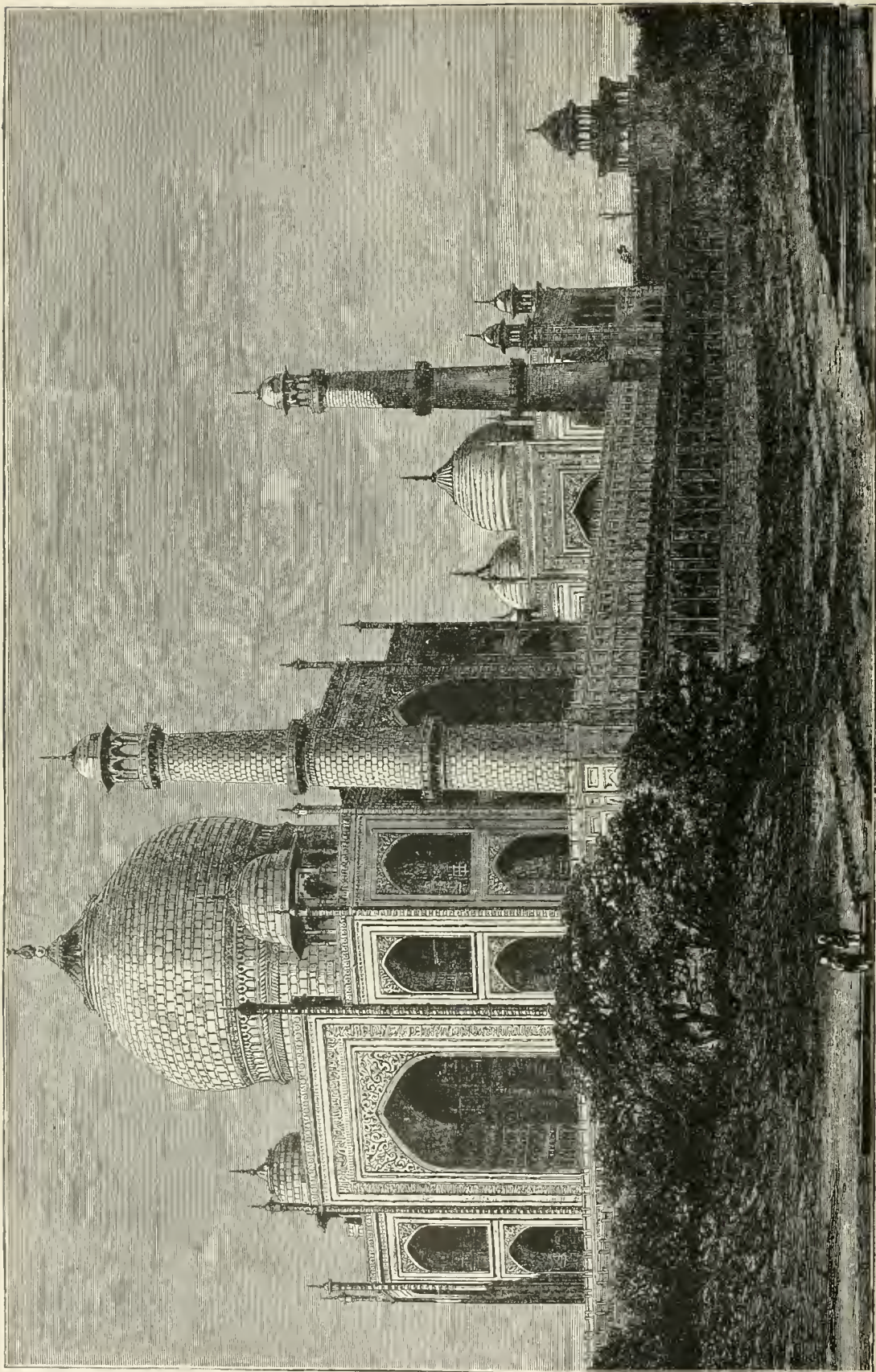
Effigies of the Hindu gods in the cavern.



MARRIAGE OF SIVA AND PARVATI.—From the cave of Elephanta.

to the island by the Portuguese navigators. A short distance from the huge effigy is the entrance to the cavern. The same is about sixty feet in width and eighteen feet high. The pillars of support are cut out of the native rock. In the sides of the cavern are hewn many compartments which were dedicated as shrines to the old Hindu gods.

Vishnu, and Siva. Some scholars, however, have in recent times decided that the triune figure is not intended for Brahma and Vishnu at all, but only to express the threefold aspect of Siva, the "Destroyer." The heads of the effigy are six feet in height, and the features have much of the majesty and repose peculiar to the sphinxes of Egypt. Critics, how-



INDIAN ARCHITECTURE.—THE TAJ MAHAL, AGRA.—Drawn by E. Theonod.

ever, have noted an unpleasing expression of the underlip, which seems to be too animal or faun-like for the deity. Egyptian analogies are also discoverable in the headdresses, which are ornamented. In the hand of one of the gods is a cobra de capello, and on the cap are set a human skull and an infant. Doubtless here we have an allegory of life and death in the infant and the skull and of the destroying agent by which the one becomes the other, in the serpent. Siva was the destroyer. Perhaps the cobra was his principal abettor.

On either side of the Trimurti stands the figure of a man leaning on a dwarf. To the right is a cavity hollowed in the wall, in which are a great number of mythological figures, the principal one being a double image of Siva and Parvati, an effigy half male and half female. To the right also is the four-faced statue of Brahma reclining on a lotus. It is one of the rare images of the supreme Hindu deity now preserved in India. Perhaps there is no space of like dimensions in the vaults, grottoes, or caverns of the world of so great interest to the antiquary as is the cave of Elephanta.

As a field for the study of Indian architecture in general, the district and city of Agra, in the Northwest provinces are, perhaps, the best of all in the country. The remains of old-time splendor, however, are not so ancient as the sculptures just referred to. The city of Agra is on the Jumna river, in latitude 27° 11' north. It was the old native capital of the province. Until 1803 it was held by the Mahrattas, but at that time was taken by the British army, under Lord Lake.

Three structures within the city of Agra are known for their architectural beauty and grandeur. The first of these

is the old palace of the native princes. It has a great court within, five hundred feet by three hundred and seventy feet in dimensions.

The old palace of the native princes.

The approaches to the court are by arcades and gateways of the greatest beauty and Oriental splendor. The hall of the palace is two hundred and eight feet by seventy-six feet in dimensions, and to this are adjoined two smaller courts, one of which was formerly the private audience chamber of the nabob and the other his harem. In Agra also is the celebrated pearl mosque, the most elegant specimen of Mohammedan architecture in all India. The dimensions of the ground plan are two hundred and thirty-five by one hundred and ninety feet. The court is a rectangle one hundred and fifty-five feet square. The courtyard is the center of interest. It is wholly of white marble, from the pavement to the dome. In design the pearl mosque is similar to the mosque of Dehli. The structure is noted for the absence of elaboration. A single inscription from the Koran, inlaid with black marble as a frieze, is the principal piece of sculpture in connection with the edifice.

But the most remarkable example of the building skill of India is the great Taj built in Agra by the Emperor Shah Jehan in honor of his beautiful wife, Mumtaza Mahal. Here the empress and himself are buried. The building is, like the mosque, of white marble. It is surmounted by four tall minarets. The ground plan is a terrace, also of marble. The whole parallelogram, including the gardens and court, are eighteen hundred and sixty feet by one thousand feet in dimensions. The approaches are by arcades and magnificent gateways, the principal of which measures one hundred and ten feet in width by one hundred and forty

Agra the best seat for study of Indian architecture.

Character of the royal tomb called the Taj Mahal.

feet in height. Through this the traveler passes from the court to the garden. The tomb proper stands on an elevated platform eighteen feet in height. It is faced in every part with white marble, and is three hundred and thirteen feet square. At each corner stands a minaret one hundred and thirty-three feet in height. The mausoleum is in the cen-



DRESS OF THE HINDUS—PRINCESS OF AGRA.

ter on a marble platform. It is one hundred and eighty-six feet square, but the corners are cut off by sections thirty-three feet in extent. Over the mausoleum rises a dome fifty-eight feet in diameter and eighty feet in height. It is doubtful whether any other emperor and empress who have ruled barbaric millions have had a more splendid tomb.

The dress and personal ornaments of the Hindus are now well known to Western peoples. Story and pictorial art

have conspired to make familiar the bodily vesture and decoration of the Indian races. The materials of fabrication for apparel are generally linen, cotton, silk. The style of garment is Oriental. The costume of the men and the women differs in degree rather than in kind. The High Brahmins wear drapery rather than clothes. The Kshatriyas gather their garments about them with a belt. Everything is loosely worn. The Sudras, especially in the south, are but slightly clad, a large part of the person being exposed. In the schools and other assemblies the upper part of the body of the pupil is naked; and in the household and on the streets there is much exposure, but without vulgarity.

The dyeing of the hair and the beard is a common adjunct to effect in dress. It is customary to color red the nails of the fingers and toes. The eyelashes and eyebrows are dyed black with anti-mony. The fan is much used by both men and women, but not so universally as in Japan. Ornaments are profuse. Necklaces, bracelets, and earrings are universal. Flowers and pearls are worn in the hair. The ears and the septum of the nostrils are pierced to receive jewels and other pendant ornaments. Tattooing is but slightly practiced, but the features are frequently painted with marks and stripes across the brows, between the eyes, and on the neck. These marks constitute a kind of totem, distinguishing one caste from another.

In India there is great diversity in the manner of marriage. Each religion or superstition gives its own inflection to the ceremony. In one respect the usage is common, and that is the early age at which the woman is marriageable. At twelve or thirteen she is regarded as fit for

Dress and personal ornaments of the Hindus.

Ceremonies of marriage and estimate of the woman.



MANNERS OF THE HINDUS.—RECEPTION AT THE COURT OF THE BEGUM.—Drawn by A. de Neuville.

the wedded relation and for maternity. The oldest ceremonial required that the man take the woman by the hand and walk around an altar with her. Perhaps this still remains the fundamental idea in the nuptial union. The woman after marriage remains as she was before, a dependent of man. There is here a conflict between the Old Aryan recognition of the nobility, if not the equality, of woman and the Oriental view which holds her as a slave, a chattel. The Hindu woman has much more respect and honor than she of China, but is by no means the equal of the man. She is not wholly secluded in the house, but may go forth after marriage. In general, she is treated with respect. The almost universal aboriginal usage of giving presents to the bride's parents by the husband, as in purchase of her, is still maintained. It is in evidence that polyandry was much in vogue in ancient times, and polygamy is now frequent, particularly in those provinces where Islam is in the ascendant. The entrance of strangers into acquaintance and company with Indian women is strictly inhibited, and it has been with great difficulty that a knowledge of the manner of life of the Hindu household has been obtained by any alien.

The reader will have already perceived the general distribution of the Hindus over the larger part of India and their interfusion with other peoples. The race has extended north, south, east, and west, to the limits of the mountains and the sea. In Nepal, in the very shadow of the Himalayas, they are found associated with the Gurungs, the Magars, the Murmis, and many other races. In this region, however, it is the low-caste Hindus rather than the Brahmans that are mixed among the Nepalese. Further

Extent of race  
interfusion in  
Hindustan.

over the larger part of  
India and their interfusion  
with other peoples. The

on in Assam the census shows nearly two million of Hindus, but they are, as in Nepal, of the lower order. It appears that Hinduism in this region made its way first among the kings and nobility. That is, the higher Assamese cultivated Hinduism as a faith, but the great mass of Hindus in Assam have been imported as laborers, to work in the tea gardens and in other pursuits of serfdom.

This peasant class has, nevertheless, attained to a fair degree of home life and competency. The Hindu population has improved under British rule, and the character of the people has been greatly elevated since the last century. The Assamese are not very much distinguished from the Bengalese and Hindus in appearance. The person of the former is shorter and more robust, but the native is not so lithe and active as the Hindu. As already remarked, the Chinese type, that is the Thibeto-Chinese, has infected all the races of farther India, and the flat face, high cheek bones, and general physiognomy of the Assamese tells unmistakably the story of an influence from beyond the Himalayas.

Particular fea-  
tures of certain  
races.

Also into Burmah the Hindus have made their way, but not in so great numbers as in Assam. Here the language and the general character of the people is properly Indo-Chinese; and the race derivation from beyond still more strongly than in Assam discriminates the ethnic type from that of Bengal. The census of 1872 gives a population for the whole of Burmah of two million seven hundred and forty thousand, or an average of thirty-one to the square mile. Of these, the vast preponderance are Buddhists. The Mohammedans number about a hundred thousand, and the

Grading off of  
the Hindu into  
the Indo-Chi-  
nese type.



Hindus only thirty-six thousand. Of the whole number, one hundred and ten thousand are still classified as aborigines.

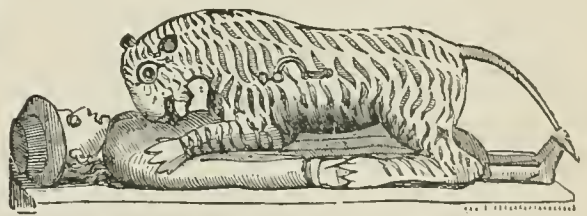
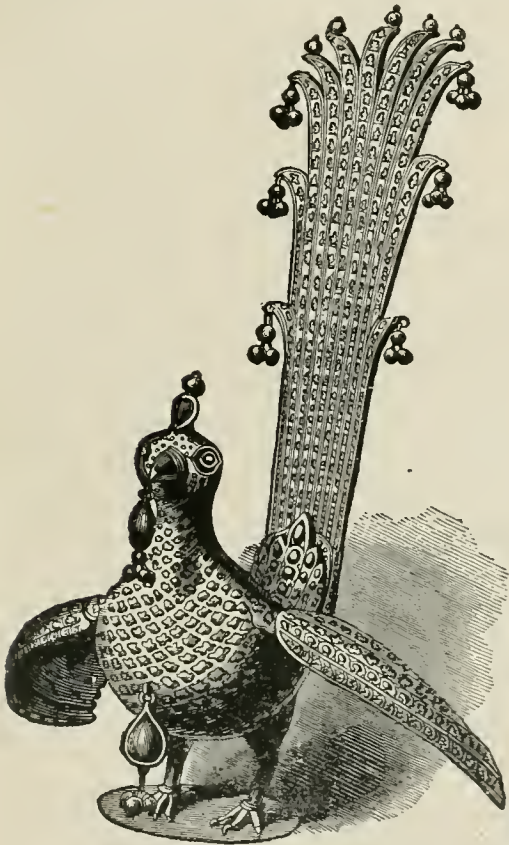
It is probable that India presents a greater variety of superstitions in an intenser form than any other country of the world. Except in the lower districts of heathenism, such as South Africa furnishes, the general fact called superstition has relaxed its hold somewhat

Extent and variety of the Hindu superstitions.

declining, losing its dominion and power over the mind of man. To this general fact India is somewhat exceptional. The peculiar tendencies of the Indian mind under the influence and discipline of Brahmanism have been unfavorable to the reception and dissemination of scientific knowledge. The Indian mind furnishes an example of a comparatively high development in abstract thought, in the ability to generalize and deduce conclusions from established concepts and premises. The inferential power of the human intellect as it is displayed in these countries is not to be despised, but the inductive method of inquiry has never found footing among them. The disposition to scrutinize and question the processes of the material world and to find out the laws which govern nature has not appeared, and the old superstitions of paganism continue to prevail.

These are manifest in almost every department of life. There are a thousand superstitious beliefs respecting food. Amulets and charms and talismans are worn to protect the person and life from harm. The image of an ances-

Amulets and charms; superstitious beliefs respecting the dead.



SUPERSTITIONS OF THE HINDUS.—AMULETS TAKEN FROM THE BODY OF TIPPU SAIB.

upon the human mind. It is now clearly perceived that superstitious beliefs and practices can not coexist with scientific knowledge. We have already seen that the peculiarity of the recent ages is the rapid extension of the knowledge of the laws by which the phenomena of the material world are governed. This is equivalent to saying that superstition is

tor is swung about the neck in confident trust that the paternal spirit will follow his image and guard his descendant who wears it. One of the most striking superstitions relates to the dead. There is an abhorrent fear of all places where dead bodies have been brought or deposited. Even where cremation is employed, the spot on which the cere-

mony is performed becomes a terror to all who approach it; and the small buildings in which the ashes are stored are avoided as children would avoid an old ruin haunted by evil spirits. A like



HINDU FAKIR, CARRYING CIRCLETS OF IRON ABOUT HIS NECK.

Drawn by Emile Bayard, from a photograph.

fear possesses the Indian mind with respect to darkness. The night is dreaded. They who are willing to expose themselves like good soldiers in the hazards of battle, and who stand up against the enemy with a fair degree of courage,

tremble with the coming of night. Doubtless it is the association in their mind of the facts of darkness and death that have made both appalling.

In common with the Oriental nations, the Hindus have a veneration for the dead. If they do not positively worship their ancestors in the manner of the Egyptians, they at least erect small temples to the fathers, and within these are placed pieces of wood on which are drawn images of the departed. The masses of the people have perhaps never been able to grasp the idea of the universal Brahma as the supreme God of the world, and as a result, they have fallen through the intermediate stages of polytheism into idolatry.

Shrines and effigies to the departed.

The superstitions of India, in part religious and in part merely mythological, are strikingly manifested in all ranks of society. Beliefs and practices having their origin in superstition have prevailed to the extent of creating whole classes of the Hindus sufficiently numerous to populate a kingdom. Thus, for example, the Mohammedan mendicants, widely distributed through all the Islamite countries, and known as Fakirs, have been recruited not on the basis of race, but on the lines of their peculiar and degrading superstitions. Of this great order of devotee vagabonds there are more than a million in India. They wander from place to place about the towns, villages, and countryside, constituting a pauper class, everywhere present and everywhere illustrating in their beggary and usages the combined results of race deterioration and superstitious fanaticism.

Superstition the basis of social classes; the Fakirs.

In some respects, however, the beliefs and practices of the Hindus are meritorious. They believe in cleanliness, in

washings of the body, in what may be called personal purity. The Brahman enjoin the conquest of sensuality as a part of that virtue by which the soul may find eternal rest. The devotee is encouraged to master earthly thoughts and mere human affections as obstacles in the way of his perfection. All of this tends of course to asceticism, with its accompanying follies and vices; but it is probably true that the sages of India have reached as high a degree of self-mastery as any other devotees to the dogma of the mortification of the body as a means of eternal happiness.

Chieftainship was a part of the original structure of the Aryan race. It may not be known whether this fact in the organization of the primitive people was developed in the old household of the race, or whether it came forth as a concomitant circumstance of migration. Certain it is that migrating tribes must have their chiefs, their headmen, who lead and direct and take the responsibility. This chieftainship would inevitably take on the character of a military captaincy. The migration would traverse hostile grounds. There would be the clash of moving people with the aborigines and the conflict with other tribes in motion. He who could best control the action of barbaric battle would have great reputation. He would be a hero while the migration continued, and a prince as soon as the tribe had settled into permanent abodes. Such is the genesis of the half-military and half-royal petty kinglets whose figures are seen rising above the confusion and strife of the historical dawn.

We have already seen that in the countries possessed by the Indian races the Vedic bard, in the first place, and the

Brahman priest afterwards, accompanied the chieftain who led the tribe, and invoked the deities to his aid in battle and conquest. The spectacle in the Indian valleys, as we discover it in the far twilight of history, is somewhat similar to that which reappeared in the feudal ages in Western Europe, when the priest of Rome kept himself at the side of the barbarian chieftain until the latter was transformed into a feudal baron. So in India; with this difference, however, that the Brahman and the military chief were in that country of the same race and kindred. The union, therefore, of religious dogma with barbarian statecraft would be more intimate and friendly in India than in the West. The ascendancy of the priest would also be more fatal to the natural evolution of political power and the establishment of secular forms of government in a country where the chieftain sympathized by kinship with the priest, than in lands where they two were in antagonism. This was one of the leading causes of the miserable condition into which the political institutions of India fell at an early age, and in which they have ever since continued.

After the military chieftain in a barbarous age, leader and defender of a wandering tribe, has passed, by the settled residence of his people, into a prince, having a court and a retinue and even the beginnings of an administrative system, he must provide for the continuance of his rank, his reputation, his government. This is most easily and naturally done by transmitting it to his son. The priest would encourage this tendency; for the counselor of the father would have a favorable situation for influence with the descendant. He-

Hinduism re-  
lieved by whole-  
some beliefs and  
practices.

Sympathy of the  
Brahmans and  
the military  
caste.

Old Indian  
chieftainship  
becomes Hindu  
petty royalty.

Primogeniture  
naturally follows  
military chief-  
tainship.



INDIAN PRINCE—TYPE.—THE MAHARAJAH OF GWALIOR.—Drawn by A. de Neuville.

redity would thus become a natural element in the system, and primogeniture would follow as a secondary suggestion. All of these facts have appeared in the political structure of India, and in the order named.

The government of the Indian princes has been an absolutism from the earliest ages. Everything has conspired to make

**Absolutism of the government of the Indian princes.**

the native prince a despot, and to perpetuate the despotism in his family.

The right of the Indian nabob to tax his subjects for the support of the government and to supply the means of war rests with himself. Any part of the private property of the people, from one twelfth to one fourth of the same he may take as a revenue, without responsibility. In the same way he may enlist his subjects into the army. Custom has prescribed that those who serve in war shall be recompensed by a gift of land. In former times only the Kshatriyas were summoned for military duty. The other castes were permitted to pursue the vocations of peace without disturbance.

As to the methods of warfare, they were rude and traditional. The Indian

**Rude methods of warfare; use of war elephants.**

weaponry was the same as that employed by all half-barbarous peoples. Until

modern times bows and arrows, clubs, discuses, spears, swords, shields, and war chariots were the armor, offensive and defensive, of the native soldiery. These were never entirely supplanted until the establishment of the British East Indian empire. From time immemorial the elephant has been used in war. It may be frankly confessed that until the artillery of modern times was leveled against him he was one of the most formidable engines ever seen on a battlefield. From the days of Porus to

the days of Nana Sahib the enemy had cause to look with dread on the huge monster as he raged in the conflict, bearing, as in a tower, his company of soldiers, and bringing down his tremendous trunk, like the fall of a Norway pine, upon half a legion at a blow.

All the conditions, social, civil, and religious, in the Indian countries have conspired to engender a superstitious veneration for princes and rulers. As

**Superstitious reverence for princes and rulers.**

among other ancient Oriental peoples, the king, the nabob, is regarded as half-divine. He is the representative of the unseen powers, and is responsible to them for his conduct. He is their equal and companion, and his right to rule is from on high. Against a prince thus hedged about with that divinity which accompanies kings, insurrection is regarded as most wicked and dangerous, and the punishment of disloyalty is always to the uttermost.

It were exceedingly difficult, if not impossible, to present a satisfactory exhibit of the distribution of the various races in India. We have now given a sketch of some of the leading elements of the political, social, and religious structure of the country; but much would remain if an accurate delineation should be attempted of the relations and tendencies of the various parts of Indian society.

The Hindus, to whom the foregoing pages have been devoted, constitute the leading element, the most widely distributed population of India. Perhaps a

**General view of race conditions in Bengal.**

sketch of the condition of affairs in Bengal may serve as an illustration of the status existing in all the provinces and governments. Within this country there is an aggregation of peoples of diverse ethnic origin, speaking different lan-



SOLDIERS OF THE RAJAH OF BARODA—TYPES.—Drawn by Emile Bayard.

guages. They represent eras of development as far apart as the earliest ages of history and the present day. These diversities exist in religious thought and practices, in political ideas, in race proclivities, and in every aspect of nationality.

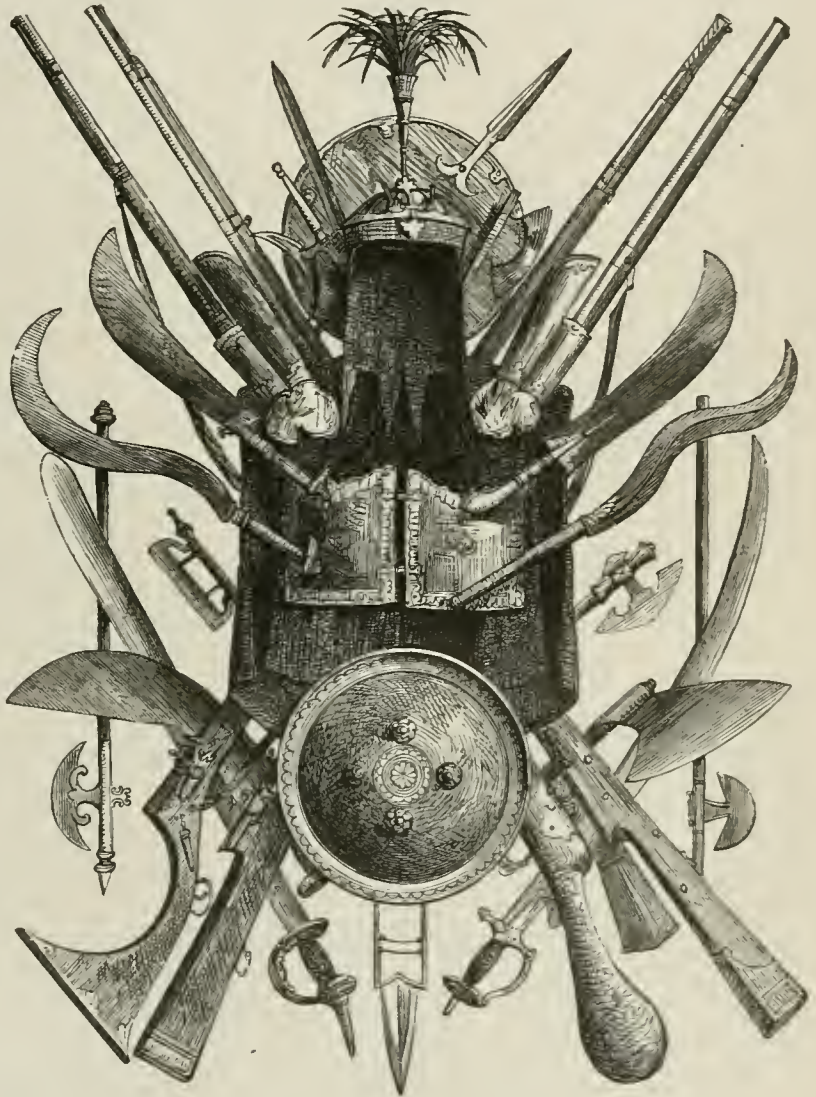
According to the census of 1872 Bengal, which then included the province

Aggregate of subjects under the provincial government. of Assam, had a

population of sixty-six million eight hundred and fifty-six thousand eight hundred and fifty-nine, being fully equal to that of the entire United States at the present time. We thus have the remarkable spectacle of a lieutenant governor sent out from London, a distance of six thousand miles, to preside over a congeries of nations far exceeding the entire population of the United Kingdom of Great Britain and Ireland! The ele-

ments under this government—and Bengal was only one of many provinces under British dominion—were so diversified and contradictory as to make a governmental problem which no nation other than England would have had the political courage to undertake or the skill to solve.

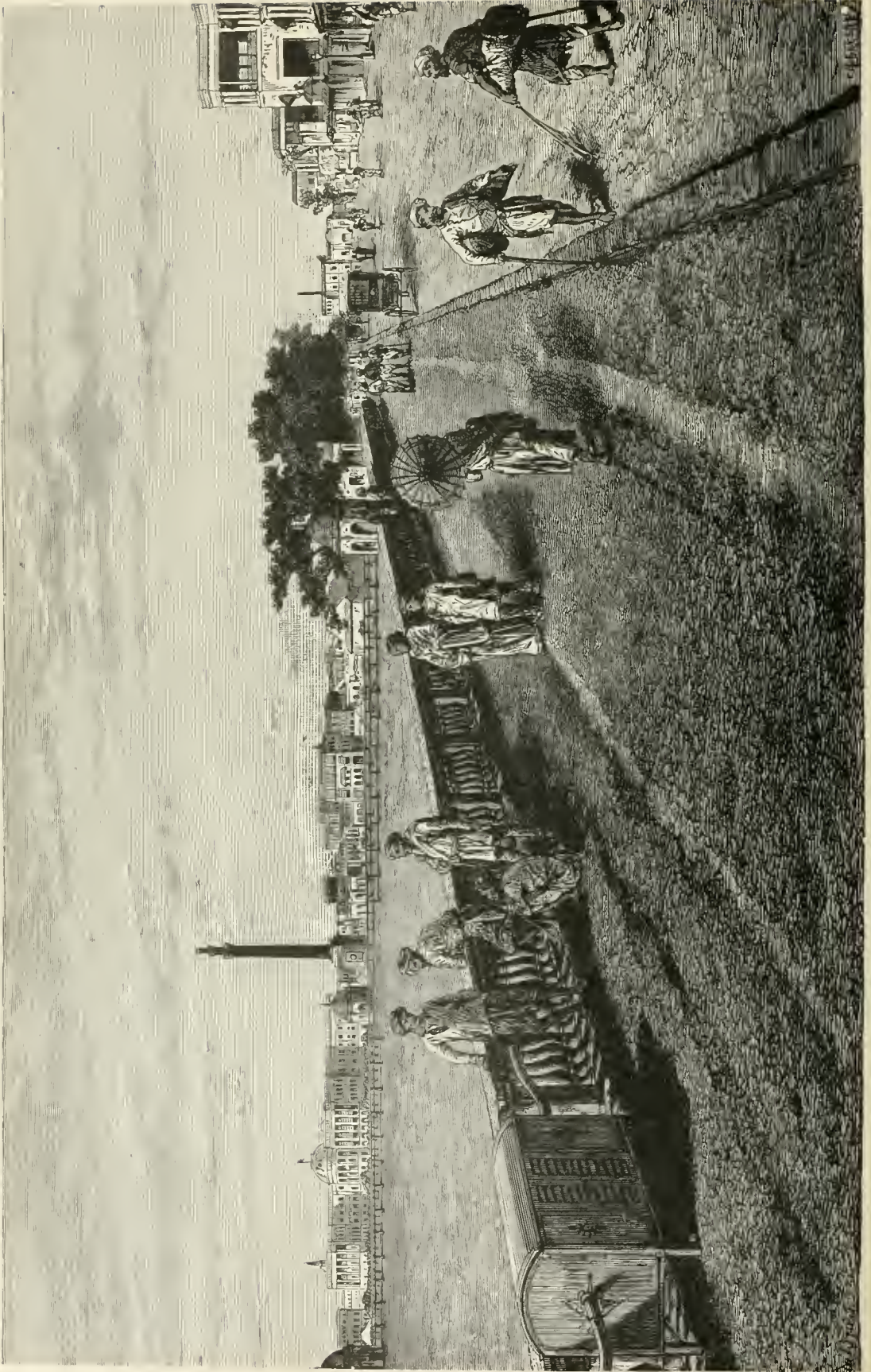
The people thus aggregated presented every type of the human evolution, from sheer barbarism and the grossest forms of superstition to a high degree of human enlightenment. Educated native noble-



GROUP OF HINDU WEAPONS OF WAR.

men from Bengal, full of the skeptical spirit of modern times, have come to London as diplomats, have sat in the clubs of that metropolis, and delivered speeches at public dinners among lawyers, bishops, and statesmen as skillful at fence, as witty, and almost as schol-

The Hindus present every grade of the human evolution.



VIEW IN BENGAL.—ESPLANADE IN CALCUTTA.—Drawn by J. Gaitdrau.



arly as they, while at the same time barbarous chieftains of their own race, in their own country, were sacrificing idiots and paupers on hilltops in order to make sure of the political advantages which the noblemen had gone to London to plead for! So great is the diversity of development among the Hindus.

These people, viewed as a whole, are most largely descended from the Aryan stock. Their languages are classical, and, strange to say, are more nearly in analogy with the current English tongue than are the Highland dialects of Scotland or the broken speech of Wales! Of the sixty-six million of Bengalese, forty-two and a half million are classi-

Linguistic affinities; striking features of the British rule.

fied as Hindus; and of the remainder, about twenty and a half million are Mohammedans. The British lieutenant governor has thus under his sway in the single province of Bengal a larger Mohammedan population than that ruled by the Sultan of Turkey! Besides the two great peoples, the Hindus and the Islamites, a small percentage of other Indian races is diffused throughout the country, and to this must be added the Europeans, notably the English, who have sat down at Calcutta under a May and June temperature of one hundred and ten degrees F. to control and direct a mass of nations numerically in excess of all the other subjects of the queen.

### CHAPTER XLIII.—ISOLATED RACES—GENERAL ASPECTS.



T remains to notice briefly one or two additional Indian families less widely known than the great races already described. In the western part of the country, on the slopes of the Hindu-Kush, are the Daradas, or Dards, and further to the west another people called the Sijah-Posh. The latter word signifies "black coats," because the men are mostly clad, as to their outer garments, in black hides. To these people the Mohammedans give the name of Kaffirs, or Infidels. It is believed that they migrated into India from Kandahar in Afghanistan.

We have among these extreme races the same dialectical differences, the same peculiarities, which belong to the other branches of the Indic family. These

mountaineers are larger in person and of finer build than are the people of the Punjab, or even their old kinsfolk the Afghans. They have light skin, blue eyes, and blonde hair. They are more warlike than the people in the valleys of the Indus and the Ganges. They have an extreme aversion to the Mohammedans; and it is one of the tests of good citizenship to have slain one of the followers of the Prophet. Whenever this feat has been accomplished the slayer henceforth wears a feather in commemoration of his deed, and allows his hair to grow long.

Distribution and character of the Kaffirs.

In other respects the Kaffirs are like the Hindus. They offer sacrifices of cows and goats, and have ceremonies and feasts in honor of the gods, who are both male and female, according to the Indian theory. Like the greater races,

they venerate the souls of their ancestors. Amusements are popular, and music and dancing are cultivated to a high degree.

Perhaps after dispersed Israel, the Gypsies are the most remarkable people in the world in their distribution into foreign lands. Their name has been given to them by other peoples, who

Anomalous  
place of Gypsies  
in the ethnic  
scheme.

in the world in their distribution into foreign lands.

Their name has been given to them by other peoples, who

habit of life has carried them into all quarters of the globe. Their dispersion among the Western nations began with the fourteenth century, and has extended to the present time.

It is believed that the Gypsies were originally of the Pariah, or Sudra, caste, that is, the lowest order of Indian society. Their dialects have certainly been derived from Hindustani, but each tribe



AGRICULTURAL LIFE IN INDIA.—GHADDIS CULTIVATORS.—Drawn by E. Zier, from a photograph by E. Bourne.

have supposed them to be of *Egyptian* origin. They do not call themselves Gypsies, but *Rom*, or *Romany*. The vernacular *Sinte* is always employed by them as their own ethnic epithet, and in this it is easy to perceive the word *Sindh*. Doubtless the original seat of the Gypsies was in the valley of the Lower Indus, whence their migratory

of Gypsies has adopted parts of the vocabulary and even of the grammatical structure of the languages spoken in the countries of their sojourn. Perhaps no people in the world have to a like degree incorporated into their own speech so much of other languages; and the incorporated parts remain without assimila-

The race originated in the Pariah, or Sudra, class of Hindus.

tion. Leland, in his work on the *English Gypsies and Their Language*, has given examples of the mongrel speech employed by these wanderers. The following two proverbs will suffice to illustrate the gross deterioration of the Gypsy tongue:

"*A cloudy sala often purabens to a fino*  
"A cloudy morning often changes to a fine  
*divrus.*"  
day."

"*It's sim to a choomer, kushti for kek till*  
"It's like a kiss, good for nothing until  
*it's pordered atween dui.*"  
it is divided between two."

By some Gypsy tribes their own language has been better preserved, and few traces of the speech of the country in which they chance to be sojourning can be found in their current expressions. The following paragraph from a Welsh Gypsy story will illustrate the character of the speech when free from English admixture:

Features of the  
Gypsy language  
illustrated.

"*Yeker a doi ses bearengaro ta vaver store*  
"Once there were (a) sailor and other four  
*morsh; yek ses peltanengaro, ta ow vaver ses*  
men; one was (a) blacksmith, and the other was  
*koramangaro, ta sivamangaro, to pallano ses*  
(a) soldier, and (a) tailor, and the last was  
*kirchimackaro. Ow bearengaro potchedas e*  
(an) innkeeper. The sailor asked the  
*peltanengaro te vel apra ow doreav. Ow pelta-*  
blacksmith to come on the sea. The black-  
*nengaro pendas, 'Nau shom te ja te kerra boottee.'*  
smith said, 'No (I) am to go to do work.'  
*'So se tero boottee?'* 'Te tasarra sastarn,'  
'What is thy work?' 'To heat iron,'  
*chotchy ow peltanengaro, ta te kerravles undra*  
quoth the blacksmith, 'and to make it into  
*chichaw grengey.'*"  
shoes for horses."

The ethnic classification of the Gypsies was long a puzzling question. The most skillful scholars were at fault in attempt-

ing to fix their place. Here again, however, language furnishes the clue. The course of the Gypsies on their way to Europe and the West can be accurately traced by the admixture of foreign words which they have brought along with them. The oldest element thus incorporated with the Gypsy language is Persian; after that, Armenian, and so on to the West. Doubtless a few bands of this vagrant people have come into Europe from Egypt, but their sojourn in that country must have been brief, for no tribe has been found speaking a language in which there were traces of Arabic, as would have been the case if they had tarried long in Egypt or other parts of Northern Africa.

Much investigation has been given to the Gypsies as a people. Traces of them have been found west of the Bosphorus as early as the ninth century, but their presence in Europe is uncertain until

Language fur-  
nishes the clue  
for classifica-  
tion.

Apparition of  
Gypsy tribes in  
Europe and  
America.

the year 1346, when Catharine of Valois granted to the chiefs of Corfu the right to reduce to serfdom certain *Homines Vageniti*, or vagrants, who had come into the country. This same people pitched its tents along the Danube as early as 1417. In 1422 it was estimated that fourteen thousand of them had reached Italy. In August, 1427, a band numbering a hundred and twenty came to Paris, representing themselves as fugitives from the Saracens in Egypt. It is doubtless from this circumstance that the name Gypsy has been applied to the race. In 1530 they had become so numerous in England that Henry VIII issued a proclamation against them. In nearly every country of Western Europe statutes were enacted to prevent the incoming of Gypsies and to expel those who already arrived.

At the present time it is estimated that Europe contains about seven hundred thousand of this race. They have made their way into the two Americas, into the islands of the sea, into Australia. Everywhere their character is the

Development of  
Gypsy tribes in  
Europe and  
America.

Hindu. The complexion is tawny; eyes black, glancing quickly to right and left, black hair, cheek bones high and prominent, lower jaw slightly projecting, mouth small, and teeth white and even. It is not uncommon to see among Gypsy women and girls figures and fea-

tures that would be considered beautiful by the most critical judgment of Western peoples.

The character of the Gypsy race is bad in the last degree. Both men and women

Mendicant and  
thieving char-  
acter of the  
race.

are usually degraded. It is not, however, charged that they have licentious habits. They are addicted to every sharp practice by which rogues and thieves obtain property that is not their own. They are conscienceless, and are unacquainted with religious obligation. It has been declared by some scholars in language that there is no Gypsy word for soul or immortality or God. They pretend to the fortune teller's lore and to skill in palmistry, and to every other species of magic, from card-playing to the black art of the Middle Ages.



BENJARI GYPSIES—TYPES.

Drawn by A. de Neuville, from a photograph.

same. The form, the features, the manner of life and character of the Gypsies are repeated in all places where their tents or huts are found. The physiognomy is plainly Asiatic. The Gypsy face is the best representation to be seen west of the Atlantic of the face of the

central fact in the constitution of India. All of the races inhabiting that vast country or emanating therefrom betray in their beliefs and practices the unaltered conditions of a former life. While the Western Aryans, as we shall see hereafter,

Fixedness the  
central fact in  
Hindu life.



GYPSY TRIBE ON THE MARCH.—Drawn by A. de Neuville.

have been almost infinitely inflected in their development, the Indic branch of the race fell at an early age into established forms, to amend or alter which has been regarded as innovation and sacrilege.

In this respect India may be ranked with the Egypt that was and the China that is. Doubtless the Hamites in ancient Egyptian society were more fixed in a given social structure, less subject to fluctuation and evolution into new forms, than are the Indic races of to-day. The Chinese also, who change not at all from generation to generation, who regard all movement or progress from the old and approved constitution of things as a useless and dangerous departure from the best attainable standard, are doubtless an intenser form of social completeness and conservatism than are the Hindus. But as compared with the flexibility and progressive tendencies of all the Western peoples the nations of India are in the strongest contrast.

It is impossible now to tell for how long a time even the details of every-day life, the circumstances of manners and dress, the rules of caste, and the laws of social propriety have remained unaltered. The styles of personal adornment described in the oldest records of the race are still patterned and repeated by the Indian jewelers. The ornament has been immemorably regulated by rank. Even wealth and profusion have not been able to pass the prescribed limits of form. The law books of Manu fixed the limits and the details of caste and determined the paraphernalia of each. All descendants of Aryans should wear the sacred cord around the person. The cord must pass over the left and under the right shoulder, and be placed

there when the wearer was initiated into his caste. The cord of the Brahman should be composed of three cotton threads. The Kshatriyas, or warrior caste, had also a threefold cord, but the strands were of hemp; and that of the Vaisyas was made of triple strands of wool.

Custom having once determined the symbol, it must remain unaltered age after age. The Brahman's belt must be made of sugar cane. He must wear the skin of the gazelle. His staff must be of bamboo and reach to the top of his head from the ground. The soldier's belt must be made of bowstrings. His garment must be a deerskin, and his bamboo staff must reach no higher than the forehead. The belt of the Vaisya must be made of hemp. His garment must be a sheepskin, and his fig-tree staff, cut from an unpeeled branch, must reach only to his nose. Let none violate these things, for they are a part of the usage and the law of the land. Opinions must not change, neither must the outer forms of society. True enough, the Sudras may clothe themselves as they will, for they are no true caste, but only a residuum, a melange, left on the soil after the three major castes have been determined and defined. These things are necessary that the purity of the dominant races may be preserved. Change will lead to confusion, corruption of blood, deterioration of manners, destruction of race character, national shame.

Life is growth. It is as truly so of the tribe as it is of the individual; of the nation as of the tribe; of the race as of the nation. The part of the human body which is not used, which does not expand and grow by the addition of new

Comparisons  
with the Ham-  
ites and the  
Chinese.

ancient Egyptian society were  
more fixed in a given so-  
cial structure, less subject

Usage of the  
belt; clothing  
of the Sudras.

Preservation  
of the ancient  
dress and re-  
galia.

day life, the circumstances  
of manners and dress, the  
rules of caste, and the

Race life, once  
vigorous, may  
pass into  
atrophy.

elements, the substitution of living tissue for that which is broken down and expelled, will suffer atrophy. It will cease to act. It may not possibly decay. It may even retain a certain circulation of the blood and a sort of nervous vitality, but in other respects it is dead. The same is true of national life, and even of the institutional forms of society. They must progress or fall into a shriveled and useless condition, unfitted for the altered relations under which they pass by lapse of time and change of circumstance.

India thus presents to the modern inquirer a fixed surface. There is less perspective in Indian society than in almost any other of the world. This is to

Lack of perspective in Hindu society.

say that the existing form has the same character that it had ages ago. In any

Western state, if a cross section be made of society as it now exists, such section will present phenomena wholly different from what we would have discovered in the sixteenth century, and the latter in turn would be equally distinct from the aspects discovered in the sixth century. The art of China is said to have no perspective. The Chinese drawings and paintings are all made as though the objects delineated had been viewed *from above* instead of horizontally. The institutions of India have this fixed expression. They are as if sketched from above, and the forms of things have no converging lines behind them.

Since the beginning of European ascendancy in India, however, the im-

Western influence begins to prevail in India.

impact of Western influence upon the crystalized institutions of the country

have scattered the germs of change. There is a slight relaxation even of caste. The Brahmans themselves have separated somewhat into higher and

lower orders, and in some instances have engaged in secular employments. It is not unusual to find a Brahman in the military service of the empire, and



THE PARIAH DJONGAL OF SARGUJA—TYPE.  
Drawn by Emile Bayard.

in some parts of the country what are known as "plow Brahmans," or agriculturists, are found. Though engaged in the pursuits of the field and garden, these members of the Brahmanical order

still hold fast to their old distinctions, wear the Brahman's thread, and claim and receive recognition as belonging to the highest caste.

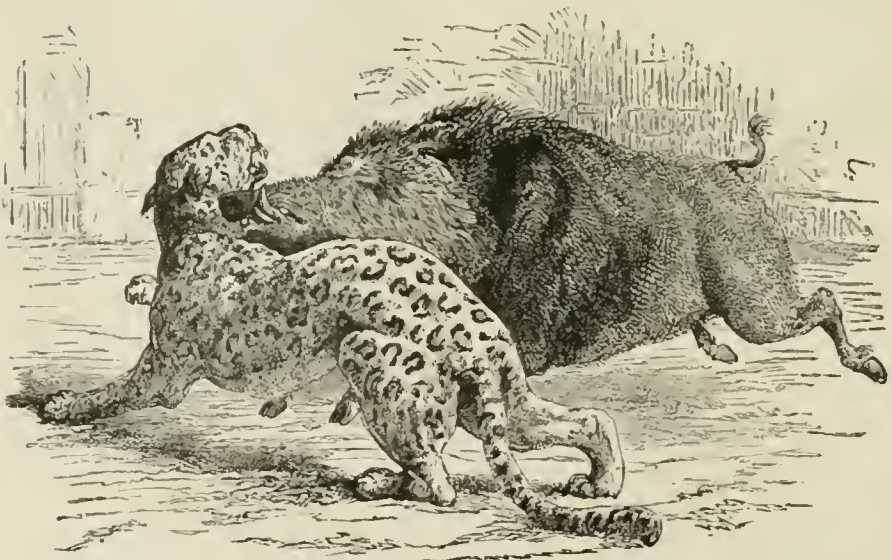
The subsidence of the Kshatriyas, or at least the subsiding *tendency* among them into industrial pursuits, is still more marked. It can hardly be said that the Pariahs are now a caste separate from the Sudras. They are rather a lower class of Sudras than a distinct division. These changes, noticeable by the close observer in recent times, are exceedingly slow, and are made against the whole force of the existing order; but they foretoken an ultimate regeneration of the social order and institutions of the East.

We have now completed the intended sketch of the Eastern divisions of the Aryan race. In a former book we followed the migrations of these great and populous nations from their old seats east of the Caspian into the regions of their subsequent occupancy and development. In the present book we have

Tendency toward the neglect of caste distinction.

General view of the subject to present stage of the inquiry.

noted the past and current aspects which the various nations springing from the primitive stock have presented in ancient and modern times. The object has been to give to the reader an accurate general notion of the ethnic character of these peoples. Geographically, we have found them distributed from the Iranian Ossetes along the northern spurs of the Caucasus, in latitude forty-five degrees north and longitude forty-five degrees east from Greenwich, to the inhabitants of British Burmah, in latitude ten degrees north and longitude one hundred and two degrees east. Within these extremes are distributed some of the most populous nations on the globe; and if the civilizations of these peoples do not present to the inquirer of to-day so promising and inspiring a view as the more vigorous and expanding developments in Western nations, there is, nevertheless, a perpetual fund of interest and a limitless revenue of information to be found among the races and institutions of the old Iranian plateau and the teeming valleys of India.















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