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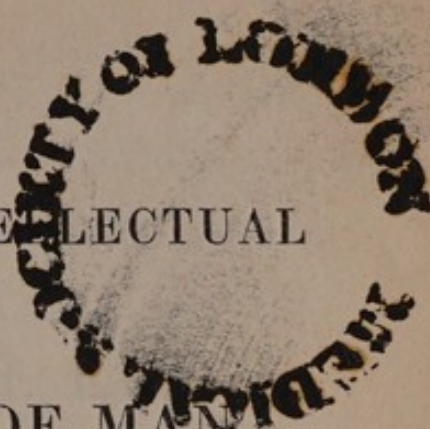
THE
PHYSICAL AND INTELLECTUAL
CONSTITUTION OF MAN
CONSIDERED.



THE
FEDERAL AND STATE
CONSTITUTION OF MASS.
CONSIDERED.

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THE
PHYSICAL AND INTELLECTUAL
CONSTITUTION OF MAN



CONSIDERED.

BY
EDWARD MERYON, F.R.C.S., &c.

LONDON:
SMITH, ELDER AND CO., CORNHILL,
BOOKSELLERS TO THEIR MAJESTIES.

1836.



PHYSICAL AND MENTAL

CONSTITUTION OF MAN

BY

EDWARD MERTON, M.D., F.R.C.S.

LONDON:

PRINTED BY STEWART AND CO.,

OLD BAILEY.

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TO

NEWMAN SMITH, ESQ.

MY DEAR SIR,

DURING the leisure hours which usually attend the first few years of professional life, I have sought relaxation in accumulating materials for the following unpretending pages, the completion of which now affords me the opportunity I have fondly anticipated, of dedicating to friendship the fruits of my amusement.

Every step in my progress being debateable ground, I may perhaps be accused of a summary

decision on subjects which have drawn forth volumes from men of well earned fame; but whilst I admit the charge to be in some degree a just one, I plead in extenuation a diligent consideration of the best authorities before I ventured on my speculations; and I deprecate that misinterpretation of my meaning which should convert opinions, offered with unfeigned diffidence, as inducements to farther investigation, into the hasty conclusions of prejudice, or the arrogant judgment of presumption.

The subject, although hitherto much neglected, presents so sublime and fascinating an aspect, and promises so fairly to be successfully pursued, that if I stimulate but one efficient votary to exertion in a cause which I am conscious is but little enriched by the present volume, I shall be amply repaid for the time which has been spent in its production, independent of the gratification

which I feel in inscribing to you my first humble
attempt at literary composition.

I have the honour to be,

My dear Sir,

Yours very sincerely,

EDWARD MERYON.

February, 1836.

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

REPORT OF THE

COMMISSIONERS OF THE

UNIVERSITY OF CHICAGO

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CHAPTER I.

ON THE CAUSES WHICH APPEAR TO HAVE OPERATED AT SUCCESSIVE EPOCHS IN PREPARING THE WORLD FOR THE HABITATION OF MAN.

To know man unconnected with external nature, is to know him but half; we should likewise understand the condition of the world in which he is to exist; and when we have familiarized ourselves with the evidences of its various revolutions, we are the better enabled to contemplate their effects, and to appreciate the many changes which have been wrought on the globe's surface, whereby it has gradually assumed its present state,—a state which is found to be essentially necessary to the well-being of the human race.

To be thoroughly convinced of the comparatively recent introduction of man on the earth, we have only to refer, with impartiality and an earnest desire of truth, to geological investigations, whereby

we obtain evidence of a succession of new animals which have occupied our continents and seas during many ages preceding the creation of our own race. Those imperishable records, drawn from the bowels of the earth, are the unerring monuments of the varied stages in the march of time, and testify the mysterious change from a state when inertia was the sole principle of the universe, and the only laws were those which now govern inorganic matter, to the first dawn of organization and self-movements of life.

When we take into consideration the diameter of the earth, which has been calculated at nearly 8000 miles, our highest mountains and deepest valleys sink into slight inequalities ; the labour of man has hitherto unfolded but little of its immensity, neither have the observations of the geologist extended beyond the most superficial strata, the aggregate of which has been denominated the earth's crust. The centre, whether cavernous, fluid, or solid, we know not, nor is it essential to our subject.* It has, however, been a favourite

* Professor Leslie observes, that air compressed into the fiftieth part of its volume, has its elasticity fifty times augmented ; if it continue to contract at that rate, it would, from its

subject of speculation, and various theories thereon have been maintained by their respective champions.

Notwithstanding the many discrepancies which have found their way into the writings of geologists, there are certain facts which experience has established, and on which inductions have been founded. Thus, experience has shown that the

own incumbent weight, acquire the density of water at the depth of thirty-four miles. But water itself would have its density doubled at the depth of ninety-three miles, and would even attain the density of quicksilver at the depth of three hundred and sixty-two miles. In descending, therefore, towards the centre, through nearly 4000 miles, the condensation of ordinary substances would surpass the utmost powers of conception. Dr. Young says, that steel would be compressed into one-fourth, and stone into one-eighth of its bulk at the earth's centre. However, we are yet ignorant of the laws of compression of solid bodies beyond a certain limit; though from the experiments of Mr. Perkins, they appear to be capable of a greater degree of compression than has generally been imagined. But a density so extreme is not borne out by astronomical observation. It might seem to follow, therefore, that our planet must have a widely cavernous structure, and that we tread on a crust or shell, whose thickness bears a very small proportion to the diameter of its sphere. Possibly too, this great condensation at the central regions, may be counterbalanced by the increased elasticity due to a very elevated temperature.—Mrs. Somerville on the Connexion of the Physical Sciences, page 90.

earth's crust which we inhabit, is made up of a succession of layers arranged around the centre, indicating a successive deposition of materials; experience has moreover shown that the reciprocal action of matter on matter is such, that the most superficial layers pressing on those below, cause their component parts to be condensed: hence it is physically proved that the earth increases in density from the surface to the centre. All these layers, however, are composed of a certain number of elementary parts differently disposed in different strata. According to professor Ure, these elementary parts consist mainly of silica, (or the matter of rock crystal), alumina, (or pure clay), iron, lime, magnesia, and potash. Now, inasmuch as these elementary bodies enter into the composition of all the layers, it has been inferred that the most superficial were originally produced by the detritus or destruction of the deeper seated. It therefore follows that some are of more ancient formation than others. Accordingly, the different layers or rocks * constituting the surface of our

* The term rock is here used geologically, and applies equally to layers of sand or alluvial earth, as to harder substances which are more commonly designated by that name.

planet have been classified and divided into primary, transition, secondary, tertiary, &c. Other writers have made the successive periods wherein these rocks were formed, the foundation of their classification: thus Mr. De la Beche refers the primitive rocks to the Typhonian period; the transition, secondary, and part of the tertiary he classes in the Saturnian period; and that portion of the tertiary which is denominated post-diluvial, he refers to the Jovian period.

Two grand agents are generally admitted to have been principally effective in the formation and deposition of these successive series; namely, fire and water.

The primitive rocks are all more or less perfectly crystallized, as we see exemplified in granite, gneiss, &c. These primitive rocks, although in some situations they are observed to extend, as in the Alpine chain, to an elevation of twelve or thirteen thousand feet, yet at the mountain base they dip in under all other strata. Thus their crystalline form is an indication of their igneous origin,* and

* Professor Jameson remarks in his notes on the formation of primitive mountains, that the artificial production by fusion of the minerals which compose our primitive rocks,

their high elevation must have depended on some subsequent volcanic violence. Independent of their crystalline form, their igneous origin is further proved by the fact, that most of the minerals which are formed by nature have been formed artificially in our laboratories; and as Mrs. Somerville has remarked, "the high temperature of mines, hot springs, and above all, the internal fires, which have produced, and do still occasion such devastation on our planet, indicate an augmentation of heat towards its centre; the increase of density, corresponding to the depth and form of the spheroid, being what theory assigns to a fluid mass in rotation, concur to induce the idea that the temperature of the earth was originally so high as to reduce all the substances of which it is composed to a state of fusion or of vapour, and that in the course of ages, it has cooled down to its present state." Our second proposition, namely, that of volcanic violence, whereby mountains have

appears, according to Mitscherlich, to place beyond doubt the theory that our primitive mountains were formerly a melted mass. Laplace is also convinced of its plausibility without grounding his belief upon the reasons which chemistry presents.

been upheaved, is apparent from certain fossil shells, evidently of the marine kind, which have been found in strata on the tops of our highest mountains: hence it is probable that as these have been raised above the ocean, others have been ingulfed. These primitive rocks, the lowest to which man has penetrated, contain not a vestige of organic remains, and therefore do not interest us in our present inquiries into the march of organization.

The super-imposed transition rocks are semi-crystalline or translucent. It is from them that we obtain our statuary marbles: they are observed here and there to contain the fossilized remains of a few zoophytes; but it is not until we arrive at the secondary series that we observe the strata bearing internal evidence of a population of animals, which having occupied the situations of our continents for a season, became extinct, making way for others which were destined to share a like fate, leaving us records of their existence only by the preservative and agglutinating properties of the strata which, in the course of their consolidation, have embedded these primary creations. In tracing the successive strata their fossils will point out a gradual advance-

ment in organization, as well in plants as in animals, and I hope to make it apparent that each preceding epoch has prepared and fitted the earth's surface for the one that was to follow.

Now, admitting the high temperature of the earth during the Typhonian period, the consequence would be, that a considerable portion of the ocean would be converted into vapour. An immense pressure must necessarily have been exerted by this vapour on the remaining water, so as to have caused it to retain a large proportion of carbonic acid.* The earth, however, gradually cooling down, a great proportion of the vapour would be gradually condensed in the form of water, whereby the atmospheric pressure would be gradually diminished, and the disengagement of a considerable portion of carbonic acid would be the gradual result. The high temperature of the ocean would assist this latter operation.

An excess of carbonic acid renders lime very

* If carbonic acid existed in combination with any mineral, previous to the igneous fusion of our globe (supposing such had ever been its condition), that carbonic acid must necessarily have been disengaged; for all carbonates, except those of potash and soda, are deprived of their acid by heat.

soluble in water ;* at the time, therefore, when the ocean contained its maximum of this gas, the water must have been charged with calcareous matter, so that I apprehend the aqueous agent of change in the inorganic world, was much more active at that time than it is at the present: but what is very remarkable, a smaller proportion of the acid converts lime into an insoluble carbonate; hence, at the time when the atmospheric pressure was reduced, and the heated ocean caused the disengagement of the gas, the very cause which effected the solution of the primitive rocks, was the grand agent in depositing the transition† and secondary.

The limestone of the secondary series, reposing on the transition, is so nearly related to it, that we may recognize the pulverized fragments mixed up with zoophytes and sea-weeds (the first dawning of

* Lime, in solution, has a strong affinity for carbonic acid, and forms with it an insoluble carbonate; but on adding a large quantity of the acid, the transparency of the solution is completely restored, because carbonate of lime is soluble in an excess of carbonic acid.—*Turner's Chemistry*, p. 444.

† Carbonate of lime or marble is the principal component of the transition and secondary series of rocks.

organization), whereby a soil was prepared for a succeeding epoch. The earth and atmosphere were then unfit for air-breathing animals;—the earth, because it was unproductive of sustenance; the air, inasmuch as it was necessarily influenced by the primitive heat, and moreover pervaded by carbonic acid gas. But this condition of the earth's surface, consisting of an elaborated soil from the bed of the ocean and a carbonized atmosphere, was beautifully adapted to the advancement of a prolific vegetation, the monuments whereof we observe in the coal, a formation unquestionably of vegetable origin.* Nature, which before had supported but leafless algæ and a few ferns, seems at this period to have accumulated prodigious powers for the development of plants, both in

* Plants absorb carbonic acid from the air, and emit oxygen in return. When a healthy plant, the roots of which are supplied with proper nourishment, is exposed to the direct solar beams, in a given quantity of atmospheric air, the carbonic acid, after a certain interval, is removed, and an equal volume of oxygen is substituted for it. If a fresh portion of carbonic acid is supplied, the same result will ensue. In like manner, when the leaves of plants are immersed in water, and exposed to the rays of the sun, oxygen gas is disengaged, and a proportional quantity of carbonic acid is absorbed.—*Turner's Chemistry*, p. 787.

numbers and size ; so that in addition to the pre-existing species we find traces of equisetums, palms, bamboos, &c., all of such gigantic size, that the most luxuriant tropical vegetation of the present day presents but pigmies when compared with the fossilized plants which are found in coal. The leafless equisetum, commonly called horsetail, seen growing on our shores, with a thin feeble stem, to the height of a few inches, is recognized in coal by its striated fistular stem, as a gigantic tree, which must have exceeded thirty or forty feet in height. In like manner the ferns, sending forth their leaves from the ground by our road sides, appear carbonized in the arborescent form by myriads, and bear evidence of having equalled in height our stately forest trees. The same huge proportions are likewise observed in the fossil palms, bamboos, &c. These are the tribes of plants which have chiefly concurred to the formation of coal,—tribes, which are now found dwarfish in size, even when closely approximating to the equator ; yet they once grew and were deposited in these our latitudes ; so that the presumption is borne out relative to the degree of heat which was then greater even in polar latitudes, than that now experienced in the torrid zones. This degree

of heat would necessarily be incompatible with the existence of land quadrupeds, as they are at present constituted ; and accordingly, the fossilized animal remains of the period to which we refer, indicate no farther advance in organization, than that which we observe at the present day in the lowest order of fishes, and some species of molluscous animals, whose texture could withstand the high temperature of the tepid ocean.

The giant vegetation of the coal-measures must have been in no small degree instrumental in diminishing the carbonic acid of the atmosphere, whereby it would be equally diminished in the water ; so that the same cause would continue to operate in the deposition of calcareous strata, which, in fact, are observed coincident with, and reposing on, the coal, and presenting vegetable impressions, similar in character to those found in coal. In these limestone formations, air-breathing animal remains are for the first time observed, indicating the existence of dry land, and adding testimony to the influence of an equatorial atmosphere. These first denizens of the earth are in many places so perfectly preserved, and have been so minutely investigated by the late Baron Cuvier, that the natu-

ralist may now paint an imaginary landscape of a preceding epoch of our planet tenanted by huge and monstrous forms, unlike any of our existing species, and totally unfitted for co-existence with them. These original inhabitants, were, doubtless, admirably adapted to the physical condition of the earth; being huge, cold-blooded reptiles of the lizard tribe, they required but a small proportion of oxygen in the atmosphere for their low vitality, but depended on the genial heat to compensate for that kind of air which is necessary for the health and vigour of the higher tribes.

These monstrous reptiles assisted in preparing the earth's surface for an advanced stage of organization, by their decomposition animalizing the soil, (if I may be allowed the expression,) which was, moreover, elaborated from the bed of the ocean, and fitted for its future inhabitants. The individual members of this secondary group of formations, above the coal, are found teeming with animal forms, each having some fossil almost peculiar to itself. In the sandstone, which reposes on the coal, we have, amongst other reptiles, remains of large tortoises, measuring eight or nine feet in length; and as we examine the mountain limestone

above, we find the immense Ichthyosaurus, partaking of the forms of fish and lizard, and attaining twenty feet or more in length ; the Plesiosaurus, which might also rank between fish and lizard, having, instead of the large lizard head of the Ichthyosaurus, a very small one, supported on an extended neck, as long as its body, resembling that of a swan, and with a body, adapted by its fin-like limbs, to an aqueous habitation ; these also are commonly found upwards of twenty feet long. Besides these, fossil crocodiles are found ; and in the secondary sandstone which lies between the limestone and chalk, Professor Buckland discovered the remains of a gigantic animal, half crocodile, half monitor, but so immense in its proportions, that we must magnify our conception of these animals to the size of the largest whales, to imagine them. No entire skeleton has been yet found ; but from the unconnected bones which have been described by the learned Professor, it is computed that this vast reptile must have been sixty or seventy feet long. Contemporaneous with this monster was the Iguanodon, discovered by Mr. Mantell, in the strata of Tilgate forest, which seems to have borne a closer affinity to our present iguana

than to any other reptiles, but so much larger in size, that from a comparison of seven different parts, which Mr. Mantell has given in his geology of the south-east of England, it appears that the Iguanodon averaged a length of seventy feet.* I would fain enumerate many other species, but as they may be more advantageously studied by those who may feel interested in the subject, I must content myself by referring to Cuvier's elaborate "Recherches sur les Ossemens Fossiles." These giant forms, which, prior to any anatomical investigation, were considered by some as indications of gods or antediluvian giants of our own race, and by Theophrastus as sportings of nature, gene-

* The following Table has been constructed by Mr. Mantell, to assist in estimating the size of the original animal :—

Bones.	Recent Iguana, five feet long.	Iguanodon.	Length of the original as indicated by the comparison.	
Teeth.....			Exceed the recent by 20 times.	100 feet.
Horn.....	$\frac{1}{4}$ inch high.	$4\frac{1}{2}$ inches.	18	90
Os tympani....	0.6 inch high.	6 inches.	10	50
Clavicle.....	$1\frac{1}{2}$ inch long.	30 inches.	20	100
Femur	Circumference of the shaft, $1\frac{1}{2}$ inch. }	23 inches. }	15	75
	Length of the bone } $3\frac{1}{2}$ inches	4 feet. }		
Tibia.....	2.8 inches.	31 inches.	11	55
Claw-bone			16	80

rated in the womb of the earth by its own creative powers, seem to have been well adapted, at the early periods in which they existed, to serve the purposes which I have before suggested. Examining the fossilized remains of the deep deposited in the intermediate periods, we shall find the same huge proportions which characterised the air-breathing animals, giving also additional evidence that the sea at this early period must have been highly charged with calcareous matter, inasmuch as its inhabitants were such as were most calculated for such a condition ; for, in addition to the myriads of zoophytes which in this early state of our globe precipitated vast quantities of the carbonate of lime into coral-rocks, the principal ocean remains of that period are immense molluscos, shell-bearing animals,—animals, some of which were closely allied to the present shell nautilus, but whose dimensions exceeded by fourteen or sixteen times those now existing ; and in studying these fossiliferous secondary rocks, we have at every step still greater evidence that the grand function of the inhabitants of the deep was to secrete carbonate of lime from their fluid element, so as to prepare it for a succeeding creation of

higher orders of fishes ; hence have we enumerated in our limestone fossils, trilobites, baculites, belemnites, ammonites, orthoceratites, and an innumerable list of other mollusca, which derived their covering from the carbonate of lime suspended in the water.

The chalk formation, which is evidently a deposit by precipitation from the ocean, contains numerous organic remains : sea-tortoises, shells of crustacea, zoophytes, and other inhabitants of the deep similar in character to those before mentioned, besides a genus of reptile which Mr. Conybeare has named the *Mosasaurus*, an account of which will be found in the great work of Cuvier, vol. v. p. 310. Layers of boulder-stones are also observed, the remains of myriads of amorphous animals, which then tenanted the sea, but whose organization being percolated by sand which was previously held in solution by the sea, they were ultimately converted into those masses which we now recognise as flints.

Such has been the general order of superposition of the secondary rocks, and such the denizens during their respective durations. An extended enumeration of all the geological formations would

of course be out of place here, inasmuch as my only object is to prove the existence of other animals prior to that of our own race, and at the same time to show that the earth's surface has been gradually undergoing changes fitting it more and more for our habitation. An examination of this secondary group requires no very deep powers of perception to distinguish, in the various members composing it, periods of rest or quietude, and periods of terrific violence and confusion; thus, for example, the coal may be given as a tranquil deposition; whereas the oolitic group has been upheaved by most tremendous convulsions, and we now find mountain-masses raised to such altitudes as to preclude the possibility of supposing them to have been carried there by any present existing causes. This turbulent disposition, in addition to the circumstances we have before mentioned, would be very unfitted for man's abode, as well as for that of quadrupeds, inasmuch as amphibious reptiles only would have the power of accomodating themselves to the sudden mutations of the earth's surface.

Thus, then, up to the chalk formations we have remains only of shell-secreting mollusca, a few

fish, vast aero-aqueous reptiles, and those plants only which are enumerated by botanists as of the lowest orders, and which are named the monocotyledonous, or endogenous, in addition to the cryptogamic ferns and mosses ; nor is it until the diluvial deposits animalized and elaborated by pre-existing organization that we have indications of the higher orders of plants and animals.

The surface of the earth thus prepared possessed prodigious powers in developing a luxuriant vegetation, as proved by the existence of beds of brown coal found here and there above the chalk. Impressions of dicotyledonous plants are here observed to make their first appearance, and it was at these periods that the mammoth and mastodon, the elephant, rhinoceros, hippopotamus, and several other of these large herbivorous animals existed and perambulated our lands, until the last fearful catastrophe overtook them, burying some in the earth's strata and enveloping others in ice, where they have been enclosed thousands of years and remain to the present day completely preserved, monuments of the sudden destruction of a former world.

The stratified rocks which we have thus enumerated are the obvious indications of a succession of

revolutions. The universality of certain strata is sufficient proof that the entire productions of certain eras have been overwhelmed, and marine formations deposited above them; others, however, have been but partial, and perhaps similar to what we observe at the present day in our intertropical seas, where different parts are constantly undergoing changes from volcanic eruptions forming submarine mountains, whereon the apparently insignificant zoophyte may fix itself and build up a coral-reef, which (like many of the South Sea islands having a like foundation), by an accession of upheaved soil and drifted germs of vegetation, ultimately becomes fitted for the habitation of man. Of the causes of these universal catastrophes it is not our business to inquire: suffice it to state, that not a single bone of our own species has been found in the deposits which have been hitherto mentioned; and, what is somewhat extraordinary, no relics of any of the monkey tribe (*quadrumana*) have been discovered amidst the wreck of the teeming population of the herbivorous quadrupeds of the diluvium. "Where, then," says Cuvier, "was the human race at this period? Did the last and most perfect of the works of the Creator nowhere

exist? Did the animals which now accompany him upon the globe, and of which there are no traces among these fossil remains, surround him? Were the countries in which he lived with them swallowed up, when those which he now inhabits, and whose former population may have been destroyed by a great inundation, were laid dry again? These are questions which the study of fossil remains does not enable us to solve. Thus much, however, is certain, that we are now at least in the midst of a fourth succession of land animals; that, after the age of reptiles, the age of palæotheria, the age of mammoths and that of mastodons and megatheria, has come the age in which the human species, aided by some domestic animals, peaceably governs and fertilizes the earth, and that it is only in the deposits formed since the commencement of this age, in alluvial matters, peat-bogs and recent concretions, that bones are found in the fossil state, which belong all of them to known and still living animals."

Man, thus placed on the globe's surface, holds in his constitution a close relation to external nature, "limited in bulk to that happy medium combining strength with convenience, and to an organization

delicate and sensitive in the highest degree, but nevertheless accommodating, and endowed with a form at once peculiar, appropriate, and beautiful.”* Had he lived in the earlier periods of the earth’s history, those enormous reptiles and gigantic quadrupeds would have been his most insignificant enemies; every element would have conspired against him, and in a short period of time must have exterminated his race. The carbonized atmosphere would have contaminated his blood and defied all the accommodating powers wherewith his organization might be endowed. The noxious exhalations which must then have been the grand characteristics of the damp and heated climate, must of necessity have been peculiarly favouring sources of an immense mortality, and, lastly, the saturated waters, universally loaded with calcareous matter, could be no other than the fertile germs of the most grievous diseases, of themselves prohibiting a long existence.

If, however, the world were now inhabited, as it once was, by those huge herbivorous quadrupeds, “man,” to quote the observations of a philosophic naturalist, “would find no resting place in it. The

* Prout.

consumption of food necessary to support such creatures would be enormous. No plains would be sufficiently fruitful to graze thousands of elephants and rhinoceroses of hundreds of species. The trees would be bared of their leaves, and verdure would disappear. The earth, in fact, would be as much devastated as if perpetual swarms of locusts had stripped it of its clothing; and thousands of these devouring monsters would annually perish for want of food, poison the air, and create pestilence and famine. Such results, however frightful, are too obvious to be denied. The pachydermatous quadrupeds, considering their immense size, are proportioned to the rest of the animal creation, throughout which we find that great bulk is restricted to few individual forms, while excessive minuteness is extended to countless millions."*

From this appeal to geology we deduce most important facts relative to the condition of the earth we inhabit as connected with our physical constitution. That noble science points to a time when, there is great reason to believe, the whole

* Swainson's Discourse on the Study of Natural History, p. 234.

globe was a chaotic mass in a state of igneous fusion. It more plainly tells us that huge and monstrous reptiles have sported in the deep which at successive periods has rolled over the very land we now inhabit, and clearly demonstrates that, at each epoch, the great work of nature was directed to the adaptation of the surface of our globe for that which was to follow, till by a succession of changes, its present condition fitted it for the habitation of man.

CHAPTER II.

ON THE TRANSMUTATION OF ANIMALS.

WERE man distinguished by his organization only, it would be no difficult matter to show that he stands alone, or, in other words, that his species is so rigidly restricted, that whatever modifications may have arisen in the lapse of time, have been so superficial that they have proceeded no farther than to cause slight differences in the relative development of organs.

The question of progressive development by transmutation has been stigmatized as puerile and too absurd to require refutation ; but a laugh is not sufficient argument when we find men who have deservedly acquired a high reputation in science tenaciously upholding it, and fondly displaying its captivating simplicity.

In Lamarck's Philosophy of Zoology we are taught to believe that great changes in circum-

stances have exercised considerable influence in animals, and have produced similar changes in their wants and actions, which having become permanent, new habits have been acquired, by which means new organs have been formed. Thus it is in strict accordance with his reasoning to imagine a gradual advance in organization from that state of mere vitality, where sensation exists without perception, and motion without volition, till in the course of ages the organs of sense have been superadded, and instinctive faculties acquired, and, finally, the irrational brute was converted into the rational man.

The upholders of this theory, however, have not shown what only would satisfactorily prove their doctrine, namely, existing animals or fossil remains exemplifying the actual transition from one species to another.

The Ichthyosaurus, with its lizard head and fish-like body, did most probably unite the characters both of fish and reptile; but it was a perfectly distinct species, and might have been most admirably adapted to a former condition of the earth, in which the huge monster could best avail itself of all that was requisite for its existence and

enjoyment. That condition ensured to it the power of obtaining its food, whether animal or vegetable, the former perhaps similar to the *Pterodactylus*, which was probably formed either for floating on the surface of the water or mounting by the assistance of its wing-like expansions into the atmosphere. In like manner the *Plesiosaurus* and vast *Megalosaurus* appear to have been as distinct in their kinds as any species now in existence, and if they had been the progenitors of any intermediate species, why do we not find the gradual blending of the prototypes?

But we will take a rapid survey of existing animals, and see if it be more reasonable to suppose that chance or necessity could have so anticipated the wants of the new species it was about to form; or whether it be not the most philosophical deduction to acknowledge the marks of a supreme and intelligent Power in moulding the organs which are so perfectly and beautifully adapted to the habits and mode of life of the animal to which they belong. As we advance in our knowledge of organization we see infinite wisdom exemplified not only in providing certain organs in some animals, but also in withholding them from others.

Nature is a great economist, and whether we contemplate the association of organs, their structure, or their endowments, we shall have equal reason to believe that design is the grand characteristic of living nature.

If we examine the minute infusory animalcules, we see some whose texture is too delicate for the fluid in which they are generated, and they have therefore the power of agglutinating particles of mud by means of a gummy transudation on their surface.

In some zoophytes the newly formed gemmule branching from its parent stem is provided with cilia, whereby to swim through the deep until it has found a secure resting-place, and having fixed itself, the cilia being no longer required, disappear.

The air-sac contained in the gelatinous composition of the medusa and physalia serves to support them on the surface of the ocean, along which they are wafted to collect the minute animalcules floating near the surface; but when the waves are ruffled, their delicate structure would be endangered had they not the power of contracting themselves to expel their air, and so sink into the deep and quiet water.

By a little consideration we might imagine that some parasitical animals, such as intestinal worms, could require no respiratory organs, and so far as the researches of zootomists have gone, none have yet been found ; hence they most probably receive their atmospheric influence from the fluids of the animals on which they subsist.

We see the radiated animals, as the sea hedgehog, covered with a most curiously formed calcareous shell, armed with spines, to defend them from their enemies. This calcareous covering would, I conceive, be sufficient to subvert the theory of uninterrupted succession by means of reproduction. These animals are also provided with teeth to grind down the pieces of shell on which they feed ; the teeth being constantly abraded, have the property of being very quickly reproduced.

Worms are beautifully formed for their modes of life ; the common earth-worm is protected by a slimy transudation ; the sabella and terrebella (species of sea-worms) employ this transudation for the purpose of agglutinating sand and minute shells into tubes or cases, wherein they exist ; another sea-worm (the nais), having opened a pas-

sage for itself in the sand, applies the glutinous transudation against the walls of the passage, and thereby secures it from falling in.

In the molluscous animals, which are principally inhabitants of water, we are struck with the beautiful provisions made for the function of respiration. The branchiæ, which are subservient to that process, being carefully protected, yet situated where they may be most exposed to the air or currents of water,—in some along the under part of the body, as in the common barnacle, that they may participate in the motions of the legs, and so be constantly exposed to fresh water; in univalve animals they are placed under a mantle, and are constantly irrigated by currents formed by the animal itself. In fact, almost every animal in this great and interesting class has some peculiarity fitting it for its peculiar habit.

Following up the chain through the spider-tribe, with their complicated apparatus, by which they construct their ingenious fabric to entrap their living victims:—insects, many of which are provided with natural instruments capable of emitting sounds to guide their mates to them, whereby the object of their existence is fulfilled, which is that

of the continuation of their species ; and the crustacea, or lobster-tribe, which at stated times cast off their calcareous shell until they have attained their full development : every species possesses organs modified peculiar to itself.

Passing on to fish, with their swimming-bladder just in the situation to suspend them horizontally in their aqueous element ; their fins so admirably adapted to the purposes they have to serve ; their back-bone made to bend with an elastic spring, whereby little muscular exertion is required ; and their tail beautifully formed and so placed as to strike the water in the various directions required by the animal's wants.

Next, the amphibious tribe, which commence their career as fishes, with a fish-like skeleton and gills, which are destined to be changed, the one into the more solid skeleton of land animals, and the other converted into lungs, which metamorphosis being completed, they leave the water and become air-breathing animals.

The whole class of reptiles possesses an organization peculiarly adapted to their wants : serpents fitted for extended locomotion ; lizards with forms as modified as their instincts ; and, lastly, the

sluggish tortoise, incapable of shunning the approach of larger quadrupeds, would be crushed, and its race soon exterminated, were it not well protected in its bony case.

We next arrive at birds, whose organization is very characteristic, their teguments serving to protect them from the sudden changes of temperature to which they are continually exposed, and at the same time rendering them specifically lighter. The conformation of their eyes enables them to perceive objects with equal facility at all distances, and every cavity is adapted to admit a rarified atmosphere.

The cetacea, or whale tribe, also possess numerous characteristic peculiarities, both as regards their external and internal organization. Their fin-like extremities and horizontal tail enabling them to rise to the surface of the water for the purpose of respiration, and the natural sieve at the entrance of the whale's mouth are in nowise the only distinguishing marks of this group; the palate, the nostrils or blow-holes, the stomach, the heart, the blood, the immense adipose mass lining the skin, in short, every organ, nay, almost every tissue bespeaks the class to which it belongs.

Thence through quadrupeds, every species up to man himself: I feel justified in affirming that all are as distinct as numbers will permit, all perfect; there is no intermixing, except where man has interposed; and where that power (which is extremely limited) has been exercised, there would seem to be a curse imposed on the produce, for sterility is almost universally the fate of the hybrid.

Now then, had certain wants induced a change of habits, and that change of habits a modification of animal form—that form progressively advancing, I would ask, why, in those microscopic animals which are generated spontaneously in stagnant water, do we find such complexity of texture where we ought to expect the simple structure of the monad? or why in the gemmule of the zoophyte do we find its wants provided for before habit could have assisted in the formation? What modifying power is there in the medusa to form its air-sac, and in the worm to establish its peculiar gelatinous transudation? Would any force of habit deprive the parasite of its organs of respiration, or carve out in geometrical precision the component pieces which envelope the sea hedge-hog? Admitting even that all this may be accomplished,

and that habit has the power of modifying the form of organs, would it also have the power of transposing, as we see exemplified in the molluscous animals, where the respiratory organs are found on the head, the foot, the back, the sides, or enclosed in a mantle? or would there be such provision made in the lobster tribe, whereby as they increase in size they have the power of throwing off their shell and secreting a new one, more fitted for their greater magnitude; or in the spider, endowing some species with an additional number of eyes, evidently adapting them for their peculiar habits? Thus the genus *theridon*, which inhabits bunches of grapes, has eight eyes; the common house spider (*aranea domestica*) has four, whilst the aquatic spider (*aranea aquatica*), beautifully provided with means for the formation of an air-sac, wherein it envelopes its body preparatory to merging into its aqueous habitation, has but two eyes. By what power are insects so beautifully suited for their aerial abode, air cavities being formed throughout their bodies, passing even into their compound eyes? In the fish again, how peculiarly adapted is every organ* to the function

* In no species of fish that I know of is the conformation

it has to perform ! What habit can have caused the wonderful metamorphosis of the frog, or endowed the tortoise with its bony habitation ?

But these may be said to be mere modifications of structure, which pass almost insensibly the one into the other, and therefore some naturalists will tell us that they may have been effected by an uninterrupted process of generation, adapting the organization of each species to its peculiar habits. I would then ask, Would that independent power of adaptation cause the lungs of birds to communicate with the interior of their bones, whereby air is diffused through their osseous cavities, rendering them specifically lighter, and therefore more fitted for their mode of life ? If it would, why are not the bones of the bat equally permeable by the atmosphere ? Or is there such generating power in the animal economy that the fringe-like sieve placed on the jaws of the whale could have been self-created ?

In quadrupeds there are innumerable peculiarities of the tail so beautifully adapted to the wants of the animal as in the shark, which has a fin-like expansion on the inferior edge of the tail, which enables it to turn suddenly on its back in the water to seize its prey.

ties in the different species, but I will content myself with one. The principal artery and nerve of the arm in man, and of the fore-leg in most quadrupeds, pass superficially over the elbow-joint in their passage downwards; but in the ferocious tiger and other carnivorous animals, whose existence depends on the violent struggles they are daily driven to with other animals on which they prey, or against which they have to defend themselves, instead of thus passing over the joint where they would be most exposed to pressure, pass through an opening in the solid bone, and are thereby most secure. Is this safeguard the effect of preconceived wants, or was it so moulded only when the predatory habits of the animal required it?

Having thus considered a few of the peculiarities of the various classes of animals, we will now pass on to man himself, and, in the first place, I would remark that, had he been the offspring of the quadrumanous tribe, a race might as well have sprung from those inhabiting the new world as from those of the old; and as it would be very improbable that he would degenerate in any particular from his progenitors, we should have tribes of men, like the monkeys of America, possessing

thirty-six teeth, instead of thirty-two. No instance of that kind having thus far been recorded, we may fairly conclude that America was not the soil so favourable to organic advancement.

It would be mere gratuitous speculation, to advance any opinion on the probability that had the chimpanse or orang been thus transformed in Africa, they would have continued most to advance in the clime which most contributed to their transformation; so that, instead of the degraded negro which we find in that region, we might expect the grace and beauty which characterize the European. This, I say, would be unsupported by experiment, and unsustained by observation; but lest the converse be advanced, and it should be said that it is most probable he would there be found most to resemble his prototype, I would reply, that the proposition is equally untenable, and that, therefore, the only way whereby we may arrive at a correct opinion is by an appeal to the physical organization of the two orders.

The orang outang (*Pithecus Satyrus*), instead of gaining on man as it becomes older, appears to degenerate, inasmuch as the rounded head and gentle disposition of the young are replaced in the

full-grown animal by a cranium, approaching in character to that of the carnivorous quadruped, with very large canine teeth, and a corresponding change in the disposition, which becomes savage and morose. Its extremities, compared with those of man, strike the observer as being transposed, having perfect hands on the posterior extremities for grasping branches, and, if I mistake not, an anatomical investigation will confirm the opinion; for if the hip joint be examined, it will be found that the ligament which adds so much to the strength of this important joint in man, connecting the round head of the thigh-bone to the cuplike cavity of the pelvis (the ligamentum teres), is here wanting, as it is also in the chimpanse and gibbon.

The chimpanse, which approaches nearest to man in appearance, has thirteen pairs of ribs, whereas in the human skeleton we find but twelve. There is, moreover, a circumstance which particularly distinguishes us from the lower tribes; I mean in the articulation of the head with the neck, which is by the middle of its base at the great occipital hole (foramen occipitale), the plane of which is nearly horizontal, whereby the head is maintained in a state of equilibrium, a disposition admirably

adapted for the erect position. In all the lower animals this point of articulation is placed much farther back on the skull; the position, moreover, of the bone of the heel (*os calcis*) in man, forming a right angle with the bones of the leg; the presence also of calves; the great length of the inferior extremities; the expanded pelvis giving firmness to the legs, and thereby a great extent of motion to the arms; the nates also being at their maximum of development, assisting alike to sustain him in the erect position, and allowing him to rest in the sitting posture, are all peculiarities which are found in man alone. European, Malay, American, Ethiopian, all possess these characteristics; hence it is obvious from these few physical peculiarities, possessed by man alone, that he is widely separated from all other beings. We might adduce many more characteristics, and were it for purpose of distinguishing him from the ape tribe only, there is scarcely an organ but that might be offered in testimony of the proposition wherewith we commenced.

Those who conceive of the Negro, as standing between the ape and civilized man, are willing to seize on the slightest modifications of external form

to confirm their opinion ; hence they forget not to adduce the peculiarly formed foot of the Ethiopian, as a powerful argument in their favour. I am most willing to admit the modification, and can readily believe that he may be traced through the sandy desert by his footmarks. But may not this depend on some other cause ? Daily pacing the loose and arid sand of Nigritia, is it not probable that the toes would become expanded, more especially the great toe, which principally serves in the act of progression ? But the internal structure of the negro's foot resembles that of his fellow man, whereas the quadrumanous tribe have on the posterior extremities muscles, corresponding in number, situation, and uses, to those in the hand of man.

Man, then, viewed relatively to his organization simply, stands a distinct unconnected species in the animal chain ; but when to all this, his intellectual powers are superadded, we raise him a prodigious height above the mere creature of instinct ; and although all individuals may not be endowed with the same largeness of conception, the difference, I apprehend, may depend far more on fortuitous circumstances than on individual

faculties. It has been well observed, "That the savage may seem little superior to the orang outang, but if instruction be afforded to both, the former will gradually develop the powers of our nature in their noble superiority, while the latter will still remain the orang outang." My business here is not with Psychology, else would I attempt to show that it is not so unreasonable to suppose that peculiarity of temperament has more concern with the mental powers than most men are willing to admit, and that when we would realize our beau ideal of a recondite philosophy, we are too apt to imagine that nature exhausts her powers in the creation of a gigantic mind, than to suppose that the innate mental capacity is equal in many, and awaits but the kindred touch of a generous inspiration to brighten into its glorious superiority.

Placed thus at the head of the animal chain relative to his organization and mental attributes, man becomes an accountable being to his Creator; and with respect to the relations subsisting between him and his own species, he is also dependent on, and accountable to his fellow men. For a protracted period of his infant life he is in a state of absolute helplessness, and until his delicate organs are ac-

customed to the impressions of external agents, his existence seems to be dragged on in pain and misery; becoming susceptible of agreeable sensations, he goes on advancing in the development of his powers through the smiling season of youth, the pride of puberty, the full plenitude of manhood and decrepit old age, when his dull senses are the unerring witnesses that

“ He has lived long enough: his way of life
Is fall’n into the sear, the yellow leaf.”

“ *Parvus, debilis, fatuus, omnium rerum inops nascitur; sola parentum cura diu conservatur, fovetur, alitur; paulatim crescit, pubescit, adolescit, sapit: forma et animi et corporis viribus parentes æquat; eadem gaudet exercere munera; tandem, ingravescentibus annis communem sortem subiturus.*”*

The situation of man on the earth is very remarkable, and has been beautifully described by Sir J. Herschell, in the following passage:—“To no other warm-blooded animal has nature denied that indispensable covering, without which the vicissitudes of

* Gregory,—*Conspectus Medicinæ Theoreticæ.*

a temperate, and the rigours of a cold climate are equally insupportable; and to scarcely any has she been so sparing in external weapons, whether for attack or defence. Destitute alike of speed to avoid, and of arms to repel, the aggressions of his voracious foes; tenderly susceptible of atmospheric influences, and unfitted for the coarse aliments which the earth affords spontaneously, during at least two-thirds of the year, even in temperate climes; man, if abandoned to mere instinct, would be of all creatures the most miserable and destitute. Distracted by terror, and goaded by famine; driven to the most abject expedients for concealment from his enemies, and to the most cowardly devices for the seizure and destruction of his nobler prey, his existence would be one continued subterfuge or stratagem; his dwelling would be in dens of the earth, in clefts of rocks, or in the hollows of trees; his food worms and the lower reptiles, or such few and crude productions of the soil as his organs could be brought to assimilate, varied with occasional relics mangled by more powerful beasts of prey, or contemned by their more pampered choice. Remarkable only for the absence of those powers

and qualities which obtain for other animals a degree of security and respect, he would be disregarded by some and hunted down by others; till, after a few generations, his species would become altogether extinct, or, at least, would be restricted to a few islands in tropical regions, where the warmth of the climate, the paucity of enemies, and the abundance of vegetable food might permit it to linger."

The physical development of man is subject to certain laws, which originate from innumerable causes, and over which he himself possesses a limited power resulting from the exercise of his intellectual attributes. It is this degree of power (over-rated perhaps by Buffon) which caused him to exclaim, "Who knows to what degree of perfection man might arrive at both in physical and moral nature?" The question has been answered to a certain extent by M. Quetelet in his elaborate "*Essai de Physique Sociale*;" but as the immutable agents of nature are co-extensive and co-efficient, with those inherent in the object of our research, we must, if we desire to obtain a comprehensive knowledge of ourselves, determine the

modifying powers of nature, as well as the perturbative influence of man. The latter subject of investigation being essentially dependent on the constitution of the social state, is principally treated of, and copiously illustrated by statistical tables in the above treatise, which must be highly interesting to every inquiring mind.

CHAPTER III.

VARIETIES OF THE HUMAN SPECIES.

THE dispersion of mankind since the last irruption of water on the earth's surface, has given rise to such endless tribes, that any attempt at arrangement must necessarily be very imperfect and unsatisfactory. Certain peculiarities however, are observed in different regions, and so characteristic are they, that some writers have imagined that several varieties of men were originally created, and their characters perpetuated by hereditary transmission ; others contend, that the influence of external causes has been sufficient so to modify the external appearance, as to produce the several varieties. This however, is a question which we shall hereafter examine, after giving the distinguishing marks of the individual races.

Linnæus in his "Systema Naturæ," enumerates six different varieties ; viz. wild men, Americans,

Europeans, Asiatics, Africans, and monsters. Now, the first and last of these are evidently inapplicable ; the first, inasmuch, as they have always been either idiots or impostors ; the last, because when congenite, there are physiological laws whereby to account for the monstrosity, and when the effect of superstitious observances, they cannot be classed with natural deformities. Cuvier has comprised the whole human race under three great divisions : the Caucasians, Mongolians, and Ethiopians. The most popular classification is that of Blumenbach, wherein are five varieties ; the Caucasian, Mongolian, Ethiopian, American, and Malay. Now, whatever system we adopt, the division must be more or less arbitrary, because the line of demarcation between different varieties is more or less undefined. Were we therefore to adopt the arrangement of Cuvier, it would be no difficult matter to demonstrate such physical analogy between the several races, as to justify the reduction of the great divisions to three ; but as that of Blumenbach is founded on geographical distribution as well as physical peculiarity, it will more effectually assist our investigations.

The inhabitants of the extreme northern latitudes

however, in the European, Asiatic, and American continents, bear so striking a resemblance to each other, and are moreover (at least in Europe and America) so different from the more meridional population, that our investigations will be much simplified by enumerating a sixth or Hyperborean variety, in addition to those proposed by Blumenbach, which I shall now proceed to examine.

SECTION I.

Caucasian Variety.

THIS variety comprehends the inhabitants of the whole of Europe (the Laplanders and the rest of the Finnish race, excepted,) the western Asiatics on the western side of the Caspian and the rivers Ob and Ganges, the Northern Africans, as the Barbarians, Egyptians and Abyssinians.

Their distinguishing characters are white skin, red cheeks, soft long undulating hair, assuming all the shades from a light brown to black, globular head, straight oval face, well defined features, small cheek bones, perpendicular front teeth in both jaws, an arched expanded forehead, narrow

and rather aquiline nose, small mouth with slightly everted lips, particularly the lower one, and a full rounded chin.

The earliest profane history we possess of the European population, is from Herodotus, who lived about 480 years before Christ: he travelled from Halicarnassus, his native place, through Greece, a part of Asia, Scythia, Thrace, Macedonia, and Egypt, and describes the nations through which he passed. At that time the extended plains of eastern Europe and Asia were inhabited by hordes of nomad tribes, who, having no fixed places of abode, were induced on the slightest occasion to invade and overwhelm the neighbouring tribes, and consequently had existed a long time in ignorance and savage barbarism, before even an attempt was made to supply the materials whereby they might be traced to their individual sources.

From the most remote periods it has been observed, that periodical emigrations have taken place from Asia; and the more we extend our inquiries, the more does it appear, that the whole of Europe has received its population from that source.

It is said that the Vendidat* of the Persians con-

* Heeren.

tains in its two first chapters historical records which do not appear to be so allegorical as most other ancient legends, and require only a geographical investigation to explain them. The original seat of our race is there described as a delicious country, named Eriene-Veedjo, which enjoyed an extremely mild climate, with seven summer months and five winter. Th u it continued, as created by the power of Ormuzd, until the author of evil, the death-dealing Ahriman, smote it with the plague of cold, so that it came to have two summer months only, and ten of winter. The people then began to desert the paradise they at first occupied, and Ormuzd created sixteen other places of benediction for their reception. The first abode which Ormuzd created for the exiled people, was Soghdi, whose identity with Sogdiana is very apparent: next Môore, or Maroo, in Khorasan; then Bakhdi, or Balkh (Bactriana), and so on to Fars itself, and the boundaries of Media and India. This Eriene has been referred by some writers to the Caucasian district, but Heeren imagines it to have been in the neighbourhood of the mountain tracts on the borders of Bucharìa. Now, this mountain chain has but a short summer, and inasmuch as the fossil

elephant, mammoth and mastodon are here found, it is presumed that the character of the climate was formerly much more genial than at present. Hence Heeren concludes, that Eriene is obviously the same with Iran of the present day; and Persia being fertile in those places only which are irrigated, we may understand why sixteen distinct places were said to be created.

This description is evidently applicable, whether we fix on the Caucasian, or the more central range of Asiatic mountains as the cradle of the European nations. Were we to determine the position solely by the evidence afforded in the examination of fossilized bones, we might with equal reason point to the mountain chain in Siberia or Kamtchatka, as to that of Caucasus or Bucharja; for the same fossil bones of the huge mammoth and mastodon are found throughout France, Germany, and Russia, even to Siberia, Lapland, and the icy regions of the Arctic ocean, as well as in the mountain chain referred to by Heeren; so that, however much geology may assist us in ascertaining the comparative antiquity of continents, it appears capable of advancing us but little in determining the priority of nations.

It is now universally admitted, that Western Asia was first inhabited by rude nomades, whose wanderings were most probably confined to the immediate neighbourhood of their original position; and it is reasonable to suppose, that as their numbers increased, they were driven to extend themselves over a wider extent of territory, so that any farther increase or other circumstances pressing on the primitive race, would compel them to invade the territory of their neighbours: and thus we may trace the gradual formation of tribes, who, by adopting new and more civilized modes of subsistence, established new settlements, and consequently observed new habits, till ambition arose to destroy their consanguinity; when, by a continued series of wars and conquests, new kingdoms were founded, whence the stream of population has flowed on more or less interruptedly, until our continents have assumed their present aspect.

It is farther related, that Jemshid was the first king or ruler of these nomad tribes, and he is said to have introduced agriculture, which occupation some adopted, whilst others followed their original habits; thus showing that a variety of oc-

cupations caused the first division of tribes, rather than diversity of origin.

Many learned writers, from their researches into the most ancient traditions which we possess, and which have been transmitted to us by the Jewish writings, have imagined that the Caucasian chain was the first habitation of man, and their opinions would seem to derive confirmation from Herodotus, who speaks of the most western part of Asia as being well inhabited, but that from India eastward, the country was one vast desert unexplored and unknown. With respect to the affinity of names, Eriene may be as easily identified with Erivan, the present capital of Persian Armenia, as with Iran;—Bakhdi with Baku, &c. Moreover, the surrounding country is in nowise unfavourable to the supposition: the Scythians, for instance, would extend themselves northward, between the Tanais and Don, the position which the first traces of history assign to them; the Phœnicians, passing southward, might follow the course of the Euphrates into Syria, where they would be restrained by the Mediterranean on the one hand, and the immense desert of Arabia on the other, from any other positions than those which they actually

assumed; namely, the fertile soil of Egypt towards the south, and westward towards Greece; whilst the Persians, pursuing the eastward direction, would be guided by the Oxus and Jaxartes to the seat of empire which they established between the Indus, the Indian ocean, and the Arabian peninsula.

There are, however, strong reasons to point to the mountain-chain referred to by the celebrated German historian, as the cradle of mankind. The Hindoos, who pretend to the greatest antiquity, might thus have been the early out-branchings of the primitive race. And by his views (if we can reduce all varieties of the human species to one type, and so demonstrate the possibility of identity of origin), we may suppose the Mongolic race to have separated from its parent stem, and dispersed over the eastern part of Asia; a second following the line of coast southward towards the Straits of Babelmandeb into Abyssinia; whilst the European branch possessed themselves successively of the different countries which we are now about to point out.

The mountain-chain, on the borders of Bucharìa, being fixed on as the primitive seat of the human

race, Heeren remarks, that the chain of successive abodes marked out the great highway of nations: the nomadic hordes remained in their original mountain habitations, and their dialect was the Zend; the eastern branch, following the course of the Ganges, by particular inflections of their dialect, gradually moulded their language into Sanscrit; whilst the western stream, assuming successively the names of Lydians, Medians, Armenians, Arabians, Phœnicians, &c. ultimately reached the borders of the Egæan Sea, in which situation they were denominated Pelasgians, and spoke the Greek language. In the meantime, it is extremely probable, that the Scythians extended themselves northward, where they established their kingdom on the north of the Caspian and Euxine Seas, in the situation which Dr. Prichard supposes to correspond with that of the Ukraine, and the country of the Tartars and Don Cossacks.

Now, the Jewish writings agree with the Zandavesta, in showing that many mighty kingdoms must have existed long before the foundation of the Persian empire, so that the mountainous country of Fars continued to be inhabited by va-

rious tribes unequally civilized*, until Cyrus conquered Media about 536, or, according to Heeren, 560 years before Christ, and established the empire which embraced all the countries between the Tigris and Indus, on the one hand, and the Oxus and Indian Ocean on the other. Thus organized, it retained its supremacy until the time of Darius, and was divided into satrapies, when the genius of war, together with a destructive licentiousness, caused its downfall; since which, many nations have been founded on its ruins: but the various races who have successively held dominion, have all belonged to the same original stock.

The Aramean or Semitic tribes, so called after Shem, from whom they are said to have descended, inhabited the wide tracts of land between the Tigris and Mediterranean, and from Cappadocia on the north to the southern coast of Arabia. The Phœnicians were a branch of the Aramean tribes, and possessed the whole of that extent of country, which we now recognize as Syria: they extended themselves also over the

* The satrapies of Persia were subdivided into several tribes, which Herodotus has enumerated and distinguished, either as Nomads, Agriculturists, or Nobles.

northern part of Africa, whence they crossed the Straits of Gibraltar, to possess themselves of the southernmost parts of Spain.

The eastern emigrants following the course of the Ganges into India, pretend, like the Chaldeans and Egyptians, to priority of origin over all other nations, and like them, build their claims on legendary tales, which have been found to be inconsistent and full of irreconcilable absurdities. It is extraordinary, however, that these three great nations, agree in referring to a period of about four thousand years from the present time, as the original epoch of their respective monarchies, and this agreement may, I think, be adduced to prove their direct origin from one common stock.

Historical data abound, for referring most of the monarchies which have at various times been established in western Asia, to political and religious revolutions. Thus the Medes, whose country is said to take its name from Medai, the third son of Japhet, was originally subdued by the Assyrians; but in the time of Sennacherib, about 700 years before Christ, they regained their independence. The Thracians occupied a part of Asia Minor, and the greater part of the country between

the Euxine and Adriatic; they were closely related with the Pelasgians of Greece, and with the Scythians also, as proved by Herodotus, whose writings go far to show their descent from one common source: he relates that Darius, in his expedition against the Scythians, attacked the Getes, who, believing themselves to be immortal, were the bravest of the Thracians.

That these Scythian tribes were the original inhabitants of the Caucasian mountains, where a variety of unconnected hordes now exist, it is fair to presume from Diodorus, who informs us that the Scythians originally came from the neighbourhood of the Indus, and subsequently established themselves on the banks of the Araxes, and thence as far as the borders of the Black Sea.

Thus were Egypt and western Asia populated.* The latter has been designated the Magazine of the European race, which, from historical data and the geographical position of land and water, may be presumed to have spread itself in two great streams; the Scythians on the north, and the Celtæ on the south of the Euxine Sea.

At the dawn of history, the Scythians were re-

* Vide Appendix, Note A.

presented as an extensive nation, occupying the immense expanse of barren deserts in the north-eastern parts of the European continent.* Justin, a Latin historian, who lived in the second century, under Antoninus Pius, says of them, that they founded the kingdoms of Bactriana and Parthia; that their wives were the Amazons; they were a houseless nomad tribe, clothing themselves in skins, and living on milk and honey.

Tacitus describes them as a zanthous tribe, that is, as having white skin, light flaxen hair, and blue eyes. As early as 1400† years before the Christian era, the Scythians had penetrated over a considerable portion of the north and west of Europe, and the position assigned to them by Desmoulins, is on the north-east of the Rhine, the Alps, and the Danube, from Scandinavia along the borders of the Euxine and Caspian, to the Indus: he divides them into three tribes:—

1. Gothic Scandinavians and Germans,
2. Slavi.
3. Sarmato Medes.

1. The Goths are said to be descendants of the

* Herodotus.

† Pinkerton.

Teutones, a race of Scythians, whose eastern confines united them with the Medes and Persians; but when first discovered by the Romans, they were in the situation now occupied by the Germans. According to Tacitus the ancient Gauths or Goths were the inhabitants of Scandinavia, and migrated under the names of Goths, Vandals, Vesigoths, and Ostrogoths into Germany; this German branch, coming from Scandinavia through Denmark, passed between the Elbe and Weser, and followed the Rhine to its branches, which pass into Italy.* The Vandals possessed themselves of the north-east of Germany, as far as the Vistula; the Vesigoths crossed the Danube, and

* Much difference of opinion exists as to the original population of that part of the Italian peninsula which is now known as Tuscany, but which was formerly called Etruria or Tyrrhenia. Niebuhr inclines to the opinion that they first came from the Rhætian Alps, whence they were driven to the southern side of the Po by the Gauls; but, according to Signor Micali, in a work entitled, "*Storia degli antichi Popoli Italiani*," there is great reason to believe that the first Etrurian population was derived from Egypt. This opinion is grounded chiefly on the Canopic vases, figures of winged sphinxes and of scarabei, which are found in great numbers in Tuscany. The Etruscan dialect supplies no data for tracing the migrations of these early nations, inasmuch as it is said to bear no resemblance to any language with which it has been compared.

obtained a settlement in the Roman empire ; the Ostrogoths fixed themselves in Italy, which the Vesigoths then left, and ultimately settled in Spain.

2. The Slavi were known in ancient history as Sauromatæ ; they were Median tribes from the north of Persia. In time they reached the Tanais, and in the course of centuries obtained possession of all the countries north of the Euxine, whence they were driven to the Carpathian mountains, between which and the coast of the Baltic they wandered. A learned Gothic historian* relates, that the Sauromatæ were divided into three nations : 1st, Venedi ; 2nd, Antes ; 3rd, Slavi. The Venedi or Wends are now known as Russian Cossacks, the Antes as Russians, and the Slavi, who most probably received their name when they had established themselves on the borders of the Euxine, subsequently migrated westward to occupy Poland, part of Hungary, and the German states of Silesia, Bohemia, Moravia, and some countries farther north towards the Elbe and Baltic ; these last appear to be the Peucini and Bastarnæ of Pliny, who represents them as the most

* Jornandes.

eastern tribes of the Germans and neighbours of the Dacians.

Thus it appears that Germany has in part received its inhabitants from Gothic and Slavonic nations, the former possessing themselves of the north and west, whilst the latter confined themselves to the east; and we shall endeavour to show that the southern states of Bavaria and Austria were occupied by Celts. The inhabitants of each of these divisions preserve their physical peculiarities. The descendants of the Goths are still the zanthous tribe described by Tacitus, whilst the Slavonic Germans, like the Poles and Russians, have a darker complexion, a squared visage, small sunken eyes, a short nose, and mouth nearly approaching it, and with little beard, except on the upper lip; their dialect, moreover, is said to abound with Slavonic roots.

3. The Sarmato-Medes, descendants of the ancient Scythians, occupied the most northern limits, and formed the connecting links between the Finnish, Mongolian, and European races; they appear to have remained shut up in steppes and mountains, retaining the original habits and customs of the Scythian nomads after the western emigration

of their more civilized countrymen. The Chiung-nu* are said to be the descendants of these savage tribes, since which they have received the denomination of Tartars.† Their original country was that part of Sarmatia bordering on the Palus Mæotis and Tanais, north of the Euxine and Caspian Seas, whence they issued in the 376th year, and attacked successively the Alans, Ostrogoths, and Vesigoths, since which they have at different times made hostile incursions into Europe, and in Hungary have left a race of men called Madjiars, like them in person, viz. short in stature, with round heads, low receding foreheads, small eyes placed obliquely, short flattened nose, thick projecting lips, almost beardless, and with short thick necks. This is the description given of the person of Attila, their leader, and it appears that these characteristics were general throughout the ancient Huns.

The Tartars, as we have hinted at above, are at the present day regarded as descendants of these European Huns; they are divided into widely dispersed nations, extending from Persian Armenia, as far as Siberia on the one side, and over a great extent of the Russian empire on the

* De Guignes.

† Klaproth.

other ; and as they differ in habitation, so do they also in features ; whilst some are tall, handsome, and somewhat civilized, others, like the Nogais, have the repulsive faces of satyrs, which, with their barbarous customs and marauding disposition, form the type of by far the greater part of them.

It appears that a branch of the first division, which we have described as Gothic Scandinavians, invaded the north of France during the tenth century and established themselves in the Netherlands, as Belgæ, or, as M. Amédée Thierry designates them, Kimris ; and about 150 years after, a portion of them came into England as Normans. These Kimris, or Cimbrians of some writers, have been said to have descended from the Celts, but without sufficient evidence. It is true that the Celts are recorded to have entered into a confederation with the German inhabitants of the Weser, which combined nations called themselves Franks.

Various opinions have been entertained respecting the origin of the Celtæ : that they originally emigrated from the east is, however, universally admitted, and that they were a shorter race than

the Germans is generally believed ; they are also said to have been characterised by their tanned skin and dark hairy bodies. Ancient historians have deduced their origin from Gomer, the son of Japhet, whose descendants settled in Phrygia, whence they have spread themselves westward towards Hungary on the south side of the Danube, into Austria, Bavaria, Italy, Gaul on the western side of the Rhine, and into Spain. They were the first European race who invaded foreign lands, and to them is attributed the first rude population of the British Islands.

Heeren, in his *Researches*, remarks, that the Chorasmii lived in the plains of Kiva, south of the Caspian, and had the Mycians as neighbours, which Mycians were afterwards called Phrygians, and are probably identical with the Uzes, or ancestors of the Turks ; hence, if, as has been said, the ancestors of the Celts inhabited Phrygia, it follows that the Celtic stream of population has issued from the south of the Caspian and Euxine Seas, and therefore not from the north, as some writers have imagined. It is, moreover, physically proved that the Celts and Pelasgians were closely related ; and Aristotle remarks that the philosophy

of the Celts passed from them into Greece; all which circumstances tend to prove the southern position of the ancient Celts.

Their first related excursion was that which took place about 622 years before Christ, under two nephews of King Ambegat; one of whom, Bellovesus, with his followers, passed the Italian Alps, and drove from the valley of the Po the earliest inhabitants of Italy (probably branches of the Pelasgians, who had previously crossed the Adriatic), after which they undertook several excursions against the Italians, in whose country they settled; the other, under Sigovesus, followed the course of the Danube, and occupied part of Dacia and Illyria, now known as Hungary, Austria, and Bavaria. Previous to this, however, it appears that hordes of Germans had invaded Eastern Illyria and Thessaly, by which means it is probable that the Celts and Germans became united.

From Illyria they extended themselves into Gallia, where they received the name of Galli or Gauls, and multiplied so fast that they were constantly at war with each other, whereby they divided themselves into numerous nations, some of which poured forth to invade other countries: thus

under the name of Celtiberi, they occupied part of Spain ; others, as we have before said, joined some Gothic tribes, and called themselves Franks ; whilst others, in connexion with Belgæ in the north, possessed themselves of the British Islands. The south of Spain was originally inhabited by emigrants from the north of Africa.

The Celts and Germans having thus arrived at the western extremity of the European continent (the former occupying France, where they were denominated Gauls, and the latter as Belgæ or Kimris in the Netherlands), extended themselves into Britain,—the Belgæ most probably inhabiting the eastern coast, whilst the Celts passed westward, in which direction they were subsequently driven by the invasion of foreign nations, and at the present day their characters are recognized in the Welsh and Irish, whose countries were inhabited by Celts of the original stem. There is reason to suppose that Scotland received its earliest inhabitants from Britain ; these first emigrants were denominated Picts. The Caledonians, whether contemporaneous or identical with the Picts is uncertain ; both nations inhabited the eastern part of Scotland, and Tacitus refers them

to a German origin. The western inhabitants arrived at a later date from the north-east extremity of Ireland, and were denominated Scots.

The course which we have now traced of the European stream of population is attested by historical records, affinity of dialects, physical characteristics, and by the actual position of the different tribes. We do not pretend, however, amidst the many great revolutions whereby these countries have at various times been convulsed, that each nation has universally preserved the purity of its original type or the identical ground of its primitive ancestors; but we have great reason for believing that extermination has never been permitted to isolate any one tribe; on the contrary, we deem it probable that a careful combination of historical and philological facts, assisted by the sciences of physiology and geography, will greatly tend to simplify the filiation of nations.

SECTION II.

Mongolian Variety.

This variety includes the rest of the Asiatics except the Malays, who inhabit the Asiatic islands and the peninsula of Malacca.

They are of an olive colour ; have strong, straight, thin, black hair, scarcely ever curled ; a head almost square ; a broad flattened face ; projecting globular cheek bones ; the space between the eyes, flat and broad ; the apertures of the eye lids, narrow and linear ; the eyes placed obliquely ; the nose small and flat ; the osseous nostrils narrow ; thick lips ; projecting chin ; large ears ; and a stature below that of the European.

The Mongolians themselves deduce their origin from Japhet. His son Turk, say they, was their first king, and was succeeded by Taunak, during whose reign they separated themselves into the four tribes or ordas of Erlat, Gialair, Kaugin, and Berla, from the last of which came the celebrated Timur, and some time after him Alanza Khan. This latter had two sons : Tartar (signifying black), and Mogul (or melancholy), between whom he

divided his empire, and thus originated the Tartars and Moguls. These two kingdoms made war on each other, in which the Tartars prevailed and drove the Moguls into the mountains, many of which they traversed, and at length arrived at a fertile plain enclosed on all sides by exceedingly high mountains. Here they increased, and in their turn attacked the Tartars and became a considerable nation, composed of numerous tribes, all of which were tributary to the Emperor of Kitay, until the time of Gengis Khan, who reduced all the Moguls and Tartars into one state, with which he invaded and subdued Kitay, Hindoostan, and a great part of Persia. This immense empire he bequeathed to his sons, in whose hands it began to decline, and was afterwards divided amongst a great number of petty princes, until Timur Bek restored it to its former importance. "At his death, however, the empire again fell into disorder and was divided into smaller states, which parted again into smaller still, and were then reduced to subjection, which at length brought about a division into stems and hordes, and consequently a complete retrogradation from the state of civilization to the condition of raw uncultivated man.

The two tribes of Tartars and Moguls which were united into one state by Gengis, were again separated on the destruction of his monarchy, since which they have been engaged in perpetual hostilities. The Mongoles, properly so called, compose the one, and the Doerbœn-Oircæt, or quadruple alliance, the other; to the latter belong the Oeloet, Kho-it, Tummut, and Barga-Burat. The Oeloets are identified with the Kalmucks; remains of the Kho-it are still found amongst the Soon-gares; the abode of the Tummut is unknown. The mountains in the neighbourhood of Baikal are the residence of the Barga-Burat. The Mongoles comprehend the remainder of that people who were driven out of China in the fourteenth century, and who have since inhabited the spacious regions between Siberia and China Proper." *

From this slight historical sketch it would appear that the Tartars and Mongols have arisen from one common source, and accordingly the Mongolic has been by some writers denominated the Tartarian race; but we have seen, in treating of the Sarmato-Medes, that a branch of them (the Chiung-nu) are considered by Klaproth and De

* Encyclopædia Londinensis. — Art. Mogul.

Guignes, to have been the progenitors of the Huns ; hence, other writers have designated the Tartars as European inhabitants of Western Asia.

It is evident that Burnes considers the Tartar of Mongolic origin, for, says he, " we should be disposed to look for the seat of Toorkmun migration on the countries north-east of Bokhara, the abodes of Jengis, of Timour, and their Uzbek successors." Again he remarks, " The Tartar is no longer disfigured by features which once inspired disgust. But a physiognomist would not deduce from the change that the Toork of the Oxus differs from his countrymen of Yarkund, (the moghul of modern writers) ; the Tartar features have not altogether disappeared from the natives of Toorkistan, as seen in the small eyes, flattened forehead, and scanty beard. The inhabitant of the city is more changed than the peasant, and in the Hindoo-Koosh is a tribe named Tartar Huzaras, who are said to be descendants of Gengis Khan's army, possessing the pure Tartar features."

The investigations of historians leave us in conjecture respecting the original character of the Tartarians ; so that they, as well as all other races, exemplify the truth of a very elegant and philoso-

phical writer.* “Nations,” says he, “exist long before they feel the want of a national history, and when that want is attempted to be supplied, the materials have perished or are deficient.” There are strong reasons, however, for referring them to an European source, on which account we have alluded to them in the former section; but inasmuch as the physical characteristics of the greater part of them are so decidedly Mongolic, and the countries over which they wander, being those wherein the Mongolic character chiefly prevails, (the two great grounds of Blumenbach’s classification), the most philosophical conclusion appears to be that of assigning to them the Mongolic epithet.

Pallas supposes the primitive seat of the Mongolic race to have been in the neighbourhood of the Altaic chain, which opinion receives confirmation from the researches of Klaproth, and doubtless the present divided state of this great race is to be attributed to the innumerable political revolutions of which Asia has so frequently been the seat; so that we must refer to hostile invasions

* Douglas on the Advancement of Society in Knowledge and Religion.

and successive conquests as the causes of the various states as they exist at the present day, and seek elsewhere for the agencies which have operated on their physical aspect.

The Oeloets, or Olöth Mongols, occupy the countries between the lake of Khukhu-Nor and the Volga; they consist of four tribes, who are known as Kalmucks. It is probable that the Buriates have kept possession of the mountains round about the lake of Baikal from the period of their first origin. The Khalka Mongols inhabit the countries on the northern side of the desert of Gobi, and are said to be divided into eighty-six tribes; whilst the Sharaigal or Khor-Mongols are in possession of the countries farther to the south-west towards Tangut and Tibet. The Tsakhar, or proper Mongols, are settled on the south side of Gobi, as tribes charged with the defence of the Chinese empire; they have forty-nine divisions.

The eastern Mongols, inhabiting the Chinese empire, and Japanese islands, resemble each other so much in manners and customs, as well as in language and appearance; the physical conformation of each, moreover, is so decidedly Mongolic, that we cannot hesitate to refer them to the same

identical source with the other Mongols, from whom they may have separated in very early ages, at which time the Chinese possessed themselves of the land they now inhabit, and which we have already spoken of as Kitay of the Mongolians; whence it is probable they extended themselves to Nipon and the other islands of Japan.

The features of these eastern Mongols being less harsh, and their manners more polished than those of their Kalmuk neighbours, are circumstances which we shall attempt to account for hereafter. With these last we may include the Cochin-chinese, the Siamese, Coresians, &c., who are possessed of similar physical characteristics.

SECTION III.

Ethiopian Variety.

All those Africans not included in the European races belong to this variety.

They have black eyes and skin; black woolly hair; a head compressed laterally; skull contracted anteriorly, whereby its cavity is much diminished; forehead arched; face greatly deve-

loped; cheek-bones projecting forwards; eyes prominent; nose thick and confused with the prominent cheeks and extended upper jaw; the osseous nares, large; the alveolar arch in which the teeth are planted, narrow; the front teeth of the upper and lower jaw, obliquely prominent; lips thick, particularly the upper one; and a receding chin.

In speaking of the Ethiopian tribes, dwelling between the European inhabitants in Northern Africa, and the colony of the Cape of Good Hope in the south, we are necessarily compelled to include nations which have not the peculiar conformation of the Negro or Hottentot, and which are considered by some as descendants of the Moors, who, after the conquest of Sofala, were driven into these territories.

Ham, cursed by his father, and predicted to be the slave of his brethren, has been recognized by ancient historians in the debased Negro, who is considered to be the aboriginal native of central Africa. To Cush, however, is attributed the origin of the peculiar variety of mankind which has received the denomination of Ethiopian. It appears from the Jewish writings, that they first occupied the countries in the neighbourhood of the

Indus, whence they emigrated under the name of Cushites, to the land they at present inhabit, which the ancient Jews called Cush, but which subsequently was denominated Ethiopia.

The Ethiopians, according to Bruce, were the Canaanites, who fled from the cruelty of the Israelites, when they took possession of the promised land ; but other writers contend, that the Israelites were already in Egypt when the Cushites crossed the Straits of Babelmandeb, on their way into Ethiopia. These Cushites are said to have extended themselves southward from Abyssinia, and to have excavated the mountains for their habitations, by which means they may have been led to the detection of gold and silver in their newly-acquired country, which local advantages may have induced them to confine themselves there, whereby they became the great and civilized nation which they are represented to have been.

Dr. Prichard states, that about 1400 years before the Christian era, Abyssinia was inhabited by several distinct nations, speaking various tongues, amongst whom were the Cushites, the Agaazi, or Shepherds of Amhara, Agows, &c.; these latter

were divided into several tribes, resembling Europeans in features, as did also the shepherds, and were addicted to Paganism: these facts were collected from the Axum chronicle; which, moreover, states, that the last-mentioned Abyssinian tribes emigrated from Palestine. Hence it is not improbable that they may have been the Canaanites whose families were predestined to be spread abroad, and that the Cushites finally penetrated into Ethiopia as we have before mentioned.

The Ethiopians, then, properly so called at the present day, people that part of the African continent between the Sahara and Abyssinia, on the north, and Caffraria, on the south; the western coast of which, from the river Senegal to Cape Negro, embracing Guinea and Congo, is inhabited by Foulahs, Wuluffs, Mandingoes, &c.; and on the eastern coast several other tribes spread themselves from Sofala to about Negro Bay. That portion of central Africa, known by the name of Nigritia or Saudan, contains several kingdoms on both sides of the Quorra, where the pure Negro character is recognized; and there is every reason to believe that oases are to be found throughout the great desert, well suited to the habitation of

man. Caffraria, on the south, has been penetrated by European travellers, and contains the whole of the countries of the Namaquas, the Hottentots, and the colony of the Cape of Good Hope. Captain Owen appears to have described the native tribes in the south-east of Africa very satisfactorily.—“All the country,” says he, “east and north of the Camtoos river, was formerly inhabited by a race of Negroes very distinct from Hottentots, and who appear to have peopled it northward, generally by the interior, whence they have spread towards the coast. These Negroes were formerly termed by the Arabs and Portuguese, Kaffers or Koffers, the literal meaning of which is infidel or pagan. When the Dutch first colonized the Cape all the country beyond their settlement was called the country of Kaffers; but from Delagoa Bay northward, the names of places were marked by the Portuguese, according to the native phraseology, whilst to the south, where none were known, the coast towns received Portuguese names, whilst the country is still known by the Latinized name of Caffraria. These people have no fixed situation, for their towns or villages, which are scattered over the face of the country, and are called Kraals, by

the Dutch,—a kraal for the cattle being an essential part in every Kaffer village, as they are their wealth and source of sustenance. The tribes which inhabit these coasts do not appear to be the descendants of the aboriginal inhabitants. A much greater variety is observable in the countenances and features of these people than is perceived in Negro countries, being all jet black, with thick woolly heads, differing in nothing but the well-marked variety of features from those of the coast of Guinea. The men are stout, handsome, and athletic; the women well made, but generally not so well featured as the men. On all this coast the custom of tattooing is universal, each tribe having its distinctive mark. The chiefs of Mapoota and Temby wear their heads shaved, except a large tuft on the crown, which is combed out straight and tucked round a pad. The Zoolos and Vatwas shave the crown and leave a ring of wool round the crown, which is combed, and also tucked round a pad. The Zoolos inhabit the south of the Mapoota; the Portuguese call them Vatwas, from the ancient term Batwa; the Delagoese call them Hollontontes. Other native tribes inhabit the borders of the river Mattol, resembling the

Kaffers in appearance and manners. The Temby, or as the natives call it, Mahong, has several native tribes on its borders."

SECTION IV.

American Variety.

This variety includes all the native Americans, except the Esquimaux. They are of a red colour; have black, straight, strong and thin hair; low forehead; broad face, with the features distinctly marked; projecting cheek-bones, more rounded and arched than in the Mongolian; deep eyes; prominent nose, somewhat flattened; very large bony nares; lips extended; their beard is thin, and grows in tufts, and their features, when viewed in profile, are deeply sculptured. Many tribes have flattened foreheads, in consequence of a custom prevailing amongst them of disfiguring the heads of their infants.

The numerous tribes of aboriginal Americans inhabiting the vast primeval forests of the new world may be truly said to be in the incapacity of

infancy and unpliancy of old age. Innumerable hordes pass their whole existence in the gloom and dreariness of their forest retreats, except when hunted down by an invading tribe, or otherwise terrified by external causes.

It has been suggested by a learned and philosophical writer that the American Indians may have sprung from the Abrahamic source, through his grandson Esau. His descendants, the Edomites, or Idumeans, who were the red men of the east, and dwelt on the borders of the Red Sea (whence its name), subsequently reached the shores of the Arabian Sea, and occupied its maritime stations, and consequently possessed every facility of maritime colonization. The Jewish tradition is, that they spread their colonies abroad; hence it is probable, that having navigated to some of the South Sea islands, they may afterwards have reached the American continent and thus have been the progenitors of the North American Indians.

Professor Barton, in his treatise on the American nations, imagines that they have had a common origin with those of Asia. "The language of the Mexicans," says he, "has some affinity with Per-

sian ; which Asiatic language is preserved amongst many American tribes. The American Indians, moreover, say, they emigrated from the west. Barton has compared almost the whole vocabulary of the native Americans, and has traced a great resemblance between the different dialects of all the nations south of the Esquimaux. The forms," he remarks, " of several languages of North and South America, bear a very close resemblance. South America may by accident have received inhabitants from parallel lines of Asia and Africa ; but from a comparison of the dialects of South America with those of Asia, I cannot doubt that the South as well as the North Americans are the descendants of the latter. If there be analogy between the dialects of South America and the South Sea Islands, there is the same between those of North America and the South Sea Islands ; hence the inference is, that the North and South Americans, as well as the Malays, have descended from an Asiatic source, and have, in some degree, preserved their Asiatic tongue."

In conformity with these views, it is stated that when Europeans first took possession of America,

the western part of the continent was more densely inhabited than the east. The pyramids of Mexico bear evidence of the advanced stage of civilization to which the most ancient people of the American ace had attained, and indicate an affinity with Asia. In various parts of the American continent, fortifications and mounds of earth, covered with ancient forest trees are found, which must necessarily have existed for many centuries ; and it has been remarked, that some of the American Indian tribes retain many of the Mongolian customs ; the Sioux tribe, for instance, bury their dead in caves, in the same manner as some Asiatic nations.

The red hue of the skin is with few exceptions common to all the American tribes, and although it may approach to brown or black towards the Equator, or become paler in the colder regions of the north, still the predominance of red is characteristic of the American Indian. The Pajés are considered to be endowed with the same supernatural power by all tribes from Hudson's Bay to Cape Horn ; equally extensive is their ignorance of all things beyond the gratification of their bodily appetites and the preservation of their lives ; revenge is with all the grand principle of action, and

at no time are these wretched beings so supremely happy as when satisfying their craving thirst for the blood of their enemies. It does not appear that any division can be made in consequence of difference of stature, for although the Patagonians are said to be of so gigantic a size, the same colossal proportions are likewise observed in the Arkansas, in some of the tribes of Chili, and in those of the province of Guyana. Since, then, we trace a resemblance throughout in dialect, colour, passions, and superstitious observances, all subsisting by the same profession of war and hunting; architectural monuments of a more civilized race, presenting themselves both in the northern and southern continent, it can be no unreasonable inference to suppose, that the inhabitants of both are the out-branchings of one common stem, of far more ancient date, than some modern hypotheses would have us believe ; and however paradoxical it may appear, that civilized men should have been compelled to yield to the savage Indian, we have only to turn our view towards Africa, where we may see the degraded Egyptian, and still more degenerate Negro, wandering in miserable ignorance on the very spot whence science once radiated, as

a centre to all European nations. But a civilizing influence is again spreading itself over this new world, and the advancement of the European has caused the native to recede, and the time may arrive, when the latter will be driven and confined to those inhospitable regions, where climate forbids the extension of agriculture to the former. The white man covets the fertile lands, over which the native only roams in pursuit of prey. Hence it is, that the Indian tribes have been thinned, and from many situations which they once possessed, they have now totally disappeared.

The most considerable clans of the present day, are the Iroquois, who extend themselves over a great part of the centre of North America; they consist of the Mohawks, Oneidas, Onondages, Cayugas, Sennekas, Tuscarores, Wyandots, Oneydoes, Chippawas, Chickasaws, Shawanoes, and the Natches Kistonons: these tribes are in person well proportioned, and have black hair, which they cut fantastically. The Cumanches or Paducas, are confined to the frontiers of New Mexico, on the west; the Pawnees inhabit the south side of the Red River; the Osages, on the north-east: these latter cultivate their land slightly, and ex-

tend as far as the banks of the Missouri; the Kyaways, and other tribes less known, confine their wanderings to the sides of the River la Plata; the Akañzas or Kanzas, dwell on the river of the same name: the Ottos and Parés are found on the banks of the Missouri; higher up the river are the Mohas and Poncas; the Aricaras and Mandans inhabit its right side; the Scioux tribes are very numerous, and are distributed along the upper Mississippi.

In South America the most powerful tribes are the Guaicuras in Paraguay, amounting, it is said, to 12,000 in numbers; the Cajapos and Cherentes in Goyaz, averaging 8,000 each; the Mauhés 16,000, and the Mundrucus, on the Topajoz, 18,000. To the north of the Madeira and Amazon River, there are innumerable small tribes; and in Brazil, Dr. Von Martius has enumerated 240 different clans. In Chili, are the Araucanians, the Cunches, and the Huilliches. The Indian tribes of South America are cruel, faithless, valorous, hardy, and incapable of being reduced under the laws of civil society.

Other native tribes are found about the frontiers of the United States; the Chactaws, the Chicka-

saws, and the Illinois, on the eastern bank of the Mississippi; the Alabamas and Muskogees in Georgia; the Ootawas on Lake Erie; the Mohegans on the Hudson; the Algonquins on the St. Lawrence; the Cherokees in Florida, &c.

SECTION V.

Malay Variety.

This variety embraces the natives of the islands of the Indian and Pacific Oceans, including Australia, as well as those of the peninsula of Malacca, on the south-east extremity of Asia.

The colour of their skin is tawny, varying from a light brown to black: they have black, soft, thick curling hair; head moderately narrow; the forehead slightly arched; the parietal bones prominent; the face large and the features fully developed; eyes black; cheek bones not projecting; nose full and broad; mouth large; the upper jaw and front teeth slightly projecting; the chin somewhat receding, and not quite so narrow as in the Ethiopian.

In speculating on the first inhabitants of the American continent, we have somewhat anticipated the most probable events in the early population of the Polynesian Islands. "History," says Dr. Lang, in his *View of the Polynesian Nation*, "informs us, that at a period shortly posterior to the deluge, the eastern parts of Asia towards the Yellow Sea, were occupied by a civilized people; and there is reason to believe, that at a period not less ancient, or shortly thereafter, the Malayan state and the islands of the Indian Archipelago, were founded by a people acknowledging the same parentage and speaking the same primitive tongue." The same author observes, that "it is evident that the South Sea Islanders are of cognate origin with the Malays of the Indian Archipelago, and that both are derived from the continent of Asia. It is generally allowed that Java and Sumatra were the earliest inhabited by the Malayan nation. Extensive and flourishing maritime states existed before Europeans visited the east, and it seems that the Indian Archipelago has been traversed from time immemorial both by Chinese and Malays, so that the same enterprising spirit would have led to the discovery of all the islands of the boundless Pacific.

Maritime enterprise is the characteristic of islanders; and where pilots may be unskilful and winds changeable, the adventurous islander may be carried far beyond his reckoning; thus may we account for the gradual peopling of the South Sea Islands."

It has been imagined by Zuniga, that the islands of the Pacific have received their inhabitants from the American continent; but Dr. Lang has justly objected to such a supposition, seeing that a far greater difficulty is felt in determining how America was first populated. But it is moreover observed, that their language, like that of the Chinese, is composed almost entirely of monosyllabic words, and that they practise many customs which prevail both with the Asiatics and Africans; hence there is more reason for referring their origin to a western source. The Malay has an aspect as savage as his disposition is ferocious: treacherous and deceitful to his friend, as he is implacable and vindictive to his enemy; such is the character of the whole Polynesian nation; of the true Malay of Malacca, of the Rajangs of Sumatra, the Malecassas of Madagascar; the Cingalese of Ceylon; the Nairs of Malabar; the Biajos of Borneo; the

Papuas or Papoas of Celebez, New Guinea, Java, and Australia, as well as of the other Malay tribes inhabiting the numerous Asiatic and Pacific islands.

The inhabitants of these groups of islands have a tradition referring their original emigration from the south-west. Dr. Lang also remarks at the commencement of his work, that "distinction of caste is the most remarkable feature of Asiatic Society, as well as that of the South Sea Islands. In India there are four castes, which in the Friendly Islands wherein the Polynesian system is retained with its ancient and distinctive features, are closely represented by a like number of castes. Idolatry is common to all, and the images formed by the Polynesians have a great resemblance to those of Eastern Asia, and in particular to those of the Burman empire."

They are generally low in stature, and have features such as might be expected by an equal mixture of Mongol and Negro, between which varieties we should be disposed to place them ; for in many of these islands we find the pure Negro, as well as the pure Mongol. Tattooing is practised amongst them, as it is with the Siamese and North Ame-

rican Indians. To so great an extent is this system carried with some tribes, that they even cut and lacerate their skin to insert dyes. Captain Sturt thus describes the natives whom he met on the banks of the Morumbidgee. "The sunken eye and overhanging eyebrow, the high-cheek bone and thick lip, distended nostrils, the nose either short or aquiline, together with a stout bust and slender extremities, and both curled and smooth hair, marked the natives of the Morumbidgee, as well as those of the Darling. They were evidently sprung from one common stock, the savage and scattered inhabitants of a rude and inhospitable land. In customs they differed in no material point from the coast natives, and still less from the tribes on the Darling and Castlereagh. They extract the front teeth, lacerate their bodies to raise flesh, cicatrices being their chief ornament; procure food by the same means, paint in the same manner, and use the same weapons, as far as the production of the country will allow them."

The resemblance thus traced between the natives of Australia, is farther extended by Dr. Lang to the whole of the inhabitants of the Indian and

Pacific oceans. "The singular phenomena," says he, "which the South Sea Islanders present to the eye of a philosophic observer, is perhaps one of the most difficult to account for that has ever exercised the ingenuity of man. From the Sandwich islands in the northern, to New Zealand in the southern hemispheres; from the Indian Archipelago to Easter Island near the continent of America; an extent of ocean comprising 60 degrees of latitude and 120 of longitude, exactly twice the extent of the ancient Roman empire in its greatest glory, the same primitive language is spoken, the same singular customs prevail, the same semi-barbarous nation inhabits the multitude of the isles."

SECTION VI.

Hyperborean Variety.

This race is situated in the extreme north of the three continents of Europe, Asia and America, in the neighbourhood of the Polar circles.

They are characterized by their squat body and short stature, scarcely ever exceeding four and a

half feet: they are of a light olive or tanned colour: have stiff, black, straight hair: a squareness of the head resembling that of the Mongol: a flat face, with rounded projecting cheek bones, and a large mouth. Their aspect is savage, yet timid, and their voice extremely harsh.

In consequence of their geographical position, they may be arranged under three distinct subdivisions:—1st, The Asiatic, including the Ostiaks, Tunguses, Kamtchatkans, and Samoides. 2d, The Europeans, consisting of Laplanders, the inhabitants of Spitzbergen and Nova Zembla; and 3d, The American branches of Greenlanders, Esquimaux, and the inhabitants of Iceland and Labrador. The resemblance between these tribes is very great; they all dress alike, all use javelins, bows, and arrows, as weapons, and the dialects of all are said to be very similar.

That they originally sprang from an Asiatic source, is now so generally believed, that my only object will be to show the most probable course of their successive migrations. Herodotus, in his sketch of the satrapies of Asia, speaks of the Androphagi as men-eaters or cannibals, living beyond the Slavi, in the north, towards Lapland, whither

they may have extended themselves, as well as to Nova Zembla, in the European division, whilst the Iyrcaë migrated eastward in the same latitude towards Samoieds, Tunguses, and Kamtchatka: from this north-eastern point of the Asiatic continent, the passage across Behring's Straits, a distance of not more than forty-eight miles to the north-west extremity of the new world, would be easily accomplished. In conformity with these views, it is stated that when the first Europeans visited Greenland, it was uninhabited, and that the Esquimaux subsequently reached it from the west. "They are all polygamous, although living in so cold a climate; the women are more ugly than the men. There is no more degenerate race on earth. Dogs and men disputing pel-mel the half-rotten flesh of fish and quadrupeds. With all this they are glorious, and think themselves the happiest mortals on earth. If nature had not conceded thus much, how could they have lived? When a whale is by chance washed on their shores there is an universal rejoicing; they drink pints of its oil daily, and so great a love have they of their country, that when transported to a more temperate climate, they soon die of *ennui*."

Other varieties, equally entitled to a distinct classification, in consequence of their physical peculiarities, might be noticed here, but as they will be more particularly spoken of in a subsequent part of our work, we refrain at present from any farther comment on them; we allude to tribes which are distributed throughout all quarters of the globe, and still retain their original characteristics; such as Jews, Albinoes, gipsies, &c.

CHAPTER IV.

MODIFYING INFLUENCES OF NATURAL CAUSES.

ALTHOUGH we have in the former chapter separated the whole of the human race into six varieties, it has been for the purpose of demonstrating the geographical peculiarities in their strongest light; but it by no means follows, as some naturalists have conceived, that there were several families originally created to perpetuate their species over the dispeopled earth; on the contrary, the present appearance of society accords with profane history, as far as it lends its aid, and beyond that with the Mosaic records, in pointing to Asia as the sole birth-place of our first parents. Those who affect to disbelieve or pervert the meaning of the Mosaic account, contend that the great difference which appears ever to have existed, and exists at the present day, between the varieties I have described, indicates plurality of origins. Now this

hypothesis would seem to receive great confirmation by an actual examination of existing races, and I am willing to admit that an experienced observer might seize on certain physical peculiarities, even where climate has played its part in modifying, and intermixture has confounded, whereby he would be enabled to trace particular families through the revolutions of time, and recognize in the nations of to-day, our most ancient progenitors. Thus the Jew possesses the same characters in all parts of the world ; and whether we view him fair in Britain, brown in Spain, olive in Syria, or copper-coloured in Egypt, he has still the characteristic features of the Jew : climate may have changed his colour, but that he has been the same for at least two thousand years, we may be certified by examining some of the ancient Egyptian tombs ; amongst which, we may occasionally recognize the Jew, feature for feature, as he exists at the present day. Does it then follow, that the above hypothesis is confirmed ? Such has been the opinion of many eminent writers ; but I conceive the very facts on which they have founded their doctrine, might, if farther investigated, be adduced in testimony of the converse.

Inasmuch as too many distinct groups or nations are embraced in one variety in the classification of Blumenbach, it is evident that it can do but little in facilitating the study of man ; it is also equally evident that the sketch of eastern Europe, by Herodotus, though calculated to assist our investigations, is inapplicable to the condition of the present age. Had all nations preserved their physical characteristics unblended, the varieties which we have enumerated, might serve as classes, each of which might be subdivided into distinct orders ; but as every shade of difference is observable amongst mankind, I conceive the most direct way of arriving at a correct knowledge of our fellow-creatures, is by combining history with physiology ; and, if from the study of the one, we draw the same conclusions as from the study of the other, the deductions of each will mutually strengthen the veracity of either, and thus we may obtain an unprejudiced and comprehensive view of the human race. The physiological part being the especial object of this portion of my subject, the great question which seems to interest us, is, whether the various groups of mankind have preserved in their frames such

physical peculiarities, that notwithstanding the influence of the many catastrophes, and other revolutions to which nations have been exposed, the distinctive characteristics are still so marked, as to be perfectly compatible with historical record.

Now it is very apparent, that the great modifications which we observe in the different nations, consist almost entirely in their external conformations; such, in fact, as may change by the influence of certain causes, with which we may or may not be conversant: yet it is just this degree of physiological or healthy change which has been the great source of many virulent and acrimonious disputations; whilst we daily observe pathological changes depending on far less apparent causes, striking far deeper at the root of organization, and causing far greater aberrations from the natural state, satisfactorily accounted for by pathological laws: thus, we hear of whole families possessing some physical peculiarities (the hereditary nature of which is now well established) which, were it not for those physiological laws to which organization is subservient, might be transmitted through succeeding generations, when, in lieu of the superficial modifications which are now ob-

served, races of men might appear on the stage of existence, surpassing in monstrosity even the Hydras, which the ingenuity of a Theophrastus imposed on the ignorance and credulity of the middle ages.

That climate has had great influence in effecting the various conformations observed in different races, must, at the slightest glance, be so obvious, that we much doubt if there be any naturalist at the present day, who will attempt to deny it ; and that the Jew has been more or less affected is equally undeniable, as we shall hereafter show : were it not so, we should take from man one of his greatest endowments ; for we conceive that to be so, whereby he is enabled to accommodate himself to any climate, and it is that very power of accommodation which necessarily involves a more or less apparent change in his nature. I would exemplify this by referring to the vegetable kingdom. The flower which has the most flexible disposition is, that which will most accommodate itself to climate ; but transplant that which tenaciously preserves its characters, into a foreign land, and it will pine away and die : the flexibility of nature in the one, is the cause of its power of accommo-

dation, whilst the sturdy unchangeable nature of the other is the cause of its death.

We may further illustrate this by adducing two groups of the Mongolic race, who have for ages established themselves in the European continent; the one in Lapland, where they are exposed to a climate as relentless as that of their own native land, and tenaciously retain their Mongolic character; the other in Hungary, where the climate is milder, have their physical characteristics softened down, except on the cold and barren mountains, which are peopled by tribes retaining the traces of their foreign ancestors as strongly as those in Lapland.

The relation of climate to food and exposure, is so intimate, that in speaking of the former, we may be understood to imply the latter also; and were we to speculate on the influence of climate on the animal frame, we ought to consider, not only the condition of the atmosphere, but also the particular state of the soil and surface.

That a warmer or cooler atmosphere may cause great changes in the animal kingdom, is known to every one; but man, by his intelligence, may in a great degree resist these modifications, inasmuch as he possesses great power in protecting

himself against the inclemencies of the atmosphere. There are, however, other more profound alterations due to the influence of heat, whereby the functions of any one system of organs may predominate, and thus the diversities of temperament may be established.

The predatory animals of the Tropics are ill adapted to bear up against the rigors of a Siberian winter; nor do the animals of the Polar regions seek the scorching heats of a tropical sun;—and why?—I know of no other reason, than that they are of a less flexible disposition, less changeable in their nature, and therefore less capable of accommodating themselves to foreign climes than some other animals with which we are more familiar. Hence, it would appear that our domestic animals are capable of accommodating themselves to external influences in proportion as they are susceptible of modification. Man, therefore, who, of all animals is the most capable of accommodating himself, must of necessity be also the most susceptible of modification. No other organized being, either animal or vegetable, can exist over the whole surface of the globe,—man alone presents to us the greatest flexibility of nature.

It must appear to every impartial observer, that

temperature plays no insignificant part in causing variation of colour, but that this change is effected by the scorching of the gelatine, which is the base of the rete mucosum,* (as Professor Richerand imagines), ill accords with the preservative powers of the functions of the animal economy. I am, however, willing to admit that the intense heat of our tropics may so affect the mysterious operation of the capillary vessels of the surface as to stimulate them to increased action, whereby the character of their secretion would be changed. What the precise nature of this alteration may be, I am not prepared to say, but, inasmuch as the rete mucosum seems to be analagous to the uvea wherein is secreted the black pigment of the eye, it appears not unreasonable to suppose that it may assume the same dark colour from a similar secretion.†

* The Rete Mucosum is a delicate membrane situated between the true skin (cutis vera) and the cuticle or epidermis, and it is in this membrane that a black pigment is secreted, on which the colour of the Negro depends.

† Sedes coloris satis certa est, de causis autem ejusdem, in Æthiopibus præsertim, a longo retro tempore plurimum et diversimode disputatum est. Quidam Caini alii Chamii maledicti, eorumque posterorum signum esse nigredinem putarunt. Eandem ferri in sanguine Æthiopum abundantia, transpira-

The peculiar effect produced in some persons who have taken nitrate of silver, proves that metallic salts may be taken up by the circulation and deposited in the rete mucosum: therefore may not other substances be equally deposited in the same membrane in consequence of an excited state of its vessels? We know that the capillaries of the lungs throw off carbon which has been taken up by the circulating fluid in its passage through the body; we also know that the more respiration is excited, the more carbon is there thrown off. If, then, the capillaries of the skin be so excited as that their action shall be greatly increased, may not, I repeat, that increased action tend to throw off carbon, which, by being retained in the membrane wherein these capillaries terminate, gives rise to the black colour of the Ethiopian?*

tione acidi phosphorei in reticulo mucoso præcipitatæ: vero globulosæ sanguinis parti ad cutem appellentis, tribuit; alii alias protulerunt hypotheses, inter quas tamen bilis præ cæteris eminuit quam post Io. Principem tamen inter omnes nigredinis causas locum tenebit clima, solis, aerisque potentia, cum vitæ genere. Vetus est Aristotelis, Alexandri, Strabonis aliorumque sententia quam exemplis argumentis que seorsim prolatis firmare conabimur.—Blumenbach.

* One great proof of this is, that chlorine has the same

Such increased action being continued through a long succession of generations, would become a natural function, and therefore it would be strange indeed, if the dark colour of the negro (supposing it entirely dependent on temperature) were to disappear in one, two, or even three generations, after a change from a warmer to a cooler climate. Hence may we explain the modifications of colour observed in different nations, and which exist in various degrees of intensity in proportion as the capillaries have been more or less excited.

An ingenious hypothesis has been advanced by M. Volney, respecting the physiognomy of negroes, the peculiarity of which, he imagines may be the effect of light and temperature. "It exhibits," says he, "precisely that contracted state which our features assume when exposed to a strong light and a powerful reverberation of heat; then the brows contract, the cheek-bones rise, the eyelids become partly closed, and the lips project." He then asks, "must not this contraction of the moveable parts have influenced, in course of time, the hard parts, and even moulded the structure of effect on the rete mucosum of the Negro as it has on carbon; namely, that of depriving it of its colour.

the bones?" Richerand is inclined to favour this opinion; but I think when we come to examine the influence of food, that will appear a more probable cause for the characteristics of the Ethiopian face.

Climate may so affect the animal functions as to cause the diversities of temperament; for instance, the skin and intestinal canal sympathize most powerfully with each other, so that when the proper secretion of the one is increased, that of the other is diminished; now a certain quantity of fluid is necessary to unite with and dilute the bile, and when that quantity is too small, the biliary secretion irritates more than it should do naturally. Hence, the predominance of bilious diseases during our summer seasons; but if this state be continued, as it necessarily must, within the tropics, it predominates over all other functions, and thus we shall get a bilious constitution, which, in fact, is synonymous with a bilious or choleric temperament. This is no vague hypothesis; observation confirms our statement, and we have only to refer to medical literature to find that bilious fevers are the characteristic diseases of warm climates.*

The sanguine temperament, which is generally

* Appendix.—Note B.

met with in cold or temperate regions, is the necessary consequence of an excited circulation, which is required to counterbalance the depressing influence of cold ; thus the sanguineous system is that whose functions predominate in our own latitudes, and the diseases of that system are those which most prevail.

If then, temperature can so cause the diversities of temperament, and those diversities can be recognized by certain physical peculiarities, it follows that temperature is a grand agent in producing those distinguishing characteristics. This is a necessary syllogism deduced from an accumulation of facts which teem throughout the writings of medical authors.

A change of climate may involve a change of food, and therefore perhaps an exuberance of a particular system on which the animal form may in some degree depend ; for it is a fundamental law of pathology that an excessive development of one organ or system of organs is accompanied with a diminution of some other, so that the digestive organs may predominate in the savage, at the expense of those on which depend the nobler attributes of civilized man.

Where is the man, however careless an observer he may have been, who has failed to remark the intimate relation that exists between the animal form and the food on which it is maintained? Place side by side, the slim Tiger and the unwieldy Hippopotamus, the slender form of the Lion with that of the huge Elephant, or compare our present existing Carnivora with the by-gone herbivorous Palæotheria, and who will not acknowledge that food has a more modifying influence even than temperature, &c.? Or who can suppose that man, who of all animals is most exposed to variations of food, should be exempt from the consequent mutability? “*Jam ab initio vitæ genus huc retulimus, et facile esset in præsentī quoque copiosa ex plantarum animaliumque regno proferre exempla, ubi nutrimenti varietatem in procera humiliorive statura agnoscere possis.*”*

So must man stand affected by the nature and quantity of food whereon he subsists. The inhabitants within the Tropics live principally on vegetable food, as being less heating, whilst the natives of the Polar regions seek a more exciting diet in the half putrid flesh of fish and seals. Now, in

* Blumenbach,—*de Generis Humani Varietate*.

equal quantities of animal and vegetable diets, the former contains much more nutriment than the latter; hence the African is compelled to take a larger quantity, and as the development of a part keeps pace with the exercise thereof, — the bones observing a proportional increase with that of the muscles attached to them, — may we not thus imagine the gradual extension of the masticatory organs of the Ethiopian?

May not the physical influence of light affect the colour of the integuments of the inhabitants of the Polar circles? for instance, may not the dark colour of the Hyperborean depend in some slight degree, not only on the direct light from the sun, but also on the reflected light from the snowy surface to which he is constantly exposed? Hence, supposing the tawny colour to have been acquired in his original progenitors by the parching heat of an almost vertical sun, may it not have been continued in the descendant by the glaring light of the frigid zones? This, however, is a point which we by no means urge, since light alone is not likely to affect the action of the capillaries, on which we apprehend the various integumental tints depend; but that the stimulating food of the Esquimaux may

excite the vascular system, and thereby the capillaries, to increased action we doubt not. It must of necessity be the case, to keep up the requisite degree of animal heat for the due performance of all the functions, against the intense cold of the Polar regions.

“ If,” says Professor Lindley,* “ we examine the surface of the globe, we shall find its vegetation varying according to its inequalities and its differences of soil ; we shall see that the plants of the valleys are not those of the mountains, nor those of the marsh like the vegetables of the river or of dry grounds ; it will also be seen that the vegetation of all valleys, all mountains, marshes, or rivers, has not a similar character in the same latitudes. The flora of the granite mountains of Spain and Portugal is very different from that of the calcareous mountains of the same kingdoms ; in Switzerland, *teucrium montanum* always indicates a calcareous soil ; and the same may be said of certain orchises, *ustulata*, and *hircina*, for instance, in our own country. Hence it is inferred that the differences in the character of vegetation

* Introduction to Botany, p. 472.

depend upon circumstances connected with the soil or atmosphere in which they grow."

The particular condition of the earth's surface has also great influence on the inhabitants; in low and marshy land a sallow and unhealthy countenance is the prevailing characteristic, whereas in higher situations a ruddy complexion is observed to accompany the animation of robust health. These causes acting in concert with food and temperature, have long been recognised as fruitful sources of the modified forms which our fellow-creatures assume in different situations.

Nothing is more obvious than that these external agencies have been, and still are, very powerful causes of variation in the animal economy; our domestic animals are demonstrative proofs: yet in no case that I am aware of has the change struck so deep at the root of organization as to have caused either transposition, addition, or subtraction of organs. The great modifications have been in form and colour. Thus, some particular parts may have been more than usually developed, as the tail of the sheep in Bokhara, which will sometimes yield fourteen or fifteen pounds of tallow.*

* Lawrence's Lectures.

The external covering of animals may have been changed from hair to wool, and vice versâ. The goat, which in our own country has a hairy coat, in Bokhara yields the wool from which Cashmere shawls are manufactured, and even the dogs of Toorkistan and Thibet are said to furnish wool, from which a few shawls are annually made. On the contrary, sheep which have been sent to the Cape of Good Hope have in a very short time changed their woolly fleece for a coarse hair. That food is capable of producing change is exemplified in a breed of sheep peculiar to Karakool, a small canton between the Bokhara and Oxus, where it produces a jet black curly fleece; but if it strays from its own native pastures, the fleece will no longer retain its curl.*

Climate thus comprehensively viewed satisfactorily explains many of the peculiarities in the human race, which either one agent of itself would have been insufficient to have produced; hence, the diversity of opinion as to the origin of varieties depends on the fact that many authors have attempted to account for all modifications as arising from one single cause; those, for instance, who

* Burne's Travels into Bokhara.

would account for the colour of the Negro by a scorching effect of the sun's rays, have been foiled by the dark tint of the Hyperborean ; those, also, who would assign the peculiarity of the Negro's face to the effect of light, would be equally foiled by the European features of the Gentoo.

Another modifying cause, arising from and depending on change of climate, is the intermixture of different races. This latter cause has been most active in those countries which most interest us, and therefore would seem to oppose great difficulties to the filiation of nations. One great barrier, however, to such blending of races is the isolated state which new colonies generally preserve in foreign lands, the effect of which isolation is well exemplified in the Jew.

It has been recently shown, from extensive observation, instituted by Dr. Edwards of Paris, and published by him in a letter to M. Amédée Thierry, that the intermixture of races has not so blending an influence as is generally imagined, even supposing the absence of all opposition to the amalgamation of distinct races. He has deduced certain principles from his investigations into the origin of some European nations, which appear applicable

to the whole human family, and which, for the purpose of illustrating my subject, I take the liberty of translating, whereby it will appear that the result of such intercommunion is by no means unfavourable to the recognizance of ancient nations in the physical characteristics of the modern. "The type," says he, "of the smaller number may disappear entirely, and give way to the greater; a result which may take place about the fourth or fifth generation." Hence he infers that the larger masses would retain their characteristics, even independent of a free intermixture, "much more," continues he, "would they when obstacles interpose themselves to prevent such amalgamation." Again, in speaking of two distinct groups, equal in numbers, he asks, "What is required that they may be confounded into an intermediate type? It would be necessary that each individual of the one group should unite with one of the other, and that each should have an equal share in the fusion of the character, for slight shades do not destroy a type. Such are the conditions which would be required; but who can believe that they will be fulfilled? We will not say that it is impossible; such assertions are rarely permitted; but we will

say, that, in supposing the possibility of such equality, we ought never to expect it; for who can imagine that each and every individual of one race should unite himself with one of the other? Such unions could proceed only from the necessity of obeying the most absolute despot; such, in fact, as has never yet existed."

The fruit, however, of such obedience (supposing it possible) might be an intermediate type or variety, of which no better example can be given than the mulatto; but this would not be invariable, for, as in the lower animals, we sometimes find the offspring assuming the characteristics of either one of its parents; so also do we observe in the human species the fruit of different varieties tenaciously preserving the distinguishing characters of either one of his progenitors. These characters, however, must, if possessed by the smaller numbers, sooner or later give way to the greater.

Now the intermediate variety may become a permanent type in insular nations, for when the germs of population are first received, numbers must necessarily be small, and equal intermixture therefore probable; so that, as numbers increase, the intermediate type is so firmly established,

that it has the power of destroying or converting the character of future invaders or emigrants to that of its own. Thus the Polynesian tribes exhibit all the gradations between the Asiatic and Ethiopian varieties, which intermediate links are not observed in either continent, where the type of the most numerous would have destroyed that of the least; but it is in those very insular situations, where equal intermixture has been permitted to exercise its blending influence; and if here and there we find the true Negro or Mongolic character springing up amidst a Papuan or Cingalese population, it is only an exemplification of that tendency in the offspring which we have before hinted at, to assume the characteristics of either one of its progenitors.

Whether the disfigurements produced by art are capable of being perpetuated by nature is universally decided in the negative; therefore the custom observed by the Chinese in arresting the development of the feet, and the equally barbarous custom of contracting the chest by tight lacing, are no more likely to become hereditary deformities in an enlightened posterity, than is the flattened skull of the Carib, or the tattooed face of

the New Zealander. But national customs have stamped their impress on the human form, and so universally are certain characteristics observed in some tribes, that we are apt to designate as natural and hereditary some peculiarities, which are nevertheless due to habits which have been observed from the most remote periods. Thus, I apprehend, in our investigations into the natural varieties of mankind, it will be found that many writers will adduce the bowed shin-bones as an African peculiarity; whereas to me it appears that their universal custom of squatting is a far more simple and satisfactory explanation, than that it is a mark of their approximation to the bow-legged quadrumanus. So, again, the moveable ear of the savage is the effect of his perpetual watchfulness, whereon his safety, nay, even his very life, may depend.

Certain moral agencies may have a decidedly degrading influence on the characters of nations. Religious intolerance and bad government play no insignificant parts in this tendency to debasement. Where can we look for a more fertile source of mental degeneracy than to the first-mentioned cause? While death is the punishment for sow-

ing corn or building a house, can we imagine the Mahometan an intelligent being? or can we read the lives of an Abdemeleck or a Paul, a Benedict or a Macarius, and be blind to the debasement which necessarily follows the extravagant infatuation of the monk? What melancholy effects have been spread over those countries where the austere rituals of enthusiastic bigotry have been practised! With respect, also, to bad forms of government, we can conceive them capable of influencing the physical as well as mental development of man, in corroboration of which we have not only written attestation, but living proof. "Despotic governments," says Buckingham, "have a destroying influence in keeping a low state of civilization; and though living in a fertile and productive country, where the acquisition of wealth would be fatal and improvement dangerous, who can wonder that ignorance and barbarism are the results?" Thus situated, man must and does degenerate if existing for ages under the operation of the same causes. How apt an illustration have we in the population of Greece, which has so long groaned under the yoke of Turkish despotism, that but few retain the majestic carriage and chivalrous spirit

to which their ancestors were animated in the heroic ages.

It is universally admitted that the administration of laws in our own country has a marked effect on the morals of the population. Instances of this are so numerous, that it would hardly be possible to mention one law but that operates for good or for bad.*

Seeing, then, that the physical agencies which we have now considered are capable of exerting their influence only by increasing or diminishing the development of parts, and that they cannot effect a transposition, addition, or subtraction of organs; seeing, also, that man universally possesses a determined physical conformation, in the number and situation of parts, exactly alike, whether we examine them in the European or Mongol, American or Negro, Hyperborean or Malay; seeing, moreover, that the modifications of development are such as may be explained by the foregoing agencies remaining in operation through a long succession of ages; finally, inasmuch as the moral agencies we have mentioned

* See Quarterly Review, No. 106.—Art. English Charity.

appear sufficient to account for the different states of civilization, we are necessarily compelled to admit (as far as these modifications are concerned) the possibility of identity of origin; nor are the distinguishing characteristics whereby we recognise the different varieties,—the same to-day as they were two or three thousand years ago,—in the least degree capable of invalidating our conclusion, because the same modifying causes are still in operation; and if it be asked (as it often has been), why we do not see the Negro change by change of climate, I repeat, that it would be an anomaly in nature if climate could so alter the economy of the organs as in one, two, or three generations to subvert the nature of as many preceding hundreds; the various functions of his body may be changed when he passes to a colder climate, but it does not therefore follow that the organs which are subservient to those functions should necessarily be as suddenly changed in their development. His nature may bend to passing circumstances; time only can change that nature.

Since, then, all the modifications of conformation consist entirely in the relative development of organs, and not in difference of anatomical ar-

rangement, it appears that such varieties may be satisfactorily accounted for by those agencies which we have just considered ; and as particular characteristics have been acquired under the influence of causes which for ages have exerted their modifying energies, so likewise do we observe that those characteristics are tenaciously preserved through a long succession of years, the above causes being no longer in operation. It requires, therefore, no great stretch of imagination to suppose that centuries only can efface those marks which centuries only have produced ; need we then wonder that the isolated Jew should still retain his distinguishing features, or that we may now recognise the same characteristics in the modern groups of mankind which, by the most ancient monuments, we are led to believe were possessed by their progenitors, notwithstanding the many revolutions to which their nations have been exposed.

The physiological character of nations agreeing thus far with the recorded events of profane history, may, I apprehend, be further extended to bear evidence to the Mosaic representation of the ex-

tension of the human race, tending as it does to prove the unity of man's species. If, moreover, we refer to our geological investigations, we are led to look on man as a recent inhabitant of the earth; and philology teaches us that the cradle of literature may be referred to Asia. All these facts go far to show the correctness of Moses, as of all other inspired writers in their representations of the condition of our earliest ancestors: for if, in after times, races of men had been found, differing anatomically from other men, it would have been a fair presumption that they differed also in their origin, which anatomy disproves. If also, as Dr. Nares has observed, "in the uncertainty to which those must have been liable, who either knew nothing of Adam, or disputed the history of Moses as preserved amongst the Jews; they had it manifestly at their option to make the world (i. e. the scene of human existence) ten thousand, or ten thousand times ten thousand years older,"* which age geology disproves. Again, as Dr. Nares further suggests,—"If in some unexplored

* Man as known theologically and geologically. Rev. Edward Nares, D.D.

regions of the earth, records might be discovered, or some descendants of a pre-adamitical race be found, more advanced in learning than the inhabitants of the east, it would have followed that Moses as well as St. Paul were uninspired." Now were we to appeal to the history of any science capable of enlightening us on this subject, we should be borne out by an unconditional attestation from either that no such records, and that no such descendants exist or have existed. History, as well as the philological sciences, attest the one, while geography and the science of geology confirm the other.

It is this beautiful accordance of the sciences with the sacred history of mankind, which is the most consolatory and ennobling to the mind of the observer. Consolatory, inasmuch as it strengthens his faith in the revealed doctrines of christianity : ennobling, because it enables him to view comprehensively and impartially the most sublime results which science has unfolded, liberating him from the shackles of ignorance and superstitious bigotry, free to roam whithersoever the most ardent imagination may lead him, restrained only by reason,

the noblest attribute of man, which, when thus used may truly lead to the most exalted ideas, and is conducive to that largeness of conception which alone should characterize "the lord of the creation."

CHAPTER V.

PHYSICAL CHARACTERISTICS OF PARTICULAR NATIONS, AS AFFECTED BY NATURAL CAUSES.

It has been a matter of complaint, that general statements, unsupported by particular instances, have been too much relied on by writers, in treating of the modifying agencies contained in our last chapter, and therefore, their principles have been assumed as speculative and unphilosophical; we shall now endeavour to avoid this charge by proceeding to the application of the foregoing principles.

The genial climate of Southern Europe secures to its inhabitants a spontaneous supply of the productions of nature, and imposes on them no further motives for exertion than to acquire such wealth, as shall be the means of satisfying their naturally voluptuous dispositions. Thus the phy-

sical character is softened down, and so combined are the organs which phrenology has assigned to intellectual endowments and the licentious passions, that the rounded skull of the Turk, Italian, and Spaniard, with their symmetrical and harmonious features, which intoxicate and enchant the senses, are dependent on external circumstances, which, having exerted their influence through a long succession of ages, have doubtless been the causes of these moral and physical attributes which we now recognise in those favoured climes. It is there that the olive and vine are among the spontaneous productions, and the richest and most delicious fruits abound ; game is plentiful, and the rivers teem with fish ; and there it is that licentiousness and sensuality prevail. The climaté and fertile soil are favourable to the physical development, and accordingly the Turk, and the Greek, the Austrian*

* In Austria the religion inculcated by the monks may have something to do with the debased morals and sensuality of the inhabitants. This province may also be adduced to exemplify the modifying influence of mountainous districts ; although the Austrians are generally a robust and handsome race, yet on the mountains, there is a race denominated Goitres, in consequence of an enlargement of the thyroid gland, in the fore part of the neck, to which those inhabitants are pecu-

and Italian, the Spaniard and Portuguese are noted for their form and size. Perhaps to these natural advantages may be attributed the debased morals, which have not been improved by the despotic subjugation in which most of these countries have been held.

The verdant levels of Southern Hungary, in the east, fertilized by the waters of the Danube, have in a similar manner stamped their impress on the inhabitants, except where marshy districts prevail, and there, an unhealthy sallow complexion is found; whereas towards the barren mountains in the northern parts of that kingdom, the ancient Huns still possess the iron features of their Mongolic ancestors.

There is no striking peculiarity in the physical development of the inhabitants of North-Eastern Europe, nor should we be led to expect any, from the characteristic flatness of Russia, except towards

liarly subject,—on what depending, is not yet satisfactorily ascertained; but inasmuch as it is rarely observed, except in mountainous districts, it is fair to presume that either the mountain or valley (perhaps the latter) may favour its development. It appears in the mountains of Asia and America, also in Switzerland, Savoy, and Tyrol, where it is called *Goitre*. In Derbyshire it is common, and is called *Derbyshire neck*.

the Ural Chain, where the icy climate is observed to stamp the natives with the hard Tartar features ; it is also stated by Sœmmerring, that the orbits in the Russian skull are somewhat contracted.

Lapland is a huge congeries of frightful and stupendous mountains ; its soil is barren as its sky is rentless ; wolves, foxes and bears are the chief animals that subsist on those desolate shores ; and as a coarse unwholesome food has been observed to arrest the full development of the body, so here in Northern Europe, as in the parallel latitudes of Norway and Sweden, have we an exemplification of its effects combined with that of climate, in the stunted ill-shaped frames and harsh features of the miserable inhabitants. Iceland, in the same latitudes, is a similar country of barren rocks, covered throughout the year with perpetual snow, which have assimilated the natives to their own rude features.

Central Europe is the temperate region of the earth ; there all extremes of temperature are modified, which, with other causes have tended to the advancement of civilization : agricultural knowledge has kept pace, and is now capable of affording subsistence to a dense population. As the in-

habitants have increased, they have become more civilized; social ties have gradually become stronger; nearly all the depressing influences of our winter climate have been arrested by man's intelligence in protecting himself against the inclemencies of the atmosphere, and thus, man, like an exotic plant, has received an artificial cultivation, by which means the grace and beauty, which appear to be of spontaneous growth in Thrace and Macedonia, are equally developed in the more western climes of Germany, France, and our own island,* unmixed with the licentiousness which

* Mirabeau, in his Letters, suggests, that the cloudy atmosphere of England is as favourable to the complexion as to green lawns and all kinds of verdure. "English beauty," says he, "possesses more brilliancy than attraction. At a distance, you are struck with the dazzling whiteness; but if you approach, you wish for more vivacity, more animation. In the blood which circulates through those fine veins, there is more calmness than voluptuousness, more tenderness than love." Certain it is, that the moisture of the air in England affords a freshness and richness of pasture that is nowhere found in Southern Europe, but whether it has the effect attributed to it by Mirabeau admits of some doubt: it is certainly a fact that many fenny districts are noted for the female beauty they contain, as is also Ireland, which, though more mild and temperate, is at the same time generally more humid than England.

is so universally diffused throughout the inhabitants of the warmer latitudes in the south-east.

The Swede is robust from exposure to a bracing atmosphere: his wants being more numerous for protection against atmospheric inclemencies, than those of the southern inhabitants, give an impulse to industry, which is the national character. Whereas, in Germany, where the atmosphere is more temperate, and the soil more fertile; and in France, where the climate is equally salubrious, and the land as productive, physical necessities being therefore less pressing; science has taken the place of voluptuousness in the Turk, and of the ignorance and almost barbarism of the Laplander.

In no part of the world can we more unequivocally contemplate the effects of climate on the physical as well as moral character of man, than throughout the Asiatic continent; there it is that a single mountain range is observed to separate a country enjoying a perpetual summer, from regions of eternal snow, and as suddenly to sever a tropical vegetation from that of a more temperate or even a polar climate. It is there that the Imaus, sending its craggy rocks to the clouds, disunites the rude and repulsive Kalmuck from the well formed and

somewhat handsome Armenian, and forms the line of demarcation between races of civilized men and uncultivated barbarians.

Perhaps our subsequent remarks on the Asiatics will be better understood, and more satisfactorily received, preceded by a brief description of the vast continent they inhabit. Stretching from Nattolia to East Cape, it extends over a tract of country equal to about one hundred and sixty-five degrees ; whilst from its northernmost point at Nova Zembla in the Arctic Ocean, to the extremity of Malacca, within a degree of the equator ; it necessarily constitutes by far the largest portion of the old world. Bounded on the north by the icy ocean, and on the south by the Indian Archipelago, its eastern shores are washed by the great Pacific, and its western confines are formed by the Red Sea, Mediterranean, and Euxine ; its north-west boundary, extending from Nova Zembla to the Caspian, is made up partly by the Ural mountains, and partly by the Volga river. Thus spread out from the equator, to near the eightieth degree of northern latitude, it may easily be supposed to contain every variety of soil, which it actually does ; and that its climate is as varied, we shall soon be satisfied.

Central Asia consists of an extensive plateau of land, supported by immense precipitous rocks at a prodigious height above the surrounding countries, which it overlooks in all directions. In these elevated regions, the principal rivers of Asia have their sources. Thus we find the Lena on the north, the Jaxartes on the west, the Ganges on the south, and the Amoor on the east, carrying down a rich soil to fertilize the land below, which stretches out in all directions, forming Siberia, Lower Tartary, Persia, Hindostan, the Burmese empire, China, Mandshuria, &c.

This headland of Asia has received the denomination of Grand Tartary, which, in consequence of its elevation, maintains a perpetual winter, although within a few degrees of the equator; a proximity, which, in all other equal parallels of latitude on the globe's surface, is extremely hot. Although some valleys are observed to be covered with a fertile soil from the neighbouring hills, yet in many places the soil is barren to a prodigious extent, and presents frightful deserts covered with a moving sand, where only the hardiest trees can exist. The Kalmucks, Eluts, and most other Mongols, lead a purely pastoral life in those valleys which the

mountain streams have clad with a somewhat fertile soil ; they care little for agriculture, but rely in a great measure on the spontaneous productions of the earth ; moving from place to place, as their provisions fail them, or as their flocks require fresh pasture. This kind of life, although the best adapted to the perfection of the bodily senses, as it is also for the robust health which these people enjoy in the highest degree, is nevertheless attributable to the absolute form of government, and intolerant religion, which have also kept them in a low state of civilization. A more illiterate race can hardly be found. The muscular system, then, is most exercised, and consequently most developed ; and as we have before said, that the bones observe a proportional increase with the muscles attached to them, may we not thus account for the broad framework of the Mongol, as well in the broad flat face and elevated cheek-bones, as in the expanded chest and muscular extremities which characterize these people ? It is true, we may not quite so easily say why their eyes observe so oblique a position ; but that it depends on the relative development of parts we doubt not, and may therefore receive as satisfactory an explanation as many peculiarities

in other nations: e. g. the sunken eye of the American, the difference in the cranial development of different European nations, &c. Their colour is obviously the effect of exposure, since their concubines, who are confined in harems, and protected from the inclemencies of the atmosphere, are said to be perfectly white.

Lower Tartary is that country lying on the north of Mount Taurus, (the mountain range which the ancients assigned as the barrier between the civilized and uncivilized worlds), and stretches from the high table-land of Grand Tartary to the shores of the Caspian. The Tartar tribes have the same roaming propensities as their more eastern neighbours, and like them are sunk in ignorance and barbarism. Vast sandy deserts form a considerable portion of their country, as they do of Grand Tartary; and the Tartar tribes of Toorkmania are described by Burnes, as resembling the Kirgizzes, who inhabit the more elevated plains of Pamere. "The Toorkmun," says he, "has a skull like a Chinese, a flat face, and projecting cheek bones. These characters are strongly marked in the repulsive Nogais who inhabits the inhospitable regions on the northern side of Hindoo-koosh;

whilst the Kaffirs, a Persian tribe, who live on the mountains to the north of Cabool, but on a southern aspect, and therefore under the influence of a more genial climate, have European features. Siberia, descending from Grand Tartary to the Arctic ocean, by its inclination towards the Polar regions, is deprived of that genial influence of the sun, which Lapland in equal parallels of latitude slightly possesses. This atmospheric difference is occasioned by the high table-land of Asia, which intercepts the fervent heat of Hindostan and the Burmese empire from extending its influence to these Arctic regions. Thus, supposing the nucleus of Asia, at some former time, to have been suddenly upheaved by volcanic violence, the climate which previously permitted the mammoth to extend its wanderings in these northern latitudes, would as speedily be converted into an eternal winter ; and the soil which formerly supported the huge herbivorous quadruped, would cease to yield any further support than the lowest vegetation, such as the lichens whereon the reindeer now feeds. The native tribes, who appear to have migrated, at some former time, from the more southern regions, consequent on the severity of their

climate, and want of food, are now become a shorter race than the other descendants of their common progenitors, thus clearly showing the influence of climate, and unwholesome diet, in their stunted frames, their rude features and wiry hair. Indeed, so apparent is this, that the northern inhabitant may be distinguished by his stature, &c.; e. g. the Samoides and Tunguses are short and ugly; whereas, the Buriati and Yatuki are taller and somewhat better favoured. Illiterate, like all other Tartars, they are compelled to seek protection against the severity of their climate, by digging holes in the earth for their habitation; hence are they a more degenerate race than the Toorkmuns, who, in their independence, boast that they rest neither under the shadow of a tree nor a king.

The inhabitants of Kamtchatka and of the Aleutian Islands, though equally illiterate, are less stunted in their frames than the Samoides or Tunguses. Equally exposed to the chilling blasts from the Arctic ocean, yet have they the advantage of the equalizing influence of the Pacific, which, although capable of modifying in a slight degree the icy coldness of Siberia, is still insuffi-

cient to favour vegetation, or render agriculture of any avail ; the inhabitants are consequently ignorant, and possess the harsh features of their equally barbarous neighbours, though exceeding some of them in stature. The Japanese, who inhabit more southern latitudes, are still higher in stature ; and although for the most part possessing the yellowish colour of the Chinese, their women of distinction, who are entirely protected from the weather, are perfectly white. In these islands the influence of climate is very apparent in the inhabitants, who are stout, well formed, and have good features, in the plains, where vegetation is favoured and the air refreshed by sea breezes ; whereas on the craggy heights of Nippon the harsh Tartar face and stunted frame show full well, that whatever may be gained by their southern position is lost by the prodigious heights and barren soil.

China and Hindostan, descending from Grand Tartary towards the south, in the same manner as Siberia does from the north, receive the fierce rays of a vertical sun ; and as we have seen that the high table-land forms a barrier to the fervent heat of the south, so also does it shelter these tropical regions from the chilling cold of the north. The

descending rivers which in Siberia are almost uninterruptedly choked with ice and snow, in the south are loaded with mud and earth, whereby the vast plains which surround the centre of Asia appear to have been formed ; the alluvial soil thus spread out over these immense plains by the periodical overflowing of the rivers, is thereby rendered by nature prodigiously fertile, which, as is observed in China, is capable of supporting a dense population.

In tropical regions, the influence of the winds may, I apprehend, be shown to affect the physical characteristics of the human race. Throughout these regions an easterly wind is observed to prevail, which, by passing over the great Pacific, is cooled down, and thus softens the climate of south-eastern Asia and similarly affects the native tribes. The Chinese and Cochin-Chinese have not the harsh features which the inhospitable regions of Tartary have impressed on the Kalmuck, nor are they black like the Hindoos ; on the contrary, some of the mountaineers have been observed as fair as Europeans. The same wind, however, passing over the Eastern Peninsula carries with it an accumulation of heat absorbed by the earth from

the Burman empire, and shows its influence in the Andamans and Hindoos. The capillary system is thus naturally excited, its functions predominate, and these people are perfectly black.

The above statement relative to the Chinese must, however, be received with some limitation; as in the north for instance, the Madshurs, though possessing the tall and well shaped forms, which we should rather expect in the rich and fertile plains surrounding the Amoor, have nevertheless the Tartar features strongly marked. As the soil and climate differ, so also do the inhabitants; those on the mountains possessing the Tartar features in all their rudeness, while those in the valleys, living under the influence of a more genial climate, are less rude in features and a finer race. We have already stated that to explain the peculiarity of the Mongol features is not easy; such is also the case with the Chinese, a branch of this people; but the more we contemplate them, the more forcibly must it appear that these harsh features were originally acquired in more inauspicious regions, the proximity of which is still felt, in those which they now inhabit.

India, less elevated than China, and unlike it, entirely protected by the high lands from Siberian

blasts, receives both the fervent rays of a vertical sun, and the heated winds from the more Eastern Peninsula; while Northern Hindostan appears sensibly influenced by the icy coldness of the mountain torrents, and by the atmospheric currents from Grand Tartary. Vegetation here assumes its greatest dimensions, and the native animals, like the climate wherein they exist, present themselves in the like extremes. The largest serpents conceal themselves in the mangrove thicket, while the huge elephant roams in the vast teak forests. Nature is here lavish of her productions, and affords an abundant supply of fruits and vegetables whereon the native Hindoo, remarkable for his stature, luxuriates in sloth, ignorance, and idolatry. Such are their general characteristics; but even these vary according to the variation of their climate: while both assume the extremes in Mysore, both are equally modified in the northern divisions of Lahore and Delhi. While the southern native is known by his Ethiopian blackness, the northern in many places retains the hue of his Bactrian ancestor. In no tribe is this influence of climate better illustrated than in the Cashmerian, who is separated from the Hindoo by the Bember, on the Indian side of which we find a heated climate, a

tropical vegetation, and a dark skin ; whereas in the vale of Cashmere the climate is mild, the botany as instantly changed for that of the temperate zones, which being luxuriant, affords nourishment to a tall, stout and finely developed race, who are neither black like the Hindoos, nor have they the repulsive features of the Tartars on the heights above them.

Persia possesses a double character, in consequence of being intersected by mount Taurus, on the north of which the cold winds at times communicate an intense degree of cold ; while on the south, the parching winds from Hindostan derive an additional fervency from the drifting sand, communicating a degree of heat which in many places is not felt beneath the equator. The Afghans, who reside in the valley of the Indus, though rude and warlike, to which they have been constrained, are said by Burnes to resemble Jews, and as we might expect from their fertile plains, they are a tall well made people ; whereas the Kaffirs, though possessing European features, are a shorter and more barbarous race like the Koords, a tribe of Persian mountaineers inhabiting the borders of Armenia. The Usbeks of Bokhara, on the con-

trary, are said by Burnes to be hardly recognized from the Toork or Tartar.

Arabia combines also the double character of a lonesome desert, with fertile valleys interspersed here and there, so as to enable the rude tribes to traverse the apparently unbounded extent of barren plain. Surrounded by the Tehâma, a mountain chain as barren as the plains below, the descending rivers carry down nothing but sand, which, instead of fertilizing the land, like the Indus and the Ganges, often threatens to inundate those fertile spots which nature has permitted to continue; hence the roaming propensities of the Arabs depend on the very nature of their country, and their tribes abound according to the abundance of oases. Like most other Asiatic countries, the extremes of climate meet in Arabia without blending; for while in the valleys the chief object of the natives is to seek protection from the heat, the Arab on the mountain is equally solicitous, in the acquisition of furs for protection from cold. In the most fertile districts the tribes are very numerous and live close together, which in the Houran is observed, as well as a taller and more comely race than those who by inhabiting sterile countries,

as the desert or Suez, are more distant and of more stunted growth. "The Arabs of the Houran," says Buckingham, "are divided into numerous tribes, most being nomades; others, partly nomades and partly agriculturists. The Arabs inhabiting the valley of the Jordan have flatter features, darker skin, and coarser hair than any other tribes, owing apparently to the constant and intense heat of that region. In some families, negro features, with black skin and crisped hair, are perceived; yet it is asserted that they are pure Arabs, and that a negress has never been known as wife or slave amongst them, while at Assalt, situated at a considerable elevation above the sea, the inhabitants have a florid complexion and auburn hair." The Bedouin Arabs are generally tall and well made, on the banks of the Euphrates, whose waters deposit a fertile diluvium, but in the desert of Suez they are a smaller and more feeble race. This relation between climate and physical development is traced throughout the whole tribe of Arabs, from the confines of Persia to those of Morocco, and as they are exposed to a greater or less intensity of heat, so also do they vary in their colour. The Sheikhs, even in the most desert

places are taller than the lower grades, whose average height is scarcely above that of the inhabitant of Siberia.

The Caucasus being the most temperate region of Asia, appears, in accordance with our previous observations, the most favourable for the perfect development of man. Nature has there clad the valleys with a luxuriant vegetation, game and fish are plentiful, and fruits of the most delicious kind are of spontaneous growth. The inhabitants, as Sir G. Chardin has described them, are valiant, robust and jovial: the women are adorned by nature with graces no where else to be found; but voluptuous in the extreme. Circassia also, on the northern declivity of the Caucasus, is equally mild and fertile, and is peopled by tribes, pre-eminently beautiful, both as regards that form and delicacy of complexion, for the preservation of which they are so studiously careful.

In exemplification of our assertion, in the former chapter, that it may have required the continued operation of climate through a long succession of ages, to have brought about particular modifications, it affords us no small degree of pleasure in appealing to the elaborate treatise lately published

by Dr. Kirby. The passage to which we particularly refer, is however derived from Dr. Buchanan, who says, "At Cochin there are two classes of Jews, the white and the black Jews. The latter are supposed to have arrived in India soon after the Babylonian captivity, at least, they have that tradition amongst them, which seems confirmed by the fact that they have copies only of those books of the Old Testament which were written previously to the captivity. The white Jews emigrated from Europe to India in later ages. Now here is a singular fact, that in the lapse of so many ages, a white or tawny race has become black." It appears that Mr. White has endeavoured to account for this fact, by stating, that the Jews have gained proselytes in every country in which they have resided, and being at liberty to marry those proselytes, this would produce mixed breeds. But, as Mr. Kirby justly remarks, "though the Jews, in our Saviour's time, would compass sea and land to gain one proselyte, this has not been their character since the destruction of Jerusalem, and we never hear now of their making proselytes. Indeed, these black Jews of Cochin seem to have been settled there long before any white ones came to

that place." Hence, we say again, that it would be an anomaly in nature, if climate could so alter the economy of our organs, as in one, two, or three generations, to subvert the nature of as many preceding hundreds, and therefore the question, "why do we not see the Ethiopian at once change his skin with change of climate?" which has so often been proposed by physiologists, is absurd.

We have yet to speak of another portion of the Asiatic continent, which, when we consider its inhabitants, appears to have exerted considerable influence in modifying the physical character of man; but that the peculiarities of the Malay depend more on the intermixture or amalgamation of varieties, we have greater reasons for believing, from their geographical position, their historical records, and the resemblance they bear both to the Mongolian and the Ethiopian. Our remarks, therefore, on the Malay inhabitants of the peninsula of Malacca, will be postponed until we come to speak of the Polynesian nations.

"He who wishes to examine the influence of climate," says Heeren, "on the nature, and particularly on the outward figure and colour of man, will find Africa the only quarter of the globe,

which offers him an unbroken chain from almost the highest to the lowest grades of civilization. Neither Europe nor Asia contain continents which reach to the equator; in America various causes concur to weaken the influence of climate; besides which, European policy has taken so much pains since its discovery, to exterminate and corrupt the aboriginal tribes, particularly the better and more cultivated, that the philosopher is deprived of the materials most worthy of, and which would best repay his attention. Australia and the newly discovered islands of the South Sea, are only so many links of a chain, every where torn asunder. Africa, on the contrary, forms of itself one immense whole; one continent, which, arising under the temperate zone, stretches, without losing much of its width, across the line, and finally tapers off, almost to a point, in the temperate zone of the Southern Hemisphere. This vast tract is every where sown with nations, which, like the various kinds of corn before the introduction of husbandry, have sprung up in various shapes, under the fostering hand of nature alone, and ripened towards civilization. The inhabitants of the northern coast differ but little from Europeans in colour

and form; but the difference gradually becomes more striking as we approach the equator; the colour darkens, the hair becomes more woolly, the profile undergoes a remarkable change, and man at last becomes altogether a Negro. Beyond the equator, the figure and swarthy colour of this unhappy race are again lost in successive gradations. The Caffres and Hottentots seem to have, from what we know of them, much of the Negro nature, without being completely Negroes."

The prevalent east winds of the tropics, which we have spoken of, as affecting the colour of the Asiatics, may, with greater reason, be adduced as an active agent in that of the African. While it communicates the cooling influence of the great Pacific to south-eastern Asia, it carries with it an accumulation of heat from the three southern Asiatic peninsulas to Eastern Africa, and increasing in ardour as it traverses the deserts of Libya and Bahiouda, concentrates its unmitigated fervency on the more western parts of Africa, which receive in addition the ardent rays of a vertical sun.

These causes having from the earliest times been in operation, it requires no great stretch of imagi-

nation to speculate on the most probable effects. Constantly exposed to a heated atmosphere, those minute vessels of the skin denominated capillaries are as constantly exhaling an abundant secretion. Now as profuse perspiration is invariably attended with great exhaustion, the necessity of taking an abundant supply of aliment becomes more urgent among the Africans than among other tribes ; hence, the vegetative functions predominate over all others ; and accordingly the extended jaws and powerful masticatory muscles, on which depend the peculiarity of the Negro face, are those organs which are most exercised and therefore most developed. Having already offered an explanation of the black colour of the Negro, we will now endeavour to show that we are borne out in our explanation by the actual appearance of the several tribes which inhabit the African continent.

One more remark, however, in testimony of those which have preceded. It has been stated that the vegetative functions predominate in the Negro, and the intellectual in the European. Now as the latter by moderate exercise may strengthen his mental endowments, and by overworking, cause them to give way ; the former likewise, when

so situated, that his predominating functions are moderately exercised, lives long in the enjoyment of perfect health, but when living in the parching atmosphere of Nigritia, where they are too actively performed, they soon give way, and thus the Negro becomes prematurely old.

Northern Africa, though in many places a wilderness of sand, is nevertheless interspersed with spots of astonishing fertility, rendered so by the periodical overflow of the rivers, which, like those of Asia, deposit a diluvium sufficiently productive for an unlimited increase of population; the climate, moreover, being somewhat modified by the influence of the Mediterranean, and towards the west by the streams from Mount Atlas, is rendered more temperate than any other part of the continent, except during those periods when the hot south winds blow from the Sahara, at which times the heat is intense. The Arab is tawny from the action of the sun, as is also the Moor, except when protected from the sun's rays, under which circumstances the skin assumes a yellowish colour, even in the desert, whilst those who are more exposed are perfectly black.

In those favoured localities where the alluvial

soil has not yet been overwhelmed by the drift sands from the great desert, the fertility is so great that the earth demands no farther tillage than barely turning it for the seed, and so leaving it until harvest; in the Mahomedan countries, even that process is dispensed with, and the only husbandry is that effected by nature and the Nile; hence the indolent disposition of the Arab, while the despotic government under which he subsists is an effectual barrier to any farther advancement in civilization.

The same causes of indolence are in operation throughout Nigritia, which, like the Delta of the Nile, is watered by the periodical overflow of the Senegal and Niger; after which, all kinds of tropical fruits spring up in spontaneous luxuriance, and afford an ample supply of food for the support of the inhabitants, who require little or no clothing, and, therefore, have they few or no motives for exertion. They are perfect Negroes in form and colour, having woolly hair, a small head and large face, with extended jaws, thick lips, &c., all which characters seem to be exhibited in proportion to the intensity of their climate; thus, while the Abyssinians are of a dark olive colour,

the inhabitants of Bournu and Houssa are described as black, and the Jaloffs on the western coast as of the deepest black. Those Foulahs who are screened from the action of the parching east winds, by the mountain chain on the south of Soudan, are said to have thin glossy hair, instead of the wool which is observed in most other Negro countries, while their carriage is more graceful, assuming in fact an appearance intermediate between the Negro and Moor, as well in stature as in all other physical endowments.

“In central Africa,” says Douglas, “heat and moisture, the two great instruments of vegetation, are most abundant, and the mountains, and the sides of the lakes and rivers, are the most overgrown with vegetation and teeming with life.” Little is known of central Africa, excepting those portions of it which border on the coasts; throughout these, the inhabitants, being exposed to the ardent rays of a vertical sun, present the true Negro characters, as well in the two great western divisions of Guinea and Congo, as in the eastern divisions of Zanguebar, Ajan and Adel. The Portuguese describe a race of half-white savage people, who live perpetually in the dark recesses

of the forests beyond the Mahalasey, but this description has not been corroborated by modern travellers; the time, however, we trust, is not far distant, when, (judging from the zeal and perseverance which our scientific societies now evince,) we may see depicted and read of, in the travels of scientific men, localities, which as yet remain blanks in our maps, and then, indeed, may we hope to verify the assertion of Heeren,—that in no quarter of the globe can the influence of climate on the nature, figure and colour of man be so satisfactorily examined as in the African continent.

Southern Africa, by jutting into the temperate regions of the Southern Hemisphere, acquires also the vegetation peculiar to the temperate latitudes. Man also, as presented to us in the tribes of Caffres and Hottentots, is sensibly modified.

“The Hottentots under different names, were once spread over the territory now called Cape Colony, and at the present day may be considered as generally within its limits, though they have been driven from the southern parts by the European colonists. The Hottentot presents some varieties both in physical appearance and moral

character ; but in his lowest state he is one of the most indolent, helpless and dirtiest of the human family ; his form, though spoken of by some travellers as not positively ugly, would appear from the best accounts to be revolting to our ideas. His hair is black, sometimes brownish, very short and woolly ; his profile is hideous, and remarkable for the prominence of the lips, over which the nose is flattened, displaying the open nostrils ; the foot is so singularly formed that he can be traced by his marks. The colour of the skin is dark brownish, not black. The Caffres differ from the Hottentots and Negroes. Their nose approaches to an arched form ; yet they have thick lips, and curly hair, but less woolly than the Negro. Their colour is blackish grey, and they are generally well made and of rounded limb. They extend from Natal, on the southern coast of Africa, into the interior, probably as far as the Tropic, but it is not possible to fix their limits with any precision.”*

That portion of Caffraria visited by Captain Owen, is spoken of by him as abundantly fertile ; and in his description of the natives, he says, “They were handsome, strong and tall Negroes,

* Penny Cyclopædia, Art. Africa.

with habitual freedom strongly marked in their gait and carriage." The Hollontontes are also described by him as fine Negroes, tall and robust, and warlike, with a certain appearance of independence in their persons.

From the foregoing statements it must appear, as we have before observed, that, although climate alone may not have effected the various conformations observed in different races, yet that it has had very considerable influence. Where the heat is most oppressive, there the colour of the skin is darkest; where the climate is most temperate and soil most fertile, there the tribes are the finest and tallest. The hair, moreover, is observed, generally speaking, to be woolly or not, according to the influence of climate; appearing black and straight in the Moors, Berbers, and Arabs, as also in some tribes of Foulahs; universally woolly in the Negro of Negroland; woolly in some Hottentots, frizzled and even straight in others, as is also the case with regard to the Caffres.

The neighbouring tribes of Madagascar, enjoying a climate modified by the surrounding sea, as well as by a vast mountain chain and the cold mountain torrents, inhabit a land whose hills are

crowned with an ever verdant forest, and whose plains afford an abundant pasture for sheep and oxen. Were we to enumerate the vegetable productions of this island, we should go through the whole list of tropical fruits. The inhabitants, who call themselves Madecasses, are in general well shaped and above the middle size.* Black, olive, tawny, and copper colour are pretty equally observed; the olive colour, however, predominates. They seem to be a mixture of Malays, Arabs, and Africans; the apparently true posterity of the primitive inhabitants are tall, having black eyes and crisped hair, like the natives of the Malabar coast of Africa; but historical records exist both with the olive and tawny races relative to their first arrival at Madagascar, which events appear to have been of comparatively recent occurrence;† hence we should hardly expect them to have acquired the hue and other physical characteristics of the original inhabitants.

Having thus passed in review the tribes of Africa, and having, we hope, proved that climate may have so affected the natives by its continued in-

* *Encyclopædia Londinensis*. — Art. Madagascar.

† *Ibid*.

fluence through a long succession of ages, we would now refer to sacred history, from which it may be collected that Ethiopia was peopled by the descendants of Ham, on which race a curse was imposed that they should be servants unto their brethren. Now, as the climate towards which they were directed has been shown to keep up an excited state of the vegetative organs and functions, and a corresponding debasement of the intellectual, may we not reasonably suppose that the prophecy has been worked out by their climate forbidding any great advancement in intellect?

To the same source, also, we refer for an explanation of the peculiar characteristics of the Americans, the progenitors of whom are referred by Turner, in his Sacred History of the World, to the Edomites, or Idumeans, who were also denominated the Red Men of the East.

We do not here assert that the red colour of the Idumeans was originally acquired by the influence of climate, for certain agencies may have been in operation, with whose action we may for ever remain in profound ignorance; hence, in a climate like that of America, infinitely diversified by the im-

mense extent of its geographical position, it would be in vain to attempt an explanation of the universal red colour of the native tribes by assigning it to that cause; but that it has had its effect in modifying such colour, who will presume to deny? Writers of the highest authority, in speaking of the Americans, state, that those who live in high countries are fairer than those who inhabit low; and that the inhabitants of the torrid zones, though of the red tinge, which marks those who occupy more temperate regions, nevertheless approach nearer to black. Form and disposition are by all acknowledged to be equally influenced by local situation and certain moral causes (of which we hope to give satisfactory instances), and nowhere more so than in those situations where the climate, soil, and vegetation change their characters suddenly, as in the neighbourhood of the high mountain chains.

Now the mean temperature of the atmosphere, though pretty nearly equal in equal parallels of latitude in the old and new worlds, is very unequal in particular seasons: thus, at the 40th degree of northern latitude the mean temperature of the year in the old world averages about 63° of Fahren-

heit's thermometer ; that of the new is about 54° , the difference being only nine degrees. But the mean summer heat of Philadelphia, which is situated at $39^{\circ} 56'$ N. lat., is the same as that of Rome at $41^{\circ} 53'$ N. ; but in winter it resembles that of Vienna at $48^{\circ} 13'$ N. Again, the mean summer heat of Quebec, $46^{\circ} 47'$ N., exceeds that of Paris, $48^{\circ} 50'$ N. ; but its winter is colder than that of St. Petersburg, $59^{\circ} 56'$ N. These particulars I quote from "Lindley's Introduction to Botany," to show that the American has ever been exposed to atmospheric influences, which no other inhabitants of the earth have been, and therefore that it might, *à priori*, be supposed that his colour should differ from that of all others. Even Europeans in the United States have been observed to change somewhat in complexion.

But Professor Lawrence states, that neither heat nor cold produces any permanent sensible change of colour, for the proof of which he refers to the American Indians, who live under the equator, and are nevertheless of a copper colour. To this we would reply, that the rigorous cold of the frigid zones extends its influence to the tropical regions, which being, moreover, cooled down by the easterly

winds from the Atlantic, are comparatively temperate as compared with the accumulated heat to which the African continent in equal latitudes is exposed.

Surrounded on all sides by the great oceans, and protected in the centre from the sun's rays by interminable forests, except where the immense fresh-water lakes, which form no insignificant part of the northern continent, give rise to an abundant evaporation, America derives an additional peculiarity from these circumstances, in possessing an extremely moist climate, the influence of which has necessarily been exerted on the vegetable kingdom, and, according to our foregoing principles, it must have been felt in animals; why not, therefore, in man? * I remember to have read, that the earth makes plants; the earth and plants make animals; and the earth, plants, and animals make man.

In hot and moist regions, where a rank vegetation prevails, and that principally of poisonous drugs, reptiles and rapacious quadrupeds are the chief denizens; and if the nature of man be capa-

* Vide Appendix, Note C.

ble of bearing up against such a destructive climate, he is observed to be barbarous and cruel ; whereas in temperate climes, where fruits and herbs, mild in their character and of a wholesome and nutritious nature, abound, the more quiet animals share with humane man the produce of the soil. So it is in America. "The Californians," says Dr. Prichard, "inhabiting a low maritime country, which, more than any other part of the world, resembles the climate of Africa, are black ;" this evidently depends on its western position, and consequent exposure to the east and south-east winds from the tropics passing over a great extent of land. "Those Americans of the Tableland of Mexico, which is moderately high" (and therefore temperate) "are of an intermediate hue, and those in the north, behind Nootka, are white."

The climate and soil of those regions in the extreme north of the American continent are cold and barren, which circumstances conspire to arrest that full development which the inhabitants of more temperate regions attain. The Esquimaux are described by artic navigators as short in stature and of a tawny colour. The first peculiarity we have accounted for, and now with reference to

the colour. We have already stated that the action of the capillary system, or the heat-generating power,* must of necessity be excited in icy climates, to counterbalance the depressing influence of cold. We have also stated that the inhabitants of the tropics live principally on vegetable food, as being less heating, whilst the natives of the Polar regions seek a more stimulating food in the half putrid flesh of fish and seals. According to Sir John Ross, "the abundant use of oil and fat meats, which the Esquimaux consume to an enormous extent, is the true secret of life under the arctic zone." This stimulating diet, then, is admirably adapted to increase the power of generating animal heat, and to supply that fuel from within which, in equatorial climes, is supplied from without. The same organs are thus called into action by different causes and to produce different effects; in one case, by an external heat, to favour a free transpiration of watery fluid, which is separated from the blood in the form of sweat, to cool the Negro; in the other, by an internal heat, to promote a rapid circulation of blood throughout the cutaneous system, and thereby to

* Vide Appendix, Note D.

generate heat in the Esquimaux. Is it, therefore, unreasonable to suppose that the same action in both cases should be productive of the same effect in the tegumental covering? I think not, but conceive it a most rational way of accounting for the tawny hue of the hyperborean. This will be more apparent by an actual examination of the northern tribes; thus, the European Finns, like the Greenlanders and the native tribes on the shores of Labrador and of Hudson's Bay, who subsist on the same heating diet, have the same swarthy complexion. It is generally believed that Greenland was peopled by European tribes from Iceland, who, in consequence of the severity of the climate and unfruitfulness of the soil (those plains only excepted which border on the coast), are short in stature, possess the tawny complexion, the broad faces, thick lips, and flat noses of the Esquimaux, who are indisputably of Asiatic origin.

As the fertility of the soil and heat of climate increase towards the south, so also does the stature of the Americans. "The North American tribes are generally above the middle size, and of a slender shape."* The Cherokees of Florida,

* *Encyclopædia Britannica*, vol. i. p. 616.

which is rendered temperate by its vicinity to the Atlantic, are tall, fine, well made men, as are also the Akansas of Louisiana and the Indians of Mexico, but differing in colour, as we have previously seen, according to the elevation of their habitations.

In our survey of the American tribes it will appear that, in most instances, temperature has had but little influence beyond that of modifying the colour of man; except on the Esquimaux, who are exposed to a climate, the icy coldness of which forbids a greater development than the stunted frames observed throughout those northern tribes. In a country so vast as that of the new world, it must appear evident that natural barriers exist to prevent the unlimited extension of certain species, both in the animal as well as vegetable worlds; and, as we have already shown, that these natural productions have had great influence on the physical as well as moral constitution of man, we can nowhere illustrate the operation of such causes so satisfactorily as in the immense continent which we are now considering.

“The food of different tribes is extremely various. Maize, beans, pumpkins, and mandioc are

raised by some tribes; natural fruits, berries, bulbous roots, and bananas are gathered by others. Those who dwell on the sides of rivers live on fish: in the plains, buffaloes, horses, and sheep are killed; in the forests of Brazil monkeys, pigs, armadilloes, pacas, agoutis, and tapirs are the favourite food; but birds, turtles, deer, and coati are also taken, and, in an emergency, the Indians do not scruple to feed on serpents, toads, lizards, the larvæ of insects, and other disgusting substances. Clay is even taken as food by some nations near the Orinoco. And a great proportion of the tribes in Brazil, in the basin of the Orinoco, and some in all parts of America, indulge in the horrid banquet of human flesh.”*

In Melville Island, where the mean temperature of the year is nearly at 2° below zero, Fahrenheit, mosses and lichens form a great proportion of the vegetable productions of the earth. The amylaceous character of these plants† renders them fit for the support of the rein-deer, an animal most essential to the well-being of the native in those regions, furnishing him, while living, with the means of

* Encyclopædia Britannica.

† Decandolle.

transport, and when dead, with food and clothing. It is there also that the polar bear seeks its food on the amphibious phoca, which in its turn is sustained on fish. These animals, being less easily captured than the domesticated herbivorous quadrupeds of temperate regions, supply, at the best but a precarious meal to the Esquimaux, who, under the additional influence of an ungenial climate are necessarily a diminutive race.

On the rocky mountains, saxifrage and stunted grass support the mountain goat, on which the native savage is nourished, and who, from the paucity of his food, is equally stunted in his growth.

Fertile valleys lie between the mountain ridges, by which Canada is intersected, differing in the character of their vegetation according to their situation. Those in the north towards Hudson's Bay being covered with balsamic pines and larches of gigantic size, afford shelter for bears and tribes of hunting Indians. The next change is characterized by majestic poplars and robust oaks, which join with walnuts, hickories, magnolias, and the sugar maple (which pours out its saccharine sap), in forming the vast primeval forests of the Canadian plains. Towards the south, immense prairies

afford luxuriant pastures to buffaloes, stags, elks and bisons, which appear in immense herds, furnishing an abundant supply of food to man, whose species is observed to increase progressively in size, as his habitation approaches towards the ever verdant Florida and Louisiana, where maise seems to be the natural produce of the American soil, as rice is of that of Asia.

The gigantic forest-trees of America serve the purpose, now, of favouring the increase of game, on which the native Indians are in part sustained, and appear destined to afford, hereafter, materials for the ingenuity of civilized man, who, if we might venture on the prognostication, seems arriving at an equal state of mental maturity, to develop in colossal greatness those improvements which are now dawning in miniature in our own country.

The southern continent differs in no less degree in the character of its vegetation. "The Cordilleras divide the southern continent of America, from the latitude of 19 to that of 52 degrees, into three immense plains, which on the west are shut up by the enormous ridge of the Andes, but are all open on the east, and towards the Atlantic

ocean. The most northern is the valley of Orinoco, consisting of savannahs or level tracts covered with reedy herbage and scattered palms. The next is the plain of the Marañon, which is entirely covered with dense, impenetrable forests. The third and southernmost valley is the Pampas, a dead flat of most prodigious expanse, clothed, like that of Orinoco, with a coarse, rank herbage, and abandoned to the occupation of countless herds of wild cattle.”*

The Carib tribes, who derive their denomination from the shores which they inhabit, are said to be tall. Now as the valley of the Orinoco is productive of a rich pasturage, from which herds of the wild ox and other herbivorous quadrupeds obtain an abundant nourishment, which animals are readily captured by the practised hand of the natives with the unerring lasso, we cannot be surprised at the stature of these Indians. It is true they inhabit a tropical country, but their climate is comparatively temperate, which may, perhaps, be accounted for in some degree by the influence of the equatorial current, which, according to Lyell, “has its source in the Indian ocean, under the in-

* Encyclopædia Britannica.

fluence of the trade winds ; and which, after doubling the Cape of Good Hope, inclines to the northward, along the western coast of Africa ; then crosses the Atlantic near the equator, and is lost in the Caribbean Sea, where its waters are cooler by 3° or 4° Fahr. than those of the ocean under the line.”*

The heat of the tropical coast of South America is thus modified, as is also the coldness of the eastern shores of North America, where the influence of this equatorial current is observed in the vegetation, which retains the tropical character much farther north on the shores of the Atlantic, than in the centre or on the western shores of the Pacific.

The Guajaribos in their aërial abodes on the Andes about the source of the Orinoco, are a set of ferocious cannibals, dwarfish in size, of barbarous habits and fair complexions, all which peculiarities may depend on their elevated habitation.

The hot and sandy mountains of Peru, are inhabited by short and squat tribes, of a tawny colour.

The plain of Amazonia is characterized by the

* Lyell's principles of geology.

gigantic vegetation which the moist heat of the Brazilian climate is calculated to produce. Lofty forest trees raise their towering heads and cover these regions to an immense extent, forbidding the development of herbage or underwood, except the virulent euphorbium or the drastic croton. In the dreary retreats of these vast forests, the silence of which is rarely broken, except by the panther or jaguar, a few miserable tribes exist on game and the farinaceous root of the mandioc; hence are they low in stature; but towards Paraguay, where the Campos give herbage to herbivorous animals, the native Indians attain a higher stature, and are less barbarous.

Paraguay and Buenos Ayres, the one mountainous and hilly, the other an unbroken level, have each a rich and productive soil, the vegetation of which assumes the form of herbage, wherein rodent animals and deer abound, as does also game of every description. The Indian tribes are distinguished by their tall and vigorous forms.

The same observations are equally applicable to the immense pampas of Patagonia and La Plata. The average height of the Patagonians is estimated at about six feet three inches.

“Chili and Araucania possess a genial climate on the western slope of the Andes. Extremes of temperature are rarely felt in these regions, and the soil is moderately productive. The native tribes are strong, muscular, well built, and of a moderate stature.”* According to Humboldt, crowds of tapirs, lama, alpaco, and guanaco, are found in Chili and Peru; but extend neither to Mexico on the one hand, nor to Brazil on the other.

The natives of Terra del Fuego are low and ugly;† their climate is ungenial, and the soil is said to be unproductive.

In this review of the American tribes, from Melville Island to Cape Horn, it has, I hope, been satisfactorily proved that the variation in stature, from that of the Esquimaux, whose average height is barely five feet, to that of the Patagonian, who is the acknowledged giant of the globe, is in no respect incompatible with those laws which regulate the functions of the human economy, and on the due performance of which, health so intimately depends.

We have, lastly, to speak of those tribes, who,

* Penny Cyclopædia. † Cook.

under the general denomination of Malays, inhabit the numerous islands in the Indian and Pacific Oceans, and which are known to us as the Australasian and Polynesian nations. In these it is, that we have an exemplification of the intermixture of different varieties; they also show the modifying power of climate; for while we recognize the Negro and Caucasian characteristics blended in Australasia, Polynesia presents us with the blended character, modified by the peculiarities of climate to which the various groups have been exposed.

“Negro-like men, with curly hair, occupy the south-western islands, and may, perhaps, have descended from the analogous race in the Moluccas and other East Indian islands. They are savage, ferocious, and suspicious.

“This race is found in New Holland and Van Diemen’s Land; New Guinea, New Britain, and the adjacent groups sometimes called Solomon’s Islands; New Georgia and the Charlotte Islands; the New Hebrides, including Tanna, Mallicollo, and others; New Caledonia, and the Feejee Islands.

“The remaining islands of the South Sea, from New Zealand on the west, to Easter Island, con-

tain a race of much better organization and qualities. In colour and features, many of them approach to the Caucasian variety; while they are surpassed by none in symmetry, size, and strength.” *

It is in the Malayan peninsula that we begin to recognise the influence of intermixture in blending the varieties of the human species. The Ethiopians in the early ages, and the Arabs about the thirteenth century, were maritime nations, and appear to have migrated from their native shores to the islands of the Indian Ocean, until, as it is supposed, they reached Sumatra, whence, at successive epochs they appear to have sent out, to Malacca on the one hand, and to the eastern islands on the other, tribes, which we have above designated as Australasians and Polynesians.

The fertility of Malacca has generated a natural indolence in the natives, who care not to cultivate their land, but depend on the spontaneous produce of the mangostana and sago-tree for the means of subsistence; hence, they are an enervated race, possessing in treachery and cunning, what they lose in physical strength.

* Lawrence's Natural History of Man, p. 491.

The corporeal characteristics appear in more pleasing features in those islands where a temperate climate is combined with a productive soil, yet in all the tribes of Australasia, the digestive functions seem to predominate at the expense of the intellectual. "The natives," says Sturt, "of the interior of New Holland, which presents a seeming interminable flat, wherein reeds and the polygonum are the chief vegetable productions, are of the lowest description of human beings." Whereas, the natives of the banks of the Darling, who have the advantage of a plentiful supply of fish, as well as resources in the woods, wherein they hunt the kangaroo and emu, are a clean limbed, well conditioned race. The Haraforas of New Guinea partake of the Negro character in their thick lips, woolly hair, and black skin. Whereas, in the New Hebrides, the colour of the skin is less dark, and the features are more regular and pleasing. And in New Zealand the natives resemble the Spaniards of our northern hemisphere in the olive colour of their skin, and their stature. It is thus, as we advance from the equator to the temperate latitudes, that a finer race is observed; e. g. in Borneo the Batta is short and ebon black,

in Soloman's Isles, less dark, and taller, and in New Caledonia, an intermediate race between that of the New Hebrides and of New Zealand.

"The natives of some of the islands of the South Sea," says Lawrence, "are hardly to be distinguished in countenance and head from Europeans, while others approach as near to the Negroes. The Marquesas, the Society, Friendly, and Sandwich islanders, might be almost arranged under the Caucasian variety; while the natives of New Guinea, New Holland, Van Diemen's Land, New Britain, and Louisiade, &c., have strong claims to be admitted into the Ethiopian division."

It is with unfeigned diffidence that the foregoing attempt at an explanation of the various modifications observed in the physical constitution of the human race, is submitted to the reader. Much of the matter contained herein, has already been advanced by most judicious and scientific writers, whose great practical skill and accurate judgment may have induced them to stop short in a course wherein my imagination may perchance be accused of leading me astray. I am fully sensible that there are many peculiarities observed in the great family of mankind, which my theory would fail

satisfactorily to account for. The natural flatness of the Carib's forehead is one, the sudden change between the Patagonian and the inhabitant of Terra del Fuego may be another, and I am well aware that many others may be urged with more or less show of reason; but as these even admit of explanation by similar causes, and with no great degree of inconsistency, I approach my conclusion the more confidently, as I conceive that the same natural causes may be adduced as the grand agents in the advancement of society to civilization, and therefore to knowledge and wisdom.

We conclude, then, that the natural and spontaneous productions of the earth may have been co-active and co-efficient with other causes which we have mentioned in modifying the physical characteristics of the human species, and it now remains to show, that the moral constitution of man has been in no less degree affected by the same agencies; or in other words, "that the nature of the country acts previously to all other influences, and is moulding the mind before the legislator can form his institutions."*

* Douglas.

CHAPTER VI.

INTELLECTUAL CONDITIONS OF PARTICULAR
NATIONS.

THE relation between corporeal structure and the external agents to which it is exposed being established, I would extend the relation yet farther and show, that as the body is affected by the influence of certain physical causes, so also is the mind by the constitutional peculiarities of the body. In the whole range of the sciences, we cannot find a more interesting and more extended subject for observation, one that is more ennobling or promises more fairly to be successfully pursued, than that whereby the following problem, proposed by a writer of great judgment and imagination, may be solved: "The physical man being given, to determine the character and extent of his capacity,

and to assign, consequently, not only the talents he possesses, but those he is capable of possessing."—Are we then to consider it probable, as a philosopher has hinted, that the moral man lies concealed in the physical man, and that the development of both depends on what at first sight may appear fortuitous circumstances, but which in truth are dependent on unchangeable laws? One great objection against the assumption, may appear in the fact, that no two individuals are observed to correspond exactly in their constitutional endowments, although exposed to exactly the same external influences. This objection, however, is more apparent than real, for in resolving the problem of intellectual capacity, we should dismiss from our minds individual peculiarities, and endeavour to seize on the general characters of nations; the result of which research will clearly show in the assemblage of individuals, a disposition to assume a certain corporeal conformation and corresponding functions, the association of which with certain mental peculiarities, give rise to a determined constitution, which is denominated TEMPERAMENT.

The time is gone by, when physiologists con-

ceived with Hippocrates * and Galen, † that peculiarity of temperament depended on an excess of one or two of the supposed elements, from which they imagined the human body to be formed. Fire, air, earth and water, were the four principles on which they founded their hypothesis,—a visionary system which would now be looked upon as worthy the stricture of that writer who imputes to a class of physiologists an attempt to measure the human mind by the scale of a Fahrenheit's thermometer.

* Corpus quidem hominis hæc in se habet, sanguem, pituitam, bilem duplicem, flavam et atram. Corporis quidem natura hæc est, hæc languet, doletve, hæc convalescit et valet, tunc enim potissimum valet, cum hæc pariter temperata vigent, dolet autem, languetve, cum quid horum plus, minusve in corpore sit, commistumque cæteris non sit, &c. *Hippocratis de Hominis Natura—Liber vigesimus quartus.*

† Ac quod multifariam quidem dicatur, humidum, siccum, calidum et frigidum corpus in proximo desinitum est libro, demonstratum præterea est, novem esse temperamentorum differentias, unam quidem quæ mediocris sit et eucratos, quam etiam temperatam vocamus. Reliquas omnes intemperatas quatuor simplices, unica scilicet in quaque pollente qualitate, calore, frigore, siccitate, vel humiditate : quatuor ab his diversas, in quibus utriusque oppositionis altera qualitas exuperat, dico autem duas oppositiones, altera quæ est calidi et frigidi, altera quæ est frigidi et sicci, &c. *Galen de Temperamentis Liber secundus.*

But we have observed that the infinite diversities of temperature, humidity and electric conditions of the atmosphere, have modified the physical development of the human race, and we have suggested some of the means, whereby such modifications have been effected: it is, moreover, an old adage, that "the body and mind exercise a mutual influence over each other;" hence, there is no such great absurdity in attributing, in some degree at least, the intellectual capacity of nations to the temperature and other peculiarities of their climate.

The depressing influence of an icy atmosphere, while it contributes to the stunted development of the body, is also the cause of that obtuseness both in physical sensibility and mental powers, which characterize the inhabitants of those inhospitable countries towards the poles. Thus the assumption of Dupaty, that the outward corporeal man is the true model or shell of the intellectual man within, is fully verified in them. Their barren soil is ill adapted to call forth the cravings of ambition, and their nature forbids any advance in civilization. The generation of animal heat is the grand function of the body, as the acquisition of a stimulat-

ing diet is that of the mind : hence, the Hyperborean is excluded from all those temperaments, which physiologists have devised for the classification of the human family ; and if in addition to those already enumerated, the Gastric were super-added, it would appear no inappropriate designation for the constitutional peculiarities of this voracious tribe.

The history of an individual is the history of the whole race,—his entire mind is applied to ward off the sufferings to which the temperature of his climate exposes him ; and being thus protected, he lives on in happy ignorance and barbarous independence, equally dwarfish in mind and body.

In hot climates, on the contrary, where the vegetative functions predominate over all others, the biliary secretion is naturally excited, and for reasons which we have before stated, an irritable constitution is generated, and is characterized by a certain sensibility to external impressions. The inactive life to which the natives of tropical countries are constrained by the warmth of their climate, favours the development of the bilious temperament, the attributes of which, in those regions, are fraud, perfidy and fanaticism. Hence,

the grand cause of the moral degradation and oppression, in which almost all the equatorial nations are living; and that they continue so, is the inevitable consequence of their infatuation and indolence, too weak either to conceive the means or adopt the measures for relieving themselves from their galling yoke.

We doubt not that some peculiar circumstance may be in operation, whereby the like temperament is engendered in our own latitudes; but inasmuch as it is modified in its physical characters, so also is it in its moral faculties (the sanguine temperament is more or less mixed up with it). Men of this disposition are dissatisfied with the common pleasures of society; ambition, enterprise and intense emotions are necessary to their existence, as evinced by the eagerness with which they are sought after. "Profound dissimulation and obstinate constancy," says Richerand, "are the most eminent qualities of the bilious. No one ever combined them in higher perfection than that famous Pope, who after slowly travelling on towards the pontificate, went for twenty years, stooping and talking for ever of his approaching death, and who, at once proudly rearing himself, cried

out, 'I am Pope!' petrifying with astonishment and mortification, those whom his artifice had deceived into his party."

Shakspeare has well delineated the bilious temperament in the character which Cæsar is made to pronounce of Caius Cassius :

" If my name were liable to fear,
I do not know the man I should avoid
So soon as that spare Cassius. He reads much :
He is a great observer, and he looks
Quite through the deeds of men : he loves no plays
As thou dost, Anthony ; he hears no music ;
Seldom he smiles ; and smiles in such a sort,
As if he mock'd himself, and scorn'd his spirit
That could be moved to smile at any thing.
Such men as he be never at heart's ease
Whiles they behold a greater than themselves,
And therefore are they very dangerous."

Now if the tropical winds, of which we have already spoken, could so affect the physical characteristics of man, the same causes ought, according to our previous reasoning, to influence the intellectual capacity ;* and we doubt not that this operation is sufficiently apparent in the mental development of the native tribes of south-eastern

* Vide Appendix, Note E.

Asia. Thus the Burmans do not appear to have their mental energy so affected thereby as the Chinese, Hindoos, Arabs, or Africans, all of whom we conceive to be exposed to an enervating climate, which favours the development of a similar temperament, and which admits of various degrees of civilization according to the social systems which have been established in those nations. Hence, the Burmese is less superstitious than the Chinese; the Chinese is less idolatrous than the Hindoo; the Hindoo is less intolerant than the Arab; while the poor Negro stands lowest in the scale of mental capability.

The corporeal impress of the above temperament manifests itself in the dark colour of the skin, black hair, and moderate plumpness, combined with which there is generally a hard wiry pulse.

In temperate countries where the action of the circulating system is rendered active by an invigorating atmosphere, the sanguine temperament generally prevails. A fair and ruddy complexion, with bluish eyes, auburn hair, an enlivened countenance, firmness of muscle, and moderate plumpness, are the physical characteristics of this temperament in its greatest purity; as goodness, gene-

rosity, intensity of feeling, and sincerity are its mental attributes. As it is the peculiar fate of this constitution of body, to experience the extremes of acute suffering in disease, so also it has the counterbalancing enjoyment of feeling that energy, gaiety, and healthful vigour which the buoyant and elastic mind only can duly appreciate. The man of this temperament

“Hath a tear to pity, and a hand
Open as day for melting charity;
Yet notwithstanding being incensed, he's flint.
As humorous as winter, and as sudden
As flaws congealed in the spring of day.”

He has a mind capable of comprehending the most sublime truths, and suddenly seizes on them as it were by intuition, while those of less bodily vigour attain to them, only by profound and long continued meditation. The character of Lorenzo de Medici is a fine illustration of the sanguine temperament; it is depicted by Mr. Roscoe, “as exhibiting the most remarkable instance of depth of penetration, versatility of talent and comprehension of mind. Of the various occupations in which Lorenzo engaged, there is not one in which he was not eminently successful; but he was more

particularly distinguished in those which justly hold the first rank in human estimation. The facility with which he turned from subjects of the highest importance, to those of amusement and levity, suggested to his countrymen the idea that he had two distinct souls in one body. Even his moral character seems to have partaken, in some degree, of the same diversity; and his devotional poems are as ardent as his lighter pieces are licentious. On all sides he touched the extremes of human characters, and the powers of his mind were only bounded by that impenetrable circle, which prescribes the limits of human nature."

The bilious and sanguine temperaments being thus established, we are naturally led to inquire if the various external agencies to which man is exposed, and the habits which he may have adopted do not become apparent in the modifications of such temperaments, in the same manner as they do in his corporeal development. On this subject most physiologists agree that while the bilious may be transformed into the choleric, on the one hand, and the melancholic on the other, so likewise the sanguine is observed to assume the characteristics of the nervous and of the lymphatic.

The climate of high Tartary and the habits of the Mongols have combined a full muscular development, and strongly marked features, with their dark skin and black hair, which are the characteristic marks of the choleric temperament. Impetuosity is associated therewith, as the grand principle of action; sedition is their nature, and history has ever confirmed it. The life of Attila may be advanced as a type of the choleric temperament. Possessed of all the physical attributes, he was governed by an irresistible ambition: his undaunted pride goaded him on to a brother's murder. A doubtful provocation was with him a sufficient incitement to pour forth his furious wrath, in attestation, as it were, of his unenviable title of "Flagellum Dei."

The melancholic temperament is considered by many writers to be engendered by diseased action in the system, which they conceive to be brought about by excessive grief, immoderate application, and other causes which exert a depressing influence on the body; such as continued exposure to a noisome atmosphere, sedentary habits, &c., all of which have, unquestionably, the power of producing the effect in question. "Unquiet meals

make ill digestions." But that it is also a natural production, every man will admit who attentively considers the constitutional peculiarities of the American Indian.

The skin of the melancholic assumes a swarthy and unhealthy hue ; the hair becomes straight ; the features are acutely marked, and have an uneasy appearance ; the pulse is slow and contracted. Corresponding with such torpidity, there is a disposition to seriousness and reflection ; a sullen calmness marks every action, and a gloomy suspicion every look ; the sensibility to external impressions is very obtuse.

Now let us refer to the American Indian. He lives often in the gloom and moisture of an almost impenetrable forest. His skin is swarthy, his hair lank, his habits are indolent, his functions torpid ; he is very insensible to pain. His taciturnity is proverbial. He is suspicious and revengeful. What characters besides these can we look for in the melancholic ? Some writers have inferred, that the indolence of the native Indian depends on the abundance of the necessaries of life which his country contains ; and this opinion might be entertained with reason, were it not that some nations

are compelled to live on the most disgusting and filthy substances, and are nevertheless as indolent as those who inhabit those situations on which nature has been more lavish of her favours.

The natural development of the above temperament, uninfluenced by education, may doubtless be seen in most of the tribes which have just been mentioned ; but, as modified by the complicated state of civilized life, a host of distinguished melancholics might be adduced, amongst which Jean Jacques Rousseau is not the most inconspicuous. His confessions, written with tremendous fidelity, trace the gradual development of the melancholic temperament from a constitution which we should be disposed to consider as, primarily, an amalgamation of the bilious and sanguine.

The infirmities ascribed by Dr. Madden to the author of the Rambler are pre-eminently those of the melancholic temperament ; seriousness, melancholy, and despair were the three great features of Johnson's character. The melancholic is finely depicted by the above writer. " It is," says he, " a plague of the sense, a convulsion of the soul, an epitome of hell ; and if there be a hell upon earth, it is to be found in a melancholy man's

heart ! No bodily torture is like unto it ; all other griefs are swallowed up in this great Euripus. I say of the melancholy man, he is the cream and quintessence of human adversity."

It is generally observed in the low and damp countries of Europe that the human body assumes a rounded form ; not so much from a full development of muscle, as from the great bulk of cellular tissue which surrounds and covers the muscles. In such individuals the lymphatic system is so abundantly charged with watery fluid, that the fleshy parts are considerably softened, and the blood, necessarily influenced by such serosity, is transmitted through the vessels with diminished energy ; hence the pale white skin which accompanies the torpid action of the vital organs, and with which there is also a corresponding torpidity of the mind and body. Such are the peculiarities of the lymphatic temperament. Persons of this constitution are indolent and slothful, preferring ease and quiet to any violent or manly exercise ; and are incapable of conceiving, much more of executing, any great action, so as to distinguish themselves amongst their fellow men. Their senses are obtuse ; their memory is treacherous ; they are,

moreover, prone to such corporeal ailments as depend on a diminished energy of the vital organs, from which the sanguine are comparatively free. Men of this temperament have never immortalized themselves either in literature, arts, or war.

“The nervous temperament,” says Richerand, “is not so much a natural constitution of the body, as the first stage of disease. This temperament, like the nervous affections which are the result of it, has never shown itself but among societies brought to that state of civilization in which man is the farthest possible from nature. The Roman ladies became subject to nervous affections only in consequence of the depraved manners which marked the decline of the empire. These affections were extremely common in France during the eighteenth century, and in the times preceding the fall of the monarchy.”

It is an undeniable fact, that the artificial life of a highly civilized state has the effect of generating in many of its members a highly irritable and excitable constitution. The muscles being small, the body is thin, acutely sensible to external impressions, and its actions are performed with quickness and vivacity. Inconstancy and caprice are

two great characteristics of the man who is endowed with the nervous temperament. Both Voltaire and Pope partook of it.

The Philosopher of Chatenay had a physiognomy indicative of his disposition. "It is said to have partaken of the eagle and the monkey; to the fire and rapidity of the former animal, he united the mischievous propensities of the latter. With strong perceptions of moral excellence and elevation, he was little and mean in conduct, a victim to petty passions and caprices; never at rest either in mind or body; never tranquil or sedate."*

The morbid sensibility, caprice, and irritability of Pope were evidently the consequence of disordered functions of the body, which produced a certain influence on the nervous system, whereby his constitutional peculiarities grew with him from his youth up, and in manhood showed full well "how hard it is to hide the sparks of nature!"

Although we may occasionally find all the attributes of one temperament embodied in a single individual, yet in most countries (especially the most civilized), such purity of character is seldom

* Encyclopædia Londinensis.

or ever observed. There is generally, however, a predominance of some one : thus, in our own country, and most others of northern Europe, the sanguine is the most characteristic, and appears combined with the nervous, the bilious, the choleric, or the lymphatic ; in southern Europe the bilious predominates, and is similarly modified by combinations with the sanguine, the melancholic, the nervous, and choleric ; in Holland the lymphatic prevails, &c. Hence the observation of Richerand is pretty near correct regarding physiologists delineating the pure temperaments. "They have," says he, "imitated the artist, who united in the image of the Goddess of Beauty a thousand perfections which he saw separate in the most beautiful women of Greece."

The evidence for the difference of intellectual capacity is as complete as that upon which we believe in the difference of corporeal structure, and that the former is greatly influenced by the latter, is equally apparent. It follows then, that the corporeal and mental affections are intimately related, and that the development of both receives its first impulse from certain natural causes. Diseases, moreover, are disposed to assume certain

peculiarities, according to the temperament of the individual in whom they occur.

The nature and quantity of food taken by individuals of different countries, is co-efficient with the infinite diversities of atmospheric influences in modifying the mental capabilities of nations. It has been already observed, that the Negro is compelled to take large quantities of vegetable food to support the excessive cutaneous transpiration; hence, the digestive functions predominate at the expense of the intellectual. The Hyperborean is also driven to devour largely of animal matter for the purpose of withstanding the depressing action of cold, so that the same functions predominate as in the Ethiopian. The inhabitants of southern Europe live principally on fruits and vegetables, the acescent nature of which favours the development of the bilious temperament; whereas, in the more temperate parts of Europe, man requires but a moderate proportion of a mixed diet, which gives energy to all the vital organs, so that the functions of the brain are no longer subjugated by those of the stomach; science, therefore, holds supreme dominion throughout these countries.

I am fully sensible of the objections which have been raised against this theory of climate, and appreciate the judgment of Professor Lawrence in combatting this doctrine; but inasmuch as his principal objections are answered in the preceding pages, I may be pardoned for considering them not the most cogent. "Why," says he, "have the white races invariably, and without one exception, raised themselves to at least some considerable height in the scale of cultivation; while the dark, on the contrary, have almost as universally continued in the savage and barbarous state? If we suppose that at any remote era, all mankind in all quarters of the globe, were in the latter condition, what are the accidental circumstances which have prevented all the coloured varieties of man from raising themselves, and at the same time have assisted the progress of all the others? If the nations in the north and west of Europe, when first conquered by the Romans, should be allowed (contrary, however, to historical proof) to have been in a state of barbarism, not superior to that of the present rude tribes of Asia, Africa, or America, why have they advanced uninterruptedly to their present exalted pitch of culture, while the

latter remain plunged in their original rudeness and ignorance?"

The learned professor admits, that "all dark coloured men are not inferior in moral and intellectual endowments, to all those of the white division;" and that "loss of liberty, bad government, oppressive laws, neglected education, fanaticism, and intolerance in religion, will plunge into ignorance, degradation, and weakness, nations capable of the highest culture, and most splendid moral and intellectual achievements."

If, therefore, any or all of these causes be in operation, as in many nations they have been, and are so still, the various degrees of civilization to which the different nations have advanced, is, I apprehend, satisfactorily accounted for. Phrenology, moreover, shows a great balance in favour of those organs, which are supposed to minister to intellectual endowments in the European, while the contrary is the case in most savage nations.

But we may adduce still higher authority in answer to the professor's question, why Europeans have advanced uninterruptedly in knowledge, while the tribes of Asia, Africa, and America remain plunged in ignorance? The best history we pos-

sess of the early ages, (I mean the Bible), distinctly affirms that our earliest progenitors had arrived at an advanced state of knowledge, *the ancestors of the Israelites only excepted*. Heeren, also, in his historical researches into the politics, intercourse, and trade of the principal nations of antiquity, has satisfactorily shown that the reason why certain tribes have arrived at a high state of civilization, whilst others have been kept back, has depended in most instances on accidental circumstances; e. g. the Medes and Bactrians acquired by agriculture and commerce, (*the highways of which crossed their territories*), riches, and power, whilst others, shut up in steppes and mountains, kept their original habits and manners. Again, — “the Phœnicians were constrained to become commercial and sea-faring people from their position. Phœnicia, covered with lofty mountains and forests, supplying the material in the construction of the Phœnician fleet; the rocky shores broken up by the waves, formed islands, on which cities were established, which, like Tyre and Sidon, were highly favourable to the trade and navigation of the Phœnicians.”

Civilization has evidently been greatly influenced

by such natural causes as tend to facilitate or impede the intercommunion of different nations. A continued line of unbroken coast (such as is observed in many islands in the Indian Ocean, surrounded by coral reefs, which, although built up by what we might at first be disposed to term insignificant zoophytes, form, nevertheless, the foundation of islands) opposes impenetrable barriers to civilization, inasmuch as the inhabitants are deprived of those advantages which would necessarily arise from an uninterrupted communion with other nations. The case, however, is widely different with those countries, the coasts of which are intersected by rivers or bays, equally inviting for trade or shelter, and which have already shown their influence in the moral character of nations on the American continent.

We infer then, that climate and its innumerable modifying attendants have determined the capacity of the human mind, while the natural physical causes which we have subsequently noticed, and others of like influence, have given a primary impulse or check to civilization ; advancing it on the one hand to that state which in most European nations has ever proved the pabulum of science,

and restraining it on the other, so that the moral and intellectual qualities of man have received an abortive development in consequence of the overwhelming influence of indolence and ignorance, forbidding the exercise of reason or the manifestation of a tendency towards improvement. Such are the natural causes which operate on the development of the intellectual man.

But the phrenologist will tell us, that there is nothing in temperament ; that the natural constitution of the mind depends solely on the particular development of the brain ; that the cerebral mass is divisible into numerous distinct organs, which perform totally different functions, and are endowed with perfectly different attributes ; that the respective faculties, sentiments, and propensities of the human mind owe their extraordinary manifestation to a redundant growth of those organs ; and that their relative size (which may be seen and felt through the bony parietes, serving alike for protection and covering to the brain) is an unerring indication of the mental faculties.

The huge mass of evidence which has been adduced in support of the science of phrenology, and the manifold objections which have been urged

against it, would be out of place in a work of this kind, nor should we have ventured on such disputable ground, had not the subject unavoidably obtruded itself as an opponent to the views we have adopted.

Now, if the numerous faculties, sentiments, and propensities depend on the organs attributed to them, and if it be admitted (as it universally is) that the mental disposition coincides with the corporeal constitution, it would be necessary that the brain should be the first organ developed in the foetus, in order that it should determine the peculiar development of the body ; but the very reverse is actually observed ; the body or trunk is the part first formed, and on its constitution appears to depend that of the brain.

Again, if the brain were separable into distinct phrenological organs, each being subservient to a particular function, some sensible boundary or division ought to be observed around each organ ; it would, moreover, be only in conformity with all other parts of the body, if the increased exercise of any one cerebral organ were sensibly manifested by increased vascularity ; but we neither observe such boundaries in the cerebral mass, nor has any

physical sign of a higher degree of vitality been witnessed consequent on excessive exercise.

“The main principle of phrenology,” says Dr. Prichard,* “is the assumed fact that these properties and structures are every where co-extensive with each other. Now, if the proof of the dependence of such properties upon corresponding cerebral structures, is the universality of the connexion or the co-extensive existence of the structures and functions, we may expect that this relation will be shown to prevail through all departments of animated nature. Those who maintain this arrangement to be so fundamentally interwoven with the very constitution of living beings, are bound to show that the observation is limited to no particular department ; but that, wherever certain physical endowments are undoubtedly displayed in animals of whatever tribe, corresponding organs really exist in the cerebral or nervous structure belonging to that tribe. Should it, on the other hand, appear that similar manifestations of animal life, of instinct, appetency, feeling, or tendency to action, exist in any two tribes for example, and that, in one, organs are discovered to which they may be

* Cyclopædia of Practical Medicine, Art. Temperament.

thought referable, while corresponding organs are totally wanting in the other, the very foundation of the doctrine will be shaken ; the universality of the law on which chiefly our admission of its claims is demanded, will be broken, the co-extensive relation of properties and structures can no longer be asserted ; and we shall require some distinct proof arising out of every particular example, before we can be expected to admit the asserted relation in single instances."

In connexion with the above, it may be briefly stated, that the science of comparative anatomy is unequivocally adverse to the theory of the phrenologist. In every class of animals which may be examined for the purpose of elucidating the subject, species will obtrude themselves, at direct variance with the assumption of this connexion between function and its peculiar organ. It testifies, moreover, that the psychological powers and propensities of the lower animals, are dependent rather on their general physical condition, than on the inordinate development of any cerebral organ.

Let it not be imagined that we regard the brain in any other light, than as the organ of the mind. Its being so carefully protected from external inju

ries ; the beautiful provision made for its receiving an abundant and continuous supply of blood ; the means adapted to check the impulse of that blood so that the delicate structure of the organ may not be injured ; its immediate connexion with the nerves which communicate with the organs of sense, yet the greater part of the mass itself being insensible ; every nervous fibre from the most remote part of the body converging as it were to one focus, which is the brain ; are the most powerful arguments that can be urged for its being the seat of those vital phenomena which we designate mind. But we by no means subscribe to the fanciful division of the psychical organs, or the opinion that the relative size of such respective parts determines the powers of the mind. The science to which we have already appealed, the investigations of many celebrated physiologists, and the texture of the brain itself, (which is continuous, and as far as the fibrous part is concerned, uniform), stand equally in opposition to the cherished theory of the phrenologist. Is it not then more reasonable to infer that the whole cerebral mass participates in every mental phenomenon, than to adopt the phrenological theory which has its foundation laid

in a school-boy phantasy, and its superstructure exhibiting the fanciful carvings out of that terra incognita which we call brain, together with the *modus operandi* of each of its integral parts? Besides, the very principle on which Gall has founded his hypothesis, is altogether erroneous. That portion of the nervous matter which is distinguished by its grey colour, is said by him to be the first formed, and to be the matrix of the white or fibrous; whereas, it has been demonstrated, that the order of formation is exactly the reverse, and that some animals even have no grey matter at all in their nervous system.* This is an important fact, and may be the means of greatly assisting the investigations of physiologists, in the functions of this intricate part of organization.

Far be it from our intention to identify the intellectual powers with that higher attribute which raises man incomparably above his fellow-denizens. We have too often witnessed death-bed scenes, to be insensible to that principle which seems to

* The nervous system of *asterias* is composed of white matter only, as is that also of the embryo-chick in its early state. In all *mammifera*, even up to man, the white matter always precedes the grey in its formation.

reconcile the dying man to his impending fate by its apparent desire to quit its mortal tenement: but this subject is irrelevant to our work.

In conclusion, let us glance over a few of the most important causes which originate in the social state, and which appear to have exerted considerable influence in the development of the intellectual faculties. The field thus laid open to us, is so boundless, that no single individual, even by the most assiduous application, can ever hope to attain a correct and just comprehension of its manifold bearings. We have, therefore, substantial grounds for craving indulgence in our attempt to delineate its most prominent features.

Of these, the development of languages is by no means the most insignificant,—on the contrary, it must necessarily have exerted greater influence in advancing civilization, than most other social causes. What the language may have been which was spoken by our first parents, we have no means of judging, although various attempts have been made by tracing the derivation of words in the four most ancient languages we know of, to their primitive roots. Lawrence remarks, in his *Lectures on Man*, that “as the earliest efforts of the infant

are merely sounds of one syllable, so the first adult children of nature stammered out their meaning in the same way. The people of Thibet, China, and the neighbouring southern countries, go on speaking as they learned some thousands of years ago in the cradle of the species." Of this, however, there can be no satisfactory proof, although it may at first appear rational enough to suppose that the earliest articulate language was in imitation of "those different sounds, which nature, in her animate and inanimate form is constantly presenting to our ears." Hence, say the advocates of this hypothesis, as the monosyllabic language represents the cry of nature, so also must it have been that which was spoken by our first progenitors. Historical data might likewise be advanced in support of such supposition, inasmuch as the most widely diffused languages (especially in Asia) are monosyllabic, and those, we have every reason to suppose, the most ancient. We may in this way imagine, as Turner has suggested, "the earliest colonies, when dispersed into little masses of separated population, kept in this state apart from each other, and made to remain so by the rise of dissimilar words or forms of speech

peculiar to each community ; which went on to increase instead of lessening, as the numbers of mankind were multiplied."

Others, (contending that the savage and uncultivated condition of mankind which has usually been designated the state of nature, is in reality a state of degradation from the first social condition which was a high degree of mental culture, and that, therefore that condition should be regarded as the state of nature), infer therefrom that a polysyllabic language might have been originally spoken. On this one point all agree,—that there exists an intimate relation between the language and the intellectual attainments of every community.

Dr. Lang, in his view on the Polynesian nations, has established a threefold division of the languages of the world, viz. the eastern or Mongolic, the western or Caucasian, and the southern or Ethiopic. In the first, which are all monosyllabic, are included the dialects of Eastern Tartary, the Chinese, the Indo-Chinese, the Malayan, and the Indo-American ; now these prevail in the very countries where ignorance and barbarism are the most characteristic features of the inhabitants.

Yet it may be said that the Chinese are a highly

civilized people; true,—but that civilization is more the result of an intuitive knowledge that the stability of their country depends on their union; it is the civilization of bees which owe their safety and quiet to their constant vigilance and union in defence of their common home. It is impossible that a nation can make any advance in literature, when it requires the application of a life's time to arrive at a complete knowledge of the words which compose the language, exceeding, as the Chinese are said to do, eighty thousand in number. To this, therefore, we attribute the stationary position of the Chinese in mental cultivation.

In the second or polysyllabic, are included the Sanscrit or mother tongue of India, the Persian, the Celtic, the Teutonic and Pelasgic, or the stem of the Greek and Latin languages. These latter are all characterized by their poetic fullness and copiousness, admit of representing ideas the most varied without ambiguity, and are, therefore, highly favourable to the advancement of science, which is actually observed in every stage in the different countries, where these languages in their various forms and modifications have been introduced.

The third or Ethiopic division, contains the

dialects of the Africans or south-eastern Negroes, and those of the Papuans or south-western Negroes, or the aborigines of Australia, Van Dieman's Land, and New Guinea.

The Aramean or Semitic branch has been set apart by Schlegel in his *Philosophy of History*, as the tri-syllabic division of languages, from which he infers, that the Hebrew can never be regarded as the root whence all other tongues have sprung. The kindred dialects of the ancient Hebrew are the Arabic, the Chaldean, the Phœnician, the Egyptian, and the Assyrian languages.

These divisions correspond so minutely with the intellectual state of the different nations, that any comment on the connexion would be totally superfluous ; we cannot, however, refrain from remarking the great probability, that if a minute investigation into the various inflections and modifications of the different languages were instituted, a relationship might be established between the particular forms which they have assumed, and the nature of the country in which they may be said to be indigenous, and, therefore, between them and the peculiarity of the prevailing temperament and corresponding civilization of the inhabitants. The

languages of the north, says Douglas, "are those of want; the languages of the south, those of pleasure; the civilization of each took the same bent,—that of the northern nations was to ward off inconveniences, that of the southern nations tended directly to enjoyment; the first sought shelter in secure recesses from the inclemency of the sky, the other admitted the sun and air into their temples and dwellings, and their whole life was transacted amid the freshness of nature, and in the eye of heaven. The plastic and presiding spirit of symmetry shed its influence over the services of religion and the minutest details of ordinary occupation — over the proportions of their temples, and the shapes of their commonest utensils; and the pitcher which was to bring water from the spring, was worthy, in its form, of a fountain consecrated to the Naiads."

From the earliest period of sacred history, the social condition of the human race has ever required the establishment of laws for government and protection. From these first institutions, the various forms of civil rule have emanated, and have contributed to the happiness and well being of man, in proportion as they have been found con-

genial with his peculiar nature. The manifold bearings and remote influences of particular forms of government, lead the mind, by an unavoidable chain of inquiry, to circumstances the most remote and apparently the most incongruous ; hence, it would be an almost endless labour to trace out the mutual relations existing between government and all other institutions of the social state ; for as the condition of the one is determined by the form of the other, so also does the moral state re-act on its first cause, whereby it assumes every variety in its nature, according to the peculiar constitution of the nations which are subject to it.

It is now pretty generally admitted, that the four great nations of antiquity, the Chinese, the Hindoos, the Egyptians, and the Persians, manifested a disposition towards the monarchical form of civil rule, which in every community where it has been established, has appeared to favour the development of the higher faculties, and to bind man to man by the security it affords, the liberty which attends it, and the tendency it displays to progressive improvement in all its institutions. Hence, monarchy has ever been the animating principle of intellect and science. The civilization

of the Chinese is most decidedly political, and discloses a system of ethics to which the ascendancy of their social state owes its preservation through the long train of anarchy and sedition to which that nation has ever been exposed.

The ancient Hindoos, though influenced more by religious than political institutions, attained a high position amongst the nations of antiquity by their pre-eminence in jurisprudence. Influenced, evidently, by the nature of their country, which has ever forbidden the vigorous and energetic exercise of unassisted reason, they have exhibited the powers of imagination in greater force than most other nations, and have exemplified their character in the observance of castes, which are as intimately bound up with their political, as with their religious tenets; and it was only at the decline of the Indian monarchy, that the inhabitants of the country degenerated into a race of Brahminical zealots.

The ancient Persians, during the continuance of their monarchy, from the time of Cyrus to that of Darius, made rapid strides in civilization, wherein they were assisted by their di-syllabic language. Their commercial intercourse with other nations was widely extended, and their political supremacy

universally acknowledged; but influenced by the same natural causes as their more eastern neighbours, they exhibited the same tendency to degenerate into mysticism and ignorance, which was greatly accelerated by the downfall of their monarchy.

The Egyptian civilization exemplified itself during its monarchical form of government, not so much by its power and military fame, as by the great advances the inhabitants of that country made in the physical sciences.

The Semitic nations, whose form of government was pre-eminently monarchical,* lived long in the enjoyment of a high state of mental cultivation; and the monarchies of Europe introduced by the Goths in more recent times, have ever proved the sanctuaries of science. It is from the reign of Augustus only that Rome dates its brightest ascendancy in literature, and the same effects have

* The monarchy here alluded to, is that, which was established by Saul in the year of the world 2909, and which was continued by his successors over the Israelites until the year 3283. The despotic influence subsequent to this, is well exemplified in the Jewish nation for upwards of 600 years, from the time of Cyrus till the destruction of their city by Titus.

followed from the establishment of all European monarchies, each manifesting a modification in its intellectual culture, according to the natural agencies by which it has been influenced.

Schlegel remarks of the republican form of government, that it is, or tends to be, the government of reason, and although an unconquerable hatred towards all kings has ever been deeply fixed in many republics, yet, as the same author observes, "such republican states as those of Greece, founded on faith in the sanctity of hereditary rights, on ancient laws and customs, and attachment to ancestral manners, are to all essential purposes of a kindred nature with a monarchy," the same tendency to improvement is manifest in such social institutions, where, also, full scope is given for the exercise of the higher faculties and virtues as exemplified in the highly civilized state, to which many republican nations have arrived. Who doubts that the republican and independent state of ancient Phœnicia, was the cause of an enlightened population and widely extended colonies? or that the withering influence of despotism has since caused a corresponding degradation in modern Syria? The Grecian states, as we have

before observed, were as greatly influenced in the improvements in the arts of civilized life by the form of government, as by the natural causes consequent on its local position; nor can we fail to recognize, in the Roman republic, the animating spirit of that moral energy, by which that people was so pre-eminently distinguished.

Despotism, on the contrary, is every where accompanied with degradation; the worst and most boisterous passions are roused into action under its blighting influence; and man, even in the same parallels of latitude, where he was once distinguished by his moral and intellectual endowments, under the fostering care of a liberal government, is now degenerated into an ignorant and slothful state of barbarism. The modern Hindoos, who exist under a despotic yoke, present to our view a sad picture of their ancestors, debased to a slavish faith in mystical ordinances: the same fate has been observed in the Persians, as well as the Egyptians, Abyssinians and Moors, whose governments are purely despotic. The despotism of the Dutch has evidently had an unfavourable influence on the morals of the inhabitants of the Molucca Islands, and similar effects have ever followed the

tyrannical rule of all European despots. We may at least collect from the foregoing remarks, that that form of government which most effectually secures the general welfare even at the expense of individual interests, and whose tendency is towards improvement, as well in the arts of civilized life as in the progress of literature, is the form most adapted to the happiness of man; and the adoption of this may be adduced as one great cause why European nations have almost invariably been led to a high state of civil and intellectual culture.

Religion, more than any other social institution, has ever exerted the twofold tendency of linking some nations together in the spirit of peace, and of rousing a warlike disposition in others.

The polytheism of the Hindoos has from the earliest times been a fertile soil for the imagination, which in its various forms has characterized the followers of the Brahminical faith. Transmigration is the key-stone of the arch which has for more than three thousand years been the support of a religion which is so interwoven with their social division into castes, that the souls of their illustrious ancestors are recognised in the bodies of their existing Brahmins. Such superstitious

conceptions, mixed up as they are with an obscure mythology, are but little calculated to favour the development of the intellectual faculties. The temporary ascendancy of Hindoo literature was accompanied with a philosophical polytheism; but the exciting cause being removed, the natural tendency was quickly apparent in the degeneracy of the inhabitants.

The Arabs, who once directed their adoration towards the Caaba at Mecca, have since the time of Mahomet exemplified the hostile disposition of their unitarian faith. Characterized by the most degrading and sensual passions, their successive conquests have exerted an overwhelming influence on the Asiatic, Malay, and African states, to which their persecuting invasions have extended. Mahometanism is but on a bare level, in its civilizing tendency, with the Fetish adoration of stocks and stones, which, throughout Nigritia, is blindly observed by the slavish martyrs to magical rites. Shamanism, like the other false religions to which we have alluded, has, like them, been highly unfavourable to the advancement of science.

“ The American savages, like the Africans, had no great or fixed system of superstition; but rude

as they were, they were more thoughtful (*from their peculiar temperament*), and had a deeper impression of a future state. The spirits of the deceased ancestors peopled a world of shadows, and the great spirit, mindful of the living and departed, extended his care over both. When their tribes assumed the consistence of a state, the sun received an established worship at Natchez and at Peru; and the mythology of Mexico was modelled after the same principles as the polytheism of Egypt and ancient Europe.”*

The idolatry of the Goths and Celts, like that of the Greeks and Romans, which consisted in an adoration of the elements and the apotheosis of men, seems to have impressed these different nations with the peculiar colouring of their civilization, which, in thought, word, and deed was purely mythological.

Christianity is the bond of peace and love. “Government founded on Christianity,” says Schlegel, “is on that account limited, and is consequently in its very nature abhorrent either of tyranny, despotism, or faction. Christian government, moreover, inclines strongly towards monarchy, where the sacred person of the king, the

* Douglas, Op. cit. p. 199.

spirit of his administration, confidence in his person, attachment to the hereditary dynasty, which form the basis, the animating principle of the social system, is the peculiar feeling." In speaking of the influence of religion, the same author observes, that, "of the eight or nine countries in which Protestantism has obtained a firm footing, and acquired a permanent existence, there are three in particular where it has been attended with mighty historical effects, and where the originally destructive conflict of hostile elements has given birth to three new and momentous phenomena in the history of mankind. These are, in Germany, the religious pacification, which forms the basis of her future prosperity, stamps the peculiar character of the German nation, and designates its future moral destiny : in England, the highly valued, or, as it is there called, the glorious constitution of 1688, whose mere outward form, or dead letter, has been an object of desire to so many other nations : lastly, in France, the revolution in philosophy, produced by the *indirect influence of Protestantism*, and the combination of so many Protestant, or semi-Protestant elements, and which gave birth to a frightful political revolution, which, after a short

intervenient period of military despotism, has been succeeded in its turn by a mighty epoch of moral and social regeneration, which, indeed, has not yet been consummated, which is still in a state of precarious and convulsive labour, but is even on that account the more entitled to the historian's attention."

We trust enough has been said to prove that religion has exercised an immense influence on the civilization and literature of the great community of mankind; and while its effects have been characterized by intolerance, barbarous cruelty, and persecution on the one hand, the noble faculties which stamp the divine impress on civilized man, are evidences of its operation on the other. How these great causes have been themselves influenced by all other social agencies is a question which is altogether irrelevant to our subject, and we confess ourselves wanting in the ability to approach so vast an inquiry; but we doubt not that the numerous channels of religious opinion, like the waters of a river which are tainted by the confluent streams, communicate the characters they have received from the prejudices of the nations which compose

them, to the great streams, whose directions or tendencies we have attempted to point out.

In the determination of the moral and intellectual qualities of man, many other modifying causes might be adduced. One example we give, to show how science may have re-acted on itself by the means it has acquired for the prolongation of human life: the efforts which have been directed towards the attainment of this great object have been attended with far greater success than is generally imagined. It is ascertained by the most accurate statistical tables that can be constructed, that in the great community of England, France, and Germany, the average term of mortality was formerly one in thirty people annually, whereas at present it is not more than one in thirty-eight, by which it is computed that the number of deaths throughout these countries is reduced from 1,900,000 to less than 1,200,000; hence 700,000 lives annually owe their preservation to the social ameliorations effected in those three countries only.

To those who may be desirous of extending their inquiries into the effects of the social system as it is now constituted, the elaborate work which has

lately emanated from the pen of M. Quetelet will afford the most perfect information. The faculties, sentiments, and propensities of civilized man are there reduced to a state almost amounting to mathematical demonstration. From his investigations it would appear that the intellectual faculties are alone progressive, and that all other attributes of man which are not founded on science are essentially stationary, and their laws of development immutable. Now, as the moral sentiments are necessarily influenced by the advancement of science, it follows that the development of the one is in direct ratio to the development of the other; so that, as the faculties expand, new sentiments are acquired, and a new world unveils itself as the physical man is lost in the splendid endowments of the intellectual. Finally, the propensities either towards virtue or vice are equally attributable to the social state: great events are accompanied with great actions; and, with respect to vice, M. Quetelet has deduced from the most extensive observations, that the same number of crimes are annually re-produced with such constancy, that it is impossible to escape observation; even those crimes which at first sight appear likely to be least

dependent on human foresight, such as murders, seeing that they are generally committed from spontaneous strife, and apparently owing to the most fortuitous circumstances. Nevertheless experience shows that not only murders occur in like numbers, but even that the same proportions are observed in the instruments with which they are committed ; much more, then, must crimes which are perpetrated consequent on forethought be reproduced with regularity, because the same causes are in constant and unvarying operation. In consequence of crimes being thus annually committed with such frightful regularity, it is inferred that the cause resides in the constitution of our social organization, or, in other words, that society prepares the crime, and that the guilty transgressor is but the instrument which executes it. This is a degrading picture of humanity ; but inasmuch as it bears with it the consolatory assurance of a diminution of crime in proportion as our social institutions advance towards perfection, it admonishes the legislator relative to the solemn duty which is imposed on him, and points out to the subject the means of assisting in the great work of social amendment, which will be most effectually ac-

complished by diffusing through all grades of society every means of intellectual improvement.

We have, finally, to make a few observations on some other varieties in the great family of mankind besides the six which have been delineated in a former part of this treatise ; the most paradoxical of which are the Jews, who appear to present a stumbling-block to all speculations on the modifying agents which we have alluded to.

The fact of their having so tenaciously retained their physical characteristics in all countries through the lapse of a long series of years, is undeniably a most important and extraordinary circumstance ; yet that it should be one of the "*opprobria physiologiæ*" is not so clearly established. We have already observed that a white and a black race of Jews are found in Cochin ; this, then, shows that climate has exerted its influence on their colour. It has been observed, moreover, that the social condition of man may have great influence over his physical characters,

and this influence appears to be well exemplified in the Jews. Blindly attached to certain habits and customs which their forefathers have handed down to them, they have ever adhered thereunto with unshaken constancy and fidelity, and although at the present day they are scattered abroad throughout all nations, and have everywhere been oppressed and persecuted (until lately that France has allowed them the rights and privileges of citizenship, and other European nations tolerate and protect them), they have ever kept, and still continue, in an isolated state, with all the prejudices of their ancestors, and with the vain expectation of their forthcoming Messiah. With such immutable attachment to the same observances and opinions, it seems not so surprising as at first sight appears, that they should also retain some physical characters of their progenitors. The degrading tendency attributed to despotism and persecution in the foregoing pages can scarcely be expected to influence the Jew, who, although in all places the subject of such rigorous treatment, is nevertheless isolated from the community of which he forms a part, in manners and customs, in religious opinions

and observances, in his usual habits of thought, in food, and in every thing except climate, that is capable of modifying the moral and physical man.

The peculiar tribes who, under the denomination of Gypsies, have spread themselves abroad throughout all the nations of the old world, and have preserved their original bodily peculiarities with various degrees of purity, according to the countries in which they live, deserve some notice here. They themselves refer their origin to Egypt; but as they are looked on by Egyptians as foreign to them as they are by us, and as their habits are entirely different, their language, moreover, having no affinity with that of the Coptic, but bearing a great resemblance to the dialect spoken on the banks of the Indus, it is now generally believed that they originated from that source. They first appeared in Germany, at the beginning of the sixteenth century, and have since that time gradually diffused themselves over Europe. These roving tribes are noted only by their thievish propensities, their indolent disposition, and their uncultivated understanding.

Two races next present themselves, whose pecu-

liarities unquestionably arise from local circumstances ; we allude to Albinoes and Cretins.

The Albino or Leucæthiope, is characterized by a perfectly milk white skin, white silky hair and rose coloured eyes, although the countries in which he is generally found are those which we have noticed as favouring the development of the black colour. This fact, however, may be adduced in confirmation of our views relative to the black colour. It has been stated that the capillary system in tropical countries is most energetic in its functions, and like all other systems of organs, when preternaturally excited, it is the more exposed to morbid action. The intellectual as well as the physical powers of man (like an overworked machine) when overstrained, rapidly give way, and so it appears to be with the functions of the capillaries ; hence, it is generally in equatorial countries, as in Africa ; the Isthmus of Darien, Brazil, Sumatra, New Guinea, &c., that Albinoes are common. Their corporeal constitution is feeble, and a corresponding weakness is observed in their intellectual capacity. Their eyes are so sensible, that at mid-day they are incapable of bearing the sun's rays, and it is only towards night that this crepuscular race can

venture out. Too feeble to oppress, they are themselves the objects of oppression. Voltaire imagined that a nation of Leucaethiopes existed in the centre of Africa, whose corporeal as well as mental degeneracy established a class of beings, well fitted to fill up the void between man and animals. The idea is too preposterous to be entertained; Albanism evidently depends on the non-secretion of the pigmentum nigrum, to which secretion, coloration is unquestionably entirely owing.

Cretins are characterized by large heads, large eye-lids, thick lips, flabby flesh, a yellow cadaverous hue, and short stature. With this physical deformity, there is great obtuseness of sensibility and of intellect. The dreadful disease, of which the foregoing characters are the effect, is endemic, and confined exclusively to those valleys which are surrounded on all sides by extremely high mountains; hence, Cretins are common in the Alpine valleys. Various opinions have been entertained relative to the cause of Cretinism. Some authors attribute it to the water which is almost entirely the produce of melted snow. The great objection to this opinion is, that the mountaineer who depends on the same source, is never known to ex-

hibit symptoms of the disease ; on the contrary, the elevated situations are the most effectual in restoring persons affected with incipient Cretinism. It has also been observed that where Cretins abound in the valley, the morbid characters disappear gradually as they inhabit higher situations on the mountains' side, so that a graduated scale may be observed, both in corporeal deformity and in intellect, from the valley upwards. Messieurs Sansure, Fodéré and Esquirol attribute Cretinism to the atmosphere, which is said to contain less oxygen, and a larger proportion of carbonic acid and other deleterious gases in those confined valleys. This opinion is not free from objections ; it is, however, satisfactorily ascertained, that within the present century, Cretinism is less frequently seen than formerly, and there is every reason to believe that as the Alpine inhabitants advance in civilization and knowledge, the progress of their intelligence will be marked by a still greater diminution, if not total disappearance, of this dreadful malady.

APPENDIX.

NOTE A. Page 58.

PROFESSOR Lawrence has with great learning determined, as far as osteological proof can determine, the Caucasian origin of the Egyptians. "It is now," says he, "clearly proved, yet it is necessary to repeat the truth, because the contrary error is still found in the newest works,—that neither the Gallos (who border on Abyssinia,) nor the Bosjesmen, nor any race of Negroes, produced that celebrated people who gave birth to the civilization of ancient Egypt, and from whom we may say that the whole world has inherited the principles of its laws, sciences, and perhaps also religion." *Nat. Hist. of Man.* — In a subsequent passage he states that "By examination of the bony head, we learn that the Guanches also, or the race which occupied the Canary Islands, at the time of their first discovery by Europeans, in the fourteenth century, belonged to the Caucasian variety. My friend, W. P. Jorden, Esq., has kindly furnished me with the dimensions of the heads of ten mummies which he found at Quorneh, Thebes, when he visited that place on the 29th of

October, 1831 ; the different measurements of which fully justify the conclusion of the Caucasian origin. Mr. Wilkinson, in his work on Egypt, thus expresses himself respecting the ancient Egyptians: " It will not be without benefit to those who still adhere to the notion that the Egyptians were black, to observe the distinction maintained in the colour of the faces of the Negro, Ethiopian, and eastern captives represented at Aboo Simbel, and to compare them with that of the Egyptians, who are here, as on every other monument, of a red complexion, not even approaching the copper hue of the Ethiopians." Now as these representations relate to Rameses II. who ascended the Egyptian throne 1355 years before the Christian era, which was upwards of eight hundred years from the foundation of the monarchy by Menes, which monarchy was preceded by a long continued hierarchy ; the Egyptians may have acquired their characteristic hue at the time alluded to by Wilkinson, and yet have been the descendants of the tribes which originally migrated from Asia Minor. This supposition is strengthened by the character of the countries, in the course of their migration, which must necessarily have been an uninterrupted tract of luxuriant pastures, as proved by the situation of those cities whose ruins are now the chief monuments of the high state of civilization to which the inhabitants had risen, as well as of their advancement in the arts and sciences. It is probable that they were incited onward by the increased supply of natural productions, which allured them forward at every step, till arriving

at that situation where, (as Douglas so eloquently expresses himself,) "The Nile itself does the work of the plough and the harrow, manures the ground, covers the seed, and leaves but the work of harvest for the husbandman, and is the true Ceres and Triptolemus of antiquity, the first indicator of culture, the inventor of tillage, and the bestower of corn." Here they founded their immortal cities, and here would they be most exposed to the demoralizing influence of degenerate tribes from Arabia on the one hand, and Ethiopia on the other. By this means we may reasonably account for the moral, as well as the physical characters of their descendants, as exemplified in the modern Copts.

NOTE B. Page 107.

The influence of climate in predisposing the human body to certain forms of disease, must be obvious to every careful observer, and is often made to cover our ignorance in accounting for the occurrence of endemics and epidemics. What, for instance, is more common than to attribute to atmospheric influence the prevalence of any particular affection? — sometimes we grant, with great reason, e. g. marsh miasma is known to cause fever, and when tropical heat is combined therewith, that affection is generally complicated with bilious disease. With equal evidence may the

affection known by the nature of tropical dysentry be attributed to the same cause. Local inflammations are of very frequent occurrence in those situations where the sanguine temperament prevails. In cold, damp countries, where the lymphatic temperament prevails, all morbid actions of the body assume an indolent chronic form, — this has long been noticed in Holland. Cutaneous diseases are extremely common amongst those nations where the capillary system of the integuments is most active, and in our own latitudes those diseases are generally the result of exposure to the ardent heat of the sun's rays. But when diseases, like the scourge which has lately visited our own island, occur with equal violence on the banks of the Ganges, and on those of the Volga, on mountains, and in valleys, in a damp atmosphere, and in that which is dry, in summer and in winter, observing no laws which are known to affect other diseases, yet gravely accounted for by men whose habits of philosophical contemplation should guard them against such unfounded assumptions: we can hardly suppress the idea that they, like Ralpho, —

————— Feel the pulses of the stars,
To find out agues, coughs, catarrhs,
And tell what crisis does divine
The rot in sheep, or mange in swine.

It is not our intention to deny the influence of atmospheric causes in predisposing to this disease, but certainly no data exist for referring it to that cause so unequivocally as some medical writers have done.

NOTE C. Page 161.

It would be highly interesting to ascertain the exact relation which exists between the animal and vegetable worlds, more especially between the nature of the latter and that of man. It has already been observed, that in those situations where a luxuriant vegetation prevails, man acquires his greatest development, — that where the spontaneous productions of the soil are characterised by an edible, bland and nutritious nature, man is inoffensive and humane ; but that where such productions are rank and acrid, he is savage and barbarous. The analogy, we apprehend, may be extended yet farther. In the Polar regions, where a stimulating diet is required to maintain a high degree of animal heat, the elaborated juices of the principal part of the vegetable productions are of a stimulating and resinous character : — e. g. the Kawie of New Zealand, the gigantic pines and the larch of the northern parts of America. That part of vegetation which may be said to be almost exclusively tropical, is characterised by certain properties which appear to depend on evaporation of the inert watery portion of the juices, whereby an acrid or aromatic secretion (as local circumstances may determine,) remains. In moist and unhealthy situations, the acrid and poisonous plants are found, e. g., the poisonous umbelliferæ of Africa, the stalagmitis, the euphorbium and croton of South America, and the upas of Java ;

even the juice of the bread-fruit tree is said to have a poisonous juice, when growing in unhealthy situations; but in healthy localities the aromatic principle prevails, as in the nutmeg of Malacca, the cinnamon of Santa Fé, and the guava of India. It is also in the above regions that the capillary system of man exudes an abundant transpiration, which has a more acrid odour than that which is secreted in more temperate latitudes. In temperate zones, where man is robust and vigorous, the oak, velonia, betula, walnut, and such like trees of robust nature are found. Many of these, it is true, extend to the tropics, and far towards the poles. Our object, however, being to show the most apparent analogy between man and plants, we can scarcely find more apt illustrations than in the moist localities of the hot and temperate regions. Heat and moisture combined, favour the growth of acrid and succulent plants; damp and temperate countries produce bland succulent plants, such as the butomus, and many orchises of America, and the cellular mosses which are so abundant in damp situations of Europe. Now the melancholic temperament bears about the same relation to the choleric, as does the lymphatic to the sanguine; both are characterized by increased humours. In America, (especially in the hot and moist parts of it, where the rank vegetation prevails,) the melancholic appears in the purest characters; and in the moist countries of Europe, as in Holland, the lymphatic temperament characterises man. There are yet other circumstances

which modify both vegetation and man. In highly civilized countries, where the former is maintained in an artificial state, and is consequently of a more irritable nature, the latter is characterised by his tendency towards the nervous temperament, and displays great susceptibility to external impressions.

NOTE D. Page 163.

The power of generating animal heat in cold climates seems to depend in some degree on the organs of respiration as well as on those of digestion; hence although a heating diet may favour the accumulation of heat, yet the quantity of air respired would seem to have almost an equal influence. Dr. Edwards has determined by experiment that animals confined at a low temperature, consume more air than those confined at a high temperature, and therefore that in all animals there is a correlative proportion observed between the quantity of heat produced and air consumed by respiration. Thus an inhabitant of a hot climate being suddenly transported to a cold one, his power of generating heat would be too feeble; whence an excited respiration would be produced. On the other hand, an inhabitant of a cold climate, transported to a hot one, heat would be generated too quickly; whence the salutary effect of a free transpiration, which is observed in those Europeans who bear up

well against the heat of the tropics. There is thus a sympathetic action kept up between the integumental covering and the mucous membrane lining the air cells in the lungs, as we have also shown to exist between the skin and the mucous membrane of the intestines, and which is also observed between the skin and the kidneys. It is this sympathy, we apprehend, which renders the nature of man so accommodating to those external physical agencies against which the lower animals of less flexible dispositions are unable to combat. Man will often pass with impunity, from hot to cold climates, his lungs being capable of resisting the atmospheric influence consequent on such change, whereas the lower animals, as we daily see exemplified in monkeys, which are exposed to similar changes, are affected with pulmonary disease and die. Few quadrumanous animals are examined after death in this country wherein a tuberculated state of the lungs is not detected. We have also good reason for believing that a stimulating diet affects the capillary system of the integuments, and that heat is generated as well at the tegumentary extremities of the vascular system as in the lungs. Sir J. Ross states, that when a person has fed on the stimulating flesh of bears for a few days, his cuticle peels off, and he is better able to sustain extreme cold. This phenomenon must of necessity depend on an excited state of the capillaries, the first step towards coloration.

NOTE E. Page 184.

Schlegel identifies in his Philosophy of History, the four principal nations of antiquity with four of the preponderant elements of the human mind, referring the peculiar character of each state to the modes of life and constitution of the inhabitants.

The four great mental endowments enumerated by him, are reason, imagination, understanding and will. The Chinese, whose primitive philosophy was based in a system of ethics deduced from sacred tradition, disclosed a tendency towards the exercise of unassisted *reason*, which developed itself in the worship of a Deity and the formation of a monarchy : in which social state they existed till Chi-ho-angti, by a blind adoration of nature instead of nature's God, laid the foundation of that erroneous system of idolatrous paganism which has since existed. The operations of the human mind in the ancient inhabitants of the Western Peninsula showed themselves in the mystical faith of Polytheism as manifest in the doctrine of transmigration ; Brahma, Vishnoo and Siva are the Deities wherein the primitive Hindoos indulged their illusive *imagination*, which was and is still, so predominant, that our author has attributed it to them as a fundamental constituent of their character. The third mental endowment enumerated, has been made the characteristic attribute of the ancient Egyptians. Possessed of an organization adapted to the perception of hu-

man science, their *understanding* displayed itself in the gigantic strides which that nation made in the physical sciences; while the Hebrews constitutionally preserving and combining therewith great patience and resignation, manifested an immense development of the fourth element of mind (*will*) in their perception of divine truths. Now as the primitive history of these four nations exemplify the agency of local circumstances in modifying the intellectual capacity, we deem the above highly important as illustrating the agreement of physiological reasoning with historical facts.

