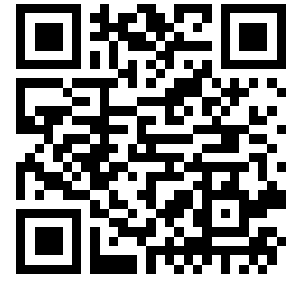

ANTHROPOLOGIA:

OR,

DISSERTATIONS

ON THE

FORM AND COLOUR OF MAN;

WITH INCIDENTAL REMARKS.

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TO

ALEXANDER MONRO, JUN., M.D. F.R.S.E.

PROFESSOR OF ANATOMY IN THE UNIVERSITY OF EDINBURGH, &c.

THESE DISSERTATIONS

ARE RESPECTFULLY INSCRIBED;

AS A MEMORIAL

OF THE PLEASURE DERIVED FROM DISCUSSING WITH HIM

THE SUBJECTS OF WHICH THEY TREAT;

BY HIS HUMBLE SERVANT,

T. J.

Manchester, March 25th, 1803.

PREFACE.

THE laws of the animal economy, so essential to be known by the physician, and in many instances so interesting to every one, have not, perhaps, at any period of the world, received their merited attention. Particular facts have been discovered and examined with much ability; but first principles have, in this department of science, been greatly overlooked or neglected. Theories of medicine indeed abound, but they are more remarkable for folly than for ingenuity; they have their foundation in a few facts, which are commonly met and opposed by others; the fundamental principles of things are seldom sought after as the basis of these facts.

Though the subject of the present Work cannot be regarded as medical, yet it has a relation to medicine; and is, in the Author's apprehension, a branch of the animal economy essentially requisite to its promotion. But notwithstanding this opinion, the promoting of medical science was not the motive which gave birth to these Dissertations; but a desire to remove every unwarranted prejudice against the person of the negro; and to call the attention of parents to those means by which the beauty and strength of their offspring may be improved.

That these Dissertations are imperfect, and in some instances incorrect, will not be denied. They may be so; but such an apprehension does not appear a sufficient ground for withholding the whole. And besides, they are promised to the public in the Preface to the *Dissertations Philosophical, Physiological, and Political, on Man,* in answer to Mr. Malthus's *Essay on the Principle of Population.* It was there stated, that should that work receive any countenance from the public, other Dissertations would be sent to the press. That attention has been given, and the Author now proceeds to the fulfilment of his promise.

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INTRODUCTION.

NO subject is more interesting to man, than man. Philosophers in every age have enquired into the powers of his mind and explored the feelings of his heart, and the more these have been investigated and ascertained, the greater has his native dignity appeared; the more elevated and distinct his rank in the scale of creation. But some men of distinguished abilities, while they feel and acknowledge this sublime truth as it respects particular countries, deny it as a general fact, and say there are as many species of men, as there are varieties in shape and color. To enquire into this assertion, is the object of the following Dissertations.

If, as these gentlemen contend, there are more than one species of men, the history given by Moses is false, for children of the same parents are necessarily of the same species. But I am unwilling to shelter myself behind, what some would call, the prejudices of my countrymen in favor of the authenticity of the Old Testament, and therefore shall examine the subject, as if it stood unconnected with revelation.

It is not recorded in what age of the world the human race began to assume a personal difference; history is silent on the subject: nor do we know the time it has taken to acquire that suitableness, that adaptation of constitution to the climate, which is manifested by the people of every country. As far back as we can go, the same contrariety of color and of features, the same fitness of constitution to regions the most opposite in their temperature, existed as at present. Isaac knew his son Esau because he was hairy, but we do not find that the distinction was propagated; it is however a proof that,

while

while yet the source of life was uncorrupted by excess, uncontaminated by hereditary disease, a personal difference existed: children might then have been expected to resemble their parents as precisely as the young of wild animals do their dams and sires; that this was not the case, leaves us without a doubt, that the person of man was destined by the Creator to be various in appearance without any diminution of dignity.

The mummies of the Egyptians, and the description given of that people by Herodotus, compared with the existing inhabitants, prove them to have been of the same stock; they have their national characteristics which at an early period were formed, and they were then, as they doubtless are now, adapted to the climate of the place. At a period also very remote from the present, we read of the Scythians possessing established characters and constitutions fitted to a climate the very reverse of that of Egypt.

It is extremely probable, that, before luxury engendered delicacy, the constitution of a people became assimilated to a climate with much greater facility than at present; hence emigration appears not to have been dreaded in the early ages. Assimilation to a climate implies, a skin of a color proper to it; blackness is proper to Africa, it was early imposed and became a proverb. The Greeks were acquainted with the persons of the Africans, but they learned to degrade them. "Dinias was waited on by one of those Ethiopian slaves who are purchased by the rich at a great price, to distinguish themselves from other citizens." *Anacharsis*, v. 2, p. 51.---The great monarchs of antiquity, situated in the bosom of Asia, were familiarly acquainted with the extremes of the human color; the scorching plains of Numidia produced the one, and Mount Caucasus the other.

But, though every leading variety that exists in the human race has been long known, it has but lately been insinuated that one nation of men were inferior to another. To be a barbarian was the lowest state of degradation to which the polished states of antiquity ever considered the human race could descend. They reproached a people for being ignorant, but personal peculiarities they regarded as the effect of climate, and by no means made these a test of humanity. "Afri versippelles. Græci leves Galli pigrioris ingenii: quod natura climatum facit." *Servius Com. in Virg. Æn.* iv. 724. "Athenis tenue cœlum ex quo acutiores etiam putantur Attici: crassum Thebis, itaque pingues Thebani et valentes." *Cicero de fato*, cap. iv.

"quod si
"Judicium subtile videndis artibus illud
"Ad libros, & ad hæc Musarum dona vocares;
"Bœotum in crasso jurares aere natum."

Hor. lib. 2, epis. 1, lin. 241.

To

To these we may add the testimony of Herodotus, who says, the Colchi were formerly black, with frizzled hair, which he relates as a thing well known, rather than a bare report. The Colchi are the people we know by the name of Circassians, and celebrate as exquisitely beautiful and delicately fair. To transform a negro into so lovely an object, at least, supposes that Herodotus did not doubt the common equality of the black with other people. But the knowledge of the ancients did not extend to some nations of Africa with which we are acquainted,--they knew not the people of the Gold Coast; and as their information was more limited than ours, their opinions might be erroneous, and I am willing to set aside all that the ancients thought, as well as all that the bible reveals, and to hear impartially the reasons on which some Modern Philosophers found their opinion, That the human race cannot all have sprung from a common origin.

I do not know that these arguments are any where better stated than in a publication by Mr. WHITE, entitled *An Account of the regular Gradation, &c.:* in which the learned and ingenious author endeavours to trace a gradation through the works of nature, and more than insinuates that a negro, in mental and corporeal endowments, is little superior to a baboon; or, in other terms, that a monkey is the diminutive of man. A connexion thus intimate, renders it difficult to point out what they have not in common. If the negro resemble an oran outang, an European resembles a negro: if such be man, to what can he aspire? or rather, to what may he not sink? By thus degrading one part of the human race the whole are degraded. Our author, in prosecuting the subject, examines anatomically the structure of a negro, and makes it even in this respect the middle point between an European and an ape.

I am not designing an answer to Mr. W. more than to other opposers of the equal honor and the equal rank of men; but I shall, in its proper place, notice this and every other argument drawn from the person of the African to attest his degradation.

It is, I believe, an opinion, to which common consent has given currency, that the works of nature constitute one vast chain, which commences with inorganic matter, as a clod of earth, and ascends to the throne of Deity, gaining beauty and perfection as it advances. But common consent is not a test of truth, and when a theory is built upon it which involves the dignity of man, it is proper to examine the foundation on which it rests. Perhaps the beautiful harmony which the naturalist has discovered in the works of nature, the order of the whole, and the fitness of each part to its designed end, may have given to a warm imagination the idea of a chain: it is easy for such to conceive of one substance rising above another by regular but almost imperceptible degrees, till man terminates the series; but in this view of the subject he loses the image of his Maker, and is placed as the perfection of the brute. The links of a chain lay hold on each other, and bear an intimate con-

connexion and resemblance; that species of men which embrace the brute, and is hand in hand with them in the order of creation, cannot be much unlike them. From this idea of a chain Mr. W. takes his measure of the human race; this is the foundation of his philosophy. There is another idea, but which is kept out of sight by the supporters of this doctrine, but it appears to me to have given this subject much of its interest, and all its practical importance---I mean, slavery.

When the Spaniards had desolated the new world, they sought an apology for their crimes, and affected to find it in the inferiority of the natives; they applied to the pope for a bull to declare them such, which however was refused; and until Le Casas pointed out the Africans as more proper for slaves than the Americans, they were considered as the lowest race of men. The commission of crimes pervert the judgment. As soon as the Africans were purchased as slaves, their inferiority was spoken of, they were declared to be less than men, and the Americans were relieved from part of the obloquy which had been thrown upon them. Since that period many attempts have been made to confirm that opinion, by Spanish, French, and English Writers; and the theory of gradation is that from which it has derived the greatest support; for if there are many species of men, who observe the same laws as are generally thought to obtain in nature of a superior and an inferior, a stronger and a weaker, a complete and a more imperfect,--it cannot be unjust, it cannot even be unkind, to draw the bonds of obligation and servitude closer in the inferior than in the higher orders. And if the theory of Mr. W. be well founded, that the European is at the top and the African at the bottom of the scale, the dependence of a slave cannot degrade an African, when an European is constrained to be a servant.--- The nations of antiquity did not consider the sale of men as dishonorable, and therefore did not seek an excuse for it, or they might have made use of the same plea we do, and even against our own progenitors. The Phenicians traded to Britain for slaves, for bull-dogs, and for tin;* and at that period we were as uncivilized and stood no higher in the rank of men than Africans do now: we were then, in the view of those who purchased English slaves, what the Africans are to those who purchase them.

It may not be improper, before I proceed any further, to repeat, in a few words, Mr. White's theory. It is this: The negro is a man, but of a nature essentially inferior to an European. The gradual manner in which one order of beings, or of substances, approaches and is confounded with the order above them, warrants a belief that at some point the brute creation is connected with the human; and from an anatomical investigation, aided by other considerations, it is proved that that connecting point is between the negro and some of the larger species of the monkey.

* Robertson's Hist. of Charles V. vol. 1, p. 400.

Such

In the view I take of the subject, no chain can be traced as the order of nature; her works are never incomplete; the present is not an improvement on the past, for she is not instructed by experience, nor does she depress and humble by marks of inferiority; her object is to benefit. A column is not built, of which man is the pedestal, surpassing the other parts only in execution, utility is the basis of her plan: the whole circle of nature is reciprocally beneficial: there is dependance without rank, usefulness without honor: one vast whole is constituted, of which the head cannot say to the foot, I have no need of thee. In erecting a house, various materials are employed; they are essential to the building, but independent of each other: where is the analogy, where the link, between wood and lime? in their nature they are distinct, but their assistance is mutual. Among intelligent beings we are informed there is rank, but here a new order commences, for dependance ceases: some are more perfect and more pure than man; they are our superiors, but they are not an improvement upon us; they are not linked to us; they were created for a given purpose, and would be what they are had man never existed.

Taking a glance at nature, we are struck with the idea that a vegetable is superior to a stone, that an animal is more complete than a vegetable, and that man is the head of this part of creation. But this view points to no chain; it shews no relation, but the reverse. A vegetable is an organized body, a clod of earth is not organized: vegetables are the means of subsistence to animals, but where is their dignity? The earth will be consumed and they will perish: they rise in utility, but not in rank. The life of an animal is its blessing; and as many possess this gift as can exist, for all the spontaneous productions of the globe are consumed by them; but look to their end, and are they then more perfect than a clod of earth? The life of a vegetable, and the life of an animal, constitute their superiority; the mere form and shape of matter confers no honor. If this be the chain, it is peculiarly short; it has two links. I should go beyond the materialist, and add a third, the faculty of reason. Having our eye on the whole at once, we are judges of its strength, and where is it? Who is bold enough to pretend to understand the nature of the living principle?

But not to insist on such arguments, let us give in to the more popular doctrine, That there does exist a scale of gradation in the kingdoms of nature. And let us endeavour to ascertain its truth, by discovering the links which unite each other.

As a point at which to commence, I select the most perfect mineral, for there must be such if there be a gradation, and I ask which it is? Is it that which is the most beautiful, or the most abundant? or that which most contributes to the wants of man? Is it a metal, or a stone, or an earth? Shall we say stones are formed of earth and metals of stones, and that thus the chain is carried on. It would be far from correct so to speak.

What

What we call earth may have been stone which has been comminuted and broken down by the hand of time or the art of man, and metals are distinct from both, but not more perfect or more useful. The mineralogist, with immense labour, has classed the whole mineral kingdom; but in looking over his catalogue we are unable to discover the most perfect from the most rude. A lump of clay or a piece of flint seem without excellence, but the most splendid and costly gems are composed of these earths: what are sapphire, and ruby, and onyx stones, but clay hardened in the bowels of the earth? what is a diamond but an oxide of carbon, a mere modification of charcoal? If, on the other hand, we endeavour to find the highest and most perfect link, our eyes are cast at once on the metals, but they are not more like plants than stones are, and their intrinsic value is less: stones assist in vegetation and contribute to our wants, metals add to our pleasure or lessen our toil; the one is necessary, the other convenient.

Baffled in attempting to find a point at which to commence the chain, to carry it on link by link through the kingdom is impossible. To assist us, shall we say there are perfect and imperfect earths, and stones, and metals; those we denominate such are composed of different substances blended in one mass; let each be separated, and it is perfect of its kind: there is no imperfect earth, no imperfect metal. A stone may be mistaken for another substance, or another substance for a stone, but ignorance must not be allowed to stand in the place of knowledge. In the hands of a chemist, the resemblance of one mineral to another is destroyed, and this part of the chain is broken by his art; in the crucible they assume their true and proper characters; and notwithstanding the seemingly endless variety in which they are found, they are here all reduced to less than thirty metals and twenty earths; and it is not improbable but that these, in their elementary parts, are the same, and owe their variety to the proportion, and not to the nature, of their composition. Should this be the case, every other idea of a chain must be given up.

If from the mineral kingdom we turn to the vegetable, our difficulties are not lessened: the most minute and creeping plant, the tall and stately tree, "the hyssop on the wall and the cedar of Lebanon," all draw their nourishment by the same means from the same source; all have the same internal structure, the same mode of existence, and the same termination of life; each in its turn withers and dies. A tree, by the naturalist, is placed before a shrub, and a shrub before a herb, but on what is the tree's superiority founded? It is not on its size, it is not on its structure, it is not the most beautiful, nor is it the most useful of vegetables. Plants and herbs supply the means of subsistence to man and beast; and even the eye is not satisfied by constantly beholding the sullen, unvaried gloom of the forest, but turns from it to contemplate the smiling verdure of the plain, more beautified by variety if less sublime. The leaf, and in some instances the fruit, of vegetables resemble each

each other; as the currant and the grape, the peach and the nectarine; and by this apparent gliding from one species to another, this mixture and resemblance of properties, the chain of the gradationist is forged, but it is not easy to discover any circumstance which gives precedence; caprice may imagine it, but caprice is not governed by truth. I know of no connexion, no dependance, each is a whole of itself, deriving no aid from the other and yielding none: the peach would flourish if there were no nectarine, and the grape if there were no currant: no one would infer the existence of one by a knowledge of the other, and the chain would not appear broken did neither exist. A distinction in the properties of vegetables does not arise from an original difference in the sap; for, as it is received by the roots, it is in all the same; but as it is elaborated through the vessels proper to the plant, it enters into new combinations, part is retained and part rejected, and thus one vegetable becomes poisonous and another salutary. We are ignorant of the precise process by which this is effected; we know not by what means the same materials are rendered subservient to different purposes; now producing wood, then leaves, then blossoms and fruit; here an oak, there a reed; but we are certain of the fact, and that the principle is common to all vegetables, which greatly militates against the theory of gradation, and limits the rank of plants to their usefulness, which is not a natural but an arbitrary distinction.

But, setting aside the principle, we are still bewildered and lost, and without the capacity of pointing out a single link. Which of the trees of the forest is the inferior—would bow to the other? and ought a plant of wheat to be considered as beneath them? Has not every vegetable a right to claim pre-eminence,--for usefulness, for beauty, or for hardiness? One grows where another cannot, another grows more luxuriantly. Were there a real gradation from a mineral to a vegetable, and from a vegetable to an animal, a botanist would be acquainted with it, and would be gratified in tracing it out; but I do not know that he has made the attempt.

The same general observations that apply to vegetables, apply equally to animals. Existing under many varieties of form and size, each individual possesses a degree of instinct suited to the supply of its wants, and to guard it from danger. "To draw nutrition, propagate, and rot," is the whole business of their existence; none does more, and none less. The wine fritter, on the stems and leaves of our garden plants, discharges the duties of its life with as much sagacity as the elephant; indeed, all insects are compensated for a want of strength in a quicker perception of danger, and a greater skill in providing for their wants. Among animals there are many genera, each containing many species, no two of which hold intercourse together; the sheep and the goat do not associate. Were the human race divided into species, the same antipathies would exist,

exist, and they would be natural and proper; but nature has imposed no bar to keep man distinct from man. Born at the remotest boundaries of the earth, and impressed with complexions the most opposite, they meet as brethren; no natural repugnance is felt at intercourse the most intimate; their desires and their wants are the same: forgetting all external distinctions, they join hands, and partake in the sympathies and endearments of life. Did not the blessing of God rest equally upon them, and his image appear alike in both, this would not be permitted. It is not permitted to animals, however near in species they may seem to approach each other. Without a sameness of stock there is no voluntary intercourse.

Of

SECTION 1.

Of the Gradation from a Mineral to a Vegetable.

GRADATION is a subject so important in the inferences to which it necessarily leads, that it is entitled to further consideration. What these inferences are, Mr. Smellie, in his *History of Natural Philosophy*, has informed us. "Man", says that gentleman, "in his lowest condition, is evidently linked, both in the form of his body and the capacity of his mind, to the large and small oran outang; these again, by another slight gradation, to the apes." How far it descends, the friends of the doctrine have not agreed. Mr. White intimates that it stops at the extreme boundary of the vegetable kingdom; at least, he carries his scale no further. "There is a general gradation," says that deservedly celebrated gentleman, "from man through the animal race---from animals to vegetables---and through the whole vegetable system. By gradation, I mean the various degrees in the powers, faculties, and organization." *pa.* 59.---But Bishop Watson ventures a step further, in his Essays on the subjects of Chemistry, as quoted by Mr. White, and considers the growth of stones are nearly allied to that of plants: "Stones dug out of quarries, ores out of mines, in general minerals separated from their mattrices, are like the dead branches or limbs of vegetables. After quoting Baglivy on the vegetation of stones, we are informed, that rock-crystal, amethysts, and various precious stones, have been thought, by De Boot, to grow like mushrooms. Certain it is, continues the learned Bishop, that they often contain in them several heterogeneous particles, a circumstance which proves them to have been once in a fluid state, and induces a suspicion, that in their formation they may resemble the gums and resins extravasated from various species of vegetables."

It

It would be very easy to have noticed the opinions of many other authors who stand high in the republic of letters; but enough, I apprehend, has already been said to shew the commonly received opinion.

There is a commendable precaution in Mr. W's. not venturing beyond the vegetable kingdom, for the rapid advances made in chemistry, in conjunction with the indefatigable labour of the mineralogist, have defined its boundaries, and shewn them to be impassable. An organized and a disorganized substance can have no possible connexion. In the increase of stones there is no analogy to the growth of vegetables; and as there is no affinity in their nature, they consequently have no point of union. Coal and bitumen are not half vegetable, half mineral substances, but entirely one or the other. Crystals and gems, notwithstanding the opinion of De Boot, are not allied to vegetables in their origin and increase; they have no roots to imbibe, no vessels to convey, nourishment,—no respiring organs, no period of vigor and decay; they increase in bulk by a juxtaposition of parts; one layer succeeds another in regular order, but the law by which it is accomplished is proper only to minerals, it is that of affinity and not of assimilation: hence the two kingdoms are not only kept distinct, but at the remotest distance. It is in vain to talk of kindred, if the principle of existence be different.

Rome de Lisle, Bergman, and Huay, have, with uncommon ingenuity, pryed into the structure of the most complete and perfect crystals, as well as of the most illshapen and rude, and at bases they find them on an equality: one order is square, another rhomboidal; one has six sides, another eight, and this distinction is accurately observed.—A person conversant with salt works, must have noticed that every particle of salt assumed the same shape; this is precisely the case with crystals of the same class, they take a given form. If the order of nature has been interrupted, and a rude mishapen mass been the consequence, Huay has instructed us, that on carefully removing the deranged and injured part, a nucleus will be found, of the proper shape, of the natural order of the crystal. But this first point, this nucleus of a crystal, does not resemble the germ of a vegetable: it requires no favorable situation in which to dart its roots and unfold its leaves; it is already as complete, and is as much a crystal, as it ever will be; it has no principle in common with a vegetable. It is therefore impossible to present a point at which they imperceptibly glide into each other and partake of a common nature: they are kept apart by the law of their creation; they are in every instance, and in every sense of the word, inorganic.

There is a stone, found chiefly in the islands of the Mediterranean sea, so fibrous, that the ancients manufactured it into cloth, and inclosed the bodies of the dead in it when they burned them on the funeral pile: I allude to the *asbestos*. But its growth was not

not similar to that of vegetable; its texture is not vegetable, or it might, like them, have been destroyed; but it comes from the hottest fire unaltered, unconsumed. It retained the ashes of the dead, which the combustion of vegetables had produced: it therefore is not vegetable: it is fibrous, which is the only point in which it resembles them; a point too insignificant to merit further consideration.

To speak of stones growing, is to suppose the world on the increase, extending itself in every direction; an idea, agreeable to its ambitious possessors, but not very scientific. To assign to minerals the color of vegetables, or their combustibility, or any other property which some of them have in common, is not to approximate them as links of a chain. A rainbow has the colors of a flower, and a meteor is combustible: such properties are not a proof of affinity.

Of

SECT. 2.

Of the Gradation from a Plant to an Animal.

AN attempt has frequently been made to give to the world a definition of a plant, but no one has succeeded. A vegetable has so many properties common to matter, that to describe it by these is certain to confound. To speak of it as endowed with vegetable life, is not a definition, because life is not obvious to our senses: but though the naturalist finds these difficulties, they vanish when the subject is more nicely scrutinized. What law of organic life has a vegetable in common with an animal? Motion. Let us examine it. The muscle of an animal is fibrous, and so is the leaf of a plant, and by their means motion is effected; but motion of itself is not a proof of affinity, unless the principle by which it is produced be in a great measure the same. On this point we shall find an essential difference. A muscle can only act when it has passed over a joint, and is attached to two bones; the muscles that move the hand have their origin in the arm, and pass over the wrist, and as they contract or elongate, the hand is directed: but vegetable fibres do not pass over a joint; the plant is not moved by their contraction, or the reverse.

Let us take, for example, a poppy. So long as the foot-stalk is growing, the bud hangs down; in other words, the upper part of the foot-stalk is bent; but when it is about to flower, the foot-stalk becomes straight. This evident lifting up of the whole weight of the bud has not been effected by muscular power, or by any thing analogous to it; the cause is simple and obvious:---The bud is too heavy for the strength of the stalk, but, as the plant matures, strength is acquired, and the stem that had been a curve becomes a right line; the fibres gain in stiffness; the bent foot-stalk was of the same length as when

when it became erect. But when the arm is bent, its muscles are actually shorter.---Thus it appears, that the principle of their motion is not the same.

What is true of the poppy applies to all vegetables, even to the sensitive plant, *(mimosa):* a plant which some have conceived to be possessed of sensibility, and have exalted almost to the rank of animals; it is said to be a point of union, but no attempt to prove it such will bear the test of examination. Plants of this class are remarkably delicate, a mere touch injures, and by frequent repetition, kills them. Slightly passing the finger over their leaves weakens the fibres, and they close up; the blossoms of several flowers do the same in wet weather or in darkness: on the other hand, the light and heat of the sun acts as a stimulus, and impart that strength by which they unfold themselves; when they are withdrawn, the corollas approach and meet each other.

These facts having been considered as efforts of the plant to guard itself from injury, on a principle little inferior to instinct, it is necessary to produce other facts, to prove that the effect produced is nothing more than a partial withering, a present want of strength in the plant.--The leaves of a pear, a peach, or an oak, are as strong as any that grow in our climate, and seem at the farthest extreme from the sensitive plant; but let an insect pierce one of their leaves, and in a little time it is curled up---it is diseased. What difference is there in principle between a sudden and a more slow folding together? A touch is to one plant what the puncture of an insect is to another.

But the subject admits of other illustrations. Health or disease, strength or decay, may, and doubtless do, give all those apparently voluntary motions to plants, which have perplexed some and misled others. A shrub, placed in a window, directs all its leaves towards the light; a bean, in climbing a stick, follows the direction of the sun: Do they reason, or do they feel, that their direction is uniform? They assuredly do neither. An effect is produced, which they can no more resist, and to which they are no more sensible, than water when it is frozen into ice or raised in vapour. Attention to the economy of plants explains the phenomenon. It is not unusual for one arm of a tree to die, while another grows with vigour: the branch shone upon by the sun has a deeper colored foliage, bears more fruit, and is in every respect stronger, than that which has grown in another direction, and is perpetually shaded. Thus it appears that one part is neither injured nor benefited by any circumstance that happens to another. A plant in a window is only shone on in a particular direction, part of the plant is continually shaded, the back of the stem of every leaf or blossom is in this state, consequently it is the weakest part and yields to the stronger. The sun communicates strength, but its communication is limited to the part on which it acts: if it shine on a single leaf, that alone is benefited, and acquires strength. Imagine a flower, shrunk and withered, placed in water, does it not reco-

ver vigor and unfold itself? Apply this to the living plant, the part rendered strong has an increased capacity, and grows and bends in the direction of its greatest vigor. Even when a tree is cut down and sawn into boards, the fibres turn in the direction in which the sun shines upon them. Light may be called part of the food of plants, they cannot flourish without it; grown in the dark, they neither blossom nor bear fruit, nor has the stem strength to support itself; direct a beam of light to one side of such a stem, vigor is imparted, and a new direction given; but if half the stem or half a leaf be in darkness, it receives no benefit. Trees planted in a shrubbery are said to assist each other's growth, the fact I believe to be correct, and the explanation is easy: By mutually shading each other's lateral branches their vigor is checked, but the upright shoot receives the full influence of the sun's rays, and consequently grows with the greatest vigor. Trees planted in low and concealed places, where the sun's rays fall almost perpendicularly upon them, grow extremely tall, the leading shoot being that which is most nurtured. Thus one stem grows upright, from the same cause that another, not so favorably circumstanced, turns and twines.

The motion of vegetables, their direction and growth, does not therefore appear to admit of a comparison with the voluntary exertion of animals.

But the subject is not yet exhausted, and the question still recurs,—Are not plants inferior animals, if they do not move like them? Are they not endowed with sensation? I answer in the negative. To shrink from a touch does not imply sensation; it does not imply the presence of animal or even of vegetable life. An animal, offensive from putrefaction, or a tree withered and sapless, we pronounce dead; but is there not a period between the extinction of life, and the decay of the body in which the functions, created for the use and directed by the agency of the vital principle, are carried on? Certainly there is. There does exist a point of time when, without life, the functions consequent on it are carried on: and I am mistaken, if many of the arguments of the Materialists do not lose their force by the due consideration of this fact. In the living animal, or vegetable, a reserve, an accumulation of those secretions and juices proper to each, and on which their life is said to depend, is stored up. They are not expended on being formed, nor does the vital principle give them their qualities; they are inherent in themselves: they are not put in a train of forming without the living principle, but when formed, the living principle is not necessary to their application. The living principle is the sum total of their existence, but the functions of the body may, for a short time, be carried on without it.—A branch broken from a tree is separated from the source of life, but it does not at once shrink and wither; the food already sent forward for its nourishment and growth it assimilates, and maintains its freshness till that is exhausted; and if in the

the intermediate time an opportunity be given for putting out new roots, it still lives: such is the order of its creation. An animal can withhold its breath, for a time, without injury; there is a provision in nature for such interruptions. If the branch of a tree has not an opportunity of taking root, I consider it in the same light with an animal which has withheld its breath: they both depend on the accumulation already within the system for present existence.

But we may go a step further. When an animal is bereft of life by a sudden blow, the senses are immediately lost---Can they be recovered? On the doctrine of materialism they might, for the functions of the body, as has been hinted, have not yet ceased; the blood is still susceptible of oxigenation, as Dr. Priestley has proved; the nerves still give motion, and the destruction of the system is stayed, on the same principle that a blossom, plucked from a tree, retains for a time its beauty. We have some positive examples in illustration of this doctrine.

Mr. Hunter relates the circumstance of a man who fell from a ladder and was killed; the body was opened, and the stomach found to contain no food; but being dead, it was to the gastric juice, or that peculiar fluid which dissolves the food, the same as the flesh of another animal, and it acted on it as such, and in part dissolved and digested it; it had even eaten holes entirely through it. Had the living principle been present, it would have resisted the destruction of the stomach: that it was not resisted, is a proof that a principle had been withdrawn, but which was not necessary to the process of digestion.

After death, the heart may be made to beat, and every secretion to have its due and proper action: but the continuance of the influence of the nervous system can be best illustrated. It is by means of nerves that we move and feel. The nervous influence, in the opinion of some, is synonymous with life; but that is not correct, for life is not essential to its influence on matter. When a frog is killed, and the heart taken out, its pulsation does not immediately cease; and when it has ceased, a touch with a pointed instrument throws the heart again into action. The pulsation of the heart of a frog is more complex, and of longer continuance, than the motion of the most delicate plant; hence it is fair to infer, that as there can be no sensation in the heart separated from the body, so there can be none in the motion of a plant. This fact of the frog is common to all animals; but in some the degree is greater than in others. The flesh of an ox, bereft of life by a blow, and suspended in a slaughter-house, is in a general tremor, yet there is no life in the animal. A rabbit, killed and laid open, moves; the bowels perform their functions, and give a good opportunity of noticing the nature and order of the peristaltic motion. Even a piece of flesh, dissected from the body of any animal just dead, may be excited to motion; air, in the first instance, is sufficient for that purpose; when this has failed, a touch with a pointed

pointed instrument renews it; when this also has ceased, the galvanic influence will produce the effect. By this fact, we are better acquainted with the nature of this influence, and its mode of operation, than we otherwise might have been. One inference may here be made--That at the time of the death of an animal a quantity of nervous influence exists in the system, which is not dependant on the vital principle, and which continues in some animals several hours after death. Does not this prove the existence of a something distinct from organization? the machine moves without it; it moves till the sound and natural juices are exhausted, or putrefaction has commenced; when this begins, then the whole fabric falls into ruins: no restraint is now put on the combination of its parts; the master is gone, and the residence is rapidly destroyed.

There is yet another remark proper to be made. It is a well-known fact, that one animal is more retentive of life than another; all old animals are more so than young ones. A cat bears great violence before it is killed; a young pheasant is killed by a slight blow. An oak bears a blast, but the sensitive plant withers at a touch. The cause I apprehend to be, that the old animals, and those plants and animals that most resist injuries, have a larger proportion of the fluids essential to life already secreted, so that a temporary interruption in their production is not followed by death. A bird lives longer in the exhausted receiver of an air pump than a mouse, because pure air is equally essential to both, and it is so appointed that birds fill their whole bodies with air, which mice are unable to do; their bones also, being without marrow, are filled with this requisite fluid: a bird has a store within itself. It is on this principle, that, in exercise, one animal is exhausted and obliged to rest sooner than another.

The point I wish to establish by the foregoing facts and observations is, that the turning of a leaf towards the light, the falling of the sensitive plant, the closing of flowers in darkness, in short, every motion a vegetable performs, relates only to the strength of its fibres,---and that consequently it bears no analogy to animal motion: it is not a point at which the two kingdoms unite. Another fact I wish to establish is, that the secretions have their peculiar and proper effect when the living principle cannot, in the nature of things, be present: and thus to destroy the force of any argument that might be drawn from the doctrine of Materialism to favor the theory of a connexion or resemblance between animal and vegetable life.

But let us here grant that the principle on which the functions are performed after death is the same in both animals and vegetables, there is still an immeasurable distance between the two kingdoms. The jerks and starts a dead animal gives by the influence of the galvanic pile, and the trembling of the leaf of a plant, being unconnected with the living principle, do not shew its nature; it is remote from them. The secretions have a relation

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to health in the living body: it is to them the art of medicine, and the culture of the gardener, is applied. We may destroy the living principle, for it is only in a certain kind and state of organization that it can exist. The life of an animal cannot inherit a tree, nor can the life of one animal inherit the body of another. The vital principle preserves from putrefaction and directs the secretions, but if proper materials be not presented, they are imperfect, and the body languishes. In health they are well adapted to their appropriate uses; in sickness their order is deranged, and great derangement is death. They are the effects of life, not the cause; they do not cease together.

But, to return again to the vegetable kingdom. That part of the economy of vegetables which bears the strictest analogy to the sensibility of animals, is their accommodation to the seasons. When the sun has chased away the winter, the buds swell, and as spring advances they unfold their leaves, and fill the land with the odour of their blossoms; afterwards fruit appear, and seem pressing to maturity; in the autumn the seed is ripe. Thus the year is just long enough.

In England the winter is shorter than in Norway, consequently there is a longer period of temperate weather: in Norway, though the spring is later, vegetables mature as early: in Russia the spring is still later, but, notwithstanding, they ripen as soon. The growth and maturing of plants is adapted to the climate. Dr. Kerwin has somewhere observed, that corn, which in England does not ripen in less than 120 days, in Russia is fit for the reaper in sixty. Every season, and its duration, seem to be anticipated: but when a tree is transplanted to another climate, it does not at once accommodate itself to its new situation, and the fruit is lost; it is as a stranger, uninformed of the country. This was the case with apple-trees sent from England to America; and it is probable that cherries, which were imported to this part of Europe from Greece, suffered in the same manner; but a few years experience, as the gradationists express themselves, remedied the evil, and they put forth their blossoms in due season.

What is the quivering of a sensitive plant, to such apparent marks of contrivance and design! The gradationist says, the plant holds a place inferior only to an animal, and that thus the fact is accounted for; but he commits an error: the plant is acted on, it does not act. The influence of the sun is appropriate to each season: in the spring it does not mature, in the autumn it does not promote vegetation: it has a specific influence, adapted to the wants and suited to the continuance of the vegetable kingdom. If the spring be short, the influence of the sun is such as to produce rapid growth, and the early formation of those juices of which the seed consist, then comes rapidly on that glow which gives maturity. An indigenous plant, nurtured during the

 winter

winter in a green-house, will not ripen its seed in May; the grass that shoots in autumn makes no effort to bear seed. That trees, removed to another climate, blossom out of season, may arise from the buds having been formed in the mother-country, and already too much matured; for trees are said to be prepared with a succession of buds for three or four years.

But if we keep out of sight all external circumstances, and allow the growth of vegetables and the direction of their branches to arise entirely from the principle of life they possess, even this does not imply sensation. An animal is unconscious of its growth; we cannot tell by our feelings that at one period of our youth we are taller than at another: growth is independent of sensation in animals, and shall we assign it to vegetables.

There is a remark made, I believe by Saussure, which favors the notion that the sap vessels of vegetables are possessed of muscular power; which, if true, would greatly strengthen the idea of vegetables being endowed with animal life. This philosopher observed, that sap is propelled from the cut vessels of a tree with a force equal to the resistance of many pounds weight; implying, indeed we may say proving, the existence of a very powerful internal force. The blood is kept in motion by the strong mechanical action of the heart and arteries, but a tree has no heart, no engine to give motion to the sap: the heart and arteries act only on the blood contained within them, but the sap vessels act on different objects, they separate the fluid from the soil, which is converted into sap, and without a sensible effort is pressed forward and advanced to the extremity of the utmost leaf. The action of the heart may be imitated; blood may be circulated through artificial arteries and veins; but we are ignorant of the principle by which the sap is elevated, nor can we find any thing analogous to it through the whole range of Nature. The subject naturally excites attention. Capillary attraction was considered, before the notion got abroad of vegetables being endowed with animal life, as the efficient cause. But this principle is not equal to the solution of the difficulty.

Capillary attraction elevates and suspends, but does not force a single particle beyond itself. For example: Take a tube filled with sand, and place one end in water, the fluid ascends the tube, by capillary attraction, to very near the top, but none of it flows over. If the tube be divided in the middle not a drop is discharged, for it is not in the nature of capillary attraction to apply a propelling force; the same power cannot attract and repel.

Could we discover the principle on which sap rises, it might be of incalculable utility in the business of life,—and why may we not discover it? It is not raised by a miracle, but

but by the use of natural means. To learn what these are, is not, I apprehend, a study beyond the human capacity. The circulation of the blood was as little known, and presented as many difficulties, till Dr. Harvey investigated the subject and made it easy of comprehension: the discovery was but of yesterday. To elevate water, without the complicated and expensive machinery now in use, might be one consequence of a knowledge of the principle we have been speaking of; and thus a new and extensive field of interesting investigation, and of practical utility, be opened to science. But though the subject is yet enveloped in darkness, we know enough to be confident that the principle which moves the sap and circulates the blood, is not the same.

Thus a clear and well defined distinction is here maintained between the two kingdoms. Besides, there are so many other parts of the animal economy so unlike that of the vegetable, that to search for a connexion appears vain. But, passing over all those strong marks and characters, I turn my attention again to the train of thought pursued by the gradationist, and to the consequences he draws from it.

A chain implies progression, and as an animal is indisputably advanced beyond a vegetable, the point of union must be between the most complete and perfect vegetable and the most insignificant and doubtful animal. A polypus bears this character: it was long supposed to be a plant, but now it is placed in the rank of animals, and is said to catch and devour flies, which is conclusive as to the kingdom to which it belongs. Let us take it, with all our ignorance respecting it, as the lowest of animals; and as all animals are superior to vegetables, the next link consequently is the most perfect of that order, and which is more so than an oak? But it is truly ridiculous to speak of these being united as parts of a chain. An oyster has no affinity to a cedar, or a grasshopper to any other tree, and they are the most fit and apposite links that I can discover.—There cannot be a scale of progression, if the most complete and perfect of one order does not bear a resemblance to the least perfect of the order next above it. A chain supposes a connexion and resemblance, but no animal in the creation corresponds to a forest tree.

But the gradationist goes on other ground, and says, a polypus is only a little superior to a plant because it does not move from place to place, and because the nature of its existence appears to be so little superior. But this point is too narrow for contemplation; we are so ignorant of the economy of the polypus, that any statement which might be made would be little better than conjecture.

Let us therefore make one advance towards man; it is only enlarging the point of observation, and presenting to our view objects with which we are better acquainted. After passing through the class of zoophites our knowledge becomes correct and particular:

cular; but, unfortunately for the gradationist, the greater this becomes, the more we are perplexed: a crowd of animals present themselves for arrangement, all of which have equal claims. Among those animals of which we are best acquainted, a diversity in rank cannot be discovered. A lion is not a more exalted being than a lamb, or a crocodile than a lizard; self-preservation is their highest attainment, and in this a lion, in common with all animals, is equal; they all know their danger and strive to shun it: they are all instructed in those affairs that relate to their continuing in existence, and no more.

If we take the opposite view of the subject, and attempt to trace the chain from the polypus through the vegetable kingdom, we are still more uncertain in what direction to advance. Some plants bear an external resemblance to a polypus, but external resemblance is a slender ground of connexion, indeed it is no ground at all: an animal and a vegetable have naturally no resemblance. Could the gradationist prove a polypus to unite the animal and vegetable kingdoms, that at this point both were confounded and lost, and that from hence each order arose, and as the stems ascended they diverged and became more like plants and less like each other, such evidence, such a fact, would completely overturn and destroy the system of gradation. Conceive a very incomplete and defective animal connected as the links of a chain to as incomplete and defective a vegetable, if such there be, and that from this point both kingdoms, by imperceptible advances, ascended to the utmost perfection of their natures,—in place of conveying the idea of a chain, it would represent the trunk of a tree, from which two branches grew, and gradually became more apart from each other; it is as two shoots from the same stem. But I am here granting more than I ought; I am granting that the first point being ascertained the others may be added.

I have before stated, that the more we are acquainted with any class of animals or vegetables, the greater is our difficulty in arranging them; in fact, arrangement is impossible. We fancy there is a scale of gradation in "the powers, faculties, and organization" only, when we are ignorant of the economy and properties of the objects classed. The lichen, a plant of singular properties, was supposed to be as much a stone as a plant; but all the relation it bears a stone, in the estimation of well-informed botanists, is, that it grows upon them. Over a corner of nature ignorance at present casts a shade; with a part of her works we are ignorant, but the cloud is daily dispersing; and already we know enough to discriminate between the animal and vegetable kingdoms, the leading feature of which is, that one is endowed with sensation, the other not.

But it may be said, that a principle of gradation may be proved to exist in some cases, and therefore may be inferred in others. There are amphibious animals, which connect the

the tenants of the sea with those of the land. There are also flying squirrels and bats, which are the link between birds and quadrupeds: what link the flying fish occupies is not so evident. Such facts are certainly the strongest that are brought in favor of the hypothesis, but even these afford to it but little assistance. Amphibious animals are quadrupeds, whose hearts are so formed as to admit the blood through them without its first passing into the lungs, and therefore they can exist a given time under water. Fœtuses in the womb are under similar circumstances, their hearts admit to the blood a direct passage; and did this continue, the human race would be amphibious; but after birth this passage, the *foramen ovale*, closes up. A fish extracts air from the water, and neither possesses nor has need of such a passage.

Under these circumstances, is any person warranted in saying, that amphibious animals are half fish half quadrupeds? They are complete and entire quadrupeds, but their food being fish, or their place of safety the water, they are endowed with a capacity of living in that element. The food of a bat consists of flies, and it is enabled to fly in order to obtain them: its wings are not feathered, it does not lay eggs, nor has it any thing in common with birds in its economy, but its being able to fly. A man was once defined to be a biped, without feathers, so was a young bird; the food agreeable to the one is wholesome to the other, and, in this way of comparing, it might be proved that man is little different from the birds of the air: a bat can fly like them, but it is equally characteristic of the feathered tribe that they walk on two legs only, which the bat is incapable of doing, so that the link which unites the feathered tribe with other animals is liable to dispute. A bird is distinguished by two circumstances--flight, and when it walks, using but two legs; squirrels and bats imitate them in the first, but man resembles them in the latter. Which has the greatest claim to be placed as the connecting link, gradationists must determine; but it is probable their sentiments would be divided. Were I to write a chapter in the style of Sterne, this would be a very fit subject, namely, whether a squirrel, or man, were most like a bird.

Amphibious animals, and such others as partake of a likeness to two genera, as the bat, are evidences of the wisdom and benevolence of the Creator. Were such endowments as fit and qualify animals to obtain food, evidences of a scale of gradation, it might indeed be traced with great facility. After giving to the imagination its utmost latitude, it may be strenuously contended, that in the same kingdom of nature, there are certain points where two orders of animals, which possess a common nature, seem in their economy to be united in one: but is this an evidence of a plan in the Creator to tie his creatures together in a common bond, and to admit of a difference between them only in degree? It is not a sameness in the means of obtaining food that is suffi-

cient to establish so important a fact; the goodness of God, and not the degradation of any of his creatures, is seen in all his works. He designed this world to be the source of enjoyment, and he has created myriads of beings to partake of it; why it is not possessed by them to its fullest extent I am not to enquire; but every part is full of life; which a diversity in size, strength, and disposition, to fill up its various parts, implies: this the Great Parent of the Universe has created; some philosophers have taken advantage of the circumstance, and founded on it a theory, which, in place of casting a new ray of beauty and order over creation, covers the countenance of man with sadness, by giving him cause to be ashamed of the nature of his existence; hence the theory carries with it its own refutation.

SECT. 3.

Of the Gradation from Brutes to Man.

THE distinction between instinct and reason is as difficult to explain as it is important to have right ideas of. Archdeacon Paley says, " it is a propensity prior to experience, and independent of instruction." *(Nat. Theol. p.* 326).----A definition as good, if not superior, to any with which I am acquainted; but it is rather a proof of the difficulty that attends the subject than a solution of it. It holds true of animals in the first stages of their existence, but not at an after period.

A colt raises itself on its legs and sucks its dam, uninstructed and without experience; but the dam, in a few months, resists the colt, and withdraws its protection: it has then to seek for itself the means of subsistence, in doing which it needs instruction: it passes the wood and the ploughed field, where there is no food, and hastens to a meadow, because it has been taught so to do.---A bird, escaped from a cage where it had been long a prisoner, knows not where to obtain food. Instinct does not guide to it, it needs instruction.

Instincts are various in their objects, and are appropriated to every leading event of life: they are not all formed at one period, but commence and terminate in succession: one exists to-day, which in a little time is not felt or needed; the dam is not always nurturing and protecting the foal. One instinct relates to the wants and safety of the individual, another to those of the species; but in almost every instance something is requisite besides the desire. Instinct is unavailing and futile without instruction. By instinct birds build nests, but it is from a sense of danger that they conceal them. In warm climates, monkies are their greatest enemies; to avoid the officious med-

meddling of these animals, the small birds suspend their nests at the extremity of tender twigs, and thus their approach is prevented. *(Smellie's Phil. Nat. Hist. p.* 321).

All quadrupeds display considerable sagacity in selecting a place where to bring forth their young, both as it respects their food and their safety. Insects, of the bee kind, especially some species of solitary bees, hide and secure their larva from being destroyed with astonishing skill and care; danger of every kind seems anticipated and guarded against by them. The mason-bee builds her cell upon a wall with sand cemented by a viscid fluid from her mouth; the nest is difficult to discover, and still more so to penetrate; here she deposits her egg in the midst of food, ready for the use of the young when hatched. The wood-piercer bores a hole in solid wood, as large as the finger of a man, and ten or twelve inches in length; this hole is divided into ten or twelve apartments, separated from each other with great sagacity, and her eggs deposited in the midst of food for the future worms; the whole is so closed up and secured as almost to defy an enemy. Other examples might be added.

The inseparable connexion and necessary dependance of instinct on instruction further appears by considering the various states of domestication in which some species of animals are found, and their conduct in those states. A wild cat is assailed on every side by enemies, which the animal is on the perpetual watch against; its place of retreat is the most inaccessible part it can discover, here the young are nurtured in the profoundest secrecy and silence. But a domesticated cat retires only to the barn or stable, and there feels itself secure. A cat still more domesticated, one that has been caressed and fondled, loses all sense of danger, and lodges its young on a bed or on a carpet.---A Highland cow, or sheep, wanders to a distance from the flock to bring forth its young, if it is not prevented, but the cattle of our pastures seek only to be unmolested. In short, domesticate any species of animals, lessen their danger, and you lessen their care and their skill: there is a connexion between their wants and their efforts; for, to provide against danger, implies more than a sense of it, it implies instruction in the means.

The emigration of birds is another proof of the dependance and inseparable relation of instinct and instruction. Instinct prompts them to take flight, but does not direct their course more than it directs the colt to its pasture. They begin to suffer from hunger, or from the weather, some impulse is imparted which warns them to be gone, and they obey. All birds pinched with want do the same. Withhold from so domestic a bird as a pigeon its accustomed food, and it grows wild and flies to a distance. The first flock of woodcocks that left the north in pursuit of a warmer winter's residence, knew nothing of the extent of sea over which they had to pass; but having once passed it,

it, they would be guides in the following year to others. The weak and tender birds, worn down with fatigue, must have perished in the ocean; and such flocks as set out in wrong directions could never reach a shore, and this is probably the case with some every year. But statements of this nature are rather problematical, our knowledge is not sufficiently minute; let us, therefore, have recourse to facts more correctly known.

That district of the county of Essex which lies between Colchester and Harwich is visited annually by large flocks of rooks; they stay about two or three months, lodging at night in the woods of the country, and then return, it is said, to the rookeries in Norfolk, a distance of at least eighty miles; be that as it may, it is certain that their residence is at a considerable distance, by the elevation at which they are seen when on their passage. These birds are not commonly birds of passage, they want food, and by instinct search for it: in fulfilling this first law of nature they are compelled to go to a considerable distance: but it is by instruction of the old that the young are directed. What is true of the rook is probably the principle by which all birds of passage are guided---the want food; and in obtaining it, are aided by experience.---Birds that cross the ocean have no alternative but to go forward: those, like the rook, that do not quit the land, are probably directed in their course by their sight; pigeons, taken to a distance, soar to a considerable height before they direct their course towards home; it is probable their vision is so strong as to guide them. In short, all birds migrate that do not find in one place the supply for all their wants. If the principle be common, it is probable all the circumstances attending it are so, which leads us to conclude, that in this, as in other parts of their economy, instinct is not independent of instruction.

But this great, this momentous question, does not depend on a definition. Can it be ascertained that there exists a real distinction between instinct and reason? It can. Were it not so, it would be in vain to contend for man's immortality, for the meanest animal would have an equal claim. To differ only in degree is scarcely worth contending for: the difference, in order to be valued, must be essential. The one is not, cannot be, a part or property of the other. Reason is the glory that encircles man; he may dim its lustre, or add to its brightness: but instinct is without glory, it receives not honor, nor suffers shame. Reason presents the human race at the footstool of their Maker, to adore and worship him; it is man's highest, his greatest honor: but instinct grovels in the dust; it soars no higher than the wants of the body---it is a provision to preserve life.

I wish not to pass by, or to detract from, the endowments of animals; I would not rob them of the smallest gift to place it on the head of man: the human race would be degraded by their highest endowments. I allow all that is asked for them,---memory,

contrivance, foresight; and I allow that instinct admits of improvement, by the use of these endowments.

Where then, it may be asked, is the distinction, where the separating wall, between instinct and reason? It is here: it is in the object on which the capacity given can be employed. The mole that digs a hole to hide itself, discharges the highest duty of its nature, and displays the utmost sagacity of instinct: but man erects an altar to his God.

Let us take a closer view of the subject. To attain the end for which the various living beings which inhabit the world were created, there must be a correspondence not only in the whole, when taken together, but in each part. An animal, for instance, depends on a proper proportion of food for its continuing in existence; this implies, not only a sense of want and a provision for its supply, but it implies also the application of that provision; each of these are essential to a living animal. Food, without hunger, is of no value; nor is it of any value, unless there be a knowledge of the means and a capacity of using it. This knowledge we term instinct. Instinct is not an unlimited faculty, it has its province, its proper end and aim; it is that part of an animal's being which corresponds to the desire for life: it directs the means of existence, it chuses the food, it secures from danger, it continues the species. A creature would be imperfect that had wants and could not use the means of satisfying them, though the means were present.

Instinct is a part of a whole, a part limited and bounded by those to which it corresponds. Ask how an animal exists; separate its parts, and they will be found of equal importance, and exactly adapted to each other; the means of its continuance, and the agent by which the means and the end are connected. Point out a single operation in which instinct is not the mere servant of the body. A dog fawns on those that feed it, and in a variety of ways attracts attention and appears to claim something more than instinct, something more than a regard to its own wants.

I select the dog, then, to illustrate what I mean by saying that instinct is a part of animal life, as food is a part: it is a mean for a given end, and that end is the preservation of existence.

The dog has long been the friend and companion of man. Esculapius was attended by a dog. Every faculty they possess have been cultivated in the most assiduous manner, and those that might be latent have been searched for that they might be brought into notice; but nothing has been added either to their capacity or their knowledge. Buffon says, dogs need as much teaching now as at any former period.

There

There is no accumulation of knowledge in the species at large, no communication one to another, except as it respects their corporeal wants. A dog feels no interest, and has no enjoyment, in any trick it may have been taught to perform; it was imposed by discipline, it is mechanical, and dies with the animal. A dog guards and defends a flock of sheep, not by instinct, not by its own will, but because it has been taught so to do; left to itself, it would destroy them. A dog has been heard to howl at the striking of a church clock; the animal was terrified. I have seen a mastiff tremble, and almost fall to the ground, at a clap of thunder. A dog, at Edinborough, Mr. Smellie informs us, begged a penny of its master every day to buy a mutton pie. Another dog regularly rang the house bell when it wanted admittance.---A thousand such anecdotes might be selected, but to what do they amount? Is not every trick the effect of fear, the consequence of discipline? Even the fawning of a dog is in proportion to its domestication, in proportion as its spirit is broken and subdued. Let a dog be made to dread the whip, and it is delighted when it meets its master without one, but cringes if it be produced. The spirit of a bull-dog is less broken than that of a spaniel, therefore it fawns less. To multiply observations of this kind is unnecessary, the animal is so well known: but let it be borne in mind, that one principle directs their actions---the principle of self-preservation; and that this is the great law of their nature, the boundary of instinct.

There is another fact, equally decisive, of the nature of the capacity of animals. It is this---the equality of the capacity they possess. The elephant, that half-reasoning creature, as it has been called, that animal which, according to Pliny and others, pays acts of adoration and worship to the sun, has in fact no talent which a worm or a caterpillar does not possess in equal measure. They are susceptible of great domestication, and consequently great care is taken to make them useful. What they have been taught to do we attribute to their sagacity; it is a rule of estimating the wisdom of animals into which we are apt to fall. Having made them our friends, they delight to be about our persons; by this intimacy we have learned to understand their manners, their accents of gratitude and pleasure, which we attribute to their wisdom. But with other animals we are at war, and hear from them only accents of rage; when we approach, their notes of reciprocal delight are at an end, an alarm is given that an enemy is at hand, and each seeks its own preservation, by which means we are kept in ignorance of their habits.

Of those animals we most admire an elephant stands first, then follows the dog, the horse, &c. A fox we say is cunning, but this it exemplifies only when in danger; it is not more cunning than other animals, if not more hunted. Thus our opinion of animals is formed by our knowledge of them. Read those partial and exaggerated accounts of the elephant which

which are related in books, and even these are equalled by the caterpillar,—so similar are their capacities. Let a shrub be shaken, on which a nest of them have been hatched, and suppose a thousand fall to the ground, not one will crawl away, but with one consent they turn towards the tree from whence they fell, and with all possible dispatch ascend the stem. Other species of caterpillars, after living separate, display great sagacity in assembling together and spinning a nest to contain their whole number, and in observing a kind of military order, by following a leader, when they go out in search of food; which having obtained, they return in the same order, by the same track, having in their journey spun a thread through the whole course by which they are guided. Reduce the elephant to the size, and place it in the circumstances, of the caterpillar, and can it be imagined that, with all its boasted attainments, it would display greater sagacity? An elephant rejects a poisonous plant, and so does a caterpillar. An elephant uses considerable address to preserve its life, so does a caterpillar. An elephant is domesticated, it knows its keeper, and in some measure imitates him; but a caterpillar is not domesticated.—But it may be said that some animals are remarkable, and even proverbial, for their folly, as a goose; this bird is indeed domesticated, but we know little of its economy; its instinct, like that of other animals, is adapted to the preservation of its life, and in the wild state this is accomplished by striking marks of sagacity. A serpent appears to us a very worthless, and being deaf, a very stupid animal, but in countries where they are better known their wisdom is proverbial. But allowing for a moment that some animals are more sagacious than others, it is still a very limited faculty; it is only the guardian of the life.

Let us now turn to man, and mark his powers. He is endowed with a principle, which holds instinct in subjection, and soars above it, or renders it subservient to its will: it asks not for such aid, except in infancy. This principle is the faculty of reason. Were instinct and reason essentially the same, differing only in degree, had they any thing common in their natures, animals might improve, having an example before them in man. But mark the true character of instinct; under circumstances the most advantageous it makes not a single advance beyond its own limited range, while man goes on in intellectual attainments, that ray of pure intelligence which dwells within him presses him forward, and opens to his view unbounded prospects. He thirsts for knowledge, and as he attains it his thirst increases.

The objects that instinct influences present to him few charms, and these he manages without its interference. He does not want its aid to point to him his food, or to direct in any of his affairs. Instinct, substituted for the reasoning faculty, is madness. Instinct is blind; impelled by it the most formidable dangers are braved.

Reason

Reason is timid, and often lets go an object for fear of its consequences. Instinct fears no consequences.

There is yet another view that may be taken of this subject. When an animal is grown to maturity, and has propagated young, the existence of the offspring is of more consequence to the species than the life of the old, and consequently all the care an animal had taken of its own life is transferred to its young; for their safety it exposes its own. A hen, timid and defenceless by nature, when her brood is assailed, presents herself to the stroke, that they may escape; nothing appals her: at one period an example of arrant cowardice,---at another, of rash ungovernable fortitude and courage. The impulse that prompts the old to watch for the safety of the young, impels the young to flee to them in danger; neither are guided by reason, but by an impulse, over which they have no controul. Reason would never instruct a sheep to fight, or guide it when in search of food. Reason hesitates and doubts, but instinct never errs. That faculty is complete and perfect; it is not susceptible of higher improvement. Reason is in its infancy; *we know but in part.*

The life of an animal is not in its own power; instinct irresistibly forces it from danger: but the life of a man is entrusted to himself; his wisdom is exercised in its preservation; he meditates, reflects, and reasons. It is the honor of a child to succour and protect its parents: but we have seen that the economy of animals is the opposite of this, because the principle by which their life is regulated is distinct from ours. Instinct is a more powerful faculty than reason: it is more decisive and prompt, and directs in a way reason cannot: but, as has been before observed, it is extremely limited in its objects, having for its office the care of the life; all that is above this, all that leads a man to his Maker, it has no proper influence over: it is a bar, which no mere animal ever passed.

Instinct and reason are so unlike each other, so much apart, that those endowed with one faculty can gain no knowledge from those endowed with the other. An animal does not gain by associating with man, for those that are wild are more expert than those which are tame. On the other hand, although moralists instruct us to imitate the industry of the bee, the meekness of the lamb, the generosity of the lion, the affection and fidelity of the dog, &c., they mistake their object, and direct the mind into a wrong channel. Man never has, nor ever will, improve in such a school. If his temper is bad, it is not by imitation, but by reflection, that he corrects it. He cannot imitate the disposition of a lion, because he cannot feel like them; he does not possess the same principle. It is to the glory of man that he can learn nothing from the brute: the mind looks above and not below itself for instruction.

 I might

I might now proceed to an examination of the opinions of various philosophers on the nature of instinct, but they envelope the subject in tenfold darkness. What information can we derive by thinking with Des Cartes and Buffon, that instinct is the effect of the conformation of the body and mechanical influence? However dear to science the names may be that support such opinions, I deem it unnecessary to reply. If instinct be not a gift---an endowment, as essential to an animal as food---a gift, corresponding to its wants and necessities, I can form no idea of it. It assuredly is not equivalent to reason, nor does it partake of its nature. Any seeming resemblance there may be, arises, I apprehend, from the animal want being the same, and not from the principle on which relief is procured.

Having investigated this part of the subject, it is almost unnecessary to pay attention to any other.---If there be no animal endowed in a superior manner to another, I presume it will not be urged that there exists a certain point, a link which unites them to the human race. But the supporters of the doctrine of gradation contend, that it is not in one animal that we find a complete correspondence to the lowest species of the human race, as they please to style the African, but that the faculties of man are divided and given to many:---Birds are endowed with speech, monkies possess the person of man, his reason they give to the elephant. It is however not necessary to detain my readers in protesting against this division; birds imitate sounds, that of the human race among others, it is to them another note in singing: as to the resemblance in person to the monkey tribe, I shall discuss that hereafter.

SECT. 4.

An Enquiry into the Relation the Parts which compose the World, and its Inhabitants, bear each other.

THE Great God, the creator and preserver of all things, in forming the globe we inhabit, did it with design; there was an end to be answered by it, and every thing was made so as to conduce to that end. But it would impeach his wisdom to say his works resemble a pyramid, the base of which was composed of the rudest materials, and as it rose in height gained in beauty, till man closed the whole; from such a pyramid, looking down, he might trace the process of his creation. The mineral kingdom is the foundation, himself the superstructure: the materials are the same, but the execution is diversified. A world, so constituted, would have more the appearance of the contrivance of man, than of the power of God. Prove, that between a man and a clod of earth there are a few intermediate steps, but so closely united together that the advance is almost imperceptible, and man might attempt to build such a pyramid; or, if the idea is more agreeable, to forge such a chain.

The theory of gradation has something in it so mean, so unworthy of infinite power, that it cannot be contemplated with pleasure, even by man. This confusion of being, this want of completeness, this continual progress towards something that is better, in place of producing order, confounds. It robs every part of the creation of God of the hope of immortality, or it gives it to the whole. Man has no prerogative, no privilege, no honor: he is only a little more rational than an elephant, a little more agreeable in his person than an oran outang, a little more loquacious than a parrot. To deprive such near associates, such competitors for excellency, of immortality, while man claims it for himself, is either to injure them, or to declare that the space between them and us is

so

so wide that no link can reach it; it is to declare that there is no scale of gradation. Bring the links as near as you can, deduct from the one and add to the other, if the parts do uot embrace, there can be no chain.

To this point, then, I would draw the attention of the reader, as the natural and necessary result of gradation. A gradation, not only in the person and the economy, but in the faculties of man and animals, as the friends of the system expressly declare. Can such a system exist, and a line be drawn to determine at what point the promise of immortality stops? Does it stop at the verge of Europe or America? No. Asia was the cradle of the human race, the birth-place of man. Nor can we stop here, for Ethiopia shall stretch forth her hands, and the truth shall make her free. Here we make our stand, and embrace as brethren, embrace as those who have a promise, full of immortality. But the gradationist, hateful, disgustingly hateful to relate, has no point where to stop. If he allows that man is immortal, it is not because there is any thing peculiar in him; any thing exclusively his own: what he possesses, on that system, begins with the European, and goes progressively down to brutes, vegetables, and stones. If it does not stop at the first point, does it at the second? Does it stop after it has passed through the different species of men, and some of the higher orders of animals, as they are called?---It is impossible to say where it stops. A chain has no division, no resting-place. Happily, the theory of gradation thus refutes itself: it is a mere rope of sand; the work of an exuberant fancy. That man can see and trace the scheme so fully, is a proof that it does not exist.

The human capacity is limited on most subjects; it cannot comprehend the whole of a large plan; and on some subjects it has no capacity for judging,---the nature of the existence of God is one of these; his plan in creating, and his power in upholding, the world, are others. We cannot tell how a clod of earth was made, or how a vegetable grows; we cannot form an idea of any such circumstances: Can we, then, describe minutely the plan of the whole, and count the links of such a chain? We mistake our powers in such an attempt, We can judge of the event; we see the end; but we know not the means.

An astronomer cannot teach a child, just able to lisp the name of father, to understand that science: it cannot be reduced to the capacity of a child: the child may be delighted with the figures, it may trace a gradation in them, from a right line to a circle, but that is not astronomy. We are all mere babes in knowledge. We cannot rightly pronounce the name of our father: we feel that he is good, but we know little more. When we take into our hands the oracles of truth which he has given to us, how little can we fully comprehend, even though it is revealed; but the order pursued in

creating the world he has not revealed, nor given us capacities to comprehend. It was the contrivance of infinite wisdom, and can we judge of it? Vain is the attempt; and weaker than for a child to fancy it has learned the groundwork of astronomy, by classing and arranging the signs and figures used in that science.

Our knowledge of matter is confined to its properties and to its application; we know nothing of its nature, of its essence. A clod of earth we are certain has a principle of existence, a mode of life; it could not exist were it otherwise, unless it was self-created, and self-existent; and as it will not be contended that that is the case, the power or principle which upholds it, cannot be less than that which upholds a tree or an animal. The earth cannot be of inferior value or importance to the vegetable which grows upon it.

If we withdraw our attention from the nature of things, and from those subjects of which we can comprehend so little, and apply it to such as are more within the range of our capacities, we may, with the gradationist, trace a scale in every order and department of nature. Commence at any point, and the chain rapidly advances; from the least ponderous body, from the purest ether to the heaviest metal, there are innumerable intermediate links; one substance is a little heavier, has a rather greater specific gravity than another. The same chain holds good in the appearance of bodies, and in the dispositions and propensities of animals: a horse prefers being fed with oats, a cow is less partial to that grain, a sheep less so still, a hog turns it over with his snout, and if it takes a mouthful, it chews it with evident disgust, and is long before it pleases to swallow it. Other animals separate the husk from the flour, and eat only the latter; and some animals do not use this vegetable in any state.

Thus the chain is complete; but to what good purpose does such knowledge tend? as school exercises it may be extremely proper in facilitating the acquisition of the knowledge of natural history, but it does not concern the philosopher; he can learn no important fact from the circumstance. Suppose he could discover that two animals, in their economy, were exactly similar, a sheep and a goat are very much so, yet he cannot infer from this, that they are the same animal. Two trees, which draw their sap from the same mould, are not on that account of the same species; there is a something which gives to them difference, of which he is totally ignorant. To form a scale of gradation of what he is ignorant, is impossible; so that there remain, of this mighty fabric, only a few school exercises. It would be an agreeable spectacle to see youth employed in tracing it, but it is not a school of philosophy.

The inferences which may be drawn from appearances, are calculated to mislead, rather than to direct. Let me illustrate my meaning by a comparison.

Suppose a person, unacquainted with military affairs, were to enter a camp, and after noticing the order and regularity with which every department was managed, were to imagine that there existed a scale of gradation from a grenadier to a bat horse, and from thence down to a cannon ball, would such a person have a very perfect idea of the nature of a camp, or of the design of the general? yet it might be the highest and best idea the person was able to form; it might be as far as his knowledge and capacity would enable him to go.---Just so high in the knowledge of the principle and plan of creation do I conceive him to have attained, who attempts to trace a gradation through all the works of nature. I would not reflect on any one, but there is a limit to the capacity of man, beyond which, if we attempt to go, we are certain to err.

Allow me here to remark, that much of the confusion and jarring in sentiment, and much of the evil in society, have arisen from a fancied knowledge of things, which it was never intended we should comprehend. Were nothing beyond our capacity, we might doubt whether we were immortal. Were our knowledge complete in this world, we should not stand in need of another and a better. Our incompleteness, our imperfection in knowledge, is a strong presumptive proof of our being in the first stage of existence. The globe is complete, a vegetable is complete, an animal is complete; to its felicity no increase can be made, and its capacity admits not of an accession; I speak of those that are undomesticated, for we abridge the happiness of some that serve us, by cruelty. The very nature of animals must be changed, they must cease to be what they are, before they can be advanced in knowledge, or have a desire for it. But where such a desire, where any natural desire is felt, it is an earnest that it shall be satisfied. An animal desires nothing that it cannot obtain; the want, the wish, is fully met, and completely satisfied: and shall our desire, our thirst, not be met also? Man feels the greatness of his origin, and his destiny; his very crimes proclaim his nature: he sinned that he might know, he sins now from the same principle. Arrogant, on account of what he has attained, he ventures beyond the limits at present set to his capacity, and runs into many vain conceits in philosophy and religion; which being formed, various motives, urged on by pride, induce their being contended for.

Why was Socrates perescuted in Greece, and Galileo in Italy, but because the ruling powers thought themselves wiser than them. Why have priests lighted the torch of war, and carried it round the world, and still hold it smoking in their hands, but that they thought and still think themselves wise. It is mean, and implies an ignorance of the nature of man, to ascribe the spirit of persecution to the love of gain. The spirit is retained when the revenues which had been accumulated round it, and been applied to its support,

support, have been appropriated to other purposes, witness our sister country; witness also those independent protestant churches which have no revenues, and which are not established by law: in them the spirit of persecution exists just in proportion as doctrines are insisted on which are not fully understood. Persuade a priest to urge upon the belief of his hearers only such truths as he can satisfactorily explain, and the torch would fall from his hands: let him enquire where he does not know, and by degrees he will gain wisdom. But ye shall be as gods, is whispered in their ears, and they eat the forbidden fruit: they snatch at knowledge, and think they grasp it, but in its place evil passions rise: such knowledge cankers the root, and the fruit becomes bad. A christian in the lower ranks of life is commonly the best man, because he knows but little, and is conscious of it. I am not the advocate of ignorance, but I would have man perceive his greatness in a knowledge of his wants: the person who does not do this, acts again the part of our first parent.

The more we know, the greater is our personal worth and dignity. Knowledge is worthy of every possible effort to obtain it. Knowledge promotes humility; and the reason we know so little is, because we aim at so much.

But let us take another view of the subject. In the foregoing pages it has been attempted to be shewn, that each kingdom of nature forms a part of the whole, but not of the nature of a chain. That there is no passage of communication between the kingdoms; no transmutation of metals into vegetables; no vegetable that assumes the nature of an animal; no animal that ever became a centaur, or a sphinx, or a mermaid. That many parts of the economy of plants and animals, that bear a resemblance, may be explained without involving the principles of their existence: the motion of the sensitive plant, for instance, has been said to be properly vegetative, and is common, though in a less degree, to every individual of that vast kingdom. The trembling of dissected flesh is not a proof of life, but a specific effect of matter on matter, causing contractions, or the reverse; as cold or heat are specific influences, and give motion to certain bodies.

Not to advert to all the facts that have been mentioned, I submit it to the judgment of the reader, whether the gradationist can establish a theory important, or even interesting, in its consequences; if he cannot, the negro is set free from his most galling chain, the chain that was thought to connect him to the brute.

But let us withdraw from the region of fancy, and its consequent false principles, and tread on ground that will support us. After casting our eyes round creation, we are struck with the thought, that every thing was made for man; they all terminate in his use: Does the earth bring forth her increase, it is that it may be consumed by man;

man; is part devoured by animals, they also are his servants, his lawful slaves and victims; all things are his, he claims and uses them: this vast honor is enough to convince him of his elevated rank. The brute creation are a subordinate part; the design in their creation is apparent; they are made susceptible of, and do receive, pleasure for a short term of existence, in this the goodness of God is made manifest; man might have been supported without their aid, but every atom of matter bears the impression of some animated being. Still the question returns, why was man made? was it not that he might increase the sum of happiness in the universe, by the exercise of his understanding in religious worship, in the performance of which his Creator has promised aid and direction?

It is no disgrace, that, in the first stage of existence, man sees but in part, and knows but in part: it is his crime, that he presumes to know what is kept secret. Let him stretch his capacity to the utmost, it is his duty so to do, but let him not be satisfied with a chime of words and call it knowledge. A consciousness of ignorance will excite a thirst for knowledge, and connect it with humility. We have an immense number of subjects within our reach, but we pass them by to discuss others which are beyond our capacity; hence doubts and difficulties arise, and superstition, bigotry, and infidelity spring up. The origin is the same in each---presumed knowledge. The nature of God, his method in creating the world, his attributes and decrees, fate, free-will, the origin of evil, are secrets hid from us, yet they excite our chief attention. We have in our hands the word of God,---before our eyes are the operations of his providence,---on every hand interesting facts are presented, which, if properly investigated, would lead to useful knowledge.---On the whole we may conclude, that, in place of a scale of gradation there is subjection, in place of connexion there is dependance; that man is the head of the creation; that animals are of mutual use and benefit to each other, but that man is useful to none---he is a stranger on the globe.

SECT. 5.

The Human Race is of one Species.

BY the human race being of one species, I mean, that all who bear the name of man had the same origin, possess the same faculties, and aim at the same object; an object which declares his nature, it being no other than an increase of happiness and felicity, in such measure that this world presents not the means of its accomplishment. "There is no such principle and excellent quality," said Socrates, "in the brutes; and in consequence of this, men are like gods, with respect to them."

The human race, dispersed and scattered over the globe, and broken into classes, present many societies, which are distinguished from each other by various circumstances of external appearance and general conduct; in consequence of which, there is a contest for superiority. For to aim at superiority is natural to man; it is an excellent quality misapplied, when future good is not the object.

The American Indians think themselves the first of human beings: the Chinese look down with contempt almost on other nations; they, and they alone, are great: Europeans presume that the Africans are an inferior race of men, but although they are agreed in thus thinking of the Africans, they have not determined which among themselves is the greatest. The Swiss, the Frenchman, the Spaniard, the Englishman, each sets up his claim at superiority, and treats with disdain the pretensions of the other. Even unlettered nations, beyond the confines of Europe, besides the Indians of America, fancy themselves great. The Tartar, the Arab, are vain of their imagined excellency; they are fierce in war, and they are ignorant of their neighbouring nations, and hence fancy in themselves an innate superiority. To mix the blood of a Tartar chief with a Persian, would pollute it.

The same principle runs through the world; there is a consciousness of greatness in every man. He ought to prize the feeling as one of the noblest his nature is capable of, and to lament its perversion; for when directed to wrong objects, it produces the worst of consequences. From this perversion, those who are civilized despise the savage, and the savage, in return, despise the civilized, and rapine and bloodshed follow. The Americans once indeed thought us their superiors, because we instructed them; but, from our subsequent conduct, they have changed their opinion.

The purpose of this noble principle being frustrated, by its misapplication, and the most debasing sentiments having been expressed by one part of mankind for the other, an opinion has arisen that they are not all of one species, and it has become advisable to enquire into the subject.

In every instance of a difference of species there exists a difference in the economy: should the habits of animals agree in some particulars, and the species not be the same, they differ in so many other essential points, that no doubt exists on the subject. In the economy of man there is perfect harmony; the whole family unite in all the great essentials of existence, and in the leading circumstances of their lives. I shall mention a few of these.

The whole race of man instruct their children, and gain knowledge one of another. Asia gave birth to the sciences, the Egyptians matured and forwarded them, and even claim the invention; but this question I shall not discuss; it is not material where they were invented, they flourished in Asia and in Egypt; the Grecians learned them in that country, and practised them in their own. The Romans were instructed by the Grecians, and diffused the rudiments of useful knowledge over Europe; in the midst of succeeding barbarism their worth was still known, they were prized by a few and concealed as a treasure; when the cloud dispersed, they sprang into light, and have contributed, and are still contributing to wipe away the accumulated rust of ages. From Europe knowledge is disseminating: Africa is a pupil to Europe, and so is every other rude and uncivilized part of the globe, so that at some future period the name and character of savage will be extinct; an event devoutly to be wished by the lover of religious truth, and by the friend to the civil happiness of man.

Another circumstance, in which the human race agree with each other, and differ from the brute, is, in a desire to offer up religious worship. In some places this desire has degenerated into superstitious observances; in others, it has sunk into little more than a belief in witchcraft, and is in this state the leading character of the religion of the Africans; but this confidence in witchcraft is not reproachful to the African, for it is not peculiar to them, it is as universal as man: in Japan, and through the east, it is fully

fully credited; in Tartary, on the lakes of Canada, in the plains of Numidia, in the cities of Europe, it is also credited. Such a belief is mixed up with the common business of life more than is at once imagined. A pretension to the knowledge of a secret is the road to success and fortune in most businesses, and especially in the mixing up of nostrums. Affectation in dress, and a pretence of study, without the use of ordinary means, would bring to the door of such an one many persons, in the full confidence of faith, who scoff at religion, because they cannot comprehend its evidences.

Again, every nation honors the dead, and has devised various ceremonies by which to express this sentiment. The Egyptians bequeathed the embalmed bodies of their friends, as tokens of their affection, to succeeding generations. A German buried a warrior sitting on his horse. An American Indian places by the side of his dead companion the weapons he had used. The Scythians dared Darius to approach the sepulchres of their ancestors. In the East, and in Africa, the death of a chief is followed by the sacrifice of some of his domestics. The funeral pile was erected by the Greeks and Romans, and when it was consumed, the ashes of the dead were collected and secured in a sacred urn. In Europe, we open the bosom of the earth, and there deposit those we once loved, and whom we still wish to honor.

Again, the people of every region are fond of instrumental music; and what might not be expected, the measure of time is every where the same. I know of no nation which has not invented some instrument; that, I believe, which is strictly proper to Africa is the *triangle*; and if this instrument be compared with those in use in other rude nations, it is a proof of the ingenuity and taste of that people.

Personal ornament is another universal practice and passion. Such is the power with which it operates, that a handful of gay and variegated beads will purchase from an Indian his most valuable property. A price too high can scarcely be fixed on the toys with which they delight to decorate their persons. In more civilized and polished states it is an honor paid to the king to approach him in sumptuous raiment; and every office of the state is supposed to gain respect by the appropriate costume assigned to those who fill it. The love of personal ornament is the delight of the young, and even the solace of the aged. In the most opposite regions of the globe, where the northern bear cringes amidst ice and snow, or where the perpendicular rays of the sun scorch the face of nature, the same propensity prevails.

The love of perfumes, of the heat of a fire, of dancing, of property, are all peculiar to man, and they are common to the whole race.

The practice of the mechanical arts is another distinguishing peculiarity; hence Dr. Franklin calls man "the tool-making animal."

Man

Man attends upon the sick, he cultivates the earth, he worships God,---and in this highest act his nature is capable of, while prostrate before his throne, each individual supplicates the same blessing; they are here but as one family, and have but one voice; thus giving indisputable proof of their common nature.

But is there no circumstance in which a difference exists? If they agree in some things, are there not others in which this is not the case? Is the portion of intellect measured out with an equal hand? Are the capacities of the inhabitants of every region of the globe the same? As it respects individuals they are various, but as it relates to nations I know of no evidence for their being so. Were the Greeks our superiors in natural capacity? it is unworthy of man to indulge the thought. Use the same exertion, and the same excellency will be attained. Is the capacity of a North-Briton inferior to that of a Frenchman? I would not insult them by debating the question.---I know of no exercise of the mind, that the people of one climate are capable of, that the whole world cannot unite in, and by a mutual effort produce a joint result. In the politer arts there is a considerable difference; but wealth and leisure approximate distant nations, so that when we talk of the dulness of the genius of the northern nations, and the quickness of the southern, we ought to recollect, that in the north the mind is bent, and the genius cramped, by the labour necessary to obtain the means of subsistence: the inhabitants of the north have never been highly civilized.

So that on the whole we may conclude, that there is no distinction, but of rank, of riches, of acquired knowledge, of features, and of color. These exist, to a degree, not only in the wide extremes of the globe, but in every family, and give a beautiful variety to life. An oak is not less a tree of that species, because its branches are not spread in the same direction with one we had been accustomed to contemplate.---In all the works of nature, there is a certain pliancy, a certain yielding to circumstances, a liberty granted to receive, to a certain degree, a character not natural to them; the color of the skin, the shape of the body, the form of the features, are in like manner the effect of circumstances, as we shall hereafter notice; at present, I shall confine myself to such general remarks as particularly illustrate the subject of this chapter.

The first I make is, that nature herself has taught us to expect a diversity in color; and if this can be proved, it does away, in a great measure, the idea that an extreme difference in this respect implies a difference of species. The expectation is founded on the existence of the temperaments. The melancholic and the sanguine, the brown and the fair, distinguish brother from brother: were they imposed by circumstances, other circumstances might correct them. But nature is tenacious of her own; she has planted this distinction in the constitution, and maintained it there from the days of Hippo-

crates to the present time. They have been observed and described, and the same description, the same division which was applicable then, is proper now. No care has been taken to preserve, but to confound and destroy them: the extremes being alike distant from beauty and from health. The dark and desponding aspect of the one, the irritable and impetuous air of the other, neither excite affection nor respect; of course they are not cultivated. No youth of such complexion marries a wife like himself, that his children may inherit what he never admired, an extreme temperament. But, in fact, the marriages, at least of Europeans, have ever been promiscuous as to complexion; no order has been observed, no one temperament has been designedly preserved; but the melancholic have married the choleric, the choleric the sanguine; and the number of such marriages have been multiplying from time immemorial; yet they are not consolidated.

There is not a district where one complexion only is to be seen; in every town or village, the phlegmatic and the sanguine, with every other variety, are as exquisitely formed now as at the period when Hippocrates first described them; and as they have existed thus long, will doubtless continue to exist as long as the race of man shall live.

So fast does nature hold her prerogative to implant colour, that Dr. Darwin relates the circumstance of a marriage, in which both the husband and wife were of the sanguine temperament, and yet to these parents a child of the melancholic was born. *Zoonomia, sec.* xxiv.

Such facts, as have been mentioned, drive from the mind the strong aversion to a diversity of colour which some have entertained; but it does not explain the cause of colour in that hitherto friendless race of men, the negroes; it is not like the temperaments founded in nature, it is not so fixed and permanent; were it so, a plea might still be advanced against their common origin with ourselves. A diversity of colour in the same family does not correspond to an unvarying blackness; but there are circumstances in the colour of the African which are worthy of great attention, and which plead much in favour of their equality in the order of nature to ourselves. External circumstances have not the power of preventing the operation of the laws of nature; they cannot prevent a diversity of temperaments; they may influence, but they cannot destroy them. If the colour of the negro be a natural colour, if circumstances have not imposed it like the melancholic temperament, the laws of nature will secure its preservation; let us appeal to these laws, to produce the black complexion of the injured African, behold they refuse their aid; the distinction founded on colour that man would create, they know nothing of. The children of the marriage of an European and an African are not some black like the father, others white like the mother, as in the case

of the temperaments, or some pied and mottled, as if nature abhorred the connexion; but invariably they receive the medium colour of both their parents, and it is permanent: for by marrying with persons of complexions similar to their own their children inherit the same. Should a mulatto marry a white, and their children marry whites, in five generations, by observing the same order in marriage, their posterity are not considered, by the laws of the West-Indies, as related to the negro-race; but are admitted to, and enjoy all the privileges and all the consideration of Europeans. On the other hand, should a mulatto marry a negro, slavery awaits their offspring; and in four or five generations, by always marrying negroes, the dash of European blood is lost, and the full colour of the African restored.

Thus we see the colour of the negro yielded up, without an effort of nature to prevent it. That which is thus under the controul of circumstances, must necessarily be the creature of them. What these circumstances are, will be enquired in a chapter expressly on the subject. All that I design at present is, to prove that no inference can be drawn from the colour of the African, to lessen his claim to an equal rank with Europeans; it is not permanent like the temperaments.

With this object in view, we may push our enquiries a little further. No part of the constitution and economy of the animal creation can be fully commanded; nature struggles to maintain every distinction she has imposed. The temperaments are of this description: they were imposed by nature, and she refuses to abandon them. But the colour of the African is not acknowledged; causes foreign from the constitution produced that colour, and it is committed to them to maintain and preserve.

A black child, like the melancholic temperament, never obtrudes itself into European families; but it ought, and would be the case, however unwelcome, if the colour of the negro was natural to the human race. Our offspring are sometimes deformed, and many varieties of monstrous births happen among us, yet the colour of the skin never varies---never exceeds a very limited boundary.

The wool of sheep is white, like the skin of an European, and it is the interest of the farmer that it should be of that colour. Black sheep are seldom permitted to breed; but in many flocks there are black lambs. It is a colour proper to sheep, and nature herself maintains it.

Were it, in like manner, natural to man, it would occasionally be produced. People of colour, especially, would have complete negro children. The plains of Africa would not be requisite to its developement; nor would the climate of other regions retard or promote its formation.

But it may be said, that a mulatto woman, not bearing a black child, is not more strange

strange than that a negress does not bring forth a monkey, there being, in the estimation of the gradationist, as near a relationship between the negress and that animal, as between an European and a mulatto. If there be a considerable distance, a vast remove, from the European to the African, and if between the African and the larger oran outang there is a remove of no wider extent, it follows, that if a mulatto brought forth a black child, a negress might, on the same principle, bring forth an oran outang; for where there is a resemblance in the constitution, such variations may be expected. But I have already said, that the colour of the negro is an acquired colour, and therefore it is never propagated except by parents of that colour; and if the gradationists imagine that there exists a near relation between the African and the brute, let them shew an occasional resemblance in their young. For if there be an affinity, though remote, it will sometimes be seen in the offspring.

But to dismiss this subject let me put a question: allowing, if it be proved, that black is a colour natural to man, and that it exists independent of external circumstances, would even this amount to a full and complete demonstration, that there was a difference of species between persons of opposite colour? Among animals, colour is not considered as relating to the species, why then should it be in the human race?

Let us next consider, in the same general manner, whether in the form of man there can be found a sufficient diversity to constitute a difference of species. It has already been said, that nature allowed a certain influence to the operation of circumstances, in modelling all her works; this is in no instance more fully exemplified, than in the structure of the person of man. In cold and inhospitable regions his head is large, his countenance ugly, his limbs ill-shapen, his stature short: such are the Esquimeaux, and all the inhabitants of the same region. In a hot climate, his head is small, his face broad, but not disgusting; his limbs long, the under-jaw protuberant, as in Africa. In these instances the leading cause appears to be connected with the climate. This is one circumstance which has influence; there are others.

The Athletæ of Greece made it their study to discover the means, and the business of their lives, to put in practice schemes for increasing their size and strength: they obtained their object. Feats which required more than Herculean strength are said to have been performed, and the quantity of food devoured by them is incredible. But, after making due allowance for the exaggeration of those who report the circumstance, there is still sufficient, that is authentic, to warrant us in saying, that the size and strength of the body may be greatly increased by suitable attention to the nature of the food, and the proportion of exercise.

The Mexicans, who lived in a climate not very unlike that of Greece, by eating little,

little, and living without much exercise, were remarkably slender and feeble. But we need not go beyond our own country to trace the effect of partieular habits and modes of life on the bodily form. Squalid poverty is inimical to personal beauty; not only do the limbs want flesh, but the countenance loses its loveliness in childhood, and its dignity in age; distress and sullenness are depicted, where perfect good-nature and chearfulness should catch the eye and captivate the heart: and in families to whom wealth is given, a mistaken notion of the management proper to children has been productive of lasting injury to their persons. The features of a child are crampt and distorted by mean and scanty food; by thin clothing, and cold and comfortless lodging; while the features of a youth are swelled by excess, and made ugly by the flow of passion and the sentiments of vanity such a mode of living produces. By excess, I do not mean drunkenness, but the habitual and full use of animal food and fermented liquors; which are injurious to the health, the happiness, and, in their effects, to the moral conduct of youth.

But besides the acquired, there is a natural want of resemblance; a diversity of appearance in the children even of the same parents. They are seldom so much alike as to be mistaken for each other. Nature begins the difference, and art and education carry it on: however far, therefore, this may be carried, a doubt cannot arise as to the species.

In the great family of man there is not a rent, a breach sufficiently wide, to exclude any part from the blessings and privileges which attend the most distinguished. But, independently of the arguments drawn from the human race in favor of this position, analogy furnishes strong presumptive proof of its truth. The whole class of domestic animals may here be referred to, but I select the dog as our more constant companion. Pope says, there are more examples of the fidelity of dogs recorded than there are of friends. That this animal should be so distinguished, supposes considerable attention to its economy, and indeed this has long been given; for the spaniel, the bull-dog, the greyhound, and all the many varieties of the dog kind that are found in a domestic state, do not exist in the wild. Buffon supposes the shepherd's dog to be the original stock. Dogs of this class are found in the woods of South America, of Ethiopia, and Congo.

There were no dogs in America when that country was discovered; and that they now should be of the kind we are speaking of, is a proof that this is the natural state of the animal: for it is reasonable to suppose, that dogs, of every description, have been lost by their masters, and became wild in the woods of that continent. But we have more decisive evidence, that many breeds of dogs owe their existence to the attention that

that is paid to keep them distinct, and that is their utter incapacity to provide themselves with food in a wild state. A greyhound has no scent, it pursues its game by its sight; and unless the country be free from wood, it cannot overtake a slow-moving animal, and must starve.---But we have another proof that dogs are all of one species. When they are disposed to go in search of game, they do not associate hound with hound, pointer with pointer, but pack together in one promiscuous multitude. The dogs themselves know of no difference in species; and as all animals are good judges in this matter, their decision ought to be considered as conclusive.

Birds, of different species, are compelled to flock together in a severe winter, and find subsistence in the same farm-yard; but as soon as spring returns they separate into different societies, and drive from them any that might accidentally have united with them. They feel the repugnance of uniting with birds of other species in its full force, though much resembling them in appearance, and in many parts of their economy; and thus each species is kept distinct.

Besides the dog, the sheep has long enjoyed, and rewarded the care and protection of man; and, like them, has branched out into many varieties. But were any one to describe the long woolled sheep as of a different species to the short; or a black sheep as of a different species to a white, he would be held up to ridicule. The usefulness of the animal has made its economy the subject of much attention, and experience has taught the fact, that a breed may be obtained of properties that caprice or judgment may fix a value on.

From these facts, and many others which might be added, it is demonstrable that a great want of resemblance is not a a proof of a difference of species in animals; and, by a parity of reasoning, the same may be inferred of the human race.

It is unnecessary to introduce other subjects of discussion into this chapter, sufficient, I think, has been advanced to justify me in saying, that in all that constitute the dignity of man, and his superiority to the brute, the whole human race are equal.

But it is not by inductions from general facts, that the friends of the theory of gradation support their doctrine. They have chosen other ground of contest; and it is proper to meet them there. They endeavour to prove by much anatomical investigation, that the structure of the body of a negro is inferior to that of an European; and Mr. White especially, endeavours to prove, that man sinks in mental and bodily endowments, link by link, in regular gradation, down from the European, till the race is lost in the oran outang.

Before quitting the subject, I cannot refrain from noticing the link, which according to this philosopher, unites man and beast together---the oran outang and the negro.

 This

This animal is but little known; none of the species of the *genus simia* are in high esteem; not a single quality is assigned them which is admired in other animals. To unite an animal, of an esteemed inferior order, to man, is not very complimentary. But suppose it to hold good in nature, that the inferior order of one great division is united to an inferior order of another great division, what is the result? To see it, let us carry the idea a little further, for the scale of gradation is not supposed to terminate with animals; and let us endeavour to unite the race of man with the next order of intelligent beings: the lowest species of man is consequently the point of union; which, of course, is the negro; of the order next above, we are ignorant; but we are assured that it exists, and Mr. W's. theory places the negro in connexion with it. Thus, the people he designed to disgrace by degrading, he inadvertently exalts and honors. If his theory be true, who would not desire to be a negro?

SECT. 6.

Of the Length of the Arm.

WORKS of elegance, dignity, and taste, require an exact attention to the proportion of their parts; without this, they lose their effect, and deformity appears, where beauty was intended. Neither the sculptor nor painter can expect eminence in their respective professions, without due attention to this circumstance; and especially, when the person of man is the subject of their art, the smallest error, the slightest disproportion, meets the eye and is detected. Such nicety being requisite, it might have been expected that rules were clearly laid down, and that accuracy might be ascertained in many ways more satisfactorily than by the eye. But whatever rules the artist may have to assist him in his work, he has none that can afford any aid to the philosopher in his discussions. Indeed it appears, that the arts and sciences have not rendered that mutual aid which it was reasonable to expect they should have done. The artist seldom applies to the philosopher for instruction, or the philosopher to the artist for practical information; each proceeds as if unconnected with the other: this is a mistaken and injurious line of conduct.

Notwithstanding the long and intimate acquaintance with the structure of the human body which the sculptor and painter are supposed to have possessed, when it was asked by the philosopher, whether the proportion of the person of man was in every country the same, they could not answer the question;---they professed only to copy, and had not the curiosity to enquire beyond the mere mechanical part of their art.

The anatomist, ashamed of the universal ignorance which prevailed on a subject so interesting, again commenced his labours,---again he compared bone with bone, muscle with muscle, nerve with nerve; and, by bringing under one view natives of every region,

gion, succeeded in discovering certain lines and marks of distinction; certain differences in proportion.

Those alone which I deem of sufficient importance to occupy our particular attention, were noticed and discussed by Mr. White, in a Treatise already mentioned. The first and most interesting circumstance, related by that gentleman, relates to the length of the arm. " I had observed," says Mr. White, " that the arms were longer, and the feet flatter, in apes, than in the human species; and having the skeleton of a negro, among others, in my museum, I measured the radius and ulna, and found them nearly an inch longer than in the European skeleton of the same stature, &c. These remarks (he adds) encouraged me to proceed in my investigation." p. 42.

M. Meiners might claim the same discovery, for he also noticed the superior length of the arm of an African. *(Selections from the most celebrated Literary Journals.* v. i, p. 343.)

But I wish not to detract from Mr. W. any merit he may claim for having brought the subject before the public. The fact itself is interesting, and the inferences are such as that gentleman thinks naturally arise from the doctrine of gradation. The fore-arm, or the space from the elbow to the wrist, being discovered by Mr. W. to be shorter in an European than in an African, and the fore-arm of an African shorter than any of the *genus simia*, it follows, in his opinion, that the African, by approaching in the form of his body, approaches also in his nature, to that of the monkey-tribe; an inference, calculated to banish every noble sentiment, and to blast every hope that man might cherish: there is something so very humiliating in the idea, that were it true, it would become the whole race to clothe themselves in sackcloth; they would be no longer a-kin to angels but to beasts. But we must leave the inferences, and attend to facts.

Mr. White, in proof of the truth of the position he advances, has published the names, the height, and the length of the arms of twelve Africans, and contrasted them with twelve Europeans. He also informs us, that he has measured thirty-eight other Africans; and he says---" I found, that, not only in the twelve, but in all the negroes, the length of the lower-arm was greater than in those of Europeans." p. 52.

It is worthy of remark, that the parts of the body, which Mr. W. and other philosophers produce as evidences against the dignity and manhood of the Africans, the ancients considered as so uniform in their length, that they used them as measures in the transfer of merchandize. The cubit, the ulna, the span, the hand's-breadth, the inch, were all measures derived from some part of the arm, and the arm itself was considered as thirty-six times the length of the first joint of the thumb, and is the same

same measure we now denominate a yard. To this we may add, that, in arithmetic, the numerals are the same in every country on the globe, and probably derive their origin from the ten fingers, by which all nations, in a barbarous state, make their calculations. When the number is too great to be conveyed in this way, the hairs of the head are pointed to, as being innumerable.

The foot, which is another object of Mr. White's attention, is equally entitled to notice; it is the well-known measure of twelve inches. From the action of the feet in walking we derive our measure of a pace, and a thousand paces was the well-known measure of a Roman mile. In the progress of the arts and sciences it became necessary to define more accurately the space that had before been understood by the measures that had been in use; and thus, in place of appealing to the body itself, the name of the part is retained, and a precise idea affixed; hence, a cubit is 20 inches, &c. but still, in many transactions that do not require great accuracy, the original standard is made use of. It is common, for instance, to measure an inch by the joint of the thumb, and a yard by the length of the arm. It is a curious fact, that what the ancients honoured so highly, as to derive from them the most important part of arithmetic, and the basis of commercial transactions, modern philosophers derive their strongest arguments for dividing the great family of the human race, and separating them, as is done by brutes, into genera and species.

To convey a better idea of Mr. White's design, and the force and validity of his observations, and also to elucidate the remarks I may make on the subject, I have copied from Mr. White's publication the measures he had taken of Africans and Europeans.

LIVING NEGROES.

		Stature. F.	I.	*Upper Arm.* Inches.	*Fore Arm.* Inches.
Lunatic, Hospital, Liverpool,	—	5	10⅓	15	12¾
Glazier, from the Gold Coast,	—	5	8	13	12¼
John Gilman, St. a Cruz,	—	5	8	13¾	11¾
Spotted or blotched, Jamaica,	—	5	7	13	11
Thomas Rogers, Long Island, Mother, Tawney,		5	6	13	11
Jamaica, Regiment of Dragoons,	—	5	6	12¾	10¾
William Layland, Anamabol,	—	5	6	12¼	11
North Virginia,	—	5	5½	13½	11¾
Castleman, Jamaica,	—	5	4¾	12	11
Lord G. de Wilton's Royal Lancashire, Anamabol,		5	4¼	12½	10½
Barbadoes,	—	5	1¾	13	11
Henry John,	—	5	0	12	10½

WHITE EUROPEANS.

		Stature. F. I.	*Upper Arm.* Inches.	*Fore Arm.* Inches.
Mr. W. Butler,	—	5 11½	15	11
Mr. W. Gardener,	—	5 9½	14	11
Mr. W. Coachman,	—	5 8	13½	10½
Mr. W. Footman,	—	5 8	13½	10 6-10ths.
Apothecary, Lying-in Hospital,	—	5 7½	13½	10½
Mr. B.	—	5 7½	13¼	10¼
Mr. J. B. W.	—	5 7½	12¾	10
Mr. W.	—	5 7	12	10
Dr. T.	—	5 5¾	12½	9 7-8ths.
Jarvis, Hairdresser,	—	5 5½	13 5-8ths.	10¼
House-Surgeon, Infirmary,	—	5 4¼	12 5-8ths.	10¼
Porter, Lying-in Hospital,	—	5 0	12¼	9 3-8ths.

To these I shall add, in order to complete our acquaintance with the subject, the corresponding measures of several of the larger monkeys, from de *Histoire Naturelle par M. Daubenton.*

DU JOCKO.

	Feet.	Po.	Li.
Hauteur depuis le taton jusqu'au sommet de la tete	2	0	6
Longueur de l'humerus,	0	6	9
Longueur de la main depuis le poignet jusqu'au bout du doigt du milieu,	0	5	2

DU GIBBON.

Longueur du corps entier, mesure en ligne droite, depuis le bout du museau jnsqu'a l'anus,	1	3	6
Longueur de femur,	0	7	1
Longueur du tibia	0	6	1
Longueur du l'humerus,	0	7	11½
Longueur de l'os du coude,	0	9	0
Longueur depuis le poignet jusqu'au bout des ongles,	0	6	6

DU MAGGOT MALE.

Longueur du corps entier, mesure en ligne droite depuis le bout du museau jusqu'a l'anus,	2	0	0
Longueur du femur,	0	6	7
Longueur du tibia,	0	6	4½
Longueur du humerus,	0	5	10
Longueur de l'os du conde,	0	6	3
Longueur depuis le poignet jusqu'au bout des ongles,	0	4	6

DU

DU PAPION.

	Pieds.	*Po.*	*Li.*
Longueur du corps entier, mesure en ligne droite depuis le bout du museau jusqu'a l'anus,	1	10	6
Longueur du femur,	0	8	7
Longueur du tibia,	0	7	2
Longueur du humerus,	0	7	8
Longueur de l'os du coude	0	8	10
Longueur depuis le poignet jusqu'au bout des ongles,	0	4	2

To these I may add the dimensions of a lesser Gibbon, in the Museum of Dr. Monro, jun. of Edinburgh, which that gentleman did me the favor to present me with.

		Feet.	*Inches.*
Length,	from the head to the foot,	3	1
	humerus,	0	7½
	ulna,	1	0
	hand distorted.		

Thus the deficiency left by Mr. White is supplied, and the chain of the gradationist is completed, upon his own plan; but the philosopher must possess the strong imagination of a poet, he must even outstrip Ovid, before he can persuade himself that there is any thing in these measures on which to found an idea of natural resemblance—of an approach to consanguinity. Is there an agreement in the humerus or bone of the upper arm of a man, and that of a monkey? No; it is twice the length; and the fore-arm is the reverse.

In the arm of the Gibbon, which is considered as of the first order of monkeys, the fore-arm is twice the length of that of a man's, estimating according to the height of the body. Thus, in place of a resemblance, and an approach to the person of man, like the links of a chain, we find the very reverse.

Thus, the chain of the gradationist is broken, at the very place it was thought the strongest; and the hand of the negro is snatched from that of the brute. And where is the man that will dare to say, the negro is not equal to him who was made but a little lower than the angels?

Of the lunatic, Mr. White says, "I measured myself, in the presence of several Gentlemen of the Faculty, at the Hospital; but after my return from thence, finding the measure of the arm to exceed all others so much, I was afraid of a mistake; and wrote to a medical man, of the Infirmary, desiring the lunatic might be measured again. This was done, and two pupils of the Infirmary sent me a note, of which the following is a copy:

"Height

	Ft.	In.
" Height of the Black at the Asylum,	5	10½
" Length of the Humerus,	0	15
" Length of the Ulna,	0	12¾

" RICHARD FORSHAW.
April, 1794. " THOMAS CHRISTIAN."

The caution used by Mr. White, lest he should deceive the public, is highly to be praised; but it was unnecessary, as his authority alone would have been amply sufficient. Besides, the length of the arms of North Virginia and Barbadoes, compared with their height, are nearly as long as the lunatic's.

To these facts, I may subjoin another. Towards the close of the late war, I obtained access to the prisoners confined in Edinburgh Castle, among whom were several negroes; in taking the measure of whose arms I was assisted by my friend, Dr. Barclay; and was astonished, after the remarks made by Mr. White of the lunatic, to find the fore-arm of one man an inch longer than the lunatic's, though they were of nearly the same stature. The other Africans, whose arms I have measured, correspond to those taken by Mr. W. I shall therefore proceed to another remark.

Mr. White is of opinion, that the upper bone of the arm, (the humerus), is of the same length in the European and in the African. To use his words, " There seems to be no difference of the upper arm, the leg, or the thigh." From the observations I have had an opportunity of making, the humerus is of very uncertain length: in some instances, those of the African are shorter than those of an European of a similar height; sometimes the reverse. For instance, Castleman's upper arm is shorter than that of Jarvis's; and Glazier's is shorter than Mr. W's., gardener; but the humerus of Barbadoes is longer than Mr. W.'s.

Again, if we pass from the humerus to the lower arm, we shall notice the same want of uniformity: Jarvis, an European, has a shorter fore-arm than Lord G. de Wilton's Royal Lancashire Anamabol, although Jarvis is the taller man. Some Africans that have come under my notice, had shorter fore-arms than some Europeans, of corresponding stature. Hence Mr. White committed an error in asserting that the fore-arms of Africans were uniformly longer than Europeans.

But I deem it wholly unnecessary to multiply remarks of this description; the utmost that can be proved by them is, that Mr. White has, in a few instances, been mistaken; they do not interfere with the position he advances,—that the fore arm of the African is of greater length than that of Europeans', to which I accede as a general fact, and am obliged to that gentleman for so interesting a fact. But in the inferences he

he draws from it, I cannot go with him. Mr. W. attaches honor, and something even more than honor, to the circumstance; he estimates the rank a people bear in the creation, by the proportion the bones of the arm bear each other; and when he wants a standard, he reaches forth his own. A claim, of such high import, ought to have been supported by evidence, but none is advanced.

To form an opinion on a subject, interesting from the importance attached to it, I attempted to obtain the length of the arms of several individuals of every nation with which we have commercial intercourse, but in this my design was frustrated. It next occurred to me, that the Highland clans, having lived for ages distinct and separate, might exhibit as great a variety in the proportionate length of their arms, as people of remote nations. In the course of my enquiries I was informed by some of the Grants, that their clan was distinguished by the length of their arms; and as such a distinction was of importance when the broad sword was the weapon of defence, I readily credited my informers. It is probable other clans dispute the right of the Grants to a distinction so valuable to the warrior; even kings have not thought themselves disgraced by it being said they were long armed.

At the time the idea occurred to me of obtaining a knowledge of the proportion the arms of the Highlanders bore to each other, the Dumfriesshire militia, which was composed of men of various clans, was stationed at Edinburgh; and having obtained permission, Serjeant Brunton was requested to obtain the requisite admeasurements. The following are those he presented to me; and as he knew not the motive I had in view, their accuracy may be depended on.

Length of the undermentioned Men's Arms, &c.

16th June, 1801.

NAMES.	Stature.		Length from the Shoulder to the Elbow.	Length from the Elbow to the Wrist.	Length of the Hand.
	Ft.	*Inch.*	*Inches.*	*Inches.*	*Inches.*
James M'Queen - - -	5	10¼	15 1-8th.	11½	7 3-8ths
L. M'Lauchlan - - -	5	9½	14	11 3-8ths	7½
John Rose - - -	5	9	14 1-8th.	11¼	7 7-8ths
Robert Watson - - -	6	½	14½	12 1-8th.	8 3-8ths
Corporal Lewis - - -	6	2¼	15¼	12 1-8th.	8½
John Leckie - - -	6	2½	15 1-8th.	12½	9
John Guthrie - - -	5	11½	15¾	12 1-8th.	8
Robert Jardine - - -	5	11¾	15	12 1-8th.	8½
Serjeant Newall - - -	5	11¼	16	11 3-8ths	8¼
Corporal Shaw - - -	5	11¼	15 3-8ths	11 7-8ths	8¼
James Tod - - -	6	¾	16 1-8th.	11¼	8¼
P. A. Cameron - - -	5	7½	13½	10¾	8
Serjeant Brunton - - -	5	11¼	14¼	12½	8½
Thomas Jardine - - -	5	8½	15 3-8ths	11	8
Robert M'Naught - - -	5	10½	15½	11 3-8ths	8¼
John M'Achill - - -	5	9	14½	11¼	7½
Thomas M'Call - - -	5	11½	14½	12	8 1-8th.
James Grant - - -	5	10¼	14 3-8ths	12 1-8th.	8
Peter Dickson - - -	5	9½	14 1-8th.	11	7¾
Samuel Nicholson - -	5	10½	15	11 5-8ths	8 1-8th.
James Brown - - -	5	8¾	13½	11 1-8th.	7 7-8ths
James Davidson - - -	5	10	14	11½	7¾
Robert Pringle - - -	5	9¾	14½	11 5-8ths	8
Walter Black - - -	5	8½	14	11¼	7½
Archibald Brown - -	6	2	14¾	12 1-8th.	8¾
Thomas Byers - -	5	11¼	14	11 7-8ths	8¼
Corporal Hunter - -	5	11¼	15	12	8
William Muir - -	5	10½	14 1-8th.	11¼	8¼
Daniel Holliday - -	5	8¾	14	11 1-8th.	7½
George Anderson - -	5	7½	13 1-8th.	10¾	7 1-8th.
Peter Brown - - -	5	9	14 1-8th.	11½	8 1-8th.
Robert Blacklock - -	5	8¾	13¾	11 1-8th.	7¾

William Brunton.

The above measures were taken by the same method as that pursued by Mr. White, which he thus states: "I took the following method to measure the fore-arm. I applied a pair of callopers to the extremity of the elbow, and to the lower extremity of the ulna, where it is joined to the wrist, by which, the length may be accurately obtained. But it is not so easy to find the length of the os humeri, in the living subject. I contented myself with applying one end of the callopers to the extremity of the elbow, and the other just below the acromion; the distance gave the length of the os humeri, together with the thickness of the ulna at its upper part." pa. 52.

From

From the foregoing list, no distinction can be traced between the clans; and I presume, from what I have observed, that none at this day exists. But other interesting circumstances may be noticed. It establishes the general fact of the superior length of the fore-arm of the African; it also marks a difference between those Europeans measured by Mr. W. and those by Serjeant Brunton; for, on casting up the different columns, I find this to be the result:---A Scotchman, six feet in height, has, on an average, a fore-arm twelve inches long; an Englishman, supposing the measures of Mr. W. a standard for the nation, of six feet high, has a fore-arm eleven inches and a half; but the fore-arm of an African, of the same height, is twelve inches and a half in length. Thus the Scotchman is the midway between the Englishman and the negro.---From hence we learn, and to the sculptor the information must be interesting, that in a well-proportioned person, the fore-arm is to the height of the person, as 1 to 6; in other words, the fore-arm is one inch long to every six inches of stature.

If a long fore-arm assimilates the person of man with that of the *genus simia*, a long humerus, being the very opposite of the monkey's, must shew the complete man; and, from that intuitive sense of dignity and worth, which ever accompanies a knowledge of superior manliness, must also elevate the person that possesses it.

But it so happens, that the very circumstance which ought, if the principle Mr. W. advances were true, to mark a proud pre-eminence, disgusts by the aukwardness of its appearance, whether it be in motion or at rest.

When I was speaking on the subject with that celebrated artist, J. Graham, Esq., he fully confirmed the above sentiment, and added, the statue of Apollo Belvidere derived part of its elegance from the shortness of the humerus.

Thus a great mistake has been committed; the humerus of the ape tribe is very short, and in place of admiring in ourselves the very opposite to them, we have fixed a value on a resemblance. And I apprehend it will surpass Mr. W's. ingenuity to shew a reason why a resemblance in the length of one bone of the arm, is not as important as that of another.

But that part of the monkey which is most characteristic of the genus, is the length of the hand. Now it happens, that the hand of a Scotchman, according to the observations I have been able to make, is longer than that of an African. The longest hand of an African I ever measured, was that of Henry of Leith; a man six feet in height, whose hand, from the wrist to the extremity of the middle finger, measured eight inches and a half. By turning to the measures taken by Serjeant Brunton, it will be seen, that it is not so long as some of those he had measured.---Thus, on the doctrine advanced by Mr. White, the Scotch are no further removed from the *genus simia* than

than the Africans. I do not know how I could better refute the theory of that gentleman, than by such evidence as this.

Is personal courage a mark of manliness? No nation has exemplified this quality of the mind more strongly than the Scotch. Is erudition, and a love to science in general, a mark? We appeal to the Scotch as possessing them. They, too, are good citizens. Dispersed through the world, their general conduct purchases for them a welcome---not as strangers, but as friends; it is an acquisition to a country to be resorted to by them. And while at home, seeking a mean and scanty supply of the necessaries of life, on their bleak and cheerless mountains, they are not barbarous, inhospitable, and rude; but, to use the language of an elegant writer, on another occasion,--- "They, even here, possess the virtues of simplicity, without the vices of ignorance." Such are the people Mr. W's. theory approximates to the brute equally with the negro. It is unnecessary to use other arguments in refutation of such doctrine.

Having commended Mr. White's ingenuity in discovering the interesting fact, that the fore-arm of an African is longer than that of any other people, it becomes us to enquire whether a natural cause cannot be assigned for this circumstance. To brand with more than infamy, to degrade, debase, and abandon a large portion of the human race; to give them a place with brutes, and deny them our fellowship, is a consideration too important not to have its claim to truth fully enquired into. In doing this, the first idea that occurs to me, is, to examine whether the arms of children bear the same proportion to the length of the body as those of adults. On enquiry, this was found not to be the case. The fore-arms of European children, three feet in height, are an inch shorter than their due length; by the proportion common to the adult, their fore-arms ought to be six inches in length, but they are not more than five. Hence, if a short fore-arm be, as Mr. W. contends, honorable and dignified, the greatest dignity belongs to a child; and hence man is most perfect during the age of imbecility. This infantile shortness continues to the age of puberty, at which period nature makes a new effort; the whole system is evolved, the manly proportion is approached, and the whole form hastens to its consummation; the body rapidly advances to its destined height; but when this is nearly completed, the progress becomes less rapid, and the last inch in height is slowly acquired; but those parts of the body which are not connected with the height, not being influenced by the same cause, still continue to increase with unabated rapidity.

But this subject requires further elucidation. Nature, careful of the trust committed to her, erects the fabric, and then beautifies it. The heart and brain are the parts first formed, they are next encased and shielded from danger: a fœtus, some weeks

weeks old, has scarcely either arms or legs, they not being essential to life; the same preference, if I may use the expression, to the vital parts, continue till all that was designed for their protection and safety is completed; but as the legs are destined to sustain the weight of the body, they acquire an early strength, and attain their full length: this, however, is not the case with the arms; a superficial observer might say, it arises from the arms not being so early exercised, but the fact is, they are not so early matured for exercise. As the trunk of the body acquires size, it also acquires weight, which is an impediment to growth. Hence it is, that a person is nearly an inch taller in a morning than in an evening: hence it is also, that animals which sleep the most, grow the fastest; sleep implies rest, and a posture free from pressure. When nature has completed the trunk, when the full height of stature is attained, the means by which this was accomplished is not lessened; but it is opposed; they cannot act in the same direction; the supply of nutriment is greater than the body requires for its support: there is still a disposition to increase; the body resists this disposition by its weight and size; but the arms, nose, &c. sustain no weight, and are smaller, they consequently are the parts that receive the superabundant nutriment.

Many facts corroborate this statement. The tallest persons have the longest arms in proportion to their height; had the pressure of the body on itself been less, had they been indolent, and wasted much of their time in bed, they would have gained in height, and thus the arms would not have acquired their due length. Short, healthy youths have very short arms; the full stature of the man is not completed in them; nature exhausts herself on the trunk, and consequently the less important parts are neglected. A short person, with long arms and a long nose, implies great feebleness of constitution, great softness of the bones during the period of growth; the want of vigor in raising the column, increased these auxiliary parts. An artist, in designing a full-length picture of a child, finds it difficult to draw the arms of their natural length, without conveying the idea of deformity, so great is the disproportion between the length of the arms of a child and those of an adult, and this disproportion continues through the period of childhood. All persons whose avocations compel them to pay particular attention to the persons of children, are familiarly acquainted with the fact. I asked my tailor whether he had not noticed the shortness of the arms of children, and also their rapid growth in youth? "Certainly, Sir," he replied, "we are frequently desired to lengthen the sleeves after the young gentleman has done growing in height." Governesses of schools, and parents, are equally acquainted with the subject; and as it is their business, so it is their pleasure, to watch not only the unfolding of the mind, but the growth and expansion of the body; the person, equally with the judgment,

excite their attention. Thus occupied, they are struck, when the period of youth commences, with the beauty, the expression, the harmony, which at once beams in the countenance; the features enlarge, the arms lengthen, and if there exists the expression of generosity, goodness, and truth, the human face has arrived at its greatest perfection; a corrupt heart has not yet disturbed its order, or sullied its lustre.

The growth of animals may also be produced in illustration of the general remark, that the parts essential to life are first completed. A horse is not a mere expansion of the colt, the parts do not at both periods bear the same proportion to each other: at one period the hind quarters grow, then the fore, and in a few years the trunk is completed; but after this, the neck rises, the head, the ears, &c. increase in size, and the animal, at different stages of its growth, has very different appearances. A horse, taken too early to work, and subsisted on insufficient food, never gains the beauty it otherwise would have done; the bones do not acquire their proper relation to each other; the pressure they sustain prevents it.

Let us carry these ideas with us in attempting to account for the great length of the fore-arm of the African. Under the torrid the period of puberty arrives sooner than it does under the temperate zone; there the natives are youths while we are yet children. It has already been said, that the age of puberty forms an important era in the growth of the body; that the arms at this period commence a more rapid growth, which continues till the whole fabric is completed.---To this fact another may be added, which will at once account for the superior length of the fore-arm of the African,---they continue to grow to as late an age as Europeans; thus, as their increased growth commences earlier, and continues to the same period, the arms must of necessity be longer.

The avocation to which a person devotes himself, has also an influence on the growth of this bone. I have been informed, for instance, that the arm with which a weaver throws his shuttle, is the longest.

But, on the supposition that no physical reason could be assigned for the superior length of the arms of the Africans, it would not be proved that such a distinction was a mark of inferiority; it is an assumption of Mr. W's. But I appeal to the general sentiment of mankind, and say that, neither in ancient nor in modern times, neither among the civilized nor the rude, have long arms been considered as inelegant, or in any way lessening the dignity of the individual. And I confess I pay respect to a sentiment which is every where received, although I may be destitute of that information which might enable me to judge of its propriety. Perhaps there is no better test of the opinion of the ancients, than that which the statues ascribed to them afford. To obtain

obtain the necessary information, I again applied to Mr. Graham, who politely gave me admission to his rooms, and assisted me in taking the following measures:

	Stature.		*Length of the Humerus.*	*Fore-Arm.*
	Ft.	*In.*	*Inches.*	*Inches.*
Apollo Belvidere,	6	10	16½	14¼
Antinous,	6	0	16½	12½
Apollo de Medicis,	4	9	11½	9¾
Gladiator Repellant,	6	3	14½	12½
Venus Celestial,	4	8	13	9¾
Venus de Medicis,	5	2	0	10
Fawn,	5	6	12	9

From hence we may gather the opinion of men of past ages on the subject. When they designed to represent dignity and strength, the arm is lengthened even beyond that of the African; but when they designed to convey the idea of a mean, degraded character, as, for instance, that of the fawn, the arms are represented as very short.

Thus the African passes the test to which Mr. White has subjected him with triumph. If, in addition to this, the image of night be implanted on his person, still he is a man; he knows of no superior. The perfection of symmetry to which the Grecian statuary aspired, is sufficiently honorable to the person of the African.

Whether the arms of the Venus Celestial be of ancient or modern structure, I shall not stop, with Heyne, to enquire; they are assuredly elegant; and I may add further, they are of the same proportion as those of our fair countrywomen. It has been represented by Mr. White, that the fore-arms of an European woman, five feet high, are only eight inches and a quarter in length; such as I have had an opportunity of ascertaining, have been nearly an inch longer. But still there is an evident disproportion between the length of the arms of men and of women.

SECT. 7.

Of the Legs and Feet.

AFTER being so forcibly struck as Mr. White appears to have been, with the resemblance that gentleman thought he had discovered between the arm of a negro and that of a monkey. Arm! do I say? It is not an arm; the animal is a quadruped, and has no arms. But as Mr. W. has been pleased to distinguish it by that name, I feel no inclination to enter into controversy on the subject. Call it an arm; admire the proportion of its parts; compare it, and if you please, say it is equal to the arm of a man. Admire the length of the fingers---the flatness of the hand---and if there be no thumb, the circumstance is trifling; a firm adherer to the doctrine of gradation can look over a radical difference.

Mr. W. is a warm advocate for the doctrine I am speaking of; and as he can see so strong and unequivocal a resemblance in the arms, it is a reasonable supposition that he can see it in the legs also. He does see it, and has given an engraving to elucidate his observations. The calf of the leg particularly attracts his attention; it is high up: thus the very situation may be said to be different from that of the European's. But Mr. W. has contented himself with mere external resemblances; he does not appear to have enquired into the secrets of nature; he has put no question to her; he has not asked her by what laws she operates? But he might have done so; his profession naturally leads him to it.

To say that an external relation exists, is not enough for a physiologist; in fact, it is nothing. A consequence implies a cause, of which Mr. W. has not made the slightest enquiry. Nor does it fall under my plan to enter into the discussion at this place. It is sufficient at present to say, that the human body is made up of parts that

are

proportioned to each other; that they have a reciprocal influence; that the strength of the legs are adapted to the weight of the body, not by a miracle, but by the operation of the laws of nature; is not the stem of a tree proportioned to its branches and its height? the one does not increase without the other; there is a relation, a dependance, of the parts. It would very much disfigure the person of man, if one limb grew and not another, or if one part did not influence and direct the shape of another.

An enquiry into this subject will enable us to form an opinion of the reason of the calf of the leg of an African being higher than that of an European. In its proper place this enquiry will be made; but at present I shall consider those circumstances only, which admit of an explanation on mechanical principles.

The feet of an African, Mr. White says, are remarkably flat; and we are informed, that monkeys' feet are flat also; and the usual inference follows, that they are branches from the same stem. The custom, among civilized nations, of confining the feet in shoes, has a considerable influence on their shape; witness the Chinese, among whom deformity is the consequence of fashion. But in countries where utility is the principal motive for the use of shoes, there is still some effect produced by them on the shape of the feet: an infant, for instance, before it has walked has no arch; its feet are flat; the feet at this period are covered with flesh, and hence the arch may be supposed to be concealed; but when viewed in a skeleton, the same flatness is apparent. As the child advances in life, a strong tendency to form an arch in the feet is manifested; and if shoes are worn, this is usually effected. But if that is not the case, the toes spread wide asunder, and no elevation of the instep takes place.

It is common for servant women, in Scotland, to wear shoes only on Sundays; to learn the effect of this custom, I asked a shoemaker respecting the circumstance, and he told me his countrywomen, of the lower order, were in general plane-footed. Indeed, there cannot be a doubt, that if the feet receive no support from shoes, that they will gain in width and lose in the elevation of the instep.

But it is unnecessary to dwell on the subject, for it is well known that many individuals are flat-footed besides Africans, and of course are involved in all the consequences that attend such a circumstance.

There is one circumstance respecting the bones of the legs, which I think proper to mention before I close the subject, because it may be of practical utility; I allude to their liability to become crooked. No writer, that I am acquainted with, has enquired into the cause of this affection, and therefore a preventive or a remedy is never at-

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tempted to be applied. Were the bones weak and insufficient to support the weight of the body, they would bend, not at their extremities, but in the middle. This fact is too well known to require mathematical demonstration, or it might be applied. Were the heads of the bones to enlarge, it would destroy their beauty; but it is not sufficient to account for their diverging from a right line; bones do not of themselves grow crooked, pressure is certainly the cause: hence, a ricketed child should be cured of that malady before it is allowed to support its own weight. But in what way can pressure cause a divergency at the joints? It is well known to anatomists, that the distribution of blood is not exactly similar in both legs, of course one is better supplied with nutriment than the other; hence, one aches less from fatigue than the other. Allowing this to be true, it is easy to conceive that the growth of the legs is not always uniform; and indeed that is the case: one leg is frequently, during the period of growth, longer than the other; when this proceeds to any considerable extent, as it sometimes does, the longer leg is necessarily thrown out from the body; the pressure is not made perpendicularly upon it, but falls obliquely. Hence the knee, which is the centre between the hip and the foot, and is the part most acted on, naturally gives way and produces deformity. A stick, leaned upon obliquely, bends in the middle; if in a right line, it breaks to pieces, but it does not bend.

Children, allowed to stand by a window, often rest on one leg, or their legs are turned over each other, and a slight deformity is sometimes occasioned in this way; or, in fact, by any aukward posture; but this is frequently overcome by care, and the limbs resume their former straightness. But if it so happens that one leg is longer than the other, the cause not being known, the malady is never corrected; it would be easy, in such cases, to use shoes of different thicknesses, and by this very simple measure, prevent the otherwise inevitable loss of strength and of symmetry. Crookedness is chiefly in one leg, it always begins there, and if the other becomes slightly so, it is from the right line being so much departed from in one leg that the other is affected. The trunk of the body is carried erect, whatever may be the state of the legs, which is a demonstrable proof, that when one leg is placed more obliquely than the other that leg is the longest.

It commonly happens, that crookedness takes place immediately after a fit of sickness; and hence it may be imagined, that the languor and weakness consequent on disease, may be the cause. But it has already been said, that weakness of itself is not sufficient, and one leg only being bent, while the trunk of the body retains its erectness, are a further proof that weakness is not the chief cause.

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I here take my leave of the subject, and of Mr. White, and of those other Gentlemen who support the idea of the negroes being an inferior race of men, and connected with the brute, on account of a resemblance in their persons; and shall pursue my enquiry into the causes that operate in producing the variety which exists in every country in the person of its inhabitants. And as it is requisite that some country should be mentioned whose inhabitants are well known, I have chosen Africa. Any allusion I may make to the subject of gradation will he incidental: but the principles I apply in endeavouring to explain the cause of the difference between an African and an European, I conceive to be common in their operation to every nation on the globe.

SECT. 8.

Of the Origin of Bone.

LYCURGUS, and after him, many other philosophers, have considered it as absurd that so much care should be taken to improve the form and color of domestic animals, while the human race were entirely neglected, as if incapable of improvement. Happy combinations in marriage, were considered by this philosopher, as capable of producing the most beneficial influence on the offspring; and we accordingly hear of the purity of the Spartan blood. But this was an imaginary excellency, and had no relation to the form of the person. The shape is not directed by the blood, but is governed by the relative position of the bones; as is the structure of the skeleton, so is the elegance or deformity of the person; for the flesh is dependant on the bone for its beauty, its gentle swell, its elegant and soft declension, its almost total absence, its length, its roundness. Certainly, then, the growth of the bone is entitled to considerable attention. Bone is not of accidental growth, nor is its size or shape determined by chance; yet it is in some measure governed and directed by external circumstances. A very cold climate is inimical to its production; the inhabitants of the coldest regions are the smallest men.

As the subject has never excited much attention, an enquiry into the physical cause of the formation of bone, shall be the subject of the following chapter.

Bone is an animal production; it nowhere exists, but as the consequence of organization and life; but its elementary parts are found in great profusion, especially in the ocean; from whence lime, which is the basis of bone, with all its combination, has been derived. Lime, united to carbonic acid, is chalk; the same substance, in a more compact state, is lime-stone, or marble; lime, united with fluoric acid, is Derbyshire spar;

spar; lime, united with phosphorus, is bone: in all, the base is the same. That the whole were derived from the ocean is evident, from the bones and shells of fish which are combined with them. Besides, calcarious earth or lime is not a primary earth, but has been added to the globe since its formation, as we are informed by geologists. How was it added? It has no principle of life; it does not vegetate; it does not increase. The fountain of the great deep was broken up, which laid bare the bottom of the ocean, and the waters flowed in other channels, here were deposited those stores of lime with which the habitable part of the globe now abounds, and the bottom of the ocean again presents the same appearance it had before the flood, and possesses the same deposit. The same accumulation of lime again is made; and, by the perseverance and sagacity of naturalists, we are informed by what means this accumulation has been made. Myriads of insects, as we are informed, are incessantly employed in making themselves nests and places of safety; and such is the expedition with which their labour is executed, that islands are created by their efforts. Otaheite is said to be one of these; its basis is coral, which is the substance these animals form; and coral is precisely of the nature of chalk and marble. Most sailors, especially in the Southern Ocean, have been in danger of shipwreck from reefs of coral. In short, the formation of coral goes on so rapidly in the ocean, that no doubt can exist that calcarious earth is as abundant there, as it is on the dry land, but of more recent formation. Thus, from animals calcarious earth originated, which is in many kingdoms so abundant.

Our next object is, to enquire whether the bones of animals are not formed by the elements of that substance, received in their food, in the same way as coral is formed by animals from elements found in the ocean. The shells of sea-fish, which are of the nature of bone, are larger and stronger than the shells of river-fish, because salt water is better supplied with the means of their formation; yet the bones of fish with fins are soft and cartilaginous, although surrounded by the elementary parts of bone; but strength is not necessary to them, and weight would impede their progress; more bone would therefore be injurious, and as their economy does not require it, they are not prompted to seek the means of its production. They extract air from the water, but not bone; they live not on this element, but on animal food, which does not yield so much bone. No land animal possesses the means of acquiring the elements of bone equally with marine, hence no mountains of coral are formed out of the ocean.

Again, experience teaches the fact, that those land animals which are best supplied with the elementary parts of bone in their food, or are taught to search for it independently of their food, are the strongest, having firm and compact bones. The Arabian horse is an illustration of this remark: a given quantity of the bone of this animal

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weighs heavier than an equal quantity of the bone of the horse of other countries. Arabia, Egypt, Judea, and the parts adjacent, abound in chalk, in various states of aggregation; shells unbroken, uninjured by the lapse of four thousand years, present themselves; in other instances, marble is found, hard as rock, with all the marks and appearances of the durability of granate; but their origin was different, granate is a primitive stone, marble of animal formation, and consequently is subject to decay; its elements were once separate, and of course they tend to the same state; we know this to be the case as it respects bone, and therefore we may infer it of a substance of similar origin; bone moulders into dust, is dissipated and lost. Indeed, the use of lime as a manure, is an evidence of this fact; were it not acted on, and in a measure decomposed by the soil, it could not be a manure. Taking it for granted, that lime, in any state of combination, is liable to spontaneous decomposition, it is easy to conceive of the means by which the Arabian horses acquire such compact and solid bones; the water which springs in that country must be impregnated with the elements of bone, these also supply nourishment to vegetables, and cannot fail of producing some effect on the animals that use them.

But let us carry this idea a little further. Dr. Fordyce kept some canaries in a cage without sand, they built a nest and died; others have laid eggs which were without shells. The same fact is often noticed by persons conversant with poultry; as the shells of eggs are of the nature of bone, and as their presence or absence evidently depends on what the animal eats, the origin of bone is clearly evinced. But it does not appear that the common food of the animal is sufficient, it must be expressly adapted to the particular wants of the animal. Flesh and bone do not appear to be derived from the same source; at least, not in equal proportion: the canaries, whose eggs were destitute of shell, might grow fat, while a hen, that was allowed to range at large in a farm-yard, and pick up any substance it felt the want of, if pinched with hunger, and lean, yet its eggs would be well covered with shell.

A child is subsisted, during the first months of its existence, on milk; its bones, during this period, are very soft and yielding; they in fact contain but little osseous matter; and as strength, equal to the support of the weight of the body, is not requisite, milk is the proper diet; but milk does not contain a sufficient portion of the elements of bone for the subsistence of a child when the teeth are cutting, and when it is desirable the child should make an effort towards walking. It is true, there are instances of many children being subsisted entirely on milk, or milk and bread, till they arrived at their third or fourth year, but such children are not healthy; in several instances the teeth have decayed and fallen out, occasioned doubtless by a deficiency of

osseous

osseous matter in the system: other children become crooked, and all are delicate and feeble. By changing the diet, health and vigor have been imparted. Milk will subsist the flesh, but it will not subsist the bone. We have seen, in the case of the canaries, that one description of food is not sufficient for all the wants of the animal; and I have no hesitation in saying, that many of the diseases of children arise from inattention to this circumstance.

Dr. Starkie, a gentleman in the meridian of life, made many experiments to ascertain the quantity and quality of food on which he could subsist, never using more than one or two articles for several weeks together; at length, when living on bread, symptoms of sea scurvy appeared, and he died a martyr to his efforts to extend the knowledge of the animal economy.

It is not the quantity of food, not its excellency, that is sufficient to preserve health, but it is its being properly varied and mixed, according to the wants of the system; not only must the quantity of the elements of bone be in due proportion, but the power of digesting and assimilating the food must be in a state of sufficient health and vigor. In old age, the quantity of osseous matter assimilated to the system, is less than in youth; hence the bones of aged persons are brittle; hence also their teeth fall out, the upper part of the socket in which they are fixed being absorbed; in other words, the sockets not receiving their former portion of nutrition become less, and cease to envelope and support the roots of the teeth, which consequently become loose.

There is a disease to which the body is liable, (mollities ossium), in which the organ of digestion, and the power of assimilation are very much weakened. The peculiar character of this disease is, a loss of bone; which, in several instances, has proceeded so far, that a little pressure with the hand will bend them. In other cases of disease, the bone dies, and is replaced.

But it is unnecessary to enter into the history of the diseases to which this part of our system is liable. Enough has, I presume, been said, to shew that every description of wholesome food is not equally fitted for the nourishment of the bones; and that health and age have also considerable influence upon them.

From the foregoing remarks, it appears, that the bones require our consideration and care equally so with the flesh, in providing for them nutriment adapted to their natures. In what way this is usually done, or, in other words, what articles of diet chiefly answer this purpose, we shall now proceed to enquire.

The sea, it has already been said, is the chief, if not the entire source, from whence lime, in its various states of combination, has been derived; and it is now, as it ever has been, the source from whence we derive the osseous part of our system. There

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probably never has been a period in the history of the world, in which the contents of the ocean were not used as a part of human food, and I may add, an indispensible part. In the interior of Asia, where sea salt is scarce and dear, travellers inform us, that it is a compliment to ask a person to eat of it. Wherever we go, salt is enquired after, as an article of the first necessity. But it may be asked, what affinity has salt to bone? The same, doubtless, that it has to coral; but neither can be extracted by a chemical, they require an animal, process. If we take a glass of sea water, especially if we take the mother water from a salt pan, after the salt has been crystalized, and put into it a little potash, magnesia will be precipitated, very copiously, to the bottom; but magnesia is not coral, it is not marble, nor is it of the nature of sea shells, yet it comes the nearest to these substances of any thing we are able to extract from the ocean. Salt is never pure, it is not the mere muriat of soda, but is a compound of all the substances found in the ocean. Marine animals doubtless prepare their shells from this substance, and pile up mountains of almost incredible magnitude, as places of residence.

This substance also is used by man as a necessary article of food, and is the effect different? Does it answer one purpose in the economy of one animal, and a different one in the economy of another? Flesh is alike nutritious to a lion and to a man; grass to a sheep and to an elephant; water is drunk to answer the same purpose by every animal that uses it. Some derive health and vigor from substances, which, if taken by other animals, would operate as poison; but the animal to whom they are injurious refuses to eat them, while the other does it with pleasure. The idea I wish to convey is, that when two animals voluntarily make use of the same article of food, it answers in their economy the same purpose. Hence, if we can ascertain the effect of salt in one instance, we may infer it in another: if it yields coral and shells to fish, it yields bone to man.

Salt is a condiment, a seasoner of food, and in this light it is generally viewed, and here its utility is supposed to end; but I do not apprehend that any substance was created merely to gratify the appetite, or to delight the eye; a further and a more important end is doubtless designed. It is true, that the opulent of every age have cultivated the pleasures of the table, and so far refined and vitiated the natural relish for food, as to eat and enjoy that which a peasant would loath. Cæsar admired the flavor of asafœtida, other princes have been gratified with substances no less strange; but these are artificial gratifications, no natural impulse prompts to them. But salt is in universal estimation, it is sought after and required by all; not only do the whole of the human race consume it, but animals that possess bone, if their digestion be such that

that they cannot convert chalk or some other earth to the purposes and wants of nature, eat salt. Such is the connexion, such the similarity, between these substances, that they are, in many instances, a substitute for each other.

All granivorous animals are satisfied, and retain their health, with either salt or chalk. Gallinaceous animals, having very strong digestive powers, use only chalk, or some other earth which they are enabled to convert into that substance. Carnivorous animals, having also very strong digestive organs, do not require salt, but devour the bones of other animals, and so supply their own; an instance of which we have in the dog. The human race, being unable to assimilate any hard substance, are confined to the use of salt.

That salt has a considerable influence on the general system may be learned from its producing the sea scurvy, when used in excess. Dr. Sherwin is of opinion, that an ounce of salt, taken daily, will produce all the evils that dreadful disease implies. *(Cursory Remarks on Marine Scurvy).*---If the excessive use of this article, like that of other articles of diet, is so destructive of health, the withholding it entirely, if the disposition to take it be natural, must also have its evil consequences.

Besides salt, other articles of diet furnish to the system the rudiments of bone. A child derives them from milk; indeed, every article of animal, and probably also of vegetable diet, contains a greater or a lesser quantity; and they exist in water. Calcarious earth is liberally distributed through the globe, and so readily unites with the surrounding substances, that the sap of trees contains it; like iron, it may be said to form a part of almost every sensible object; but still it is not in sufficient abundance to answer the wants of animals, and each, in its own way, seeks for a supply from a more direct and immediate source.

In some instances there appears even to be a capacity of converting other earths, besides calcarious, into bone.---M. Vauquelin confined a hen in a coop, and found that it devoured, in ten days, 11111,834 grains, troy, of oats; these contained

136,509 gr.	phosphat of lime,
219,548	silica.
356,057	

During these ten days she laid four eggs, the shells of which contained 98,776 gr. phosphat of lime, and 453,417 gr. carbonat of lime; the excrements emitted, during these ten days, contained 175,529 gr. phosphat of lime, 58,494 gr. carbonat of lime,

and 185,266 gr. of silica: consequently the fixed parts thrown out of the system, during the ten days, amounted to 274,305 gr. phosphat of lime,

	511,911	carbonat of lime,
	185,266	silica.
Given out,	971,482	
Taken in,	356,057	
Surplus,	615,425	Dr. Thompson's *Chem.* v. 4, p. 479.

In this experiment there disappeared 34,281 grains of silica, while there was an increase of lime. Hence Dr. Thompson believes lime not to be a simple substance, but a compound, formed of ingredients which exist in oat seed, water or air, the only substances to which the animal had access.

As part of the silica could not be discovered, it is fair to conjecture that it had undergone an animal process, and had been converted into bone. Indeed, the idea advanced by that able chemist just quoted, favors the supposition, that substances very dissimilar from bone, may furnish part of its composition.

In addition to such authority, I may add, that most, if not all, of the feathered tribe, are in the habit of swallowing small stones and grains of sand; partly, no doubt, as Spallanzani observes, for the purpose of bruising the food in the gizzard; stones being used by birds for nearly the same purpose as teeth are by such animals as possess them. And it is highly probable that these stones are afterwards digested, and perform another useful part in the economy of the animal, for they cannot be discovered in the excrements.

Again. Horses, in the domestic state, are fed with a view to promote in them the greatest possible strength and spirit. Carrots, potatoes, or grass, are well calculated to increase the flesh of that animal; no horses, in winter, look better than those which are fed with potatoes, but still their strength is defective; a large, well-nourished muscle, is found not to be alone sufficient to create vigor, and a capacity to exert it; to supply this defect, oats are made a part of their diet. But why oats? why not wheat, or barley, which are far more nutritious? Oats consist, in a great measure, of husk; barley and wheat of flour; but I presume it is the husk which constitutes the value of the grain; deprive it of this, and its superiority ceases. But the husks of oats, it may be said, can be made no use of by themselves; horses will not eat them; and, piled in a heap, they remain many years without decaying, and seem useless, except as a defence to the seed.

Chemists

Chemists have discovered, among whom Mr. Davy's name ought to be mentioned, that the epidermis of many vegetables, of the bamboo-cane for instance, and most grasses, is composed of silica, lime, and vegetable matter. The oat, as we have already seen by the analysis of Vauquelin, contains a large proportion of these ingredients, which are contained chiefly in the epidermis, or outer-covering, and constitute its peculiarity; it is this circumstance which stamps its value, and fits it for the use to which it is appropriated. Oats are not of themselves sufficient to maintain a horse in health, which is another illustration of the fact, that an animal requires food of various qualities, to answer different purposes of its economy. On the whole, it may be said, that a horse may be speedily made fat on succulent vegetables, but that strength is most rapidly acquired by the moderate use of oats; and as a considerable part of this grain consists of earths of various kinds, is it presuming too far to say, that these earths, in some way or other, contribute to the strength of the animal? And in what way can this end be answered, but by supplying the loss to which the bone is subject?

Arabian horses degenerate in England in a very few generations after their importation; their speed is lessened, notwithstanding care is taken to prevent it, and I have no doubt to a certain degree it succeeds. I do not know that any system is pursued, or that it is supposed possible to apply a system to the subject; but facts have been collected, and experience has become the guide. It is important to point these out.

The soil on which the animal pastures is of the first consequence; that in the vicinity of Newmarket has the preference, for, like Arabia, it is dry and chalky; but the chalk may not be in the same state of decomposition, less of it may combine with the vegetable produce and the water, and hence a smaller quantity may be received by the animal. The next object of attention is, the food given in the stable: oats form a part, but the greatest attention is paid to the quality of the hay; that which contains the least proportion of blade, and the greatest of footstalk, grown to maturity, and filled with seed, is in high estimation; indeed, the very opposite kind of hay to that which is approved of for cows giving milk, is chosen for these horses: and when any are training for the race, the blades are separated from the footstalks, and given to other cattle: the reason of this preference, and indeed of the whole management, is easily explained: the footstalks of meadow grass, like those of the oat, are slightly covered with silica and lime, and hence their superior excellency. The treatment spoken of is not adapted to increase the size of the muscles, for the food which is preferred is not nutritious, but partakes much of the nature of bone, and it is that part of the system to which it seems appropriated.

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The principle on which these inferences are founded, is strengthened by other facts. A lean animal is conscious of a defect, which it endeavours to remedy; it has not its due proportion of strength and vigour, but it seeks a sufficiency of food and rest that these may be accumulated. An animal, without a due portion of bone, is also conscious of a defect. A ricketted child is ill from this cause; from this cause also, an aged person is feeble; the power of assimilating osseous matter is impaired, and the bones are broken by a blow which, in youth, would have produced no injury.

But the fact I have more particularly in view is, the animals of America: wild in the wilderness of that vast continent, their actions are governed by their wants. When we see them browsing the herbage, or drinking of the stream, we know the cause; nature wants such aid: but when they traverse hundreds of miles, to visit a plot of land, differing from other land only in being salt, which they lick with their tongues, and seem rewarded for their toil,---is not this also to satisfy a natural want? It certainly is not to please their taste; for were they fond of the substance on its own account, they would remain near it; but after staying at a salt-lick for a time, they again seek the recesses of the wood from whence they emerged. Nor does it arise from a natural impulse, for then the animals of other countries would feel the same, and wander to a distance. The probable cause appears to be, a sense of want, which, like that of hunger, gives the animal no rest till it is satisfied: it is a sense similar to that which is felt by birds, when they seek for, and swallow, pebbles and chalk. The canaries, mentioned by Dr. Fordyce, suffered considerable distress, or they would not have died when he withheld from them every species of earth: a piece of old mortar, like a fountain to a traveller scorched by the sun and weary with his journey, would have been welcome to them. A traveller knows his wants, he also knows what will relieve them; just so, I presume, it is with birds, when they need the elements of bone to assimilate to their bodies; the feeling is not ambiguous, they know what they want. The same feeling is doubtless common to all animals; it is this which sends them to the salt-licks, or to the chalk quarries. Sheep pastured on land that is not chalky, are subject to disease, and are cured by salt.

The human race are not so generally conscious of this want, because experience has taught us to use the food that is conducive to our health; and by our ingenuity and care, a constant supply is provided. Animal food is more nutritious than vegetable, and contains more of the elementary parts of bone: hence the poor of such countries who live more on vegetables than the rich, as a compensation, use a larger quantity of salt: and in countries where animal food is proscribed, salt is more highly valued than where a mixed diet is common. Weak and delicate children have in general a strong desire

desire for salt, and practise many arts to obtain it; but in the families of the poor this is less common than in those of the rich, because no separate dishes are made for their children, which is necessarily the case in other families. I may add, that, if the countenances of the poor are less interesting, their limbs are better shaped, they are less frequently distorted, than those of their more opulent neighbours. Is not then the desire for salt the expression of a natural want? Is it not connected with the health of the child? Those I have seen under such circumstances have invariably improved by the liberal use of it, if accompanied by such a regimen as was calculated to satisfy the other wants of nature. By such a plan the thirst has abated, and the fears of the parent have died away.

The rich wish their children to be strong and ruddy, like those of the peasant; and fancying that the peasant's live on very mean and scanty food, they subsist their children in that manner: but the food of the peasant is not mean and insufficient; potatoes well seasoned with salt, and saturated with fat, is a richer dish than the offspring of the opulent are allowed to partake of.

Young persons at different stages of growth, and women in a state of pregnancy, have sometimes a desire for substances which are not properly articles of human food; where this desire has been strongly felt, it has commonly been for some substance convertible into bone.

Negro slaves, toiling under the lash of their pitiless task-masters, and fed without any other consideration than that of economy, very frequently, from the cravings of nature, eat the earth on which they tread, and hundreds die. Give them food better adapted to the wants of nature, and they will not feel a craving of this kind. Should we be in health, if, like them, we were subsisted for many weeks together on horse-beans only?

I have sometimes known delicate European children eat sand, which pernicious habit has been corrected by a change in the general plan of treatment, especially by the use of more nutritious diet, well seasoned with salt.

Calves, designed for the London market, are frequently three or four months in fattening, during which they are allowed no other food than the milk of the cow; but the farmer, to keep the calves in health, and, as he supposes, to make the flesh white, supplies them liberally with blocks of chalk, which the animals very frequently lick, and break into small pieces.---From the previous view I have taken of the subject, it is perhaps unnecessary to say that, in my apprehension, the chalk answers a far more important purpose than the farmer is in the habit of assigning to it; and its use perhaps might be rendered more extensive.---Straw contains a considerable portion of silica

and lime, and hence it is valuable as food for young cattle in the winter, but it does not yield a sufficient supply of nutriment to the muscles; something besides straw is requisite; potatoes are well adapted to answer that purpose; and if I may venture an opinion, that root, in conjunction with straw, is more beneficial to cattle than hay, and might supply its place. The cattle of a gentleman, a little distance from Manchester, are fed nearly in this manner, and they are always fat. To rescue a large portion of the finest land in the kingdom, from the purpose to which it is now applied, that of growing grass for cattle, is certainly very desirable.

On a review of this subject, it appears, I think, very evident, that the use of salt by man, and of chalk and other earths by animals, is to answer the same purpose. Without it birds die, and the human race sicken and are disfigured. How many of the diseases of children are dependent on the portion of osseous matter in the system, I am not prepared to say; but I will venture to assert, that the subject is entitled to more consideration than it has hitherto received. It also directs to other important facts: at the termination of a fit of sickness, growth is often very rapid; the state of the system had previously impeded this desirable advance in stature, or something had been acquired during the indisposition, which was favorable to it. Hereditary diseases also seem to influence the size and length of the bones: gouty persons are usually tall and large boned; in their system there is a very strong tendency to form osseous matter, as is manifest by the chalk stones which collect at the joints, and impede motion. Scrofulous families are tall, but their bone is small.---But it is not my design to enter into discussions of this nature; the subject itself, whether it respects personal appearance, or the vigor of the constitution, is of importance, and will doubtless excite the attention it deserves.

SECT. 9.

Of the Head.

THE head is the source, and, to a considerable degree, the seat of personal beauty; and were there no other consideration, it is entitled to attention; for personal beauty is an universal passion, manifested by an universal love of personal ornament; no nation escapes its influence. It is not a criminal, nor even a censurable passion, for it is connected with the most desirable dispositions and sentiments. When exercised, it is a manifestation of good will---it is an attempt to please---it is doing honor---it refines the sentiment, by improving the taste---and it is an expression of character; a neat dress supposes a chaste mind. This passion is so interwoven with the nature of man that it does not require cultivation; but to neglect it entirely, is a mark of conceit or weakness: if an attention to the person be not commendable, we blame the neglect of it.--- As this passion is common to persons of every age, and in every stage of civilization, it is a proof that the whole race of man, by thus breathing the same spirit, possess the same nature. No animal ornaments itself, but is satisfied with its own proper covering; it is unlike man.

This love of ornament is not confined to the external covering, but extends its influence to the body; and is so irresistible, that in every country, customs which are either cruel or disgusting, are in use; the fashion varies, but in principle it is the same at Otaheite and at Paris. This passion prompts the inhabitants of the Southsea Islands to lacerate their persons---they are beautified by scars; from the same passion, a sailor imprints on his flesh the name of his ship, his sweetheart, or his captain. From the same principle also, the more polished inhabitants of the globe pierce their ears or perforate their noses; in short, where an Indian thrusts a bone, an European suspends a jewel.

jewel. An Ancient Briton painted his body to terrify his enemies---a modern lady to please her friends,---her face, her arms, her neck, her eye-brows, and even her hair, are subjected to the brush and to the pencil; a touch renders a face handsome or ugly, it terrifies or captivates---the difference rests with the artist, not in the art.--- The Romans attempted to restrain the growth, and influence the shape, of the breasts of their females, by placing over them cups of the size and form to which it was thought desirable they should attain, and to which they should be limited.---The Chinese prevent the natural expansion of the feet of their children.---To cut off a finger, to extirpate the hair, to enlarge the ears, are practices of other countries. In short, no part of the body, in one region or another, has escaped the torture inflicted by fashion or caprice.

From such practices it might be imagined, that personal beauty did not admit of a principle of universal application, but was the mere creature of fashion or prejudice. The statue of Apollo Belvidere, or of Venus de Medicis, would however, I presume, be considered as handsome models of the human person in any region of the globe; but on the supposition that there does not exist any universal standard, the principle on which such a standard might be formed, is every where acknowledged; strength, agility, and expression---the two former relate to the limbs, the latter to the countenance; every individual possesses these in some, but not in an equal degree, and in all they may be increased, and of course the beauty of the person be improved. The principle on which this can be effected, will be kept in view as we go along; so that while we account for the peculiar structure of the African, and thus do away with one of the strong holds of deism, the shape of our own children will not pass unconsidered.

The head, like the other parts of the body, has been subjected to distortion and violence, but as it is intended to be the leading subject of this chapter, these have hitherto not been noticed---they were reserved for a more minute attention.

The head of an infant is not like that of an adult, surrounded by one hard inelastic bone, which violence cannot distort, and which it is almost certain death to fracture; but at the period of the birth of a child, several bones may be felt distinct from each other, and of such inconsiderable strength as to admit of being turned and bent into a variety of shapes; they may even be made to meet, and pass in part over each other, without injury to the infant. Nurses are not unacquainted with their pliancy, they even affect to adjust them to their taste: and it is also said, that in some civilized nations, the mothers are consulted as to the future figure of their children's heads, and that bandages are applied, so as to produce the desired shape. But we have more certain evidence of the violence that is offered, and that can be borne, during the first stages of our being.

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The Charribbee Indians, a brave and ingenious people, perhaps to make themselves terrible to their enemies---for every thing that is monstrous is frightful---use the most excessive violence on their children. No sooner is an infant, with all its helplessness, committed to their care, than a bag of sand is prepared and the forehead made bare to receive it; here this intolerable load is placed, and allowed to remain till the fine bold arch, nature was designing, is broken down, and the forehead obliterated: had we not evidence of the fact, it would scarcely gain credit, though affirmed by the most authentic travellers; but we have engravings; and in addition to such evidence, I may add, that many of such skulls are preserved; and it is even said, that the Charribbee race is not yet extinct. The museum of Dr. Monro, jun., of Edinburgh, contains the skull of a Charribbee, more distorted than any I have seen an engraving of.

The power of an infant to sustain such injuries, is the fact I wish to be borne in mind. But the conduct of the Charribbees is not peculiar to themselves, for other nations have interrupted the order of nature; she is plaster, she gives her form, but she submits to the rudeness of the barbarian, and accepts that which he imposes.

The North-American Indians, Dr. Robertson informs us, fix a board to the crown of the head of a child, which being flat, occasions the head to become like it. Dr. Stanhope Smith also assures us, that the East-Indians dilate the foreheads of their children in infancy, by the application of broad plates of lead. *(Essay on the Varieties of the Human Race, page* 109.)

It is not easy to conceive by what perverson of taste and judgment such outrages should be offered the person of infants; but having been offered, they afford the most satisfactory evidence, that the shape of the head may be the creature of circumstances. And besides, when violence has not been done, when nature is uninterrupted in her operations, she has no standard shape: she gives to a Turk a head round like a globe; to an Englishman, a head flat at the sides; while that of a Dutchman projects at those parts: the head of an African projects backwards; that of the Tartar is the reverse. The discriminating mark of a Grecian antique, is a projecting forehead.

These national characteristics are not fortuitous, they have not happened by accident, but are, doubtless, determined by some law of nature.---Dr. Camper, who has examined the fact, without enquiring into the cause, has ascertained, that the orifice of the ear of an European is in the center of the head; or, to express the idea in numbers, the space from the orifice of the ear to the front teeth forwards, and to the extreme point of the skull backwards, is as 15 to 15; they are equal. In the Grecian antique, the length is as 15 forward to 11 backward. In the Calmuck Tartar, it is as $12\frac{1}{2}$ to 6, or the space from the ear forward is nearly double of that backward. In the

negro head the proportions are reversed, the space forward being only as 15, while that backward is as 17.

These facts are important, because the orifice of the ear is in a line with the center of the head's motion, or, in other terms, with the vertebra of the neck; consequently the head, which is not seated like that of an European's, exactly on its center, requires an effort to preserve it from inclining in one direction or another. The Calmuck's head projects so much forward, that without some exertion the chin would constantly rest upon the breast. The African's on the contrary, inclines in an opposite direction.

These facts Dr. Camper has pointed out, and goes on to say, that the head of the oran outang inclines forward more than the Tartar's, and the horse and dog still more so than the oran outang.

Such facts all tend to prove, that the shape of the head, and its position on the veretbra, are extremely various.

But there is still another interesting fact respecting the head: it is not uniform in its size. That of an Esquimaux is larger than that of an European, and the head of an European is larger than that of an African. These are national distinctions; besides which, there are particular instances in every nation, and almost in every family, which confirm the truth of the assertion, that nature has been liberal, and that art has effected much in diversifying the structure of this part of our system.

The next question that arises is, what is the most perfect form the head can assume? A question which only of late has excited much attention; for while we read of wars undertaken to impose articles of dress, there have been none to regulate the shape of the skull, till about two centuries ago. The Scotch refused to appear in the habit of the English; the Russians murmured at being shaved; and the Persians waged war with the Tartars because of the cut of their whiskers: we represent the French as feeble and meagre, having no claim to manliness of character; on the other hand, they represent us as bloated, unwieldy, and besotted, and in every respect their inferiors; and war is the more easily fomented between us in consequence of such sentiments; to ridicule the person is to excite contempt of the man. It is, I repeat it, to me a matter of surprise, that with so much keenness to discover the defects of others, that the shape of the head has till of late been so little noticed. No one thrust forth his skull as a model of symmetry and perfection. But this mutual forbearance at length ceased, and the African was singled out as inferior to all other men: war is declared against him, he is captured, he is plunged into slavery, and the deed is justified on the ground of his inferiority, especially in the shape of his head. Did the subject merit a discussion, I would plead his cause; I would say that the head of an animal to which they liken

that

that of the African, bends towards the earth, but the African looks upwards, and presents his face more towards heaven than any other of the human race; and so to look is characteristic of man, it is one mark of his dignity, and surely the perfection of this is not degrading. But I will not discuss the subject; it is incontestible that the skull of an African is of a different shape to that of an European, but still no disgrace attaches to it, for nature has no standard, she has no model after which she fashions her works; every form has been equally honored by having been made the focus from which knowledge has equally radiated. But the shape of the head is still important, because on it depends the symmetry of the person: accident is not applicable to the structure of man; chance does not produce that variation which is evident in his person. Our structure is adapted to the portion of reason with which we are endowed; and it is not less perfect because it admits of those shades of difference by which we recognise each other.---To trace out the cause of this variety, and to suggest useful hints to those who have the management of children, are the objects immediately before us.

The laws of matter are universal in their operation; man is material, and is subject to them; he is unconscious of it, but every limb has weight; the head has weight, and being sustained during infancy and youth, by weak and pliant bones, it necessarily has some influence upon them; an influence which is directed by the position, and consequently by the shape of the head. But how does it happen that the head of one individual differs from that of another? Disease is one cause; no sooner is a child rendered feeble and weak, than its head begins to acquire an unnatural size; it grows while the body languishes. I am not here to enquire minutely into the cause of the disease alluded to, (the rickets), but I mention it as a well-known consequence of that malady. Violence offered to the head, in infancy, is another cause; for doubtless some injury is received from the harsh and inattentive treatment of improper nurses; but such instances are few, and account for only a small part of the diversified forms common to the human race.

The question again recurs, what are the means made use of by nature, when undisturbed in her operations, by which she gives to one individual a protuberant forehead, to another a receding occiput or back part of the head, or widens the lateral arches of a third? I answer, it is the mechanical law of gravity: this, and this only, is the instrument by which she effects her purpose; by it she models the skull. Let us trace the process.

When a child has attained the age of a few months, or at furthest, of a year or two, the bones, which at birth were distinct and separate, unite, and form what may properly be called a closed cavity, which is the shell or covering of the brain: in this state the shape of

of the head might be supposed to be unalterably fixed, but daily observation convinces us of the contrary; the shape of the head of a child is not similar to that of a man; but why not? The skull does not voluntarily alter its shape; it is hard, but still it is obedient to the brain, and takes its form from it, so that the brain is the cause of the shape of the head. Now the brain is a substance so soft and yielding, as to partake in some measure of the nature of a fluid, and to recede from the higher and fill the more dependent part; it has not sufficient consistency in itself to support its own shape; it therefore necessarily gravitates downwards, and the inclination must be in the direction in which the head is held.

But before this idea can be established, it is necessary to prove that the skull does not determine the shape of the head. It will be granted that the skin does not determine the shape of the body, why then should the skull that of the brain? These are two distinct substances, kept apart from each other by thin membranes, and have no other connexion than that of the one being subservient to the other. The skull derives no nourishment from the brain, to which it is a shield or cap; it is not the seat of thought, nor have any of those philosophers, who have searched with so much care to discover the exact point where reason holds her throne, ever considered the skull as being it. A limb grows because the system is vigorous, but the skull does not grow from this cause; it is therefore in its increase unlike other parts of the system. Muscles owe their length to the bones to which they are attached, but the brain has no attachment. Did the skull grow because the system was vigorous, the brain would not at all times fill it, which is contrary to experience: the skull therefore does not grow first, and afterwards the brain. How then does it grow? The answer is easy: it yields and gives way to the brain year after year; from infancy to mature life it becomes more capacious: but had the brain not grown, it is folly to suppose the skull would; the brain wants room, and enlarges the skull as the flesh enlarges the skin. The muscles may be stretched by the bones, and hence probably arises the pain young persons feel in their limbs; but the brain is incapable of extension or compression; it must have the government. A shell-fish is inclosed in a case, which is at once its strength and defence; the shell exudes from the animal, and is hardened in the air; and in many instances is annually cast off; or the animal may shrink, and become less than its shell. But however the muscles may be wasted by sickness, by famine, or by old age, the brain knows of no change; it never shrinks; even if it has been enlarged by disease, it does not afterwards contract and lessen; the skull is never too large, but the opposite case may happen, it may be too small, which could not happen if the skull determined the size and shape of the brain; it may not give way so fast as the increase of the brain may require,

require, and hence disease may be engendered. Apoplexy, epilepsy, and that dreadful malady hydrocephalus internus, frequently do arise from the brain being too much pressed by the skull. In apoplexy, the blood-vessels being enlarged and distended with blood, require more room; in hydrocephalus, I apprehend, the skull may be preternaturally hard and unyielding, and may not give way so fast as the brain requires; or the growth of the brain may be preternaturally quick, so that the skull has not time to adapt itself to its wants. Should this theory be true, the trefine might be applied in that distressing disease.

But, dismissing all conjectural evidence in support of the general position, that the brain determines the shape of the skull, we advance on more substantial ground, and state facts that are conclusive. Many might be advanced, for medical history abounds with them, but I shall limit myself to two. A child, afflicted with the rickets, always acquires a larger head than other children; the brain of course grows, as well as the bone thickens; commonly the growth is at the forehead, sometimes in the opposite part of the head, but the child does not complain of pain; and in whatever direction the growth may be, the skull adapts itself to it.

Again. It sometimes happens that a tumor forms in the brain; as this is an extraneous substance, if the skull gives way to it the fact is proved, that the shape of that covering is directed from within itself. The skull does give way: Dr. Bateman relates a case of this kind which happened in his practice; he says, "the head was large in proportion to the body, and slightly prominent on the side where the tumor was seated." *(Edinburgh Medical and Surgical Journal, No. 2.)*

If the skull was perceptibly prominent, it had given way to the tumor. I select this fact, not because it is the most striking that I am acquainted with, but because the author is not wholly unknown to me.

Should it be granted, and I think it cannot be denied, that the skull is passive, and receives its form from the brain, the cause of the various shapes the head assumes, admits of an easy explanation. We are all acquainted with the effect of water pressing against an elastic substance; it distends it, and the part becomes full and prominent. The head is an elastic substance; it is a globe more or less eliptical; its contents are sufficiently fluid to sink towards the most dependent part: the axis on which this globe is fixed, is in many instances not in its centre, consequently it inclines, and is the fullest and heaviest in one direction, as has already been noticed.

But as the fact is important, it may again be illustrated. The head of the African, Dr. Camper has proved to be longer from its extreme point backwards to the orifice of the ear, which is parallel with the centre of the head's motion, than it is from the orifice

of the ear to the front teeth, consequently the head inclines towards the shoulders, and the brain following the inclination, increases the natural bias, and causes it to enlarge in that direction The Tartar's head, being the exact reverse of the negro's, inclines forward, and consequently the increase is in that direction. In our own country there are individuals whose heads are seated on the spine, in a manner similar to those just mentioned, and their heads resemble them. The fact is invariable. In any instance, ascertain the position of the head on the spine, enquire whether it be seated on the centre, or to which side it inclines, and the shape may from such knowledge be accurately described. If the head resembles an African's, the person will; the same may be said of the Tartar.

When a mountebank stands on his head, the whole weight of the brain presses against the crown; were this position persevered in, the head would increase in that direction. Those occupations which are commenced early in life, and which require a particular position of the head, invariably communicate to it a peculiar shape. Is not a shoemaker known by his forehead? Placed while his years are tender to acquire a knowledge of his art, he constantly bends his head towards his work, and before the term of his apprenticeship is accomplished, a peculiar impression is acquired by his whole countenance, and his forehead is become characteristically prominent.

Before a child is born its head is constantly the most dependent part, and its shape corresponds to that position; but after birth an opposite direction is given the head, and a new form is rapidly assumed. Those conversant with infants must have noticed this change; or, to make the appeal more general, does not the head, during its growth, vary in shape? The child is unlike the man. What can have effected the change, but the position of the brain?

I presume it is unnecessary to introduce other facts in confirmation of the opinion advanced. It will be granted, that the head is liable to have a shape imposed on it by violence; and that as it is held in childhood and youth, whether backward or forward, or on one side, so will be its shape; the operation of the brain upon the skull being the same as that of a fluid against an elastic substance; it occasions a prominence of the part.

I have been solicitous to establish this fact, because the most important consequences are dependent upon it. Not only is the form of the head in every case accounted for, but the limbs, the features, owe their beauty or ugliness to it. When we speak of symmetry, we have a view to proportion, to harmony, and to excellence.

The change of shape and proportion the human body undergoes in its progress from the cradle to the full maturity of the man, is doubtless subject to some law of nature; it

it is not made at random; if so, there must be some part to which the others conform. Unity in the whole implies correspondence in the parts; it implies some first or leading point, by which the others are governed. This point in the human body can be no other than the head; it is a weight which the spine and limbs sustain, and to which they are subservient: if it be too heavy they become crooked; if it has a poise or bias in any direction, they evince it. The limbs may be broken and distorted, without injury to the other parts, but any deviation in the carriage of the head affects the whole system. The Tartar and the negro heads are the reverse of each other, so are their features, their limbs, and their whole appearance; the one is thick and clumsy, the other tall and slender; their countenances also are peculiar. These distinctions are invariable; there does not exist a Tartar who, in the form of his person, resembles a negro, or a negro who resembles a Tartar.

And as a proof that the head has that influence over the person which has been mentioned, an influence which determines its shape, I refer to every individual, be he of what country he may, whose head resembles a Tartar's or a negro's, and I ask, if the structure of his body does not also resemble theirs? Every village affords us examples of this fact. So that abundant evidence confirms the position, that as the head is seated on the neck, so is its shape; and as is its shape, so is that of the whole person.

But there are other facts which illustrate the subject. The first I mention, is crookedness. Mark the origin of that malady: it has its seat in weakness; the bones, when softened by disease, are rendered incapable of sustaining the weight imposed upon them. A column, whose capital is too heavy, bends under the load; and the direction in which the bending takes place, is directed by the inclination of the capital. It is thus with the human body; the head, like the capital, acts as a lever,---if it inclines towards the shoulders, the back becomes hollow and the breast projects; if the head leans forward the spine juts out, and produces that species of crookedness which is most common in this country. In some instances the head is so evenly balanced on the spine, that its pressure is made in a right line, and both the breast and back project. In cases where the affection is slight, and the spine but little distorted, one shoulder is brought forward, and appears thicker than the other.---An African never has a crooked back, nor a Tartar a projecting breast; the direction of the weight of their heads prevent such deformity.---Such, in a few words, are the circumstances attendant on crookedness.

Let me here make a few observations of a practical nature. I have said that the bones, especially those of the spine, not being able to sustain the weight of the head, was the principal cause of deformity. If this be true, it follows, that if its pressure were removed

removed the evil would cease, or at least it would not increase: various instruments have been invented for this purpose, which is a proof that this idea of the subject is in general received; in some instances their use has been advantageous, but in incipient and slight cases, the same end has been obtained by other means, and the same fact established, that were it not for the weight of the head there would be no deformity. A diet adapted to the particular wants of the system, a diet which abounds in osseous matter, and which at the same time aids its assimilation, is essentially requisite: frequently through the day reclining on a sofa or on a bed is also advisable, by this means the weight of the head is taken from the trunk: fatigue, also, should be avoided. Cases of this description frequently occur, there are few large families in which all the members escape, although it often is not noticed, or attributed to awkwardness.---I might here ask, what is awkwardness but an improper poise of the body? A person cannot skate awkwardly, he cannot dance on a rope awkwardly, because he must balance the weight of the body; he must put himself into a graceful attitude. A clumsy, uncouth shape, is an approach to deformity, which might in most instances be avoided; it is an acquired, and not a natural shape.

Deformity frequently happens in infancy if the child be delicate, because then the head is large in proportion to the body: another period when it is apt to occur is after a fit of sickness, or at a season of rapid growth: indeed the bones of a child are at all times so soft that a posture, persevered in, bends them; which posture thus becomes easy and agreeable, and can scarcely be corrected: one side of the chest is sometimes made fuller than the other by the habit acquired in using the needle.

Although absolute crookedness does not in many instances take place when a direction is given to the bones, which ever after precludes elegance of person, yet every tendency that way should be carefully watched, and in its outset corrected When the head inclines backwards, after the manner of the African's, the back is slightly hollow, and dignity, especially in motion, is acquired; the step is commanding, and to stoop while taking exercise is impossible; but when this proceeds further, deformity is the consequence; the shoulders then appear ill formed, the neck is somewhat bent, the chin is thrown out, and the step is short and inelegant; and in some instances the most unpleasant consequences have followed. A gentleman, of strict veracity, whose name I have not permission to mention, relates, that a lady of his acquaintance, when young, had a hollow back; it was at that time an improvement to her appearance; but as she advanced in life, the inclination increased, and became a deformity; for when standing, the whole spine sunk into the pelvis, and she lost a foot of height; but when the weight of the head was removed by the horizontal posture, she could stretch herself to her

her proper length; the bones of the spine resuming their places, like the links of a chain.

The progress of deformity, even when no effort is made to check it, is commonly slow; at first it is just perceptible, and often remains in this state several months, or even through life; but if the bones continue to lose their firmness, and the muscles their strength, the evil makes a regular progress. When the malady commences, if the spine be the part affected, the head is thrown back; this effort is made to prevent the system from being disfigured, for nature does not willingly submit to real injuries; the weight of the head is thrown in a direction the opposite to that which is natural to it. Nature, by thus pointing to the remedy, makes known the evil. To arrest the progress of the malady, she must be assisted by art, for disease is the antagonist of nature; her laws are here broken; restore them to their proper exercise, and health and order are re-established. When by any means deformity in its first stage is overcome, nature is still on her guard; the head is still held back, that the wounded part may recover its full strength.

By noticing the carriage of the head, and the motion of the feet, every description of deformity may be detected at its commencement; they are an unerring guide; indeed, every thing that is awkward in motion ought to excite suspicion, for awkwardness of motion, if it does not originate in evil, ultimately ends in ugliness of the person.

The next illustration that I shall mention, of the effect of the head upon the body, is old age. In its gradual, but slow and guarded approach, it fritters away our strength, it saps the foundation on which our health depends, and the statue begins to bend. It is called a thief; and were it possible, would be guarded against as an enemy: but its finger is ever pointed towards us, and we cannot ward off its approach. Yet while the constitution is undermining, and the strength becoming less, the weight of the head is undiminished; the effect of which is manifested by the very erect manner wherein some elderly persons walk; every step is short, and taken with caution; not a motion is free; all are guarded; and, as Dr. Rush observes, the foot is placed on the ground at once; the ancle joint seems to be obliterated. A young person, carrying a burden on the head, or one fatigued and weary, imitates the walk of the aged. Why do we lie down when we wish to refresh ourselves, and renovate our exhausted strength? Is it not that we may take from the body its own weight, the chief of which is that of the head? If a youth requires the horizontal posture, because his own weight oppresses him, well may an old man find it necessary to carry his head exactly poised, and to make every motion as nearly as possible in a straight line; there is a necessity for his stiffness: the

unguarded motion in which a youth indulges, an aged person has not strength to perform; age has gained an advantage over his limbs, and they in consequence totter; if he stoops it is with difficulty he recovers himself. To an old man a stiff posture gives dignity, and is always beheld with high sentiments of respect. Those whose heads are held rather backward in youth, more easily walk erect in old age. An aged person generally uses a staff, which not only assists in poising the body, but it suspends the weight of the head; it removes it from the spine and transfers it to the staff; what other service can it render? The lightest cane carried in the hand, would create fatigue in a long journey. Suppose a young man, weary with exercise, is he not sensible of peculiar relief from the arm of a friend, and enabled to prosecute his journey? Such assistance is like taking from the back of a porter part of his load. Why does such an one lay hold of every object in his way? why especially does he reach forth his arms when in danger of falling, but that they may be made to sustain part of his burden? Were a person to take a staff in each hand, he would reap no advantage from them, because it would fatigue him to throw his weight from one side to the other: man does not gain by an imitation of animals. Enfeebled by age, we say the joints lose their suppleness, and in a measure their capacity to support the body; such is the course of things, but the native majesty of the person ought still to be maintained, and the aged should aim at maintaining it. A slight inclination of the body carelessly indulged when the meridian of life is just over, is the forerunner of decrepitude; for year after year adds to the inclination, till at length the body is almost bent double, and the traveller as he passes along pities the old man's sorrows; but pity, though agreeable to a woman, is humiliating to a man; and therefore this source of it should as much as possible be prevented.

Connected with the same circumstance, and arising from the same cause, is the gait in walking. As our heads are poised, so is our step. No person can move the feet well unless the head be held erect: but that is not all; any peculiarity in the carriage of the head gives rise to a singularity in the walk. The air of an African is peculiar to himself, and to those who hold their heads in a similar direction. The American Indian is distinguished by his manner of lifting his feet. The walk of the Tartar is heavy. What in Europe we call a graceful walk, can only be acquired by Europeans; an African, or an American, must attach other ideas to gracefulness, because their natural action is different from ours. A negligent gait is disgraceful in every country, because he who pays a proper attention to his mind will pay some to his person. Character always has an effect on the walk: a master acquires an air of command; a military officer manifests his authority in his step; but in every case, the car-

carriage of the head influences that of the body. A graceful air is a part of education, but the principle on which this should be taught is not well understood; the command at every lesson is, to hold up the head; indeed, it is the only command that is given, and is in the child's ears an unceasing sound; but such a mode of teaching often fails of its desired effect; and the governess, despairing of success by this means, proposes learning to dance, as an infallible remedy for every thing awkward in posture or careless in motion; but this remedy also fails, and the child comes from the boarding-school with an air either stiff and formal, or careless and wanton; and if such ever acquire a walk that commands respect, it is through the influence of the mind. The governess may have succeeded better in fixing proper principles, than in directing the carriage. Dancing lessens the native modesty and bashfulness of youth; it produces familiarity where there ought only to be respect; it gives rise to associations which ought never to have been formed; it lessens the female character in the estimation of the other sex. Dancing never inspires respect, the air it communicates is not calculated to inspire it; and besides, the best dancers frequently walk ungracefully, so that the proposed end is not answered.

In teaching the art of walking with ease, we must have recourse to principles. The advice given to children, to hold up their heads, is that which I should give to an old man; but the case is different; stiffness of carriage is desirable in age, but it is not so in youth; it is well to insist on the head being held up, but not as the means of teaching a graceful motion. It may also be advisable, in certain cases, to restrain the shoulders, and make other alterations in the dress, to assist the form, but that does not communicate ease to the walk; it is true, that a certain forced inclination of the head produces a correspondent motion of the limbs, but we here speak of communicating ease to the natural action, to the action which the form of the body has induced, and we contend that it is not done by any method in common use. The limbs of a child are supple, no posture is unpleasant; and when in health, the weight of the head does not incommode them; if they stoop, they recover themselves without difficulty; the bodily form grows as it is governed by the head; but such is the spring, such the elasticity and energy in youth, that the evil thus produced is not immediately felt.

It is this suppleness, this pliancy, which ought to be directed; it is this which should excite the attention and care of those who are instructing youth. In age the carriage of the head directs the motion of the feet; it is a heavy burden for the body to bear; but in youth the motion of the feet directs the carriage of the head. A soldier is not taught to dance but to march; he carries his head as he pleases when he is off his duty; but being accustomed to raise his feet from the ground, in a soldier-like manner, the

the carriage of the head and trunk follow of course; he cannot walk well, and carry his head ungracefully; but he may hold his head very erect and yet his walk be awkward: the improvement in the step of a young soldier, after six months' drilling, is greater than the longest period of education can effect. The proper poise of the head is essential to the soldier, but he acquires it not by calling into exercise a few of the muscles of the neck; he endeavours to make the carriage of the whole body easy and natural. It would be an insult to compare the walk of a military officer with that of a dancing-master; where then is the utility of dancing?---The society of quakers do not instruct their children in dancing, and yet their walk is not inelegant; it commands more respect, and is more graceful, than the bold assuming step of what is called a high-finished lady. I am aware that the mind has a considerable influence on the manners, and to this in a great measure is to be attributed the ascendancy the quakers have acquired in the public esteem, and in their manners and general conduct. I am not fully acquainted with the system of education of that respectable society, but to be taught to step out freely will have a beneficial effect on all children; the head is thus necessarily thrown back, and the most agreeable form and carriage is produced; the whole person is thus put under discipline at the same time, and when the habit shall have become easy, the step may be shortened; for a long step gives to a grown up female an air of boldness.

The influence of the mind upon the person has been before alluded to, and cannot have escaped general notice: to droop the head is a token of bashfulness, of guilt, or of timidity,---it implies a sense of inferiority, or a want of confidence; to hold up the head implies influence and power; a toss of the head is an expression of disdain; and when we say a person carries his head high, we convey an idea of hauteur and pride. These are all assumed postures, and are none of them produced by the natural gravitation of the brain.

A man, desirous of concealing intoxication, holds his head steady, and measures his steps like an aged person; if he cannot command his head his feet betray him, and he staggers: the weight of the head is perceptible to a drunken man, and its influence is felt; he has reduced the strength of the body, and is forced to move with the utmost circumspection; he cannot lift his feet like a soldier, but creeps guardedly along. Sickness also convinces of the weight of the head.

Another important circumstance attending the position of the brain, is its influence on the facial line. Dr. Camper, Dr. Hunter, and other ingenious men, have applied the quadrant to the human face, and a theory has been built on the information attained. The plan is this: draw a line from the most prominent part about the chin to the most prominent part of the forehead, and then by the quadrant try how far it is from being a strait

a strait line: by this means it has been discovered that the European face is exactly perpendicular, which is expressed on the quadrant by 90 degrees; the forehead of the Grecian antique projects ten degrees forward, which makes it 100; the African face declines 15 degrees, so that it is only 75; the monkey's declines still more, and measures only 45 degrees; other animals decline still more, down to the woodcock, which terminates the scale, the elevation, from the tip of its beak to the crown of its head, being very little. The point of observation is, the gradual descent from the most perfect form of man, in the Grecian antique, down to the most insignificant animal. The theory attempted to be established by these facts is, that the facial line is a standant of intellect: it states, that between the wisest man and most stupid bird, there is a considerable difference in the facial line; and that every degree which is gained in the one is also gained in the other. But to this rule of judging I object, on a variety of reasons.

But I presume it is unnecessary to enter largely into the discussion. A large forehead is not a greater mark of good sense than a prominent under-jaw. A Charribbee has no forehead, and yet he is not destitute of understanding: the deformity of the Charribbee was effected by mechanical force, by pressure; the projecting forehead of the Grecian is, in like manner, the effect of pressure; and so is every other form of the head. A large forehead may be produced by art, as it often is by accident, or by disease; and in infancy the forehead is most prominent; so that if it were a standant of intellect, intellect is the greatest in childhood. If we look at the head of an ox we shall perceive in what line the pressure of the brain is directed; if then we look at the head of an African it will be easy to discover that the position in which the head is held is the occasion of its form: the inclination cannot be in two directions, it cannot press equally against the forehead and the occiput. The portion of intellect is surely not to be ascertained, as these gentlemen contend, by the poise of the head.

Let us take another view of the subject. The Grecian antique is represented with a large prominent forehead; such a forehead, with a large under-jaw, never existed in the same person; one feature being large supposes that the others are not so: a mask with more than one large feature is frightful; a face cannot have two projections; but whether the projection be at the upper or the lower part is of no consequence. A column is not less so because it has lost its perpendicular; it may have given way at the base, but the parts are correct; the position only is wrong; the column is entire and proper.

Besides the reasons already mentioned, there is yet another, why the intellect of the African should not be judged of by the facial line: the teeth of that people are the

most prominent part, they turn outward from the jaw, and appear like a protuberance rather than a natural part. The cause is capable of being explained, and will be attempted when speaking of the jaw-bone. I may just say here, that it is not a proper point from whence to measure. The facial line may assist the artist; it may shew in what direction the brain lies; it may enable him to proportion the parts of the body, and to give them their proper characters; but it does not appear at all calculated to assist the moral philosopher.

But suppose all I have said to be erroneous, and that no cause can be pointed out for the peculiar shape of the African's head, are we hence to conclude that it is unmanly? Certainly not. We have no standard, we have no assurance that one form is preferable to another. The head of a wild boar is different from that of a domestic hog, but not inferior. "The skull of a Neapolitan horse, called, from its resemblance, the ram-headed *caput arietinum*, is very unlike the Hungarian horse, well known for its uncommon shortness and the large size of its under-jaw." *Blumerbach de Var. Huma.* p. 88.

In the same family there are many shapes of the skull, but what parent judges of the capacity of his children by this criterion? or by the projecting of the forehead beyond the teeth, or the teeth beyond the forehead? The Charribbees have highly distinguished themselves among Indians, but if the state of their intellect was judged by the quadrant, it would be most deficient.

The plan proposed by Daubenton, being on nearly the same principle, is equally objectionable with that of Hunter and Camper, and therefore I shall pass it by.

Besides the difference that exists in the shape of the skull, there is also a difference in its substance: in youth it is thicker than in old age. This I may notice as another peculiarity in the bone of the skull; for the other bones of the system do not lessen in size, at least not in the same proportion. This lessening is a proof of the great wisdom with which we are formed, for in the decline of life the veins increase considerably in size, so as greatly to enlarge the volume of the brain; hence more space is required; the skull, by becoming thinner, makes that space. Were not this done, the progress from manhood to old age would certainly be prevented; we should not count our threescore years and ten, for apoplexy would inevitably cut us off in the midst of our days.

The African's head is smaller than an European's, because the structure of the whole man is more slender; it would be inconsistent with common observation for a large head to be united to such a person; besides, is a large head essential to wisdom? the terms are certainly not considered as synonymous.

How great or how small a portion of brain has been possessed by eminent men, has,

has, I believe, never been enquired into; but it has been proved, that a considerable part may be removed without the faculties being impaired. Some physiologists have made some cruel and unnecessary experiments on dogs, to acquire knowledge on this subject; the animal has lived with perhaps half the brain taken away. Accidents and war have furnished many instances in the human subject, in which some ounces of brain have been lost, without the health or the understanding being injured.

I shall here close these remarks, with observing, that as the head has long been considered as the seat of knowledge, it is here attempted to be proved the modeller of the body.

SECT.

SECT. 10.

Of the Influence of the Brain on the Character.

IN the preceding chapter I treated of the mechanical influence of the weight of the head, in determining the beauty and deformity of the person. I also noticed the capacity of the head to bear injuries, and here the subject naturally terminates. But there are other considerations which are important, and though somewhat out of place, I shall mention them here.

The head is commonly considered as the seat of the judgment,---the heart, as that of the affections; but mental distress sours the temper, and passion debases the mind; we may describe them as distinct, but their connexion is real and intimate. Whether all children are born with the same temper, and the same capacity, I am not to enquire; it is probable they are not; but the temper, at an early period of existence, may be injured; it may be rendered what it was not naturally, and this perversion may continue through life. If the temper may be altered, so may also the judgment; the mind is not of an opposite cast to the disposition; if the temper is sour and morose, the mind does not design benevolence and kindness. Hitherto it has been the parents' only care, their utmost wish, that their children, during the first years of their existence, should be vigorous and healthy; they have treated, if they have not considered, them as mere animals; afterwards the mind, having begun to unfold itself for the first time, excites their attention, and education immediately commences, with a confident expectation that every thing improper will be destroyed, and all that is excellent and commendable be produced; and when this expectation fails, the master is blamed.

Education is capable of effecting much; and parents have a right to expect more from those to whom they entrust the education of their children, than in common they receive.

receive. But however great the influence of education may be, the influence of the body over the mind is still greater: education corrects, but that creates; education is the pruning-knife, but that is the stem. I am not about to enter into a controversy respecting the origin of evil, or any other doctrine of religion; but to argue from philosophical principles, and from experience, that whatever may be the nature of man, whether contaminated by the fall of Adam, or, as some say, completely innocent at birth, that the treatment received in the cradle has a very strong influence on the character through life; a bias is then received, which, in many instances, education cannot correct.

Let me illustrate my meaning. A fit occasions idiotism, it alters the temper, or it injures one of the senses; it may have been occasioned by pain in cutting of teeth, or by some other cause completely corporeal. Again; the disease we call the rickets, has a very considerable and permanent effect on the temper and judgment; such children are always grave and attentive; they seldom engage in play with the spirit of other children; they give early tokens of a sound understanding and a virtuous disposition, and raise expectation which their mature years seldom disappoint. These are indisputable proofs, that the character of the man may be formed in the cradle. That a change in the constitution is a change in the judgment.---I am not disposed to deny the influence of the constitution, the temper, and the mental faculties of the parents on their offspring; but I do contend, that this natural bias may be subverted,---that disease does subvert it,---and hence arises an important question: Is disease the only agent by which such a change can be produced? We cannot, we dare not, inflict disease. But, are the stores of nature exhausted? Has she but one means of accomplishing an end? Is a storm, that beats down our dwellings, and lays the land desolate, the only means of driving away pestilence? Is lightning, that kills as it passes along, the only means of checking the increase of injurious insects? Should it, even though contrary to fact, be allowed that they are, we can use these elements of nature, and imitate their rage; we can make them subservient to our purpose. Can we not occasion a blast which, directed to combustible matter, will produce a heat that melts the hardest metal? Such a heat, were it general, would burn up the world; such a blast, were it extensive, would unpeople it. But we can direct it, so as to produce to us the greatest good. Can we not collect even lightning in a bottle, and use it our pleasure?---Reasoning, therefore, from analogy, I infer, that the diseases which are known to affect the future character, might be imitated so as not to hurt; the good might be separated from the evil.

But setting this idea aside, is it not the uniform language of philosophers and

 moral-

moralists, that early impressions are always the strongest? What are early impressions but corporeal impressions? The mind of a child is not strong, like that of a man; it therefore cannot be so strongly impressed. First impressions, are impressions of the senses,---admiration, joy, fear, selfishness---which are all that a child is properly capable of, and are all animal feelings; gratitude, friendship, virtue, it has no idea of, because they are connected with the judgment. The mind sees the same object in different lights, as it is more considered, but first impressions spread their influence through life.

Education does much, and religion does still more, in correcting an early bias, but still the same man is seen through life; the animal influence, or in other terms, early impressions, shew themselves at times in the wisest and best of our race. Seize on the opportunity of making early impressions; but do more, prepare the body for them. A child that comes from the nursery good-tempered, has received its first impressions, as it respects the disposition; a child that comes from the nursery ricketed, has received its first impressions, as it respects the judgment. Thus we find that first impressions are not exactly what philosophers have esteemed them.

The animal part of our system, and its influence over the mind, call for the profoundest consideration. We certainly have it in our power to influence the constitution; if so, ws have it in our power to influence the understanding. The idea may be ridiculed, but I ask, does a litile acrid food occasion a fit, and rob a child of its reason? Does the hydrocephalus commonly attack children of the most promising talents, and is there no counterpart? The wisdom of man is an imitation of the wisdom of God; it is not for us to be idle spectators of his ways; if he points out a path we ought to walk in it. Does he, by his dispensations, tell us that the events which happen in infancy, in their influence extend to the grave? And is not this a hint? Is it not directing us to an important enquiry? A lamb, reared in a house, is of a very different disposition to one of the same flock reared in the field. Domestic animals are very different to those that are wild of the same species; it is not discipline, not education, that has made them so; for a bird, or a quadruped, caught in a snare, is with difficulty tamed; but taken from the nest, it is more easily so; and more easily still, if bred of domestic animals: the effects produced by domestication are of a corporeal nature; the constitution of the animal is changed.

Having mentioned hydrocephalus, or dropsy of the brain, as a disease that frequently attacks children of the most promising talents, it is perhaps not presuming too much to say, that a tendency towards it, or, in other words, that the cause of he disease is also the cause of the superior display of the mental faculties. Dr. Hamilton has,

has, in a publication highly creditable to him, proved that this disease often arises from a habit of body which is in the power of the parents to prevent or remedy; if so, the circumstances with which it is attended, may, with some probability, be assigned to the same cause.

To lay down rules for the management of children, I do not presume; I wish to call attention to the subject, as of one of great importance. Facts must be collected, and from them inferences drawn; and no person conversant with children is without some knowledge on the subject.

SECT. 11.

Further Considerations on the same Subject.

WE have no distinct idea of life, but as it is connected with matter; hence it is that a bodily form always enters into our views, our apprehensions of existence; but distinct ideas are not always essential to our credence, or to our conduct. If, on proper authority, we are informed that any thing exists, we search for it with a confidence which can scarcely be increased; in this way, especially, we seek after intellectual improvement; we are assured it may be attained, and we bend our minds to the acquisition. In the present state, our bodies are the only organ of sense, the only mean of instruction, therefore we can only judge of that which is sensible; but it must be in the nature of mind to comprehend more of itself than of corporeal substances.

But it is unnecessary to enter into this subject. We have ample testimony of the existence of the spirit of man, distinct from matter; but in this world they are united. What is the nature of the union? In consequence of life, an animal moves from place to place; and connected with the life are the passions and appetites; they are part of life. An organized body, thus endowed, is a complete animal; nothing more being necessary to constitute it such. In this union the life is servant to the body; it can will nothing. The body becomes infirm; the body gives birth to the passions; it also extinguishes them; they rise and fall in succession. As is the age, the health, the maturity of the body,---so is the animal, so are its propensities, and desires. We can trace the origin, nay we could almost celebrate the birth-day of the passions, and we can also mark their decay; they do not improve by exercise. Hence we argue, that all the passions and appetites, indeed the whole of animal life lasts no longer than a given state of organization continues; in short, they are material, and are only adapted to

to man as an inhabitant of this globe; and having discharged their office, they die irrevocably; no other world, no other state of existence, can require their aid. But even were they not dependent on the body in the way they are, there would still be evidence that they must become extinct: for they are partial in their operations; they are partial in the objects they select: love is partial, hatred is partial, and it is in their nature to be so: partiality supposes imperfection, and it implies an end.---Thus much for mere animal existence, and its entire subjection to the body. It is by the body, therefore, that our animal dispositions are to be corrected.

Let us now advance another step in the enquiry. An idiot possesses that portion of animal life which is given to man; every muscle, every nerve, is in its proper place, and under its proper influence; the animal is complete, but the man is not; thus life is not the reasoning faculty, but it has a connexion with it. Let us endeavour to trace it: An infant gives but little, if any, proof of its possessing a principle of intelligence; yet it exists, and in a little time begins to shew itself, not as the effect of any cause, but as an original, distinct principle; for if the child be deaf and dumb, and I doubt not, if it were blind also, it would give tokens that it possessed the reasoning faculty; as soon as this appears, a mutual connexion evidently takes place between the animal life and it; but this spark, kindled by the breath of Omnipotence, goes out if it be not fanned and kept alive by the senses. A deaf and dumb child very often becomes an idiot; but, as a proof that this spark is not kindled by the senses, some children who possess them all in perfection, are idiots. When I say, the spark of intellectual fire which had been kindled goes out, I perhaps may have exceeded the strict boundary of truth; thus much however is certain, that after being kindled it does not increase, but at best remains stationary. We know that the capacity of a child is idiocy in the man; the glimmering of morning light would be deemed darkness at mid-day; the body gains vigour, but the mind does not.---Thus we find, that the faculty of reason is not dependent on the body, in the same way that the animal life is. Reason does not grow with the growth of the body; it does not strengthen with its strength. The health and welfare of the body do not imply sanity of mind, but they are essential to the enjoyment of the objects of sense.

In the view I take of the subject, the animal life, in a word, all that is necessary to animal existence, is dependent on the state of the body, and takes its cast and temper from it, and is wholly incapable of a separate existence; of course the animal life ceases when the body is destroyed. But although the rational powers and faculties have not the same relation to the body, and are not influenced by it in the same way that the animal life is, yet their connexion with the body is through the medium of the animal

 life;

life; it is a connexion one remove distant.--If this point can be proved, it follows, that attention to the state and constitution of the body is of the first moment. Knowledge increases but slowly, except in the direction of the inclination, and the inclination is much determined by the body. A person of the melancholic temperament may not have a stronger intellect than a person of the sanguine, but it exerts itself in a different manner, so that it invariably forms an opposite character; and it does this in consequence of the temperament; the body disposes the mind to a certain line of conduct. Now we are conscious we cannot alter the temperament; but as the children inherit from their parents, it rests with the parents not to marry so as to expose their children to a state of body unfriendly to the exercise of their minds. But we have already seen, that where the temperament is not strongly marked, the events which occur in infancy have a powerful influence on the character.

At different periods of time children have been found in woods, who for years had had no other associates than the beasts that dwelt there. They have enjoyed vigorous health, but their minds did not improve; they were in that state which justifies the remark, that ignorance and idiocy are synonymous. All the wild boys with whose history I am acquainted, were as untractable and as ignorant as the animals with which they had associated. These children could not have been idiots from their birth, or they never would have been able to have provided for themselves; but, like many deaf and dumb children, not having the means of improvement, they appeared to lose the little they had possessed. Thus it appears, that reason is not the refinement of the senses; it is not the refinement of instinct, or the wild boys would have been rational; for they must have exercised their senses and their instinct very considerably more than those persons who live in society. They are a striking proof how far the animal part of our nature is capable of deciding our character; it must be attended to. These children, when taken, were not able to learn: on the same principle it is, that a wicked old man cannot become virtuous; the animal part has the ascendancy, and requires a miracle to overcome it.

Again, madness is the deprivation of reason; it destroys the man; but where is the seat of the malady? It cannot be in the reasoning faculty itself, for that is incapable of disease; nor does it become extinct, for if so, the disease would be irremediable; a case of madness must be hopeless; but we have happily many proofs of the contrary. But what became of the reasoning faculty while it did not operate? It never ceased to operate; the reasoning of a madman is very strong; he possesses the faculty, but the organ in which it acts is defective: the union between the body and the animal life is injured; there is a want of accordance: the body is diseased; remove the disease, and

and perfect sanity is restored.---Were it possible to communicate the mind of man to a lion, that animal would be mad; not because there would be any thing wrong in the mind itself, but inthe passions and propensities; in other words, the principle of life which the animal possessed would be such, that the faculty of reason could not act in connexion with it. Or were the mind and temper of a youth infused into the person of a decrepit old man, madness must also be the consequence, for the animal part would be at variance with the rational. Drunkenness is temporary madness; it does not destroy the mind, but it so affects the body that it cannot act. Madness is certainly a bodily disease, because it is hereditary, and because injuries done the body produce it.

But the question now before us is, whether the mind has the same connexion with the body that the passions have? I contend that it has not; and in further proof say, that an excess of passion is madness; that disease which affects the principle of life produces madness: Do not the animal functions disturb the mental? which would not be the case if they were not dependent on each other. They are connected together, but have not the same origin.

Sleep is an animal instinct, in the indulgence of which the mind is neither improved nor injured; but the animal life is invigorated, and the passions are again prepared for a more lively exercise.

There is still another proof that the throne of reason, and the seat of the animal life, with its passions and propensities, are not the same. Reason does not quicken the senses, but has a contrary effect; there is a struggle for mastery, which marks their distinctness. Reason is therefore of no service to man as a mere resident on this globe; it would be of no benefit to any animal. That embryo faculty, that dawn of greatness, that pledge of immortality, is the line of separation between man and beasts; it takes its character from the body, but its existence is independent of it. The structure of man does not insure the possession of reason; it is not so material; for some of the human race are idiots, and have it not.

A multitude of facts and observations press into notice, all tending to prove that there must be some intermediate principle between the reasoning faculty and the animal body; and many important inferences would follow from considering them. But as they do not form a necessary part of the present volume, I shall pass them by, with a few general observations.

Mind is essentially the same, but appears to be more or less, stronger or weaker, according to the state of the animal life. It undergoes no obvious change; in other words, no marks of insanity appear, unless the principle of life had previously been injured

injured in its connexion with the body. Animals are never mad, their diseases bear no analogy to insanity. A human being, labouring under canine madness, does not lose his reason.

Again, the body acts as nurse to the mind; it lends it its senses, and they are the organs of its instruction. It is not because we see, and hear, and smell, that we are rational, these are mere handmaids, mere instruments of knowledge. We are not personally conscious that a separation can take place, but reason, revelation, and facts, teach us that it may: the strongest fact is, the existence of idiots; were their case alone duly considered, it would not only afford strong evidence of the immateriality and immortality of the mind, but it would go also to prove, that it was alone by the mind we identify ourselves, and not by the passions and appetites. I question if an idiot has any notion of personal identity; but he ought to have, if it belongs merely to animal life.

Again; it would teach us that it greatly concerns parents and others to attend to the animal part of their children, as the means of more properly influencing and guiding the mental; to suggest this hint is the object of this chapter.---It cannot be unknown to any of my readers, that however a madman may rage and rave, however strongly his mind may be exercised, it never improves; he gains no accession of knowledge: the case is not precisely similar, but there is an analogy, between a man actually mad, and a man the slave of any passion; whatsoever he does, wherever he goes, this passion gives a colour to his conduct; it is always uppermost in the mind, and it guides the understanding. To make any advances in self-government is impossible; the strong bent of the mind to run in a certain direction must first be corrected; the madness must first be overcome; the influence of religion is, indeed, alone sufficient to effect it. But I am not to treat of that influence. A man, preparing to run a race, to fight a battle, or even to wrestle, lives in a prescribed manner; no gratification is allowed, no passion is indulged or provoked; he has an end in view, and that is attained only by the due subserviency of the body. But in common life, the food most desired and most indulged in is, that which most excites the darling passion. We are not as wise in training our offspring, as we are in training of gladiators: the effect of food is known, as applied to the one; but is unconsidered in our treatment of the other.

In the education of children, advice is given, excellent for its wisdom, and excellent also for the style and manner in which it is communicated: it is an appeal to the understanding, to keep the passions in subjection; the force of the truth, and the excellency of the advice, are felt and acknowledged, and the little ones, in a transport of pleasure, pronounce in favor of virtue. But no steps are taken that the body shall co-operate with

with the mind; and until this is done eminence cannot be gained; and, I believe, in most instances, the voice of reason and of conscience will be hushed by the swell of passion. It is in vain to recommend chastity, and at the same time suffer indolence, and allow full and luxurious living; the plainest food is fittest for youth, both as it regards the health and the character. It is in vain to expect a sweetness of disposition, if a churl is made the only companion. It is in vain to advise the governing of any passion, if care be not taken that it be not inflamed. We pay too little respect to our youth, even as their advisers; and we are shamefully culpable in not recommending such a plan of living as shall render the observance of the advice that is given less difficult.

From the foregoing facts and observations we find, that, from the cradle to the full maturing of the man, something may be done, of a physical nature, to assist the understanding, and to overcome the passions.

SECT. 12.

Of the Forehead.

THE forehead of an European is high or low, broad or narrow; there is, in fact, no uniformity in shape, or any national characteristic;---but it is not thus in Africa, the forehead of one native resembles that of every other; and on this account it excites attention and gives interest to enquiry. There is also another peculiarity in the forehead of the African worthy our notice: it is seated so far back, that the lower part of the face projects considerably beyond it;---such being also the contour of the face of a monkey, in the fervid imaginations of those who believe the African inferior to other men, this external resemblance is made to imply a similarity of intellectual powers.---But nature is full of resemblances, wherein such similarity does not exist: A scorpion has the appearance of an egg, but there is no relation, no identity. A polypus can with difficulty be distinguished from a plant, but a polypus is endowed with animal life. The carrion plant attracts and deceives flies; on it they deposit their eggs, which hatch and perish. Water, from the fountain, has many of the properties, and much the appearance of ardent spirits. But such resemblances prove nothing that favor the theory of gradation; on the contrary, they shew that the most opposite properties may be connected with great external resemblance, and therefore, that external characters are not a connecting link.

The cause of the African's forehead being of a given shape is, as hath been observed, in consequence of the head not being seated on the spine, so as to bear equally in every direction; but as at birth it inclines backward, so it is afterwards enlarged and elongated in that direction; by which circumstance the shape of the forehead is determined; by which circumstance also, its small increase from the period of birth is accounted for.

Let

Let us explain the fact. Picture to the mind a skull, into which a fluid had been poured; when one side is elevated, the fluid necessarily passes to the other; it cannot of itself do otherwise, for the law of gravity impels it downwards, and of course it occupies the lowest part; from which, when full and incapable of further expansion, the fluid rises to the higher part, and it thus receives some addition.

To illustrate the fact by an opposite case, the head of the Turk is the reverse of the African's; its inclination is forward; and hence the hind part of the head of that people is as undeviating as the forehead of a negro; one form characterizes the whole nation. The back of the head of a Turk resembles that of a new-born infant of any country.

But it may be asked, from whence it originated that the head of one person is seated on the spine, so that the poise is in a direction different from that of another? and especially, how it is that this difference is national? Let us take the negro, as the subject of enquiry. Does it arise in him from being carried, when a child, on the back of his mother? Or does, as some suppose, the climate impose the shape? Or was it originally an accidental configuration, afterwards propagated from the parents to their children?---That it was not the first cause may be inferred from the African mothers suffering their young children to amuse themselves on the ground, and in their not frequently carrying them on their backs. Nor can the cause be assigned to the climate, for the influence of the climate is designed and calculated to fit the body to endure it; the laws of nature are not ill directed, or without a beneficial object, and the shape of the head cannot be considered as possessing any character, as it relates to climate; one form is in this respect as good as another. Wool is too warm for sheep in the torrid zone, therefore the climate converts it into hair, and thus the animal is in health; upon the same principle it operates on the human body; it benefits where it influences: but ornament, rather than utility, is connected with the shape of the head. The remaining idea suggested is, that peculiarities of form, accidentally produced, are readily propagated. On this idea, I apprehend, every national shape may be accounted for; of such a capacity in nature we have abundant evidence; for she is not capricious, but disposed, when left to herself, to move in a circle, to revolve round and round in the same course, but deviates if opposed.

The laws which are common to matter, laws which operate upon, and give form to, a statue of clay, doubtless operate upon, and in a great measure give form to, the human body. It is unnecessary to say, that a little too much weight, or a little inclination of the head, must invariably and uniformly affect the whole shape of a soft and yielding statue. The same idea I apply to the human body, and say, that the incapacity of some part

part of the system to support the weight imposed upon it, gives birth to, or in other words, is the efficient cause of, the existing varieties in the person of man. "Those who labour at the anvil, the oar, or the loom, as well as those who carry sedan chairs, or who have been educated to dance upon the rope, are distinguished by the shape of their limbs." *Darwin's Zoonomia*, v. 1, p. 501.---In short, an additional weight to any part of the body is productive of a change in the shape of that part; but the head, having an influence over the whole body, is chiefly to be regarded. That varieties, formed in this manner, are propagated and become permanent, we have abundant evidence.

Family likeness, says Dr. Anderson, is no where so perceptible in modern times, as among the clans of the Highlands of Scotland; which, having each originally sprang from one family, are now so distinct, that a person acquainted with the circumstance, will know by the appearance of the first person he meets, to what class he belongs. Thus we have an instance of a given form being propagated from father to son, age after age. Some clans were remarkable for their height, others were comparatively short, and many lesser distinctions existed.

The casts established in the east, may also be noticed. "The members of each tribe," says Raynal, "have a resemblance to each other, by which it is impossible to mistake them; they have the same habits, the same shape, the same tone of voice, the same beauty, or the same deformity of person. All travellers, of any degree of information, have taken notice of this family likeness." v. 1, p. 75.

The Scotch and Irish, like the casts in the East-Indies, without doubt, sprang from the same stock; but now there is an evident distinction; neither the lineaments of the face, nor the form of the person of the Scotch, are common to the Irish. In these and many other instances which might be mentioned, for every region of the globe presents such instances, it is evident, that among people of the same nation, and consequently of the same species, a difference in shape exists, to nearly as great an extent, as between an African and an European; and which is propagated with the same exactness and certainty as the peculiarities of that people are.

"The American States are beginning to form, independently of climate, certain combinations of features, the result of social ideas, that already serve, in a degree, to distinguish the states from one another." *(Smith, on the Cause of the Variety of Complexions*, p. 91.)---Thus we also find a cause in the influence of the mind; a less powerful one, doubtless, than that of mechanical force, but still it has an effect.

In further illustration we might appeal to common observation: notice a person carrying a burden which requires to be poised, a ladder for instance, it bends his back,

back, and he walks very much in the manner of an African; were this attitude rendered habitual, it might be propagated, and thus the African form be common in Europe.

But as the attention of mankind has been much directed towards animals, it may be proper to borrow our particular examples from them.

Dr. Darwin mentions a breed of cats, with an additional claw on each foot. Buffon also notices a breed of dogs, in Italy, without tails. But Dr. Anderson, who has paid great attention to the facility with which acquired or accidental forms are propagated, informs us, that a rabbit, which had lost an ear, brought forth young in the same state. An ugly, ill-formed sheep, whose back resembled a camel's for crookedness, produced lambs precisely resembling itself; and thus a breed of such animals might readily have been obtained. A cat, belonging to Dr. Coventry, of Edinburgh, had no natural blemish, but when young its tail was cut off, either by wanton cruelty or by accident; in the course of its life the animal had many litters of kittens, in all of which one or more were without tails. The same ingenious author, in an *Essay on the Varieties of Sheep*, goes on to produce examples of such great diversity of form among those animals, that it would be difficult to believe they all sprang from the same stock, had we not before our eyes abundant evidence of the facility with which such diversions are promoted. Some sheep, according to Dr. Anderson, are covered with wool, others with hair, others with a mixture of wool and hair. A Cape of Good Hope sheep drags after it a tail of several pounds weight: a breed in Tartary, which Dr. Pallas calls Steatophagi, or fat-rumped sheep, are distinguished by two very prominent lumps of fat on their haunches. *(Recreations.)*

In addition to these facts, we might add many others respecting the same animal; but, taking leave of our author, I proceed to the notice of other animals.

The first I shall mention is the duck. A wild duck, although of the same species as a tame one, is different in its structure; their economy, not their nature, has made them unlike each other; the one flies from place to place, the other walks; to the one the legs and feet are of little use, except as oars to urge it across the stream, to the other the wings are of equally little importance. Such being the economy, mark its consequences: the wild duck has a fine full breast, but the thighs are small; the tame duck has large fleshy thighs, but its breast is narrow; the muscles enlarge by use; hence flight increases the breast, and walking the thighs. The bones also undergo a change, and become as various in shape as the flesh which covers them is in size; in consequence whereof, the centre of motion which, in a wild duck, is between the wings; in a tame duck, is lower down the back; hence the one flies with ease, and passes from continent to continent, while the wings of the other can scarcely support it across a

 field;

field; their awkwardness soon fatigues them. The great and almost physical difference between these two birds is effected by the circumstances of their existence; the one is confined to a yard, the other passes over the extent of kingdoms in search of food, or to find a proper place where to build a nest and rear its young. The one can scarcely fly, the other with difficulty walks.

The same general principle which is applicable to the duck, is true of other animals. A hawk soars with ease; its wings being large, they require but little exertion to buoy up so light an animal: but it grasps its prey in its talons; in them it is that it requires strength; and Spallanzani has observed, that the flesh of their thighs is, in consequence of the exertion used, more coarse and red than that of any other part of their body.

Domestic fowls seldom use their wings, and in consequence the flesh of the breast is much more tender and whiter than that of the thighs, which are in constant exercise.

Taking all these facts into consideration, there cannot exist a doubt that the external form of animals is in some measure the creature of circumstances; and that any form, however imposed, is liable to be propagated. The analogy between the brute creation and the human race is of easy comprehension. If animals deviate in form from each other, and propagate that deviation, why refuse the same power to the human race? In them, particular circumstances affect particular limbs; in the human race, the head affects the whole body.

I have been induced to make these remarks, to shew that a slight difference in shape is not sufficient to characterize a species: there is no such preciseness in nature; she includes within her pale much that would appear irregular; she claims as her own the spotted and the fair, the well-proportioned and the deformed.

Let us now return to the particular subject of the chapter. If it be a fact that the shape and position of the African's forehead was ever the effect of some cause, founded in a law of nature, it is so still. The same mechanical influence which produced it in the first instance, produces it continually. The same position of the head on the spine which directed the mechanical influence, is propagated, and becomes alike in the parent and in the child. But should the child not very accurately resemble its parent, it does not lessen the relationship; and nature gives to such accidental variations the permanency of distinct species.

In infancy the foreheads of the whole human race are larger and fuller, and the crown of the head broader and more extended, than at any other period of life; the cause is easily assigned, on the principle of mechanical influence: in the months of gestation the head is pendant, consequently the brain invariably lodges against the crown; but

but after birth the position is reversed; the head, from being the lowest, becomes the most elevated part of the system; and the brain, which used to press against the forehead and parts adjacent, now gravitates in an opposite direction; and as is the particular bias of the head, so is the form of the forehead. In Africa this bias is considerable, and the form of that feature is always the same: in Europe the head is so nearly balanced on the vertebra, that every form of the forehead is proper; and in the progress from infancy to the full growth of the person of an European, it often assumes many shapes, as education or accident may direct. At one period a custom of stooping is contracted; at another the pastime in fashion may give rise to a particular carriage of the head; and in some instances the weight of the brain preponderates in a given direction, which determines its own shape and that of the person.

Miss -------, whose growth I have attentively watched from her infancy, had, till of late, a forehead somewhat full at the upper part, yet, on the whole, it well corresponded with the shape of the head, which was flat at the sides; but a habit of stooping being contracted, the forehead became more full, and at the same time the head assumed a roundness it had not before. The limbs also have undergone some change, and the whole person is improving in shape, and will, I have no doubt, correspond to the globular form of the head. The habit of stooping is corrected, but should another improper carriage be contracted, the shape of the head may again be expected to alter; of which capacity we have examples in the youths apprenticed to shoemakers, but more especially in those young persons who by misfortune have lost the power of moving the head. Dr. Camper mentions the case of a young woman who carried her head on one side, so that the brain lodged principally upon the eye-socket of the declining side, in consequence of which that eye was lower down the face than the other, and of course the forehead assumed a new appearance.

The cause of this deformity of the forehead, for I can call it by no other name, is explained by another fact: A gentleman, when a boy, received a kick on that part from a horse; the bone was injured, and did not heal of a considerable time; the growth of the injured side was impeded, and at this day the eyes are not parallel, nor do the two sides of the face resemble each other. An injury done the forehead impedes the growth of the eye-socket; hence we see that the upper part affects the lower. An injury of the chin does not affect the forehead; the influence does not ascend, but it descends. Our growth is upwards, the head makes way for the body. A Samoid is short of stature, for his head is large; the head is to the body, what the leading shoot is to a plant; if the shoot be injured, the plant may gain in bulk, but it does not in height. What a fracture of the bone effects in one instance, great pressure effects in ano-

another; the principle is of universal application. Alter the direction of the head, or hinder its growth in any part, and the forehead, and even the limbs, mark the consequence.

There is scarcely a village without some unhappy sufferer who is an example of what I am attempting to prove. One I shall mention: A girl, fourteen years of age, about two years since, was seized with a pain in her neck, which rendered her incapable of moving it; her head was bent backwards, and remained in that position several months when the pain abated, but the motion of the neck was then only very partially recovered, and the inclination towards the back still continued; in consequence of which, a new form has been given to the whole system; the underpart of the face has become more prominent, and the forehead has the appearance of being less than it had been, it is an African forehead; the chest which, previously to the malady, was well-proportioned and elegant, has now lost that swell, that fine bold turn, that depth, that fulness, which is always esteemed, and with which we associate ideas of beauty and of strength: these are gone, and a meagre, sickly form has, unhappily, assumed their place. Every limb of this poor girl feels the consequence of her affliction.

The next general remark that I shall make is, that notwithstanding the difference that exists in the foreheads of adult Europeans, during infancy they very much resemble each other. This resemblance evidently arises from the similarity of their circumstances during the months of gestation; and it is only as life advances that the position of the head varies, and new combinations of the features are formed. But if the foreheads of European children resemble each other, because the position of the head has been the same, it cannot be degrading to adult Africans that a sameness in the shape of their foreheads also exists. The same cause which occasions the strong resemblance in European children, occasions it in Africans; a similar position of the head of the one is temporary, in the other it continues through life. That the person of one negro is a model of the whole is true, and so is the person of one child. That negro does not exist, who, in the form of his body, is unlike his brethren. When a negro is introduced into a picture, it is known who is designed, it is a native of Africa; compare a thousand such pictures, and there is scarcely a line of difference; they might each have been copied from the same drawing. The fact is equally true of Europeans, in infancy and in age: one interesting but helpless babe bears a strong resemblance to all others of the same age of the same nation: and, as in human life there are two periods of imbecility, when the second approaches, when the passions are dead, when the teeth have fallen from their sockets, when the hair is white like snow, or the head bald and defenceless, and when the face, covered with wrinkles, mark the approach to the extreme verge of life,

life, then again the same resemblance may be traced; for the beauty and diversity of the countenance depends much on the mind, and not on the hard and unyielding parts which cover the brain: hence it is, that a correct likeness of one aged person is a correct likeness of all whose heads are of the same shape. When the hair is lost, a difference in the form of the forehead is not so apparent as it was in youth; and therefore the likeness among the aged is increased. Thus the resemblance which Africans bear each other in their foreheads, and in other features, is not without its parallel.

Were the minds of Africans cultivated, it would produce a change in the expression of their countenances; but when the mind grew feeble, the original likeness would return.

Let me make another, and a somewhat opposite remark. It has already been said, that the head of an European child was so nearly balanced on the spine, that it became almost optional in what direction it was carried, and of course what form it assumed. And, connected with this fact, is the variety of features which are common in Europe and not in Africa; the form of our skulls varies, theirs do not; but there may be a very manifest difference in the countenance, without a difference in the outlines of the face,---as there may be a difference in the outlines, and yet the expression of the face be similar. This natural diversity, this diversity of outline, is most apparent in youth; the cause is obvious,---it arises from the different conformations of our skulls, and it in a measure ceases with the vigor of the constitution. How is it, that often after the lapse of a few years we are unable to recognise the child of a friend that we once, from love to the parents, a love reflected upon the child, had pressed to our bosoms, but that a new combination of features has taken place? It is to us as the child of a stranger. This change of features had some cause; it was directed, in a determined manner, by some influence; and I am acquainted with none other than the mechanical influence of which we have before spoken. The shape and bias of the head changed, and the features of necessity changed also. But this does not oppose the idea, that a change in sentiment also occasions a change in the countenance, which the Africans may attain.

The eye-brow is a part of the forehead in which resides much of its dignity; it is a part which distinguishes the forehead of an adult from that of a child; not only because the eye-brow is more full, and of a deeper colour, but because the bone is more prominent. At this part of the forehead there is a hollow, or sinus, occasioned by the bone being divided, and as the person grows to maturity this hollow becomes greater, and appears in some measure to be influenced by the motion of the eye-brows; it is certainly the most expressive part of the forehead. But the expression is not in conse-

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quence of the shape or position of the bone, but in consequence of the capacity of motion in the eye-brow itself.

A lady, of an amiable disposition, received a cut on the eye-brow, which divided the muscles of that part. When the wound healed, the muscles were discovered to have lost their motion, and the eye-brow somewhat of its form; the consequence was, that the lady ever after looked, on that side of the face, as if in a violent fit of anger, while the other retained its original amiable placidity.

SECT. 13.

Of the Principles of Physiognomy,

AS TAUGHT BY M. LAVATER.

WHEN the forehead is enlarged much beyond its natural limits, the features of the face are disproportioned, and in the adult they are ugly. It is unnecessary to repeat the many circumstances of disease, of accident, and of design, by which such an enlargement is promoted; it is sufficient that they exist. I have mentioned them that they may be kept in view; because, in Lavater's opinion, this feature is, of all others, the most important and valuable; on it he sees inscribed wisdom or folly, virtue or vice. But should the shape of the forehead, in any measure, be the creature of accident, or the consequence of disease, the science of physiognomy, as taught by that philosopher, is imperfect, and must mislead, and the principles on which it is founded must in consequence be erroneous. A full, bold forehead, a skull which conveys the idea of a dish, as Lavater has expressed it, characterizes a manly form; it implies a vigorous constitution; a becoming and even a commanding walk: but persons the most profoundly ignorant, and even of weak intellects, possess such foreheads; they suppose robust constitutions rather than enlightened minds. Excellence in mental powers is not, like bodily strength, monopolized by a given form: the foreheads of wise and learned men are as diversified as nature will admit of: those which are the most opposite in their structure, have been possessed by men equally wise. It is only necessary to glance at the portraits of a few wise Europeans of any age to be convinced of the fact. Wisdom stamps its own impression; it improves the shape, it beautifies the countenance; it is not a consequence but a cause; wisdom or folly are not determined by external characters; they do not reside essentially in

in any form. So far as the brain is concerned, it must be its quality, not its shape, which determines the character.

Here I confess myself at variance with M. Lavater. That distinguished philosopher contends, that characteristic marks of genius or imbecility reside essentially in the bodily conformation; the skull especially, which includes the forehead, he deems an unerring guide. I dissent from such opinions, because the figure of the head is determined before the character is formed; the one does not keep pace with the other; and when once formed it admits of no variation. The character fluctuates: at one period it has the mildness and the gentleness of contentment, the calmness and serenity of patience; at another, all is perturbation, fretfulness, anger, and moroseness.

"I consider," said Lavater, "the peculiar delineation of the outlines and position of the forehead, to be the most important of all things presented to physiognomical observation." In endeavouring to establish which darling position, our author has made us rich in facts; his creative genius, joined to a patient industry, has rendered beautiful, and even splendid, this walk of literature; but the ground on which he treads, I have already hinted, I believe to be unsound.

He professes to shew, by examples, what are the lines and marks by which genius may be traced, while it is yet equivocal; by what characters the passions may be known as they rise; the intellect, as it is unfolded. On the hard and unyielding forehead he conceives these characters to be engraved: but if this feature, as I have endeavoured to prove, is, in a measure, accidental as to its shape, it cannot be an index of the mind. A man who never had a wish beyond the gratification of his appetites, has, perhaps, a forehead formed more after the model Lavater describes, than the most consummate philosopher. A sickly youth seldom has a good forehead, but a sickly youth often becomes a wise man.

Before a science can be taught, its principles must be well understood, and demonstrably true, otherwise the science is exposed to ridicule, which is actually the case with physiognomy; it is acted on as a science without being acknowledged; no one pretends to understand it, lest he should be laughed at. Had Lavater directed us into the right path, his principles would before this time have been received and understood, at least by men of letters, and the study of them would not have been deemed discreditable.

As the subject is intimately connected with the design of this publication, I cannot with propriety pass it by unnoticed; I shall therefore endeavour to prove that the science does exist, and may be taught.

When a savage builds a hut, or a mechanic makes a watch, we call it an art; the art of watch-making, the art of house-building: the principles on which such arts are founded,

founded, are called a science; architecture is a science, mathematics is a science, every practical art is connected with, and has its origin in, a science.

Let us see how far this idea will apply to physiognomy. A child stretches out its tiny arms and solicits the caresses of one stranger, but shrinks back from another. An adult feels a glow of affection towards a person whom he accidentally meets, but is disgusted at another. This may be called the art, the practice of physiognomy; and, like the exercise of every mechanical art, it supposes the existence of first principles. Astronomy was an art so long as counting the stars and observing the motion of the heavenly bodies were all that was attended to; when the moon was seen to rise and set, to wax and wane, and when this was all that was known, astronomy was an art; to account for, and calculate the times and circumstances of its appearing, is the science. The existence of an art always supposes a science. On this principle physiognomy has a claim of being a science; it is already known as an art.

In further proof, I may ask, what is the parent of affection, of love? Is it not physiognomy? Love, it may be objected, is a passion founded on principle and judgment, not an impulse; be it so, but it is never felt from a description of the character, but from a sight of the object. Great beauty of person commands admiration, which could not be, if physiognomy were not at least practically understood; and, as I have before observed, the practice of an art supposes a principle from whence it is derived. A wanton look kindles a flame, impure like itself; here then is the principle and its expression. An obsequious air, a cringing bow, are pleasing to the proud and powerful, and often determine their actions. Even marriages are contracted from motives that spring from such sources of influence: we judge much by what we see. A negro esteems a negress the most charming of women. A clown is wretched in the society of a well-educated person, and is happy to escape from it; he sees nothing that he can love. Foreigners seldom contract friendship; we cannot love what we do not admire and esteem, and we cannot esteem that in others of which there is nothing corresponding to it in ourselves; and of this we form our first opinion by observation, which is only another name for physiognomy.

The passion of love is so intimately connected with human happiness, that I cannot suppose it the creature of whim and caprice; it must have some principle for its guide, as well as an object for its end; it is unlike lust; that is as general as the species, this is confined and special; the one debases, the other dignifies. We are angry or are pleased, we rejoice or are sad,---if there be no cause for the passion, we feel we are diseased; if there be no sure and proper guide for its right exercise, we are incomplete. Love, like every other passion, must be excited by some appropriate object, and it must

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have some guide in directing it to that object; and what other guide can there be than that which physiognomy affords? You cannot reason a person into this passion, nor can you purchase it with money. Suppose a young man, of a proper age, is desirous of finding a suitable partner, that he may become the head of a family, he pictures to himself her image---he draws her character,---he looks forward and sees her filling up the various relations of life; he keeps his secret in his own bosom, but is ever on the watch, and when he meets with the object, he recognizes her; he judges her character by her demeanour,---he judges as a physiognomist; and if the affection be mutual, what is wished for in the one must be possessed by the other. A wise man is not in love with a fool, a sober person with a drunkard, a churl with a benevolent person; there must be a suitableness in disposition, in education, and in character, or there is no love; and this suitableness is expressed in the countenance and deportment sufficiently to be known. Does not the presence of a stranger, who had not spoken, awe a company of libertines? how did they know he was not a libertine, but by his appearance? A thief does not form associates by imparting his secret, by declaring himself a thief, he is known without it. A drunkard, or a debauchee, soon discover a character similar to their own; much sooner, I believe, than a virtuous person would discover them. If, in instances of baseness, physiognomy is a guide, it will scarcely be denied that it is so in other cases. We look for an object, and recognise it.

These observations are a full evidence that the art is practised; but it may be said, that it is only as the effect of experience. Yet it ought to be remembered, that the sciences are interwoven in the wants and desires of man, and are acted on, although experience had not shewn the path, or theoretical knowledge enlightened it; it is so with physiognomy. Infants practise the science, and their practice is a refutation of the theory advanced by Lavater. That philosopher has ascertained, that a set of features, bearing a certain proportion to each other, are connected with a certain temper and bias of the mind. This is true in fact, but erring in principle: it is not the shape of the features, but their expression, by which we judge. A child has had no experience, it has no previously arranged rule of judging, yet the expression of goodness strikes it with delight, while that of malevolence frightens it; the smile of its mother is always grateful, not because of the child's experience, or its reasoning, for she had never frowned; it was understood without being contrasted. A negro's countenance does not disgust a child, but a hard-hearted man's always does; there is a self-taught, I had almost said an intuitive judging of character, a natural expression of the temper and the character, which is acted on, although not well understood.---Thus, from the practice of the art, I argue the existence of the science of physiognomy.

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Having stated my sentiments thus far, I shall, for the present, leave the subject, and return to our author; it being necessay to say something in direct opposition to the principles he advances; for if they are admitted, none but Europeans are wise or good, as none but Europeans are possessed of the features he describes.

I argue, that every passion, every sentiment, has its own appropriate expression, and every set of features is capable of conveying them; and that therefore the hard and immoveable parts of the face cannot be the chief study of the physiognomist. The forehead, which is Lavater's leading feature, may be covered, without the expression of the countenance being lost. A character is never acquired and concealed, yet the forehead assumes no new cast; it does not change with the character, consequently it does not acquire a new expression. It occasionally happens, that a person of very strong intellectual powers is suddenly deprived of them; he has been ill, or a violent blow has effected it; the mind, to which (according to Lavater) the skull was but a lucid covering, a lantern, which transmitted its beams, now transmits only smoak; the light is gone out. But the skull does not convey the tidings, it is not the transparent covering Lavater imagines it to be, it has all the expression, all the capacity it ever had, but that is wholly inadequate to the purpose; the soft and moveable features proclaim every change, but the hard parts are the same at all times. Drunkenness is temporary madness, it degrades and debases every feature, every muscle, but its influence stops with them; the skull, the forehead, shews no marks of drunkenness. Suppose, on the other hand, that an ignorant and corrupt person receives instruction, and presses towards superior attainments in virtue and knowledge, does his countenance gladden as he proceeds, while the head remains the same? The former expression could only be contemplated with emotions of disgust, of grief, and of horror; it was the expression which is conveyed by the avenue which leads down to a prison; you see the building and know it to be dark and gloomy: even the avenue, however ornamented, is cheerless; but a mind, enlarged and chastened, sheds a pleasing lustre on the exterior.

There is still another circumstance which shews how little the forehead is entitled to regard, in forming an estimate of the character. Disease, we know, relaxes and enfeebles every muscle; their expression is weakened by it; and when death approaches, the expression ceases altogether. Who can trace the living character in the dead body? The forehead is there, the outlines are the same; the person may be recognised, but the spirit that beamed through the countenance is gone, and the philosopher cannot now be discerned from the fool.

Childhood is another example of the unsoundness of Lavater's theory. A child has a noble forehead, but it is not the subject of physiognomical remark; the character is not

not formed, consequently it is not expressed. But if it resides essentially in the forehead, it would not require to be developed in order to be seen; it might be anticipated: but physiognomy only has respect to what has actually taken place; we cannot judge by the babe in the cradle of the temper and talent of the man. A good forehead is the pride and boast of Europeans, but where is the just ground of boasting? That is not the seat of wisdom, or the expression of it.

In the view I take of the subject, every human countenance is capable of expressing every human feeling. The face of man is alike an index of the mind and of the passions: but the countenance of a wise man is not always expressive of wisdom; his thoughts may be occupied on trifles, or he may be sorrowful, or some passion may ruffle his mind, and as is the state of the mind so will be the expression of the countenance. Wisdom has its own proper character; it is independent of any set of features; it does not court beauty or shun its opposite. Expression is the proper study of the physiognomist: it is the science of physiognomy. The beauty, the honor, and the excellency of the human countenance, consist in its being an index of the heart and of the understanding.

Taking it then as an axiom, that every human countenance is capable of expressing every passion and every sentiment, let us endeavour to exemplify it. Among the circle of our friends, but especially in our own families, we are all physiognomists. Who is there that does not as carefully attend to the expression of the face as to the words of his acquaintance? Who is there that cannot distinguish between the lowering of the countenance, from a ruffled temper, and the sadness which is expressive of a dejected mind? Or that cannot distinguish the expression of sorrow for the loss of property from that which arises from the death of a friend? and so of every other sentiment or passion. Through the whole tide of life, not a single ebb or flow passes unobserved by those who are our familiars; they know, without the use of words, at what time we are sad, and when we rejoice. What is thus manifest to our friends, a more general observer discovers in those with whom he is not so well acquainted; he discovers it even in a stranger, and his rule of judging is not the particular shape, but the expression of the face; he acquires a knowledge of extreme characters; he learns to distinguish a philosopher from a fool,—the man whose heart is black with malignancy, from him whose heart overflows with benevolence. It is easy thus to distinguish characters remotely opposite; their expression impress the mind, after which the application is easy.

To discover a passion by its expression, is within the capacity of all: an angry negro, an angry Tartar, would both be known by a child; they each express the passion by

by the same distortion of countenance. To judge more generally of the character, only requires a little more attention, for what is character but habit? and what is the expression of character but a known combination of the muscles? The natural shape of the forehead, or of any other feature, is not entitled to regard in our estimation of character, for these are fixed before the character is formed; a change of circumstances, by altering the disposition, alters also the expression of the countenance of a youth; but it has no effect on the conformation of the body. Why is a lad not an object of physiognomical observation? Is it not because his mind is immatured? The person of youth is lovely, it excites our affection, but it is not great; it does not excite admiration or respect; it does not command; it excites little interest but that of fondness. Were the principles of Lavater correct, the countenance of a youth would be as important to the physiognomist as that of an adult, for that philosopher requires the bones only by which to estimate the character; but, in the view I take of the subject, the muscles are the objects of study; in them is seen consistency, harmony, order, and dignity,---the vacant stare of ignorance, the discordant motions of perplexity, the swell of passion, and the glow of intellect.

The next rule of judging is equally easy. If, on a countenance, there be no expression of a decided character, no strong traces of virtue or vice, no evident marks of strength of intellect or fatuity, the character of the person is mixed and tarnished; no dependence can be placed upon it: he is now the friend of virtue, charmed with its beauty, and satisfied with a conscious dignity in its practice,---then stung with remorse, and disgusted with himself and with the world; one day the secret adviser of mean and unworthy actions, or the slave of base and unhallowed passions,---the next, eager of knowledge and thirsting after virtue; now furious with anger, or sullen with contempt,---then softened into feminine tenderness. Such characters compose the bulk of mankind; and if no strong expressions of sentiment are marked on the countenance, such is the individual. Without strength of character there is no strength of expression; if the muscles are not habitually associated by one prevailing disposition, the expression cannot be decisive; it is not free from ambiguity, and ambiguity in expression is versatility in character: the predominant sentiments of the mind, and feelings of the heart, may perhaps be traced,---yet they are so mixed, so confounded, with the expression of other sentiments, other feelings, that they do not excite attention; they neither delight nor disgust: such persons are of the multitude.

It is a pleasing and an honorable circumstance, that, by cultivating the mind and chastening the affections, the person is beautified; but, on the other hand, if these duties are neglected, marks of infamy are fixed by the hand of nature in the uninviting,

unattractive aspect of the countenance: the sun is eclipsed and darkened. When I speak of chastening the affections, I do not mean an abatement or deadening of their force; I would not diminish, but direct their ardour: an object, fit and proper to be loved, is entitled to more than lukewarm affection; love, the most warm and generous, towards such objects, is their proper measure.

The desire which Lycurgus expressed, that equal pains should be taken to improve the person of our offspring as to improve the shape of animals, was wise and just. Here are the means; the rule is easy, and the experiment within the power of any: Cultivate the understanding and refine the passions; and then, should the person not be well proportioned, it will become agreeable; every feature will improve, and all will harmonize; it is not in the nature of things, that the person of a generous and sensible man should be unpleasant; on the other hand, indecision of character will invariably produce an uninteresting countenance; the native beauty of the face is lost by an undecided character: hence so few persons look well when the bloom of youth is past. The expression of character does not succeed the expression of youthfulness. Notice the cottage girl: she is all mirth and gaiety; nature has lavished upon her her richest charms; she is conscious that she is an object of affection: she marries, the character of the girl ceases, and with it her loveliness; now she is negligent of her dress, and without a due sense of personal worth to make her countenance interesting. But I need not confine my remarks, respecting the effects of marriage on the expression of the countenance, to the poor,---a striking change is obvious in all females. In youth all is anticipation; it is the period of hope; it is the season of improvement; the world is before them, and though the aged talk of disappointment, they expect bliss: the ecstasy of joy, the sweetness of conscious pleasure which fill the breast, diffuse a loveliness over the countenance, but it is not destined to last: the period and the feelings of youth have a natural termination, after which a strength of character is requisite to give an interest to the countenance; and if marriage be contracted early, this period is cut short, and the countenance acquires a new aspect. The loveliness of a girl would not become a wife---we now look for the expression of sentiment.

To the bulk of mankind virtue is not sufficiently interesting to engage more attention than the welfare of society demands; beyond this it is supposed to sour the temper and lessen enjoyment; on this account so few individuals impress us with sentiments of respect.

Should it be asked, why the present age, in so great a degree, disregard knowledge and crowd the avenues of vice? why our persons are less interesting than those of the Greeks and Romans are supposed to have been? the answer is easy. That exertion is not

not now made, which was practised by the nations of antiquity, to form the character: their wisest men had pupils; the aged derived honor by instructing the young: there was then no unnatural and unnecessary jealousies existing between one body of the people and another; but this mean passion paralised all modern European institutions for education and the improvement of youth, and thus prejudice is substituted for knowledge: one order of the community is not permitted to study with another; hence the one is proud and arrogant, the other self-willed and obstinate. This is not the road to excellency, but the very reverse. Mark its effects:

Deism prevails, and deists constitute here, as they did, and probably do, in France, the great body of learned and ingenious men; nay, it is even questioned whether we do not owe it to scepticism, in one form or other, that we have not sunk back into barbarism. I hope the question is unnecessary, but be that as it may, it is certain that deism is not honored by the state; the ablest works, derived from that channel, are received with distrust, and reward is very unwillingly given to the authors; yet, under these disadvantages, the literature and science of the country is, in a great measure, engrossed by them. Under these circumstances it is impossible to rise into greatness, and rival the ancients. Besides, deism is unfriendly to morality; and we are assured, by Longinus, Quintilian, and Cicero, that goodness is inseparable from greatness. But although we so much neglect or abuse our privileges, we have many which the Greeks had not: their religion did not prompt to great exertions, or direct them towards a proper end, the christian religion does. Were its benign and blessed influences properly felt, in place of narrow-minded bigotry, the bane of all excellency, swelling herself into greatness, and walking a round of fashionable amusements, there would be a generous emulation in every useful pursuit, and we should rise as far above the Greeks as our advantages are superior. They surpassed us in personal beauty because they surpassed us in knowledge: our vices are concealed, but their virtues were public; they were superstitious, but we are bigoted; they enquired for some new thing, some addition to the general stock of knowledge; we enquire after that which is old. Beauty or ugliness of the person resides essentially in the character; exalt the one, and it beautifies the other.

I have before said, and I here repeat it, that it is not a similarity in the lineaments of the face that implies a resemblance in character. A thousand examples prove the fact; for instance, that mean and dastardly prince, Edward the second, strikingly resembled in person his manly and illustrious father: and every village presents living proofs of family likenesses as great, without a similarity of character. The best-proportioned, and naturally the handsomest face, is as capable of expressing timidity and

and baseness, as heroism and virtue; it expresses all the varied emotions of the mind, or it is defective; hence no progress is made in ascertaining the character by the strongest personal or family resemblance. When I see an idiot, or a debauchee, I cannot help considering that the same features which so strongly mark those conditions of the mind, are capable of expressing as strongly every other state of the intellect or the affections: hence, the weakness which appears in the one, and the vice in the other, is not derived from the features, in their original conformation, but from the mind acting upon them.

There is still another view which may be taken of the subject, and which yet more unequivocally proves, that physiognomical knowledge is not derived from any impression made on the hard and bony parts of the system, but from the association of the muscles, or, from what is usually called, the expression of the countenance. The idea I borrow from the *Spectator*.

Suppose various societies to be formed, each of which to be composed of persons of a similar character. Let there, for instance, be one society of misers, another of drunkards, another of gamblers, one of old bachelors and another of old maids; to each society introduce a painter, whose express object shall be, to draw the character common to the society. Will it be a matter of any consideration with him, whether the person he selects be tall or short, ugly or handsome? or will it be of importance which individual of the whole society he selects, for each conveys the same physiognomical truth? If the persons are unlike, the expression is the same. A miser, a drunkard, cannot alter his disposition and practice without his features partaking of the same; they betray him: it is of no importance to such, the shape of the skull, the contour of the face, the family likeness, the original cast of countenance---these are eclipsed and thrown back, and the character alone strikes the beholder.

Were it my design to write an essay on physiognomy, I would illustrate, by engravings, the progress of the expression of character. I would commence with infancy, when no passion agitates, when no plan perplexes, for then the countenance is as interesting asleep as awake, of course it is without that expression which the passions and the intellect communicate: here I would commence, and I would advance step by step through every variety of character, always retaining the same person, the same set of features; the character alone should vary.

It is, I presume, but an imperfect way of teaching the science of physiognomy, to introduce, as Lavater has done, a great variety of different individuals to notice: if there be any truth in the science, its characters are uniform; anger has always the same expression, it always calls the same muscles into action in the same manner; and so of all

all the other passions. Acquirements in knowledge do the same; and this is again divided; for as is the nature of the acquisition, so is the expression: the countenance of a poet is very unlike that of a mathematician; each are known, at first sight, to be men of parts, but the particular direction of their talents communicates peculiar expressions.

But it may be said, that the expression of sentiment, or passion, may be imitated, where neither have any existence; this, if true at all, is so in a very limited sense: a counterfeit is liable to detection: the smile of a prisoner diffuses no joy, the smile of a knave inspires no confidence; the anguish of the one, and the design of the other, cannot be concealed by such an unnatural association of the muscles. The mimicry of a stage-player is not more like the expressions of nature than a caricature is like the original, except, perhaps, in the staggering of a drunkard, or the oblique glance of a prostitute; by these the true sentiment is often conveyed, and too often acted on: but a genuine expression of goodness, perhaps, is never communicated from the stage; no one is improved by the best speeches there pronounced, because they are not attended by an expression that naturally corresponds; the speaker is felt not to be in earnest. An iniquitous person cannot plead for goodness; a man in pain cannot put on the semblance of ease. "There are several turns in the gesture, in the look, in the voice of the man who does violence to another, which it is impossible for the party that suffers such violence to express." *Demosthenes' Oration against Midias.*

It sometimes happens, that the face of a man of superior abilities disappoints our expectation; for instance, that of Dr. Johnson, or Dr. Cullen. The way to estimate the character in such cases is, to draw the face without expression, as if it were that of a peasant, then add to it some one of the passions, from Le Brune, or the expression of intellect from other artists, and it will then be seen how much an ugly set of features can be improved by the accession of knowledge, how much it can be debased by passion. I appeal to such instances, because, on the theory of Lavater, no opinion can be advanced concerning them; they are exceptions to his rule of judging. Indeed that philosopher is too much disposed to confound symmetry of person with expression of character: if there be not beauty in the natural conformation, if there be no homogeneality in the features, there is, in his estimation, no expansion of intellect.

But I am again diving into the subject; it is enough if I have proved that the firm and unyielding parts of our system are not those on which the character is impressed; and that something more than a family likeness is necessary to an expressive countenance; were it not so, and were the principles which Lavater advances true, then indeed would the African be inferior to the European. But if every passion, when felt,

discovers itself on the face by an expression proper to itself; if every sentiment, every step in knowledge, is capable of the same, then it is not in the natural configuration of the person that we are to search for the rank an individual, or a nation, holds in the scale of being.

I have dwelt thus long on this subject, that I might remove any preconceived opinion of excellency in the structure of the body. If all are equally expressive, all are equally dignified; and it reduces it to a matter of indifference, whether we possess the person of an African or an European.

SECT. 14.

Of the Eyes, and their Sockets.

TO those gentlemen who imagine themselves much superior to the negro it is an interesting fact, that the eye-sockets of that people are large, round, and deep, resembling, in this respect, those of the brute creation; while their own are somewhat square, and comparatively shallow. This difference, an ordinary observer would have noticed, and having done so, would pass on to some other subject; but more scrutinizing philosophers have taken up the subject at the very point at which others would have abandoned it, and have given to it an important place in a most interesting theory; a theory which, if true, shakes the pillars on which man's immortality rests. To be only one remove from a brute involves their life with ours; a union so close implies a similar destiny. The resemblance here pointed out, goes on the idea, that external appearance is decisive of character; a decision which I think it most important to object to. Let the cause be ascertained before we draw inferences from it.

Should it so happen that the roundness or the flatness of the eye-sockets can be satisfactorily accounted for, without a reference to the species, a theory founded on a contrary opinion must fall to the ground. But suppose this cannot be done, and that the resemblance between the body of an ape and the person of a negro be unaccounted for, still it does not elevate the brute or degrade the man. It is not in our person that our dignity resides. What is man, deprived of reason? His person is like other men's, but is he great? If endowed with a portion of intellect similar to that the brute enjoys, he would be their inferior: he cannot run with the swift, or contend with the strong; he has neither the agility of some animals, nor the fierceness of others. It cannot be a compliment to an animal to compare its body with ours. Were our dignity dependent

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on the configuration of our persons, the theory in question would be entitled to much consideration; then there would exist a just jealousy of the brute creation; we might even dread a rivalship: the theory of gradation, the principles of physiognomy, the scheme of the facial line, all have their origin in this idea; an idea which presumes that the external appearance is the criterion of excellence,---than which, no idea can be more fallacious or more degrading. An anatomist, or even a casual observer, can discover many points of resemblance between a sheep and a wolf, but is a knowledge of the disposition and economy of these animals promoted by such information? It is not the shape of the lion which gives to that animal its wonted courage; a vulture is equally as brave. The native difference between one animal and another is great and decisive: domestication assimilates them in some instances, and the habits of life in others; but the external form has no such influence; it does not approximate.

This fact, and I believe I am not presuming too much when I call it such, destroys the importance which some attach to the resemblance of the person; though it does not render the enquiry uninteresting. The eye-sockets of negroes, of monkeys, of sheep, of birds, and of fishes, are very similar to each other; they are round; and thus the fact is established, that in this respect the negro and the ape resemble each other. But there is another fact, which cannot fail of being interesting: the children of Europeans, in short, of those very persons who plume themselves on their superiority over the Africans, resemble them also; any person, who has seen the skull of an infant, must have been struck with the roundness of the eye-sockets. Thus the resemblance is brought home, and the children of Europeans are placed in the same connexion with animals that negroes are. It is true, this resemblance continues no longer than the years of infancy; afterwards they become less round; but why so? Is it because the nature of the child is altered, is it essentially less like a negro than it was? Certainly not. There has been no other change, that I am acquainted with, than that which the mechanical law of gravity has effected; a law to which I have before appealed, and which the present subject illustrates and confirms.

The subject might here be much aided by engravings, for there are many which might have been introduced with good effect; but as the principle I wish to explain is general, and applies in every instance, I refer the reader to any representation of a skull he may have access to, but especially to those which are in the works of Dr. Camper, and in Blumenbach's *Decas, Prima and Altera.*

The great point of observation is, the forehead; mark its size, observe the portion of brain which it contains, and already a knowledge of the shape of the eye-sockets is obtained. A large and heavy forehead is always accompanied with indented eye-sockets; a small

a small and narrow forehead with round ones. The first of these facts is particularly illustrated in the head of the Asiatic, in Blumenbach's *Decas*, also in the head of a South American and a Cossac Tartar. The opposite fact, or the consequences of the brain not lodging against the forehead, but pressing principally in some other direction, is best seen in the Turk, the Charribbee, the Esquimeau, the Otaheitean, and the negro. In the first-mentioned instances the eye-sockets are all indented; in the latter, they are all round.---The young woman, mentioned by Dr. Camper, is another proof, were any wanted, of the power of the brain over the form of the eye-socket; in that case it was prevented from assuming its natural position.

It is unnecessary to multiply facts, where such as are so conclusive as the preceding can be brought forward: nor is it necessary to urge many arguments, when the whole idea that is intended to be advanced is, that if the supporter be too weak for the burden, it will bend. The upper part of the eye-socket supports the brain; in infancy it is soft and pliant similar to the other bones of the system, and yields on pressure, and thus their form is accounted for. Where the pressure is small, the roundness which is common at birth to both Europeans and Africans, and I might add, to the whole animal creation, is but little interrupted, and continues through life. It is unnecessary to enquire which shape is most desirable.

The bones which constitute the eye-sockets, besides being made the basis of part of the brain, serve other important purposes, by extending to other parts of the face and head; but here they unite. The bones of the eye-sockets of a monkey are extended in like manner, but the union at the eye-socket is not similar; they do not here correspond to those of men. This circumstance, though in itself apparently small and trivial, yet, if sameness of structure be the test, is important; for by it the mere animal may always be detected. Some would advance the brute to the rank of man, and consent to consider it as only inferior to themselves; but were the bones of only the eye made the test, the fraud would be detected, and the brute be thrust back into its proper place.

Besides the bones of the eye-socket, the motion of the eye itself is not similar in man and the inferior animals. To the eyes of brutes seven muscles are attached, to the eyes of man only five. I do not contend that these distinctions mark any superiority, but they are sufficient to determine the genus.

Let us now pass from the eye-socket to the eye; from the casket to the jewel.---The eye is the most valuable of our organs; it assures us more than any other of the high rank we bear in creation: it receives the richest pleasures---it expresses the tenderest feelings; it rolls in its socket, feasting on the beauties of creation, and spark-

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ling with the joy it inspires. It is an organ on which honor is put; it is made capable of expressing the gentle, soft, and grateful feelings much more powerfully than their opposites; joy and gladness, sympathy and kindness---the mother's fondness, the lover's ardor,--are its proper subjects of expression; but the depressing passions it cannot speak: tears are equivocal, they may be of joy, or grief, or of corporeal pain; besides, tears do not arise in the eye, but at a distance from it; they pass over and bedew it, but it is not their source: a tear, rolling down the cheek, speaks as forcibly as on the eye; it is the tear, and not its source, which excites attention. The eye attracts and invites, but it cannot repel; the eye cannot frown. The countenance of a blind man is capable of expressing the passion of revenge, of lust, of anger, of grief—but it is not capable of expressing the passion of love, nor can it be felt by such an one in its full force. A sculptor cannot pourtray this passion; his art goes no further than a stupid placidity of countenance, or that lengthening of the muscles of the face, that baboon cast of the countenance, as Lavater properly calls it, so characteristic of lust. The living eye best expresses that virtuous passion. Lavater considered the eye as the least expressive of all the features, and so in fact it is of the more boisterous and violent passions; but those which swell the breast with pleasure, speak through the eye a language so forcible that it cannot be misunderstood.

The eyes of a brute reflect no feeling of the heart, no emotion of the mind; they cannot sparkle in ecstasy, or melt in softness, or invite to confidence by their calmness; they direct to its food, and guide it in its passage; but it is not by the eye it expresses its feelings, unless it be that of anger, by a slight protrusion, then the muscles of the face are drawn back, and of course the eyes appear fuller: it is not to the eye that we look to discover the temper in which an animal approaches us.

The eyes of the human race are distinguished from each other by form, by position, and by colour: some being deep-seated, others prominent; some large, others small; some black, others blue, and between them there are various shades of colour; but every eye is capable of expressions of kindness. The Greeks admired a large and prominent eye; their statues evince this taste: but it might have had a further object than merely as a declaration of their ideas of beauty; they might wish their statues to express the character of the person whose memory they were thus perpetuating; and as the spirit of the eye cannot be communicated by marble, they attempt, by increasing the size, to add to its expression.

The passions affect the size and shape of every other feature, hence the sculptor has no difficulty in the exercise of his art respecting them; they are under circumstances different from the eye.

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A bright eye implies an active mind, but brilliancy is not essential to expression; profound thought lessens the brilliancy of the eye, but it adds an interest far superior; there is a commanding steadiness in the eyes of a thoughtful person, very distinct from the sparkling of wit, or the languid softness of good temper. The calmness of true magnanimity, also, is very unlike the unsteady and winking eye of a coward. The dull debasing look of sensual desire is easily distinguished from the sprightly glance of the eye of a friend. If the boisterous passions agitate the mind, the eyes are sometimes closed, it is the other features which are most expressive of it. The eyes acquire brightness by exercise, and by the mind being free from care; hence the eyes of women are more lively than those of men. The eyes of children also possess a considerable degree of brilliancy. A sparkling eye is, according to Lavater, expressive of lust.

The eyelids are an important appendage, and are scarcely less expressive than the eye itself. In anger, they are lifted up, and, in conjunction with the other features, give its expression. The same observation will equally apply to many other of the fiercer passions; the motion or position of the eye-lids, rather than the eye itself, is the seat of the expression: hence, if the iris be small, the person is supposed to be of an irritable temper; for in this case, the eyelids not covering the usual portion of the iris, have the appearance of being lifted up. But it is a very singular fact, that the iris in this case must be blue; for no other colour conveys the idea of passion. A small black iris is equally common as a blue, but it always excites the idea of a visionary and eccentric character, and not that of anger; the person has the appearance of being in a state of surprise; he is amazed at himself and his discoveries: but the idea of anger cannot be excited by such an eye. It certainly is an honor conferred on a dark-colored eye, that it is without fierceness. The circumstance might be explained by considering the influence of the temperaments on the character and disposition; but it is not of sufficient importance to attract our attention.

Diseased eyelids frequently give a sourness to the countenance, of which the disposition does not partake.

The eyelids of Europeans are not deemed handsome if they cover more than a fourth of the iris; should they much exceed this, it is supposed to denote a dulness of capacity, or what is worse, an immoral character. But this remark holds good nowhere but in Europe; of course physiognomical remarks made on the eyelids, in Europe, are not applicable elsewhere. Among the descendants of Europeans, in America, Mr. West and other artists have noticed, that the eyelids were smaller than in natives of Europe. This is also the case, Dr. Camper informs us, of the New Hollanders; their eyelids

eyelids are smaller than ours. In Asia, Buffon says, the eyelids are larger than ours; and the Chinese and Tartars, whose eyes point obliquely towards the nose, owe much of their shape to the disposition of the eyelids.

The distance at which the eyelids are apart is another object of attention, and equally shews that the science of physiognomy, as taught by Lavater, is not founded on true principles. When in Europe the eyes are rather wide apart, we say it betokens an openness of character, a frank and liberal disposition; but when this distance is carried a little further than just suits our ideas, the expression of kindness is lost, and ideas of weakness and imbecility of mind are substituted. Now it actually happens, that persons whose eyes are very close to each other, are sometimes generous, sensible, and good; and that those whose eyes are very far asunder, possess the same character. All northern nations have their eyes wide asunder, and it is also the case with many southern: in short, if the cheek bones are high, the eyes are very rarely near together.

SECT. 15.

Of the Nose.

THE nose is a feature, various in its shape, of great expression, and consequently of great physiognomical interest. It is divided, in Europe, into the Roman, the Grecian, and the Dutch. With the Roman nose we connect the Roman character, of manly sense and manly courage; with the Grecian we associate all that is brilliant in imagination, all that is refined in taste: our warriors we pourtray as Romans, our poets as Grecians.

A nose which falls from the forehead without a dint or curve, is our highest stile of beauty---it is a Grecian nose. The French nose is a caricature of the Roman, large and prominent, it eclipses, and almost conceals, the other features; by it nearly the whole force and energy of the spirited character of that enterprising people is expressed: sense, courage, taste, all in fact that is estimable in character, being thus engrossed, no honorable expression remains for the Dutch; for, on the principles of Lavater, opposite or dissimilar forms, cannot convey the same expression of character; they, therefore, are most miserably circumstanced, and are condemned to suffer a painful sense of inferiority: wide as is the extent of Europe, no patron can be found, none to advocate their cause, and to pronounce their countenance even tolerable. By their nose the physiognomist of Lavater's school is perplexed and disgusted: the painter, even if by birth a Dutchman, excludes from his picture the person of his countryman, because of its insignificancy: but has Holland produced no philosophers, no men of taste, no heroes? Assuredly it has. Then this question naturally arises: Is the Dutch face incapable of speaking the character? Does it admit of no expression If it does, our

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rule of judging of character by the countenance is erroneous; if it does not, the Dutch, as men, are imperfect. We assuredly study physiognomy in a wrong school when the outlines of the face engross our attention.

But it may be asked, whence arises our fond partiality for Greece and Rome? what is their claim to eminence? They were our instructors, and from it arises our attachment. It is natural to admire even the person of our benefactors; but we proceed too far when we make them standards to the whole world. The Egyptians have an equal claim to the partiality of the Grecians, as the Grecians have to ours. There is, properly speaking, no natural standard of personal excellency; at least, none that is generally allowed, for we always behold our benefactors with pleasure, be their persons what they may. A people, true to themselves, see all the beauty, the majesty, and the grace of the Roman or the Grecian sage in the truly eminent of their own. The Charibbee, ugly and deformed in our eyes, is beautiful in those of his countrymen; and had they been our instructors, we should also have borne testimony to their beauty. In the breasts of Dutchmen the fire of genius has burned: to call the leading feature of the face of such persons unmeaning, is to say that physiognomy is a science applicable only in certain cases, which is a contradiction; for if it be a science, it is applicable in all cases. Love to our benefactors may lead us to admire that combination of features which we had noticed in them; and hatred to our enemies would produce a hatred to every resemblance of their persons; but this is not the science of physiognomy. Had a Dutchman a black skin, many writers would argue that they were not of the same species with persons of other complexions; but, in a Grecian, we should almost admire deformity.

The Dutch instructed us in navigation, and we have borrowed many sea phrases from them, and on account of this service we have a considerable respect for Dutch seamen; there are none, besides ourselves, that we think their equal; and their persons are as agreeable to us in this capacity as those of our own countrymen. But our admiration ceases with the benefit; it was navigation only that we learned from them, and it is their sailors only that we admire. To Greece and Rome, as we owe more, we render greater homage. Lavater appears to have taken up his idea of physiognomy just at this point; he has adopted the prejudices and prepossessions of Europeans, and substituted them for principles; he has studied well the persons of marked and decided characters, both honorable and dishonorable; but he has considered the expression of their character not to reside in the features, but in the skeleton,---not in the flesh, but in the bone.

The lineaments of the face proper to Greece and Rome can be traced when the features

tures cannot; we are therefore not to look to the outlines of the face for the character. All that was dignified at Thermophylæ, all that was honorable at the Areopagus, or the Forum, have been attained by those who bore but a slight resemblance to the Greeks and Romans in their persons; indeed, almost every nation has given proof of a capacity and a disposition to equal the nations of antiquity, were their circumstances equally favorable; the eloquence of the savage warrior of America would have charmed the Greeks, had it been cultivated in their schools; and his fearlessness of death would have animated them.

As the world had grown old before the Dutch had grown great, it was impossible to establish a rivalship. The opinions of mankind, when once formed and declared, are not easily changed; and there only remained for the Dutch to assert, that if their persons do not meet with the general taste, that it is impossible they should imply an inferiority of character, for Boerhaave resembled Socrates, especially in the feature which is the subject of this chapter; and many other such examples might be mentioned, for every region of the globe presents them.

Of the African nose it is unnecessary to enter into a particular description, it is already sufficiently well known; nor shall I speak of its beauty or deformity, its physiognomical excellency or demerit: but my province is, to enquire into the physical causes which have contributed to occasion its existing shape.

The first remark I shall make respects the climate. It is well known that both hot and cold climates affect the body of man, and in some instances their effect is similar; it is so in a very great degree in the subject before us; either extreme extends the nostrils. The evidences of this fact are numerous: Dr. Stanhope Smith observes, that "extreme cold contracts the apertures of the eyes, it draws down the brow, it raises the cheeks; by the pressure of the under jaw against the upper, it diminishes the face in length, and spreads it out at the sides, and distorts the shape of every feature." p. 67.---The nose is, in this description, not particularly mentioned, but the face is spread out at the sides, and consequently the nose is made broader; the underjaw is pressed against the upper, of course the breath is passed through the nostrils, and this also enlarges them. Volney, when speaking of hot climates, gives nearly the description of their effects on the countenance that Dr. Stanhope Smith does of cold; specifying, if I do not mistake, its effect in enlarging the apertures of the nose.

But it is unnecessary to appeal to authorities, our own experience is sufficient evidence on the subject. Can we present our faces towards the sun in its meridian splendor, even in our mild climate, without distorting our features, and especially without enlarging our nostrils? Or if in the winter we turn our faces towards the east, and

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brave its blast, the mouth is fast closed; and the nostrils, wide spread, form a contrast to the contracted state of the other features.

That breathing through the nostrils, which we invariably do in sunshine or in piercing cold, enlarges them, is a familiar fact; the experiment may instantly be tried: close the mouth as it would be were the weather unpleasant, the breath in consequence is passed through the nose, and the effect mentioned follows. Another method of proving the same fact is, by attending to the opposite state of the muscles of the face; we have seen them contracted, let us notice them when relaxed: the mouth is then in part opened, and none of the breath is transmitted by the nostrils, in consequence they are not used, and therefore they are not enlarged to their common size; they become narrow. Instances are by no means uncommon, for children acquire such habits from various causes: some breathe through the mouth from inattention, others because the passage by the nostrils is obstructed; in both cases the lips are not closed, and the nose is diminutive; the manner of closing the mouth, therefore, calls for the attention of parents. If it be very closely shut, (I speak of Europeans), the lips are lost, and appear sunk into the mouth, as in aged persons whose teeth have fallen from their sockets, and the natural beauty is diminished; and if Lavater's judgment be regarded, the character of such persons is mean. On the other hand, if the mouth be partly open, the nostrils are contracted, and the appearance of vacuity is given the countenance.

Let us here appeal to the animal creation, in further proof of the observation advanced. Some animals do not, like man, breathe in part through the mouth and in part through the nostrils, but the whole volume of breath is passed by the nose, as is the case with the horse. When this animal is at rest, the nostrils seem more than sufficient for the purposes they were designed to answer; but when urged by the rider to its utmost speed, or when disease obstructs its respiration, the nostrils, wide distended, drink up greedily the air, and give decisive evidence that their size depends on the use made of them.---Apply this fact to the human race: diminish or increase the volume of air through the nostrils and you influence their size. Let the same idea be followed up through the whole brute creation, and the same fact will present itself.

Besides this effort of nature to accommodate herself to circumstances, and to fit the different parts of the body for their destined use, there is also another cause which assists in determining the shape of the nostrils; I allude to the upper lip: a thick lip occasions round nostrils; by inflating the cheeks this effect is produced, and thus the cause and its consequence are at once rendered unequivocal. Mungo Park observed the connexion between the size of the lip and that of the nose, as he passed from one nation

nation of Africans to another, and noticed it in his book of travels. "The Jolliffs," says that gentleman, "have smaller lips and larger (in other terms, more prominent) noses than the Mandengoes." p. 20.

It does not appear certain that the nostrils, rendered large by use, do not occasion an increase of the size of the lips; but be this as it may, there appears an evident connexion, a correspondence in size, between them.

The Greeks, fully sensible of this natural association, invariably represent the upper jaw of their most distinguished characters as very short, the lip is in consequence thin, and the nostrils narrow; had they united a thick lip and a thin nose, or the reverse, it would have disgusted, because of its vulgarity; it would be the reverse of greatness, because it would be the opposite of that which is natural.

Having said thus much of the nostrils, let us pass on to another general remark. The whole force of expression, the entire structure of the African nose, is repulsive to many Europeans, because by them it is supposed not to bear the full impression of humanity; the imagination, aided by prepossession and prejudice, commonly accomplishes its purpose; it sees similarity where none exists, or is blind to it where it does. That the figure of the African nose has been thus judged of I am induced to believe, because it is not peculiar to that country; it exists in England, in France, and in Holland; where it is not even thought unhandsome, certainly it is not disgusting or repulsive; we are not humbled by it, but in our estimation it degrades a negro. When a feature is an object of attention, it should be considered as part of a whole, and not by itself. The negro nose is becoming and proper, in its relation to the other features of a negro face; it harmonizes with them, which is a test of its suitableness. A large aquiline nose, projecting from between the high cheek bones of that people, or a delicate Grecian nose, sunk almost below them, would excite laughter: such a want of proportion would destroy the man and produce the caricature. We must, then, assign to the African face the African nose, as that alone which would become it.

As a part of the European face the nose is a most interesting feature, more so than that of the African, because it is more diversified. If the nose be handsome, such, in Lavater's opinion, is the whole face. "I meet," said that philosopher, "a thousand beautiful eyes before one such nose; and wherever I meet the latter, it denotes an extraordinary character." I do not controvert this opinion, but allowing it to be true, it is very limited in its application. I doubt not its truth, as applied to the people among whom Lavater lived, but it is not true as a general fact; it is not true of Africans: the African nose is uniformly of the same shape, and is not, like the Euro-

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pean, a leading feature of the face, and therefore both cannot be subject to the same physiognomical remarks.

But it is unnecessary to multiply observations of this nature; it is our province to enquire into the physical causes by which the leading distinctions which obtain among men, are produced and perpetuated.

The facial line of the European is perpendicular, from it the nose projects, so that it sustains no weight; no part presses against it; it is like an ornament on the wall of a building, an addition which does not add to its strength; were it removed, the fabric would still be secure; it is useful, but its greatest excellency is its beauty. Beauty supposes fitness, it supposes a relation to the adjacent parts; the nose of Europeans possesses that fitness, it bears that relation; but it is not the creature of mechanical force; its harmony is that of expression, for it varies in size and in shape, and still is handsome; compared with the dependance of the other features the shape of the nose is accidental, I here speak especially of the English nose. A knowledge of the forehead, of the cheeks, and of the chin, does not direct to the shape of the nose; it may be Roman, or Grecian, or Dutch, and yet it may sufficiently correspond to the other features. But it is not thus with the African, he cannot boast of a diversified form, conferring at once beauty and dignity; as was the peculiar cast of his remotest ancestors, so is his.

There doubtless is some cause for this distinction; some reason to be assigned why every variety of shape should be common in one country and not in another. That which I assign, is the position of the face. Dr. Camper has made the explanation easy, by the labour he has bestowed in ascertaining the facial line of the people of various countries. The European face, we are informed, is perpendicular, the forehead being in a line with the teeth; but the African face inclines backwards, the teeth are much more forward: so that while the European face is perpendicular, like the wall of a building, the African inclines like the roof. These facts account for the circumstance under our consideration. In Europe the nose is, in a great measure, independent of the other features, it is suspended from them; in Africa, it is not suspended.

The African face being an inclined plane, the nose lodges on this plane, and presses with its whole weight on the bones below. On the European face the nose does not press, it does not incline towards the face, but in a different direction; were it to fall as it gravitates, it would fall in a right line to the earth: the nose of an African is supported by the face, and would fall obliquely.

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Let us now enquire into the effect produced by these opposite circumstances. It is well known, that during infancy and youth, the bony part of our system cannot resist pressure, even a vein makes a furrow in the part over which it passes; the idea of growth is inconsistent with that of solidity; it is therefore impossible that the nose of an African should be the same leading feature as of an European: sunk between two high cheek bones, and pressing a hollow for itself by its own weight, it must ever remain a feature of secondary consideration. The first idea, then, that I notice is, that the peculiar direction of the face of an African is a cause of the uniformity in the shape of the nose. Let us now advance another step in this enquiry.

The nose of an European is the last part of the body that increases in size; at this pointthe growth of the structure of an European stops. In a former chapter I endeavoured to prove, that the weight of the body impeded its progress; that after a time, from this cause, its further increase in height ceased: but that although there was not sufficient vigor in the system to add to the height, and so to enlarge the whole body, there was still more than was requisite for its bare support; some means, of course, would be appointed for the expenditure that surplus, and what so ready and fit as those parts of the system which are not subject to the pressure of the trunk? The arms are of this description, and the progress of their growth has been traced and found to correspond with this theory: the nose of an European is equally exempt; the smallness of its size, and its independence of every other part, fits it to receive the last effort of nature, to increase the more firm and permanent parts of the body. It must have been generally noticed, that when the height of the body was complete, the features of the face, especially the nose, continued to grow. It is pleasing to contemplate the consummating of the human form: at twenty the nose does not bear the same proportion to the other features it did at ten, nor at the age of thirty it did at that of twenty; during all this time it was gaining maturity. But the nose is not the last point of the growth of an African; it is not that feature which is the least influenced and controuled by other features: the chin and underjaw is, to the people of Africa, what the nose is to Europeans; it is their characteristic feature: it is to the chin of the negro that nature gives her last touch; it is here she deposits the last atom of matter when she is building a fit habitation for the soul of the African.

It is by patiently attending to the subject that these facts must be substantiated; but by so doing I believe they will be found correct. For a moment compare the underjaw of a young negro with that of one full grown, and it will be seen, that the circumstances here mentioned are not without some evidence of their truth.

Before

Before quitting this part of the subject, there is a remark or two, of inferior importance, which it may not be improper to make. The upper part of the nose is, in all nations, composed of bone, but this bone is smaller in the African than in the European, which of course must be made a mark of their inferiority; but the nose of the Calmuck Tartar is still smaller: Blumenbach describes it as *ossit nasi minuaissima*: consequently, if the friends of the inferiority of the African are disposed to lay any stress on this circumstance, the obloquy falls on the Tartar. I am always happy in an opportunity of placing, by the rules of judging which the gradationists have pointed out, the Tartar below the African, because it is the most certain way of bringing the subject to a point; for it was by Tartars that Rome was conquered, and from whom has the present race of Europeans sprung, but from those conquerors?

Another observation that I shall make is, that those parts within the nose, on which the olfactory nerves are spread, are larger in the African than in the European, and larger still in the brute. It is unnecessary to dwell on such trifling circumstances, I shall therefore dismiss the subject with one remark: it is this, that an African does not use his organs of scent to direct him to his food, or to discriminate its quality, more than an European; therefore, whatever may be the comparative size and extent of the olfactory nerves, in their application to the purposes of life, they are only of equal use with those of other men's.

In the chapter on the principles of the physiognomy of Lavater, I mentioned, that an expressive countenance was more desirable than any natural arrangement of the features; the subject before us leads us again to the same sentiment; for Europeans have decided, that neither the Dutch nor the negro nose are ornamental, and of course not desirable. But, as I have before said, the negro nose harmonizes with the other features, the same may, in some measure, be said of the Dutch; and where there is harmony there cannot be ugliness, there cannot be any thing which ought to excite our dislike; for ugliness is an approach to deformity, harmony is an approach to perfection; such an approach there is in the negro countenance: harmony is equivalent to beauty, and is as requisite to a good countenance as symmetry is to a strong body. The grimace of a buffoon excites laughter, by throwing the features into confusion and destroying their harmony; they then convey no sentiment, they command neither pity nor respect; violent distortion has no influence of that nature; it is harmony, and not distortion, that moves the soul to sympathy. Harmony of expression is in proportion to decision of character; even the face of an idiot harmonizes; all the parts correspond: it would be in vain to attempt to improve the countenance of such an one,

one, by altering the shape of one or of all the features: let a person take his pencil and attempt it; or if he does not approve of having an idiot for his subject, take a philosopher, take any character, and in almost every instance he will find, that by altering the features he renders the countenance ridiculous; they will not admit of being transposed from one face to another. The form may be sufficiently suitable, but its fitness depends on the character. The lips of a churl, the eyes of a generous man, the nose of a drunkard, united in the same face, would render it completely ugly; although the same features, if they all bore one impression, and especially if it were that of goodness, would be pleasing to every one. Or if the mouth of a child were united to the eyes of an adult, and the nose of an aged person, the picture would be a burlesque on the human face.

There must be harmony in order to the production of an agreeable effect; there is harmony in the countenance of a negro. Incongruity is never pleasing; but harmony, especially that which virtue and benevolence give birth to, will be ever seen and felt; and whatever may be the original state of the features, criticism is disarmed, no one will dare to pronounce them ugly. The venom is reserved in the tooth, for some object more like itself. The look of benevolence and kindness is better received, and elevates a person higher in the estimation of another, than the most beautiful set of features without such an expression. The brush and the pencil may inflame the passions, but they cannot kindle love, they cannot beget respect. We honor the aged, and contemplate their persons with affection, when they are worthy of it; even if what is commonly called beauty has deserted their cheeks. Where is the person, who, if he wanted to ask counsel or seek protection, would not turn with disgust from the face of the young voluptuary and dwell with satisfaction on that of the benevolent Howard? "That is the man I want," would be the language of his heart; "I can confide in him." On the other hand, where is the giddy, sensual youth, who does not flee from those on whose countenance time has written his name? Yet in the society of such as are as sensual as themselves, each sees the description of beauty he is in search of. We see so little that is comely in the aged, because we always connect sensuality with that property: but the more we divest ourselves of sensual desires, the more the aged, who are upright and intelligent, will be esteemed, admired, and honored; the more agreeable will be their persons. It is painful to the old to receive but little notice from the young, but the cause is partly in themselves; they are not sufficiently elevated above them, they aspire after the same character, they profess to seek pleasure from the same source; hence they are neglected, and deserve to be despised: there should be a dignity in the aged, the offspring of goodness---and then there will be respect, the

 offspring

offspring of conscious inferiority, from the young. It is folly to suppose there is nothing lovely in the human countenance but what is the production of animal desires, and yet such seems to be the common opinion. Does the loveliness, nurtured by the passions and destroyed by age, alone constitute the beauty of man? No; there is a comeliness, on which the eye dwells with more complacency, than on the greatest lavish of natural charms; there is a smile which reaches the heart, and which at once causes affection and respect; such a smile, however often attempted, cannot be forced upon the face, if the heart be corrupt and mean.

Let us now proceed to another fact, which also teaches us, that excellency of understanding, and kindness of heart, cannot be arrogated by any people, on account of the structure of their persons. We are apt to consider it as an inexplicable fact, consistent with a claim to equal manhood, that the persons of negroes are as nearly alike as the individuals which compose a herd of animals: the feature under our present consideration, is, in a peculiar manner, subject to this remark; but, during the period of infancy, it is equally applicable to Europeans, which ought, at least in a measure, to reconcile us to it; for neither the Grecian nor Roman nose exist during that period; and whatever may be the cause of their after production, that cause evidently does not exist in infancy. Some circumstance attendant on the growth and maturing of the person gives them birth; the state of an African is not friendly to the production of this cause,---for the peculiar cast and bias of his body is so strong, the head is so much determined in one direction, that no lesser circumstances can produce much effect.

In childhood the nose is in no instance a feature of expression, but it afterwards assumes an important place in the highly dignified face of man, be he of what nation he may. But it must be borne in mind, that the shape itself is not essential to the expression of character. The nose of the African infant is without character; the same form remains; it never changes; yet, at the age of puberty, it is expressive of sentiment and passion. Lest this should appear doubtful, I shall mention an unequivocal instance of expression in the African nose; and if it be capable of one expression, why not of another? I mean the expression of age. When this enemy makes advances, he plants his image as strongly as that of any passion can be planted; the external form remains, but the enemy of man shews his power and proclaims his approaching triumph.

The nose of an European is but little different from that of a negro; it is of one shape in childhood, it assumes another in youth; but in manhood it is fixed and unalterable. In this unalterable state, as to form, it is expressive of various succeeding traits of character, and ultimately of that of old age.

There

There is yet another point necessary to touch on, and to which the preceding remarks naturally lead,---I mean the progress of the developement of the features: as we advance towards manhood they undergo a change, but when or how was it effected? what precedes it? What is the progress, what the connexion, between the powers of the mind and the state of the body? Our early years find us in a state of being, little superior to mere animal existence; our faculties extremely limited, and our bodies incapable of sustaining a larger measure. Those children who astonish and delight their parents by the talents they possess, commonly die before the age of manhood; the body of a child is not a fit recipient of a mind so strong; like a tree, overladen with fruit, it breaks by its own weight; and were the mind proportionably vigorous in manhood, it would doubtless produce the same effect. There is, then, a measure of intellect, suited to the years of childhood; but so small is that measure, that Buffon, in estimating the value of life, passes by the first fourteen years, as of little consideration; for what is man without a mature judgment? This period is indeed prized by him who is perplexed with the concerns of life, because it was void of care; but Buffon's opinion is in reality more correct: for if this period was so valuable and pleasant, why do we remember so few of the transactions which occurred in it, and in which we took a part? The memory of a man at forty seldom carries him back to his fourteenth year, when he would feast on the recollection of things that are past; besides, the man is as yet imperfect, his passions are few and his reason weak: and is the most imperfect part of existence of the highest value? by thinking so we under-rate its worth. What are the pleasures of a child? It eats, it sleeps, and takes exercise; an animal does the same. Beyond this, what interest does a child take in the concerns of life? what pleasure in thought, what in reflection? It is as a slave, who lives only for the moment; the past he has no desire to recal, and is without thought of the future. The great, the distinguishing property of children, is imitation; to reason, or think, like persons of maturer years, is beyond their capacity; but they may be taught to imitate them. To embrace and cultivate this faculty, constitutes almost the whole of modern education: the husk is prized at the expense of the kernel. Imitation is not the proper basis of education, for it is not the spring and source of character. Imitation assimilates a child to the species, and so far it is valuable, but there its utility ceases. Indeed the capacity of imitation is in a great measure limited to the years of childhood. A grown gentleman is an improper pupil to a dancing-master; imitation is unsuited to his years; it is an effort difficult to make, and which never redounds to his credit. How often have I noticed, when passing through a school, that youths, placed late under the care of the manager, were reputed dull and of no promise, for no other reason

reason, I apprehend, than because the period of imitation was past, and a certain air, a certain facility in acquiring the habits and exercises of the other children, could not be induced; hence their spirit has been broken by reproach, and they have left the school debased rather than improved, there was nothing taught suited to them. Dancing, music, drawing, even language, is acquired by imitation: the period of imitation, in its full vigor, is of limited duration; it declines as the reasoning faculty strengthens.

The true end of education is, to stock the memory with proper sentiments, and to induce proper habits; it is to form the mind to thoughtfulness, and to supply those materials which will make life a blessing. An immediate harvest can never be procured, yet we expect it in education; our children must come from school matured; but the farmer waits the growth of the blade, and anticipates the quality of the crop from the nature of the seed. We expect too much of our children, and therefore we set a value on that which appears to be something, and is in many cases worse than nothing. Education anticipates the future man. I ask not for the progress that was made in this branch of literature, or in the other; I ask not for the excellency of the dancer,---I ask for the man; and by him I judge of the care of the parents, and the skill of the preceptor. Great imitative faculties are not a pledge of a sound understanding, but rather the reverse. Boys button on the buskin and tread the stage, and the crowd gaze and applaud. The circumstance ought not to surprise: destroy the native diffidence and modesty of children, and a little preparation will qualify any of them for players. The newspapers inform us, at least once a year, that the children of some of the first families of the state, in one of the first schools of the state, acted a play, and that they performed very well: no person doubts the information, but what is the result? Are not the youths, who cut the greatest figure on such occasions, more likely to grow up into coxcombs, rather than mature into men?

Mere imitation, with those who ought to know better, is mistaken for tokens of future genius: boys are flattered, and being told that they possess talents, become whimsical and wicked. But education is a totally different thing; it is not a pastime, it is a subjugation; it is giving the mind its authority and influence over the body. I am not an enemy to any innocent imitation, and some are necessary, as reading, writing, &c.; the acquisition of a dead language, is an excellent mean of teaching the art of thinking, and ought ever to be kept in view; if the art be not induced, if the end of education be not regarded, when the business and duties of life present themselves, the mind is without a principle of action, and they are most imperfectly, if not corruptly, performed,---it is even without a habit.---Besides, the arts usually taught

taught at school, are suited only to the age of childhood; the wife abandons them; and as they were the things that charmed the lover, the husband waits their revival in his children; and thus the middle of life is embittered and disgraced. Watch the seed-time; for if nothing be sown but flowers, when the passions spring up, they occupy the ground, and a mental famine follows.

But I am not here to discuss the subject, or to draw attention to the state of the countenance in childhood; it is like the pastimes of youth, of little importance in after-life. But that season is now past, and manhood dawns: the young passions have already burst into existence, and riot in enjoyment; the heart swells with transport;---the mind, unfettered and enlarged, feels the force of abstract principles stored in the memory, which, till now, were unmeaning words;---new pleasures, new hopes, new joys, dance before the imagination; and honor, dignity, and love, are felt and coveted, as the duties and worth of existence!

Thus rich in sentiment, thus warm with affection, the youth presents himself to the world like the morning of a fine day, inspiring confidence while he communicates delight. Ardent in his desires, he pants to be a partaker in the cares and pleasures of life. At this important period, the well-educated youth improves in beauty; character beginning to be developed, begins also to be expressed; a proper estimate may now be made of the attention that had been paid in the years of childhood; and what is now the worth of many of the imitative parts of education? They are as the gilding of a door-post, gazed at by strangers; but if the resident is worthy of the mansion, he has forgot that they even exist. As the bud unfolds, the stock from whence it was derived is ascertained; family likeness soon becomes considerable, and strong traces of character appear. Mark the youth for whom the toga is prepared, see him array himself in the garment, and you see a countenance very different in its expression from that which a plaything used to gladden.

The nose, at least in an equal degree with the other features, testifies the change in constitution, and the enlargement of capacity: but if education has been neglected, by it I mean that care and management which commences in infancy---if this has been neglected, instead of viewing the ardent breathing of manly sentiment, eager to give some token of future excellency, the countenance degenerates; it loses the softness, the calmness it had in childhood; and all that is degrading in lust, all that is mean in sentiment, takes its place, and disgusts and offends the spectator.

But suppose that the propensity to vice be not naturally strong, and therefore not indulged in; and suppose the person to bear a certain relation to beauty, all the relation that mere family likeness can give, still no respect is engendered; corrupt desires

 may

may be excited by it,--but where the countenance is illumined by knowledge, homage is substituted for lust. Suppose some pleasing circumstance invites the labouring class from their homes, while labour for a time stands still---suppose them thus circumstanced, dressed in their best attire, do they invite attention? By the bloom of their health, the strength and vigour of their constitutions, they charm the voluptuary; but the man of sentiment sees only the animal under which the mind lies buried: but if among the crowd there are a few individuals whose minds have been well instructed, and whose hearts are in unison with their understandings, a different sentiment will be excited, and the influence of the character on the person will be thus made manifest.

Such, then, are the state and circumstances of childhood and youth; such the progress, the connexion, and I may add, the cause of the placidity which pleases us in the child, and the animation which delights us in the youth: it is the measure of the influence of the action of the mind upon the body.

Let us now attend again to the subject before us.---A sour temper, a weak judgment, a corrupt heart, or the opposite of these, have a strong influence on that part of the face of which we are speaking. No vicious passion improves the countenance; a fact, which ought ever to be kept in mind by those who desire to appear agreeable to others.

Lust draws the nose, and the muscles of the cheek, towards the mouth, and occasions, what Lavater properly calls, the baboon nose; this effect, however, is most evident on the face of men,---but the expression is not less, though not precisely of the same nature, in females. Those who have known a girl, once lovely, once the joy and consolation of her parents, and the delight of her friends---betrayed, abandoned, and renouncing her name, her family, and her character---one who once tasted of happiness as it flowed in a smooth transparent stream close by the path of virtue, now drinking greedily at an impure fountain,---those who saw her when innocent have been struck with the change in her person now that she is no longer so. The nose, in fact, every feature witnesses against her.

Drunkenness is another vice which has an influence on this part of the countenance. By it, the nose is swelled and inflamed. We know a drunkard by this circumstance; he writes his own character, and bids the world read it.

Several of the passions have a considerable influence on the nose,---as anger, disdain, and fear. The temperaments, also, by indicating certain appropriate dispositions of the mind, are known by the lineaments of the face as well as by the complexion. The melancholic temperament is seldom combined with a large nose, or the sanguine temperament with a small one. Poets, and persons of lively dispositions, are not pourtrayed

trayed with protuberant heavy noses,—they may possess such, but as neither Cicero nor Shakspeare did, it is enough to exclude them from a fancy painting: philosophy is thought more to correspond with bold and rugged features.

Pregnancy is another state which materially deranges the order and harmony of the countenance. Females are sometimes surprised and mortified at the change they notice in themselves; their beauty seems leaving them. Were any other instance necessary, to prove, that expression is far more powerful than beauty, I would cite that before us: have females lost in complexion and in sprightliness? they have gained in influence: no one sees the countenance of such an one but he is interested; it is a period when protection is peculiarly requisite, and nature has not forgotten to call forth the disposition.

The small-pox destroys the texture, and induces an unyielding quality of the skin, which, in a remarkable manner, appears to controul the growth of the nose. I do not remember to have seen a large nose much scarred by this malady.

Consumption reduces the nose to a mere shadow; while asthma, when it has equally robbed the body of its flesh, has no such an effect. But there is one event which produces a common effect—death: at its approach the features, but especially the nose, shrink; by it, those who watch around the bed, are warned that the moment hastens, when their relative or friend will turn his face to the wall, and be to them as though he were not.

SECT. 16.

Of the Cheek Bones.

STRICTLY speaking, we have no imaginary ideas of beauty; such as we possess, have been realized and presented to our view; for examples, and not abstract ideas, form our judgment of the beautiful. The sculptor and painter copy from nature, and select such subjects as are familiar to those for whom they exercise their art. The most finished bust or portrait pleases only in the country of which the person it represents was a native. A Chinese, handsome in the eyes of his countrymen, and flattered by the execution of the artist, is beheld by an European without interest; the picture of such an one warms not the breast with affection; and those Europeans who have no claim to beauty, never feel a secret wish that they resembled him they contemplated in the drawing.

A negro loves his brethren, but a deformed European would refuse to exchange his deformity for the person of the handsomest negro. We admire ourselves, it is the school at which we study beauty, and therefore we are most interested by those that bear some resemblance to us.

Were an Italian to be drawing a fancy picture, he would not introduce an individual with grey eyes, except in burlesque. It is only on the same principle that a French artist would introduce a Dutch nose; or an English artist, high cheek bones. Such features, in these respective countries, are spoken of in the most uncourtly way, as if they implied great degradation. Self satisfaction is desirable, and therefore, in a certain degree, is to be cultivated; for we never act with sufficient independence when we are ashamed of our persons. And indeed, on the principles advanced in a former chapter,

chapter, none need be ashamed; for if the character be good, the person cannot be disgusting to a native of the same country. But no one ought to be arrogant, and judge others by rules of his own creating; if he is pleased with himself, so are they.

In the person of the African there are many peculiarities, which some have attempted to prove were demonstrations of their inferiority. But have we no peculiarities? Might not we, on the same ground, be degraded? Certainly there are such; and it may appear strange, but we are proud of them. Why, then, may not the African be proud of his? We (I speak particularly of the English) are remarkable for the lowness of our cheek-bones; this is one singularity: the Africans are as remarkable for the reverse. In France and Germany the cheek-bones are not high, but in England they are lower than elsewhere, and are the pride and boast of the country. In Asia, in Africa, and in a great part of Europe, high cheek-bones form a leading part in any description given of the people of those parts by English authors.

Cheek-bones admit of no other distinction than that of size; and even this, there is reason to believe, is not a natural distinction, but have been occasioned by the climate, and by the civilized state of the people; for the cheek-bones of our ancestors were as high as those of Africans, as the pictures of those days shew; and even now, in the northern districts of the nation, this prominency remains; and should we go a little further north, and cross the Tweed, we shall be compelled to acknowledge, notwithstanding our prejudice, that high cheek-bones are not incompatible with personal beauty. As we proceed further towards the pole, we arrive at Greenland and the coast of Labradore, where this feature has attained its utmost size. In Tartary also, another northern region, the cheek-bones are very prominent: Joannes de Plano, who was ambassador to the Tartars, in the year 1246, describes that people as very wide between the eyes, with high cheek-bones. The latter part of the description is also worthy of notice: They (our author goes on to say) have flat and short noses, little eyes, and eye-lids standing straight upright; shaved on the crown of the head, like priests.---*(Hakluyt.)*

This representation does not widely differ from that given by modern travellers; in short, in the whole track of country to the north of England, the cheek-bones of the inhabitants admit of but one description---they are high; and every degree of latitude adds, in our way of judging, to the ugliness of the people.

Let us turn to the south, and proceed in that direction. Scarcely do we leave our own country, when we perceive the cheek-bones to have increased in their dimensions; and when we reach the coast of Barbary, they have attained a size little inferior to the

 natives

natives of the highest northern region; and whether we direct our way to the east, and traverse the extent of the Mogul empire, or whether we proceed to the heart of Africa, no other shape or size of the cheek-bones present themselves.

Thus we find, that both extremes of the globe present but one character. Commencing at one point, both lines diverge, and seem to promise the most opposite results; but mark the strong evidence that all mankind are brethren,---after diverging to a certain extent, the lines again approach each other, forming a circle.

Again, high cheek-bones, in the estimation of the English, are not conducive to beauty: they communicate dulness rather than life to the countenance; they are calm when the most violent passion agitates the breast, and have no share in expressing its force; they are like bleak and barren mountains, unproductive in themselves, and ungenial in their influence; being alike incapable of cultivation or concealment. If we speak of strength and stability, there we find them. We are pleased with high cheek-bones as they betoken a firm and hardy frame, but we attach no other consideration to them.

Lavater has passed them by almost without an observation; but are they not equally as worthy of notice as the other hard and immoveable parts? If amidst the rage of passion, the commotion of the mind, they do not vary their expression; if the soft swell of tender emotion does not conceal them, neither do the passions influence the forehead; it is equally beyond their government: hence I class them together, and claim for the cheek-bones the same notice, the same attention, the forehead has obtained.

It has already been said that the forehead derived its form from mechanical pressure, it is proper that we now enquire into the cause of the diversity in the size of the cheek-bones.

In infancy the zygomatic processes, or cheek-bones, are very small and pliant; to them are principally affixed the muscles of the face, which are in more frequent use than any muscles of the body; speech, thought, passion, and especially exposure to a hot or cold climate, throw them into action; and it is a well-known law of the animal economy, that not only a muscle increases in size by use, but that the bone to which it is attached increases also: were the muscles only to gain strength, they would break the bones which they are designed to support; for the muscles could not act, were no resistance made to them. Morgagni relates an instance of a thigh-bone having been snapped in two by its muscles, no violence whatever having been offered; and similar instances are recorded by other authors.

Such is the wisdom manifested in our construction, that the strength of the parts are

are measured by each other; the bones are not too heavy for the muscles, or the muscles too strong for the bones. Did the fact need proof, many present themselves; for labour increases the size of the limb that is most used,---witness the arm of a smith.

The application of facts like these, to the subject before us, is obvious; those cheek-bones will be the largest whose muscles are most exercised: other causes may contribute to the same end, but this appears to be a principal one. In the cities of Scotland the cheek-bones are gradually becoming less, and already exhibit a considerable diminution from what they were, and from what their neighbours in the country now are; and in our own mild climate they are still less than in the cities of Scotland, doubtless from the greater influence of the same cause.

The subject of this chapter naturally leads to an enquiry into the extent of the influence of the climate in forming the cast of the features; as I may, at some future period state my opinions on this subject, I shall for the present confine myself to one remark; it is this, that England, as it respects the person of man, may be considered as a sort of neutral territory. Here, every form and every colour proper to man, is propagated, and continues through many generations. A family of foreigners, taking up their residence among us, never lose their foreign appearance,---but an Englishman, who makes a few voyages, suffers the most marked and decisive change; he is no longer in appearance an Englishman. The cause of this appears to be, that the people of England have almost entirely a foreign descent; they came from parts cold and inclement, and their complexions were fair; this was particularly the case with the Danes and Saxons, from whom the present race are chiefly descended.

The climate of England is changeable; now a sultry gleam, then a storm of hail, of rain, or snow: effects correspond to their cause; the climate being uncertain, has no fixed character, and of course does not impose one. When Cæsar landed on our shores, all that the climate could effect had taken place on the natives; their hair was red, and their complexions corresponded. Now red hair, in the cause of its colour, is so similar to black, as will hereafter be explained, that they may be considered as different degrees of intenseness of the same colour; so that dark strong hair is proper to the climate, but light flaxen hair has been introduced by foreigners; and, in the reign of Henry the eighth, it was the prevailing colour; scarcely an individual of his court had black hair: from that time to the present it has gradually increased in colour, but the progress has been very slow, and the colour proper to the climate is not yet acquired. In this respect, then, we are unlike most other nations; their climate has imposed on them a certain complexion, ours has not.

After

After the complexion, it is proper to mention the cast of countenance which confirms the assertion that the person of the Englishman is not greatly influenced by the climate in which he lives. When a native marries a foreigner, it might be expected that their children would resemble both parents; in the same way as when two natives marry who are unlike each other, one child bears a likeness to one parent, and one to another; but this is not the case when either of the parents is a foreigner, for then all the children have a foreign appearance, and this descends through many generations. It is a strong evidence of the constitution, of at least one of the parents, being well assimilated to the climate in which they were born, when their children partake of their likeness, and the reverse when they do not.

A negro is well suited to the climate of Africa, but having been scattered over Europe by the hand of violence, they have intermarried with the natives; their offspring are creoles; and if the marriage be contracted in Spain, and the children continue to reside there, in a few generations, I have reason to believe, the posterity of the negro is not known from those of an aborigine. But if England be the place of residence, and an English woman the mother of the negro's children, however they may intermarry, with the most delicate of our countrywomen, and to whatever distant period the connexion may be continued, still the traces of the African origin are not obliterated. In the African constitution there is a fixed and determined bias, in the English there is not: in the Spaniard there is also a fixed characteristic cast of the countenance and colour of the skin, and it ultimately prevails over any foreign trait; when the negro cast is much weakened by frequent intermarriages, then the cast proper to the climate gains the ascendancy, being aided by the cause that produced it.

From such considerations as these, I say that England is neutral territory; no one complexion or cast of countenance prevails. The strong laws of nature are less forcibly felt here than in every other region on the globe: the productions of other countries flourish here as in their native soil.

The advantages resulting from a constitution well fitted to a climate, must be considerable; not only as it respects the personal feeling, but also the health. The Swedes and the Swiss are both nations of high antiquity, and celebrated for longevity; the air of England is probably quite as salubrious as either that of Sweden or Switzerland, but those people are constitutionally fitted to their climate, we are not. An uniform opinion prevails, that if our climate was warmer, it would be more healthy; but warmth does not constitute salubrity, it is adaptation. A Swede finds no country preferable to his own. Destroy the neutrality of our climate, give it a decided influence, quitting it with a view to an improvement in

in health would no longer be thought of; its want of influence on the constitution, is one great reason of our invalids receiving advantage from a climate more powerful. The English being accustomed to so great a diversity of complexion and proportion of features, sees beauty in them all; but being unaccustomed to high cheek-bones, a sort of repugnance is felt towards them; they give dulness, rather than life and vivacity to the countenance---the most violent passion that agitates the breast produces no effect on them.

Another remark, which the subject of this chapter leads to, is the effect that food of various qualities has on the constitution and on the person. But as this also may be the subject of future consideration, I shall only at present remark, that Europeans are not now so robust and large as they once were. Though I am not disposed fully to credit the stories which are told of the gigantic height of many of our ancestors, yet I think I shall find no difficulty in making good the assertion, that they were taller and stronger than we are; and that this lessening has kept pace with the progress of civilization: but especially, that it may be traced as accompanying the introduction of wheat bread as a common article of diet; which, though more nutritious than oaten, contains less of the rudiments of bone, or of that substance on which the size of the body depends. The Romans did not use wheat bread till about three hundred years before the birth of Jesus Christ; since that period it has made a slow, but gradual progress, through the different provinces of that vast empire. Towards the north it has long combated, and still continues to combat, much opposition; but when it once prevails, the oat-cake at no after-period is introduced: the triumph of the wheaten loaf once achieved, is at all future periods secure, no instance having occurred of the oat-cake superseding it. Hitherto the wheaten loaf has not penetrated through Yorkshire, but already the struggle is unequal; and, at no great distance of time, wheat bread, it is probable, will alone be used, and the oat-cake be abandoned, as it has been in the southern parts of the kingdom; but as yet the men are raw-boned and tall, especially those who live towards the borders of Lancashire. In the Highlands of Scotland wheat bread is scarcely known, and in what part of the globe are the inhabitants stouter? On the contrary, in the metropolis of the kingdom, and in the country that surrounds it, wheat bread alone is used, and the people are much less in stature than those of the Highlands, or of the borders of Lancashire.

In America the descendants of Europeans gain in height, they being, at a common computation, an inch taller than their ancestors; how far this arises from their food, I shall not now stop to consider.

The flesh of animals, as well as their size, is, in a considerable degree, influenced by the nature of their food. Beans given to a hog, hardens its flesh, so as to render it unfit for use.---A multitude of other observations might be made, but the subject calls for a more minute investigation than suits the part it occupies in the present work.

Salt, I have observed, furnishes much of the rudiments of bone; but I have also said, that other articles of diet supply a part, and of these oatmeal appears to furnish more than wheat flour.

SECT. 17.

Of the Jaw-Bone.

LEIBNITZ states it as his opinion, that the inhabitants of a country resemble the animals that most abound in it: hence he infers the resemblance of an African to an ape, of a Laplander to a stag; and so of the animals and the people of other countries. A caricaturist sometimes distorts the human features, and makes them resemble those of beasts; and Lavater presents us with some engravings which are strictly human, and yet convey a feint resemblance to certain animals. But that person's imagination must be strong indeed who can discover the influence of the climate to be so generally powerful as to extend alike over all the creatures of it. It is the authority of Leibnitz which I oppose, yet I confess myself unacquainted with the climate which has a similar effect on man and on animals: they become white where man becomes black: they are adapted to particular regions, removed from which they die; but man traverses the globe, and enjoys himself in every part.

I have made these remarks in this place, because the jaw of an ape is thought, more than any other part of that animal, to resemble the corresponding feature of an African; and of course, if any part is influenced by the climate it is this. But neither the theory of Leibnitz, nor that which supposes a constitutional resemblance, appear to me to have any existence, in fact. The distinguishing characteristic of the lower jaw is the chin, of which animals are destitute. "The more chin, the more man," is an aphorism of Lavater's; and besides, the bone of the jaw approaches nearer to a circle in man, and the teeth are very unlike those of any animal.

The jaw-bone, like many others of the human body, admits of many deviations from

from what may be considered a standard shape, without greatly injuring its discriminating characters; and, as is common with every other feature, its beauty or ugliness depends on preconceived opinions.

The jaw of the ancient Egyptians, according to Blumenbach, was longer on one side than on the other; at least, this was the case with the mummies that came under his notice. "Angustus exterior mandibulæ inferioris in dextro latere 105 graduum, in sinistro contra 118." *De Vari, Humanorum, p.* 72.

The Tartar jaw is another variety. I take it as described by You of Narbonna, in 1243; (see *Hakluyt's Collection).* "They (the Tartars) are hardie and strong in the breast, lean and pale faced, rough and high shouldered, having flat and long noses, and sharp chinnies; their underjaws are low and declining, and their teeth long." This description of the Tartar face is a little different from that I lately cited, without being contradictory.

The Chinese and Otaheiteans are also worthy of notice, on account of the shape of their jaw bones. "The greatest singularity," says Dr. Camper, "in a Celebes, a Chinese, and an Otaheitean, consists in the rectangular form of the inferior maxilla, (lower jaw). I have also remarked," continues that learned gentleman "the same of all the women born in Asia, of Dutch or English parents; this renders the lower part of the face much broader than it is in other nations."

After pointing out such strongly marked national distinctions, there appears a disposition bordering on maliciousness, in pointing to the jaw of the African as very singular and very brutish. To describe the African jaw is unnecessary, it is already sufficiently known, and to say that it bears no resemblance to that of a monkey's, would expose the asserter to contradiction; they both project beyond the line of the forehead. Though the attention of a dispassionate observer would not have been attracted by this circumstance, yet those who are desirous of discovering a link which unites the human race with the brute creation, are struck with it. I may here remark, that those who are in search for this link, never discover it in themselves; were the African to join with those who are already engaged in this investigation, they would expect to find it in persons the most remote from themselves in personal likeness: and in resisting the remarks that others may make on them, they may with propriety say, that a projecting jaw is neither unmanly nor mean; and if the jaw be to decide the question, it does not peculiarly interest them, for the nearest point of resemblance merits most attention, and this is not peculiar to the African.

In infancy, the underjaw, I believe, of all children (certainly of European) projects beyond the upper, which is the reverse of what is common in the adult. This fact applies

applies equally to the offspring of the human race, and to the monkey tribe, *the genus samia:* an unpleasant discovery, I apprehend, to those who are searching after resemblances in the brute to the person of the negro; for how will they disengage it from themselves. I wish it may be so felt that they may direct their attention to subjects which will lead them to juster ideas of the real greatness and dignity of man; but it is proper to rescue the human race from every such imputation, and not to wait till those who make them shall revoke their opinion.

When the monkey is viewed in the skeleton, its jaw is so long, lank, and narrow, that it is not more entitled to a competition with man's than that of any other brute's; it is merely the projection, and not the form, which excites attention. The blood circulates through the body of a monkey, by means of arteries and veins, as it does through that of one of the human race, but they are not therefore of one and the same family, nor are they so because their jaws project.

Ever anxious to discover peculiarities in the structure of the African, and with a quick imagination to trace such peculiarities to something similar in the brute, Mr. White, who had placed an African skull on its jaw on a table, expecting, as is the case with European skulls, that it would remain as he had placed it, was surprised, on withdrawing his hand, that the skull fell backward; instantly the idea struck him, that, as this was unlike an European's, it must be like a monkey's. *Thoughts on Gradation, &c.* p. 72.

Had Mr. W. duly considered the facts pointed out by Dr. Camper, he need not have referred to the brute for a solution of the difficulty. That philosopher has observed, that the part of the African skull which is behind the jaw, is heavier than that which lies upon it; consequently it cannot rest on the jaw but must fall backward, from its own weight. But although it cannot be called a discovery, yet I thank Mr. White for the remark, it being the most suitable one imaginable in support of the theory I have endeavoured to advance; for if the skull falls backward in a dead subject, it must incline backward in the living: in other words, if the pressure be not in a perpendicular line, making the point of the jaw or the orifice of the ear its centre in the skull, its inclination must be the same in the living man. Grant this fact, and every other leading remark which I have made, follows as a consequence.

One of these remarks I must again advert to; it is this, that from the manner in which an African carries his head, the chin is necessarily raised from the breast, and projected forwards, which throws the underjaw beyond the influence of the other parts of the face; no pressure is made upon it in a right line, consequently the jaw grows

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without being restrained or checked. Were an African's jaw no longer than an European's, it would appear defective, the chin would recede from the face.

But what is still more characteristic of an African face than the jaw, is the teeth. From the jaw of an European the teeth grow in a right line; any inflection we deem a defect: but the teeth of the African diverge from the socket, and meeting those of the opposite jaw, form an arch; when a side view is taken of this arch, it conveys the idea of a protuberance projecting from the jaw, rather than constituting a natural part of it. We cannot imagine such a position of the teeth to be handsome, because it is unlike our own; but it is occasioned by causes which are capable of explanation. Let us enquire into them.

It cannot escape the notice of a careful observer, that the direction in which an African holds his head the most agreeably to himself, is one which is not well adapted to the taking of food; the head being reclined towards the shoulders, necessarily places the mouth in a very different direction from that to which Europeans are accustomed at their meals; this direction being proper to the African, it would require an effort to alter it. Now it is natural, when food is taken, to put the body into the most easy and agreeable posture; exertion is at that time unpleasant; a clown, in common with the polished gentleman, relaxes every muscle, except those immediately concerned in mastication and deglutition; both sit or stand at their ease. A stiff and formal attitude, at nature's feast, implies constraint, and is ridiculous: it is a season of muscular inaction; a season, similar to that of sleep, when strength is accumulated and not expended; at such a season, to wear the trammels of discipline, would be incongruous and unfit. A recruit, who has spent much of the day at drill, loses all of the soldier when he eats; his old posture is that alone in which he can enjoy himself; he is learning a different air; his habit is about to be changed; but until this be accomplished, his attitude at meals is that of the rustic. In the act of taking food, the body is subject to no rule; were one made, it would be this---let the person sit at ease, and let every motion be natural. Such a rule would be equivalent to saying,--throw off all restraint, act as if you were unnoticed. No circumstance in life shews the state of discipline, as it respects the management of the body, so evidently as this. To sit at table with the manners of a gentleman, is a proof that ease and elegance have become habitual. Nature requires us to unbend, to dismiss every care, every restraint, when we partake of her liberality; and if that unbending be elegant, so is the man; such is his character in every situation in which he can be placed.

The African, like the European, pays homage to nature, when eating at her table, by

by dismissing every restraint; but in paying it, an inconveniency arises, if I may be allowed so to express myself; for, when every muscle is relaxed, and every joint and every limb occupy the place proper to them, the mouth is not in the most eligible direction for receiving food; but nature, ever accommodating, bends to circumstances. The youngest of my readers have probably noticed how far the lips are projected to meet the cup that is lifted by a palsied arm; the same projection is made when any circumstance prevents the easy approach of the body towards the cup; as, for instance, when the neck is stiff, or when the head is seated on the spine so as to incline backward. The young woman, mentioned in a former chapter, whose neck had lost its flexion, and whose head is carried in a manner that resembles an African's, is an illustration of this fact; her lips are more thick and more protruded, even in conversation, than they were; and her whole face more resembles an African's. Now what effect follows, from the lips being large and flaccid, and frequently protruded? The teeth, when they shoot from their sockets, observe but little order, and, left to themselves, would be the very reverse of uniform; but force is applied, and they are made to range parallel to each other by the pressure of the tongue on one side, and the lips on the other: by these agents the teeth are made to observe their proper order; they direct them. The amount of the force exerted to produce this effect, may be judged of by what happens on one being removed: accidents of various kinds, as a cut or burn, sometimes destroy the underlip, there is then nothing to oppose the pressure of the tongue but the teeth, which are insufficient; its great antagonist being removed, it soon displaces the teeth by pressing against them. To state an instance, a child lost its lip, the teeth were always in view, but in place of standing erect, they were bent directly outwards, and were of no use in speech or mastication.--- And although the pressure of the tongue against the teeth of the upper jaw is not so great as against the lower, yet when it is divided, as in the case of a hare-lip, the tooth opposite the division commonly projects. If the lips are proper, and the teeth irregular, it is because there is not sufficient room in the jaw-bone.

Le Blanc mentions, that the tongue of a girl, at Orleans, protruded from her mouth, which destroyed the natural direction of her teeth, and occasioned them to be bent outwards.

Were a child deprived of its tongue, it is probable (I say probable, because I have never witnessed the fact) that the lips would force the teeth within the mouth, and close, as an aged person's.

The lips of an African are not drawn over the teeth with the same firmness as those of an European are; and, in addition to this, the African voluntarily protrudes his lips more

more than is common with other people, and they evidently render less support to their teeth; so that if the foregoing premises be allowed, the inclination of the teeth of the negro is sufficiently accounted for: they project forward, because their tongue exerts a greater influence upon them. The teeth of an African are not so liable to decay as those of an European, because of their superior hardness and more compact texture; in other words, because the diet of the African contains a greater portion of the rudiments of bone, which are assimilated to their system. It is probable, also, that from this cause the teeth of Africans vary so little in size and colour, and are in this respect so unlike those of Europeans: some of which are large, others small; some white like pearl, others tinged with yellow, like long-worn ivory; some firm and durable, others soft and liable to decay.

The only remark I shall here make is, that the teeth being of the same nature with the other osseous parts of the system, shew how unlike the bones of different persons are in their texture; and hence it is manifest, that a greater readiness exists in some constitutions, to combine and deposit bone than in others; but that where the elementary parts of bone are presented in great abundance, this difference in the constitution is not apparent, as in the teeth of negroes, and in the shells of animals.

I might here enquire into the nature of those constitutions which are so various in assimilating bone; but I shall content myself with one remark: scrofulous persons have the whitest, and gouty persons the strongest, teeth; hence we may infer, that there exists a great difference in their bones---a difference connected with the state of their constitutions.

The jaw-bone admits of many varieties of shape, in consequence of the position of the head; and even where this is equal, other circumstances may interpose, and prevent uniformity: such as the influence of the muscles in taking food. In the earliest days of infancy the jaw is divided into several parts, which are retained in their places by the muscles which pass over or are united to them; these parts of the jaw soon unite, but are soft and pliant, and before a sufficient firmness is gained to admit of mastication, the muscles alone receive the food and pass it through the mouth, which implies a considerable exercise of strength. The fulcrum on which this is performed is the jaw-bone; it sustains the whole force of the muscles, and from its own soft and incomplete state, must be much influenced in its shape from this circumstance.

Milk is the natural food of infants, it is the appointed means of their existence; attention to this law of nature is the great means of impressing the jaw with a proper shape. Let us stop for a moment, to enquire into the circumstances of this law.

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No desire is created in the child so strong as for milk. To give and to receive this pabulum of existence, creates the strong and indissoluble sympathy which subsists between the mother and her offspring. The babe, hanging on the breast, feels all the happiness its nature can sustain; the mother indulges this fondness, and to make her duty a delight, she is endowed with a passion which none but mothers feel; a passion which prompts her to nurture and protect her infant. All passions are strong, but some are social, others not; those which are not social, are liable to be accompanied by jealousy, which is in some measure the case with the passion we are now speaking of, and is the origin of many of the excuses for not engaging a substitute when a mother is incapable of discharging her duties toward her offspring. A mother is uneasy at the sight of her child smiling on the breast of another; it is the mother's prerogative alone to caress and suckle her infant; and when this office is performed by a stranger violence is done to her feelings. It is from this passion also, that a mother, in defence of her infant, is rendered brave, and even daring; should a common danger involve her family, her first, her greatest care would be, to rescue her babe; for its safety she exposes her own. From the influence of the same passion, a dying mother desires the death of her infant; the bond that unites them seems not to admit of being broken; her other children, assembled round her bed, receive her blessing; it is her ardent prayer that their lives may be prosperous and happy, and especially that they may be the present consolation, and the lasting comfort, of their father; but her infant she cannot thus surrender, it is so much one with herself, that she desires it to go down with her to the grave.

This passion, which dates its origin from the birth of the child, obliterates the remembrance of past suffering, and continues in force no longer than the period of infancy, for as soon as mastication commences it ceases, and the affection common to a parent is felt.

If, during infancy, and while this passion is in full exercise, the child dies, the mother's feelings are exquisitely acute; a cord is cut asunder, the recoil of which, produces the keenest smart; but happily it is not destined to last; it was a passion, and passions cannot be long remembered, so as to mourn their loss; the first pang, after it has subsided, can never be recovered; the mother remembers the many offices she fondly performed, but the passion which inspired the fondness is gone, and there is nothing in the offices themselves which calls forth affection. Permanent grief requires the strong aid of memory; something besides affection, something matured by time, and which cannot be replaced. That mother deceives herself who attributes long continued despondency of spirits to the loss of an infant. No mother mourns for a still-born child,

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because no circumstance can be remembered concerning it which occasions affection. It is nearly so with children who die in infancy; there is nothing to remember concerning them. For a still-born child no passion was ever felt; for one that dies in infancy, the passion ceases in a short time after that event. So that if a retrospect be taken after the lapse of a few years, little difference can be traced in the feelings excited by them.

The passion we have been treating of, is felt only by the mother; the father loves his child; but it is, as Lord Kaims well expressed it, a reflected love. The real object of affection is the mother; the love is towards her, and towards the child on her account. What father cares for his illegitimate offspring? Would he not care for them, had nature planted in his bosom any natural yearning? They are their mother's shame; she feels them as such; and this feeling is, in some instances, at the moment of the child's existence the cause of its destruction. But if it be once placed to her breast, passion flows with her milk, and the infant is secure from injury; she can bear the shame, she can endure reproach, she can suffer want---but she cannot wish her child were dead; much less can she be its murderer. I have always pitied the mother who suffered death for the murder of her infant; she sought to conceal her shame, and she was not checked by natural affection, for it was not yet in existence; it is unlike in its nature every other kind of murder.

The sorrow for the death of an infant is an animal not a rational sorrow, and therefore cannot continue. A bird robbed of its nest, a sheep of its lamb, a bear of its whelps, feel an ecstasy of grief; the same passion is violated, the same griefs felt, when a mother mourns for her child; their origin and nature are, I believe, precisely the same; and they, after a time, as completely cease.

The reason of introducing these remarks is, to plead in behalf of infants, and to notice the influence of their treatment on the shape of the jaw-bone. The intimate connexion, the little less than identity, which is established between the mother and her child, warrants the expectation that the child will be subsisted in the way nature has appointed; when this is not the case, the muscles of the face are not exercised in a way proper to them; and we are well assured, if they are not, that they cannot acquire a natural shape. A limb that is never exercised withers, and one that is improperly used grows ugly.

The muscles give to the jaw its form; nature designed them to be thrown into frequent action by the part assigned them; by them the milk is drawn from the breast, and passed through the mouth; when this pleasure is denied the child, a want of personal beauty is the consequence. As the child grows up the defect may be overcome;

come; but while infancy remains, I defy the mere nurse to present so lovely a babe as one who is a mother, and who acts a mother's part. Such a child may be in health, but it does not present a lovely countenance; not a feature is beautiful.

But, independently of the ill effects such conduct produces on the person of the child, another powerful objection attends this practice,--it is cruel. The circle of a child's enjoyments are extremely limited; what does it know, or care for, but its mother? It possesses every faculty, but on what are they exercised? the strongest, perhaps, is that of taste; but it is milk only that is grateful;---it sees, but no object is distinct, and none interesting, except its mother;---sound frightens it;---its tiney hands embrace no object with pleasure but the breast. To rob the child of these sources of pleasure, is to make the world a void. Why do so many die? it may be as much because they are made unhappy, as because their food is unpleasant.

I pity the child who is treated with such great, though unintended, cruelty. It is not strange, in such a case, if the muscles of the face, never being called into their destined action, do not produce a well-shaped jaw-bone. But it may be asked, what is the proper shape of this bone in England? It must be large, and handsomely arched; by such an one, sentiments of respect are invariably conveyed: for a jaw-bone that is narrow and small we invariably associate with feebleness of mind and weakness of constitution.

The jaw does not acquire the manly character till after the age of puberty; it is, before that period, an object of little interest; but afterwards, it forces itself on the attention.

But those whose jaws are equally manly, are not equally beautiful. In Yorkshire, more handsome underjaws are to be seen than in any other part of the kingdom: it is the part which characterizes the Yorkshire face; and Lavater would pronounce it connected with eloquence; and his opinion is well founded, for a well turned jaw is essential to a good speaker; there must be ample space for the tongue, a great freedom of motion in the muscles of the face; and such a conformation of the whole as gives melody to the voice and facilitates utterance: the description of jaw-bone I have thus been pointing out, possesses all these requisites. And if, as a test of the truth of these remarks, the popular preachers of the day are appealed to, I believe a large majority of them will be found to be natives of Yorkshire.

But if the jaw be interesting from its manliness, the muscles connected with it are more so, being expressive of the immediate sentiments of the mind. On them the passions play: the slightest change of temper, the gentlest movement of the sympathies of nature

nature, are instantly expressed; intelligence beams from them; they alone are the index of the mind, because they alone are capable of a sudden change of expression.

Cut a muscle asunder, paralyse its motion, and the most frightful deformity is the consequence; a deformity far more striking than the forehead of any idiot. Place the hard and unyielding parts of the head and face in their most unfavorable positions, and the mere division of a lip will have a greater influence on the general expression.

The underjaw of women is much smaller than that of men; the delicacy, timidity, and softness of the female, would be ill expressed by a full and bony jaw. That which most becomes them, is one which is much encircled and concealed by the muscles.

SECT. 18.

Of the Hair.

THE natural covering of animals is various, consisting of hair, wool, and feathers; by what characteristics they are distinguishable from each other, it is unnecessary to state: but thus much may be said, there is no essential difference between them; in the same animal hair and wool intermix, and feathers seem allied to both. Hair is distinguished by its colour, and by its being more or less curled.

The covering of the head of an African is black in youth, but in old age it is grey. Those who affect to believe them little superior to brutes, describe this covering, not as hair, but as wool; but this, however, is mere conceit, wholly unfounded in truth. Wool, though much resembling hair, is found only on brutes; and is distinguished by its capacity of being wrought into a firm and solid body, as a hat, which hair is wholly incapable of. It is probably owing to the hair of the African being curled, that it has been considered as little different from wool; but the curl of hair arises from causes which have no dependence on the species.

As this subject has never (so far as I know) been much noticed, or attempted to be accounted for, it may not be improper to collect a few well-authenticated facts; and from these draw our inference, as to the efficient cause of the existing difference in the state of the hair of different individuals, as well as of nations.

The whole continent of America presents but one condition of the hair; it is long, lank, and thin. The curled locks which decorated the brows of many European families when they sought an asylum in America, have, in a few generations, disappeared; the climate, the food, or some other circumstance connected with that quarter of the globe, is decidedly inimical to that state of the hair which in Europe is thought

most beautiful. Not only does the hair of the European lose its ringlets, but Dr. Stanhope Smith informs us, that the hair of the negro is not so entangled as it was in Africa, and that it shews the power of the climate in robbing it also of part of its crispness.

In another part of the globe, India, the slightest curl cannot be seen; the hair, as in America, being uniformly straight.

In the cold regions of the north also, the hair exhibits the same unwillingness to curl; with this difference, that it is much stronger and more bristly than in more temperate climates. The hair of the Esquimaux is peculiarly worthy of notice in this respect, it possessing, as I am credibly informed, almost the strength and substance of the hair of horses. If we approach nearer home, we have very singular examples of the influence of external circumstances on this ornament of our persons.

The natives of Drent, and of the bishopric of Munster, have naturally sleek hair; it is common to those parts: but when the persons remove to a neighbouring district, the nature of the hair changes; it loses its sleekness and begins to curl. Dr. Camper, p. 28 of his excellent work, informs us, that the residence of a native of Drent in Amsterdam, for a few years, invariably produces this effect.

The hair of the people of this country, even when young, is very various in colour and in strength. But those of them who, when grown to maturity, and rejected by their countrymen as unfit to share with them the blessings they enjoy on account of their unworthy conduct, on being exiled to New Holland, have propagated children; but in place of the hair of such children being as their parent's were, of diverse colours, it is uniformly of one, and that (in Europe rather unusual) is white. A few districts in England are remarkable for the same circumstance: but even here there is a mixture. But Mr. Collins and others inform us, that at Botany Bay there is no mixture of colour; the hair of the children is invariably of the same appearance.

In Poland the hair is subject to a disease which is peculiar to that country, the *plica polonica*; and which occasions very considerable distress.

In the country of the Fowlahs in Africa, the hair, Mr. Park informs us, is soft and silky.---Other instances, of a peculiarity in the state of the hair, might be mentioned, were it necessary to substantiate the fact.

It is the opinion of some physiologists, that a difference in the hair is occasioned by the food; but I see no just ground for this belief; for in this country, persons who live in the same manner, have very different hair: and it does not appear that the people of Amsterdam live in a different manner from those of Munster; or those of America from those of Europe. As hair changes its condition by a change of place, it

it is right to infer that some circumstance of that place is the occasion of it. The principal difference in countries is their climates; but how far this is the cause in this instance it is not easy to ascertain: certainly it is not the heat of the climate, for then the East-Indians and South-Americans would, like the Africans, have curled hair. It is not a humid atmosphere, for then the inhabitants of Munster would be like those of Amsterdam.

The seat, and perhaps it would be correct to say, origin of hair, is certain small bulbs, situated within the skin, each of which produces a hair. These bulbs are liable to be affected by various states of the body, and are in themselves subject to disease. When, for instance, consumption has wasted the flesh, and weakened the principle of life, the hair falls from the head. Fever sometimes occasions baldness; at other times it changes the colour, or alters some property of the hair; if it used to curl, it loses this tendency, and that which before was straight, has, from this cause, assumed a short stiff curl.

Old age gives to hair of every colour, and of every state, the same appearance; if it has been black or brown, it is now white. This change is effected in the bulbs of the hair; there is a deficiency of nourishment afforded them; the same vigour does not exist in the small vessels which supply the hair as formerly: the want of colour in the hair may therefore be considered as want of strength in the system---one part is withered.

Of diseases, one has already been mentioned, the *plica polonica*; and daily observation affords instances of others which greatly affect the hair, and disgust the observer; but these it is unnecessary to mention.---Thus we have traced the hair to its origin, and suggested the idea, that it is in the roots or bulbs whence every deviation proceeds. Let us now go on a step further.

Heat, applied to the hair, causes it to curl, but it at the same time injures it; but the curled hair of the African, or indeed of any person, does not appear to be produced from this cause; it is not immediately occasioned by heat; for in this climate there are persons whose hair is equally curled as the African's, and even the hair of some horses is in the same state. But if this effect be not produced by heat, it does not follow that it is not by the influence of the sun; heat is not the only property the sun communicates: it warms the atmosphere, but it tans the skin; it promotes vegetation in the spring, but it matures and ripens in the autumn. The covering of some animals is rendered coarse by a tropical sun, but the covering of others is fine like silk. Mohair and vigonia wool are both produced in warm climates.

Nor have the cold regions an uniform effect; the winter covering of the bear and fox

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is much more full and long than that of the deer, and much more unlike those of the same species which inhabit warm regions. In short, the hair of the deer does not undergo any natural change by the climate; hence we may argue, that it is not necessary to the comfort of the animal.

From these facts, we may gather, that the climate has an effect, but that it is not universal; the covering of all animals not being alike influenced by it.

Let us apply this principle to the human race. There may be a certain state of the air at Amsterdam which is not at Munster; the nature of the soil, or some other circumstance of the place, which may escape general observation, may produce this; for we cannot suppose, where the effect is general, that it is produced by any other than a general cause.

In countries where curled hair is common, a twist once acquired seems to increase with every generation. The bastard Hottentots, Mr. Barrow informs us, have now strong curling hair, like the unmixed race of negroes.

An abundance of hair on the head of a man, is not a mark of strength but of weakness. I never remember to have seen a man at forty, with a very thick head of hair, whose body was not feeble, and whose mind was not dull and uncultivated. If the body be vigorous and the mind active, before the person has attained his fortieth year, the hair on the front of the head will become thin; it will not descend so low upon the forehead, and especially at each corner of the forehead it will be wholly obliterated, and a baldness will ascend, in the form of a peak, towards the crown.---To shave the head, or pluck out the hair, was a very ancient symbol of mourning; but soon became also, though very unjustly, a mark of disgrace: *Go up, thou baldhead!* was the language of derision.

The common people of England, and I believe of Europe, affix a high value to their hair, which is rather difficult to account for, as the Scythians, from whom we sprang, wore but little hair; and most nations, when in a state of barbarism, are more disposed to extirpate than to encourage its growth, which renders the origin of the present fondness more difficult to ascertain. Baldness is frequently produced by disease; but there are exceptions to this rule: all men with large heads, such especially as are broad over the crown, or whose heads are very round or full at the sides, usually lose much of their hair before they attain the middle of life. Observe the heads of a large concourse of men; distinguish those who are bald; compare the shape of their heads, and it will be found that they resemble each other: having acquired this knowledge, it will not be difficult to point out those who in a little time will lose their hair.---Hippocrates never knew an eunuch bald-headed.

Indi-

Individuals have lived, on whose persons there never grew a single hair, but who nevertheless were strong and healthy; a beardless man is not, consequently, a feeble character. The texture of the hair of the head is very different from that of the beard, and the beard from the eyebrows; which difference being uniform, is doubtless occasioned by the peculiar state of the bulbs from whence the hairs grow, and therefore does not call for a further investigation.

The colour of the hair appears to be derived from the blood; and to be flaxen or black, according to the state of the gland in which it is seated. A burn occasions the future hairs, even of the eye brows, to be white; the gland has in this case received an injury and been weakened. The whiteness induced by age, is also to be assigned to the same cause; the size of the hair does not entirely depend on the colour.

The nature of hair and of the nails, is very much alike; the disease which, in some instances, affects the one, affects the other also, as the *plica polonica*. Hair is lighter coloured in childhood than in mature life, upon the same principle that the skin is so. Hair, like the skin, becomes sensibly darker by a residence in a warm climate; but not so soon, or to the same degree.

Many other remarks might be added, but it is presumed that enough has been said, to rescue the African from any imputation of inferiority, on account of the state of the covering of his head.

Of the Colour of the Skin.

INTRODUCTION.

THE world is beautified by variety; vegetables, animals, and man, in form, in colour, and in natural properties, are so diversified, that did they not harmonize, did they not all contribute to one end, did they not all form one whole, in place of beauty there would be the consummation of ugliness and deformity in the creation. But now all contribute to the most perfect scene of order, dignity, and grandeur. The carpet of nature is of one colour; upon it a thousand diversified shades are intermixed, which keep the eye in a perpetual gaze of admiration; and each colour seems that which is best adapted to the plant or animal which possesses it. Were not grass of the colour it is, it would not be so succulent; its colour is a consequence of its health; that part which constitutes its greenness, diminishes when the plant withers; the more the plant flourishes, the greater is its beauty.

The colour of animals, on the other hand, is not connected with their health, but is adapted to their love of concealment, and to the necessity there is for such a disposition; hence such as are carnivorous do not seek their prey by their sight, but by their scent. A vulture is led to the carrion which is obscured from its view, as is a lion to a kid; they would starve were they to depend on their sight to discover to them their food. The colour of animals is their security; it preserves them from being wantonly destroyed: the wolf leaves its den, impelled by hunger, and seeks its prey from a sense of want. Few animals are killed, merely because an opportunity is presented; but many would suffer in that way were their colour such as always to render them

them conspicuous. A dog, or a wolf, among a flock of sheep, destroys from mere wantonness, and so do all carnivorous animals when the opportunity is presented to them; hence the wisdom of its being withheld.

The colour of man is beneficial on another ground: we do not want to be concealed; we are destined to inhabit the whole of the globe, and require to be adapted to each part; and here we have a token of our adaptation in the change of the colour of our skin, by which we are fitted for every climate. But, independently of the utility of a diversity of colour, beauty also, as has been suggested, formed part of the plan of the Great Author of creation. One colour might have been made common to the world, without injury to its intrinsic worth; but no part is thus limited, thus confined,--each exists under many colours, and was made for the enjoyment, as well as the support, of the animal creation. Beauty is stamped on every thing, while kindness, as well as wisdom, assign to each its station. There is a liberality, a profusion of excellency, in the works of the creation. Man is charmed with the spotted variety, the ever-changing forms of nature. But some individuals overlook this source of felicity, when they contemplate the person of their species, and express themselves in language of disgust, because the human race partake of the general plan of nature, and differ from each other in colour; thus, what is beautiful in other parts of creation, in their own species they fancy is deformity, and use every effort to disproye the connexion.

To trace the cause of colour in the animal and vegetable kingdoms, and thus to destroy any notions of superiority that may be entertained by individuals of the human race over their fellow men, is the object now before us.

The first observation I shall make merits attention; it is this---the colours common to man, are common also to quadrupeds, and none other are so; the horse, the hog, the dog, the rabbit, the lion, the lamb, the elephant, the ox, vary from each other, as man varies from man, in being white, brown, or black; to these three colours, both quadrupeds and man are limited. But although the colours are the same in both, the economy by which they are evolved, is essentially different. The colour of man is acquired, the colour of the brute is natural: as this distinction is of some consequence, I shall endeavour to make it evident.

In all flocks and herds, whether they be those which are domesticated and live at ease in our pastures, or of those which roam unsubdued over the wilds of other regions, there is occasionally produced every colour proper to the species, as white, brown, and black. But it is not thus with the colour of the skin; that is not capricious, but fixed and certain. White parents have no black children, nor black parents any that are white, except such whose skin is diseased.

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It is thought by some, that the various colours which a flock of domestic animals usually presents, has been produced by domestication; and that such animals as are not under our management, are all of the same colour, as foxes, squirrels, birds of various species, in short, every kind of undomesticated animal. This, in a measure, is true, for there is a strong bias towards certain colours, but varieties occasionally are produced; sparrows sometimes are white, there are also white and brown mice, and so of other animals; but these varieties, having no attention paid them, are soon lost again. They do not pair with others that resemble them, but with those of a colour common to the species, and consequently the young are more apt to partake of the common than the accidental colour, and hence the variety is soon lost.---But in a domestic state, every such deviation from the common stock is carefully separated from the flock; a suitable mate is provided; and that which at first was accidental, now becomes common.---This idea is well stated by Dr. Anderson, in his "Recreations," to which the reader is referred.

Upon this principle it is, that domestic animals are made to differ so much from each other in shape and colour. The variation is produced in the natural order of things, and is preserved by those whose property it becomes: but a similar attention would have no effect on the colour of the human race. Were persons of the darkest complexion which this country produces, to intermarry for a long period of time, their progeny would be no darker coloured than the first pair. The melancholic temperament in this climate admits of only a determinate shade of colour, which may every where be seen, but which is nowhere on the increase. Were mulattoes, the residents of any European state, to intermarry, their children would be precisely of the same colour as themselves; neither a negro, nor a white child, is ever born of such parents. But from brown animals, propagated from one that was white and the other black, all the colours of the species, in all their combinations, would certainly be produced.

The colour of animals is subject to the influence of the climate; a bear, or a fox, in Greenland, becomes white. But the colour of man, though produced by the climate, yet is with difficulty removed by it. No part of the globe readily robs the complexion of its colour, and substitutes white for black, as in the case of the Greenland foxes. But if intense cold frequently takes from animals their colour, intense heat does not, as in the human race, impose it. In the East-Indies the cattle are either white or brown; very few are black. Under the line there are very few black animals. But the colour of man is so susceptible of the influence of a hot climate, as almost to mark, by the shade of its colour, the degree of the meridian under which he was born.

At birth, all children are nearly of the same colour; but the young of quadrupeds are, with a few exceptions, of the colour they retain through life. In man the colour is seated in the skin, in animals it is in the hair. Hair does not require the heat and light of the sun to give it colour; the skin is never coloured where their influence has not been exerted. Thus it appears that the colour of the hair is developed, unassisted by any foreign circumstance; but the colour of the skin is uniformly the same as that of the parents; and if any deeper shade of colour is afterwards produced, it is by circumstances independent of the constitution.

Yet, although a distinction is thus pretty clearly pointed out in the economy, by the operation of which the colours of man and animals is evolved, it does not communicate any information of the nature of the distinction which exists. A negro, we have proved, is not black from the same constitutional influence that an ox is; but what is the occasion of either being black? This question I shall not at present enter on, but shall first enquire into the cause of the colour of birds and vegetables. These enquiries being made, what follows will be better understood.

SECT.

SECT. 1.

Of the Cause of the Colours of Birds and Vegetables.

BY the cause of colour, I mean, those properties of bodies by which the rays of light are broken, and the colours which compose them separated from each other. The crimson of a flower is not reflected from a substance of the same nature as the blood, which is of a somewhat similar colour: nor is the crimson of paint of the same nature as either: the colour is not very dissimilar, but there is a considerable difference in the physical properties of these bodies. It does not therefore necessarily follow, that because various organized bodies are of the same colour, the principle of colour is similar in them all.

The feathered tribe are far more gaudy in their covering than quadrupeds; a thousand shades of brilliant colouring are bestowed on them by the liberal hand of nature, at once attractive and pleasing to the eye, which are denied to other animals. Birds are not only white, brown, and black---but green, blue, and red---with every variety of admixture these colours admit of; which renders their covering, in many instances, most beautifully splendid; but this beauty is not at once acquired, the nestling possesses it not; the goldfinch has not its gaudy head, or the drake its brilliant neck, or the pheasant any richness in its plumage, during the first weeks of its life; indeed, at that period, the colours a bird possesses are scarcely more numerous than those of quadrupeds; until the first feathers are cast off, and others are acquired, it is not easy to distinguish the male from the female, or even to ascertain the species. The plainest feathers seem adapted to the age and circumstances of the nestling: the colours proper to the sparrow are commonly those in which a bird first encounters the perils of life; they are those with which its young pinions are commonly fledged; but when, at the appointed

appointed period these fall off, others more gay and brilliant supply their place; and in every successive moulting, till old age turns them grey, not a spot is varied; the same part of the animal, which at its first moulting exhibited any particular colour, always exhibits it. Thus we observe two eras in the life of the bird, and the appearance at least of two distinct physical causes of the difference of colour which is possessed at the different eras. The first, or nestling state, is that in which the colours are the same as those of quadrupeds, and which I conceive to arise from a similar cause; but the colours which are assumed after the first moulting have another origin, the nature of which I shall now enquire.

It is a fact, with which all are familiar, that the feathers of different parts of the body are of various textures; the wings are coarse, and seldom possess either much variety or beauty of colour; the feathers of the neck and back are distinguished by the diversity of their texture and the brilliancy and variety of their colours; the feathers of the breast are more soft and downy, and less remarkable for their colours. But this diversity of texture serves better to account for the more distinct and general colours, as white, black, or brown, than for the more diversified colours; it does not assign an origin to the more beautiful and delicate tints of purple and blue, of green and orange; for these we must look to the economy of the animal. About the time of moulting, a change takes place in the constitution of birds; a vesicle of oil is then secreted on the rump, with which the animal lubricates its feathers, and receives from it a considerable defence against the weather. The flight of a young bird is impeded by a shower of rain, and if the rain be of long continuance the feathers are so loaded with water that the bird can scarcely raise itself from the bush in which it has taken shelter, and in this state some are caught with the hand; but a bird which has once changed its feathers bids defiance to the weather, the entrance of the rain into its clothing is resisted and it rolls off without much annoyance; the oil which had been assiduously applied, and carefully intermixed and blended with each feather, forms an impenetrable defence; a defence, of which the young bird is destitute. It is the well-known property of oil to exclude moisture; but this is not its only property, oil acts the part of a prism, and separates the rays of light; a few drops floating on the surface of a pond reflect all the colours of a rainbow. Apply the principle to the colours of birds: oil, intimately united with the feathers, communicates to them a new quality; were it just spread on their surface, it would reflect, as it does when floating on water, the exact colours of the rainbow; but here it enters the substance of the covering of the bird, and becomes one with it; the colour reflected is determined by the quality of the feather, hence its invariableness.

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The tail of the peacock is soft, like down; the tail of the barn-door fowl is harsh and unyielding; there is a connexion between the texture and the colour. But it may be objected, that some birds are white; this, in fact, is not an objection; the feathers of such possess no natural colour, they are not of a texture that admits the common colouring matter of birds and quadrupeds; and as oil is not confined to the outside, but penetrates the substance of the feathers, so the sun meets with no substance that divides its rays, a mere gloss only is produced, faintly reflecting the colours of the rainbow The oil does not meet our eye, but the feathers, the natural appearance of which is not altered. But where there is a colouring principle inherent in the feathers, with which the oil unites, it gives a new power of refraction, and thus produces a colour which before had not existed. In other words, oil united to a white feather, does not change its colour; it meets with nothing on which to act: but feathers already possessed of colour, contain a principle of which those which are white are destitute; the oil uniting with this principle, produces the brilliancy and the variety of colours which so much distinguish the feathered tribe. I say *produces*, because I think the fact rests on good evidence.

But what is the evidence that the beauty of the plumage of birds, which is so esteemed, does not, like the colour of the hair of cattle, reside essentially in the feathers themselves? It is not permanent, which is a conclusive evidence. As soon as the oil has ceased to be applied the colour begins to fade; the oil, therefore, is a principal agent in producing the colour of birds, which is not the case with the colour of quadrupeds. A bird, stuffed and deposited in a museum, requires the shelter of a glass to preserve it from the atmosphere. Feathers worked into a muff soon lose their beauty, they are then exposed to a slight friction, which they cannot resist; nor can they sustain the smallest portion of humidity. Hair will resist the utmost violence, without a loss of colour; but feathers plucked from the bird fade as certainly, although more slowly, than the blossom of a flower. No circumstance can more clearly prove, that the most gaudy plumage owes the variety and richness of its colours to something which is liable to be removed; that this something is the oil which the animal is in the constant practice of applying to its feathers, seems almost equally true; for when the supply of this substance ceases, the same exposure to the weather which had been sustained without injury, now proves destructive. That which can be removed by art, is not an essential, but an accidental, an acquired part of the feather.

Such being the case with the feathered tribe, our next attention must be directed to the vegetable kingdom.---The leading colour of this class of bodies is green, but they are not necessarily of this colour; when they are excluded from light they are completely

white. But by the influence of the sun a change is produced in at least part of the substance of the plant, which converts it to green; other parts of the plant do not appear to be furnished with that particular quality which is convertible to this colour, I allude especially to the blossoms; in them, other colours, and those the most beautiful and brilliant, usually prevail. Although we are not precisely acquainted with the substance in the leaf and stalks of plants, which the sun occasions to put on a green colour, yet of the colours of the corollas we can form a more accurate judgment. The blossoms of almost every plant contains oil, in many it is so abundant as to admit of being extracted, as the oil of thyme, of peppermint, the otto of roses, and the like. What has been said with respect to the colouring principle of birds, may, with propriety be repeated here. Oil is mixed up and incorporated with the substance of the flower; and, I apprehend, there can be little doubt that from this junction arises the great number of colours which so much charm us in the garden.

Were any facts wanted, to prove, that the principle we have mentioned was that by which plants received their colour, we might add, that the addition of another principle changed the existing colour---as that which is communicated by the bite or sting of insects: flowers that are blue, by this means become red, so far at least as the bite extends.

To dwell longer on this subject is unnecessary, as a so much more important subject awaits us, in the cause of the colour of the human race.

SECT. 2.

Of the remote Causes of the Colour of the Skin.

THE gradual manner in which the colour of the inhabitants becomes more and more dark, as we pass through the temperate and approach the kingdoms of the torrid zone, has induced philosophers, who in every age have considered the subject, to attribute its cause entirely to the influence of the sun. The ancient monarchies of Asia and of Europe, in some of their more distant provinces, had access to nations of negroes, and consequently the knowledge of such people became general, and what a nation is accustomed to, it seldom affects to despise. The Romans, indeed, admitted people of colour to all the privileges of citizens, and to the highest offices of the state; they were even not debarred from ascending the throne, and swaying the sceptre of the world.

Researches in philosophy are seldom made, without something useful to society being proposed as the end. To put questions to nature, to ask her by what laws she operates, is indeed the province of the philosopher; but useless questions he declines to put; he does not pry into the cause of things, where the enquiry does not tend to some good purpose.

Such were the circumstances of the world before, and at the time of, the Roman monarchy, that no motive presented itself to induce the philosophers of those days to investigate the cause of the blackness of the African; they were satisfied with what appeared to them to be the obvious occasion of it. "I am not fair because the sun has looked upon me," was the account given by one of herself; and, as it has been said, was the received opinion of those times. But after the Roman empire was overrun and dismembered, knowledge became extremely circumscribed; and where there is igno-

ignorance there commonly is selfishness; and selfishness, with power, searches for, in order to persecute, superior attainments in knowledge, superior kindness in action. This, I presume, was the state of Europe after the conquest of Rome; hence many useful arts were lost, at least for a time, and the nations ceased to have intercourse with each other.

After the lapse of many ages, civilization again made some progress, and commerce again began to revive; but a total ignorance of the existenee of men of a colour different from those of Europe prevailed. The night of darkness which succeeded the bright day of Roman greatness, extinguished the knowledge that had been acquired of the nations of Africa, and it was no longer known that a negro lived. At length the Portuguese, actuated by a love for gain and a thirst for knowledge, ventured to cross the line, and landed in Africa; where, instead of finding, as they had been led to suppose, from the traditionary accounts handed down to them, that the water of the rivers and lakes was actually boiling from the heat of the climate, and the land uninhabitable. (For the Romans, from whom these traditions were derived, although they had colonies in many parts of Africa, yet had never crossed the line; and as ignorance delights in the marvellous, they not only believed the water to be in a state of ebullition, but that the land was in the state which has been mentioned.) With expectations founded on such relations, the Portuguese approached the shores of Africa, and, to their surprise, found it inhabited by a people as black as jet, with features unlike any they had been accustomed to. It was natural to express their opinion, and to attempt to assign a cause for what had so astonished them; and as they felt the powerful influence of the sun on themselves, and had been led to expect the most surprising effects from it, they readily attributed the state in which they found the natives to that cause.

But when the Spaniards afterwards sent agents into Africa, to purchase the natives as slaves, that they might treat them as criminals, one attempt after another was made to lessen the personal consequence of the negroes, and to reduce them from men to brutes. Among other objections, that of their colour was particularly urged; it was unlike their own, and therefore it could not be human, was an argument arrogantly urged. And as attention was thus called to the subject, many have been the theories which ingenious men have advanced: those of Buffon, Smith, Mitchell, Berthollet, and Blumenbach, divide the opinions of those who, contrary to the sentiments of the Spaniards, believe that all men are naturally equal. But neither of these distinguished philosophers have fully discussed the subject; no one of them having made it a leading object of consideration.

Buffon

Buffon rests his theory on the influence of food, climate, and clothing; but he has not informed us of their mode of operation. How it is that they change the skin? is a question he has not investigated. The aborigines of the whole continent of America, live under every change of climate, and in almost every condition of society, the very refined excepted, yet amidst all of these opposite states, as to food, climate, and clothing, one complexion alone exists. If amidst the settled, and in a good measure, civilized nations of Peru and Mexico, or the wandering tribes of other parts, no considerable variation can be perceived, it is not very obvious how food, climate, and clothing, can have the effect contended for. But as Buffon makes assertions only, there is nothing properly to oppose, or commend. Had that great man favored the world with his sentiments, matured by reflection, any remarks of mine would have been unnecessary.

Dr. Stanhope Smith, though not a physician, has advanced a theory founded on a disease. Warm climates, he observes, occasion an increased flow of bile, which shews itself in the skin, and is darkened by the sun. An increased flow of bile, shewing itself in the skin, is the jaundice, and the jaundice is never present without the eye being yellow; besides, a perpetual jaundice is incompatible with life.

Mr. Mitchell, who lived at a time when the nature of colour and of vision was much enquired into, turned his attention to the denseness of the skin, and from hence produced a theory of its colour. But a better acquaintance with the structure of this substance, has enabled us to ascertain, that the colour is not in the skin itself, but in a fluid which is contained between its two principal coats or layers; for the skin may be divided into three parts, the middle one of which contains the colour. Hence the theory of Mr. Mitchell, being unsupported by facts, is nearly abandoned. *(Phil. Trans.* v. 45.*)*

Berthollet, whose opinions always merit attention, contends, that a partial oxidation of the skin is the cause of its colour. By a partial oxidation is meant, a particular burning, or converting to charcoal. If this be effected upon a fluid under a covering, the covering must be subjected to a similar change. But it is well known, that the skin of a negro, when separated from the coloured fluid, is white, and in every respect like that of Europeans, except its not being quite so thick. Hence the theory of this able chemist is also untenable. *(Anales de Chemie,* v. 9.*)*

Blumenbach's opinion is concise, and may be given in his own words:---"Causam equidem proximam adusti aut fusci coloris externorum cutis integumentorum in abundanti carbonacio corporis humani elemento quærendam censeo, quod cum hydro-

 genio

genio per corium excernitur oxiginii vero atmosphærici accessu præcipitatum, Malpighiano muco intigitur." *(De Vari. Humanorum, p.* 125.)

Whether Blumenbach was the author of this theory it is unnecessary to enquire; it is plausible, and therefore does not want supporters; but it wants experiments; it wants facts to give it weight, and to excite, or rather revive, curiosity, and provoke enquiry. What effect carbon, or hydrogen, has on the blood, I leave others to ascertain; but whatever that may be, it cannot affect the colour of the skin, for the globules of blood, which alone contain the colour, are too large to enter the skin. I connect the colour of the blood and of the skin together, because the same theory is assigned to both; and in either case, the cause assigned appears so theoretical, so incapable of demonstration, as hardly to merit investigation.

In a note, Blumenbach mentions it as the theory of Kant, that a superabundance of iron, in the blood of an African, is the cause of the colour of that people. There is no obvious reason why the blood of an African should contain more iron than that of an European; consequently we must say of this theory, as we have done of others, that it is unsupported by evidence. Fourcroy, also, mentions iron as occasioning the colour of the skin; but he has not, so far as my knowledge goes, investigated the subject; it is, therefore, still open to discussion.

It has already been said, that the seat of colour is in the skin itself, but it is not diffused over its whole substance, as is the case with the colour of the hair; for anatomists have ascertained, that this covering of our bodies is not homogeneous, but possesses different properties in different parts. To speak in terms that will be generally understood, the skin, like the earth, is stratified: the first stratum, or coat, is that which is contiguous to the flesh, *(cutis vera)*, and is composed of a congeries of nerves and blood-vessels intimately interwoven and mixed with each other; hence, a cut, which does not penetrate below the skin, occasions a flow of blood, and is accompanied by more pain than if part of the muscle had been divided. This lowermost layer of the skin is that which, in an animal, is converted, by tanning, into leather; the other parts having been separated by a previous stage of the process. The nerves and blood-vessels of other parts of the body are capable of becoming leather by the same process. But my object in mentioning the subject is, to convey an idea of the prodigious number and extent of the arteries, veins, and nerves in this part of the skin to admit of being converted into so thick and solid a substance as the leather in common use. The corresponding part of the human skin is of the same nature, though of inferior thickness.

Next above the *cutis vera*, or true skin, is the *corpus mucosum*, a substance nearly fluid, and perhaps would be entirely so, were it not preserved in its situation by numberless small fibres, which pass through it, to connect the under to the upper skin. To these fibres the *corpus mucosum* adheres. This substance (the *corpus mucosum)* is the seat of colour; which, in the African, is black: in the European it is more or less brown, inclining to white, and in our own island, and in Germany, in many instances, it is colourless, resembling semi-transparent jelly.

In some of its properties, the *corpus mucosum* resembles the serum of the blood; but in others, it is so unlike that substance, as to make it evident that they are distinct. The serum is incapable of becoming black, and it separates from the other parts of the blood when allowed to be at rest. But the *corpus mucosum* never spontaneously separates. The serum is obtained by any mode of decomposition, and is a constituent and necessary part of the blood; but the *corpus mucosum* is a secretion from it.

The *corpus mucosum* is not of an equal thickness in every part of the body, for every part is not equally black; that which is the least so, is the inner sides of the arms and the contiguous sides of the chest. The tongue is destitute of a *corpus mucosum*.

Adjoining to the *corpus mucosum* is the scarf skin, or that part which is immediately exposed to the air; and is insensible. It is what, in ordinary language, is called the skin; and is the same in all men: that of an European would not be known from a negro's, or a negro's from an European's.---Thus it appears, that the structure of the skin is invariably the same; but there is a marked difference in the colour of a part of it.

Our next subject is, to enquire into the cause of this difference.

As a national colour, the jet black is proper only to Africa, or to the inhabitants who reside between the twentieth degrees of north and south latitude; further north or south, the complete negro colour disappears, and a dark olive occupies its place; a little further, and this gives place to a colour less deep, till, in England, every trace of the African complexion is lost, and the most exquisite whiteness, of which the human skin is susceptible, characterizes the inhabitants, and gives to the females much of that delicacy, that loveliness, for which they are distinguished.

But it may be asked, which is the more desirable colour? which the most conducive to health? Each has its admirers, as to appearance; but which, on the whole, is the most desirable as a complexion? Black is the most permanent; the child of negro parents may traverse from the equator to the pole unhurt, unaltered; but the child

child of English parents cannot accompany him, without a loss of complexion and of health.

From this slight view of the subject, the negro complexion appears the most desirable. In another part of this chapter I shall advance other evidence on this subject, my reason for mentioning it here is, to obtain for the African that candor, which, in discussions concerning his race, is seldom bestowed.

The rapidity with which the almost snow-like whiteness of the English complexion is tinged with yellow, then with brown, as the meridian is approached, leads the mind at once to the influence of the sun as the cause of that accession of colour; and as the colour which is sometimes imposed on an European is nearly as dark as that of a mulatto, there is little difficulty in believing that they owe their existence to the same cause.

But we have made but little progress in our enquiry, if we say it is the sun which produces the colour of the skin. How does it operate? It does not turn marble black. There is nothing in itself which communicates colour. It does not soil or blacken, like the foul air of a Highland cottage. It bleaches the dead fibres of vegetables, which from being brown become white. It must therefore exert some other influence on the living body than that which it exerts on the dead. What is that influence? The sun performs an important part in the production of colour, but other agents are necessary; moisture is necessary. Every summer does not equally alter our complexions; in one we become browner than in another. Is it the hottest to which we are indebted for the deepest shade? No; but that which is the wettest. Children play uncovered with far less change in their complexions, while the sun shines without a cloud, than they do when their faces are occasionally wet with rain.

The nature of this combined influence of the sun's rays and moisture, is by no means difficult to explain. I shall make use of a familiar illustration. In dying cloth, certain preparation liquors, or *mordants*, as they are called from the French, are necessary to fix the colour. Were not this precaution used, the colour would not unite with the cloth, and therefore it would not, properly speaking, be dyed. But when a suitable preparation liquor is used, the colour then adheres.

In the same way, I apprehend, a *mordant* to be necessary to impress the sun's rays upon the skin; which *mordant* is moisture. In what other way can it be accounted for, that a face which is frequently washed, or on which a little dew has fallen, is much more readily tanned, than if no such circumstance had happened? A miller's face is never much tanned, though he frequently exposes himself to the sun at the door or the windows of the building, because the air of the mill is so overcharged with small par-

particles of flour, that his skin is perpetually receiving a covering of it, which at once dries up the moisture which may fall upon it, and wholly interrupts the operation of the sun beams.

Some mothers are aware of this preserving effect, and rather than their children should lose their complexions when they go out, rub a little hair powder on their skin; could they repeat it frequently through the day, they would effectually succeed. It is unnecessary to add that grown persons sometimes pursue the same plan. A veil preserves the complexion more by keeping off moisture than by excluding the sun; for the hat, in many instances, could as completely shade the face, as a veil does, yet the tanning would be greater.

The air on the sea coast is generally more loaded with moisture than in an inland country; and it is a common observation, that persons are much sooner tanned.

But the most decisive proof of the effects of moisture, as a principal agent in giving colour to the skin, is a fog. It is a common occurrence with travellers, that, during one part of their journey, they are enveloped in a fog; in another, the sun unclouded shines full upon them. At the top of a hill, all is clear and bright about them, presently descending into a valley, objects at a little distance can scarcely be discerned. Persons, thus circumstanced, are more tanned by one day's journey, than by a month of settled sunshine. I have even thought, that I have perceived travellers on the outside of a stage coach, who for a time have been surrounded by a fog, then bursting through the cloud to meet the noon-day sun in all his strength, to have been more tanned in one hour, than by several days of equal exposure when the atmosphere has been dry. A journey by the sea coast changes the complexion more than if it had been through a dry upland country. Brick makers, whose employment requires the use of water, are more sun-burned than carpenters or stone masons, though they are all equally exposed.

Such are some of the more familiar facts which tend to establish the opinion, that moisture greatly facilitates the action of the sun upon the skin. Other facts will be afterwards mentioned.

Let us now advance a step farther, and enquire into the permanency of the colour acquired by such means. If a person go to Spain, and reside there a summer, his complexion becomes darker than if he had resided in England; but returning to his native country for a few months, removes this foreign shade. It therefore is not permanent; but, like the superficial tanning of our summer, is lost again in winter.

It cannot be doubted, that the colour acquired in Spain and England, by exposure to the climate, is of precisely the same nature; in either case we say, the person is sun-

 burnt;

burnt; but should a person remain several years in Spain, and then return to his native country, the colour he has acquired, though doubtless of the same nature as that just mentioned, is now fixed and permanent. No change of situation removes it; not even the cold of Iceland, nor even sickness or old age, neither of which produce any very sensible effect. Nor even were the whole scarf skin removed, in succession, by blisters, would the colour be obliterated; for the healing of the wounds would bring it back. It was first a superficial tanning, but is now a lasting colour. A change has taken place in the structure and constitution of the skin, in consequence of which the dazzling sunshine of Spain is no longer requisite to keep in existence the Spanish complexion; it has become constitutional, which alone is sufficient to insure its permanency.

The idea to be kept in view is, the identity of the colour which length of time fixes unalterably in the constitution, and that which passes away with the cause that produced it. The one is a tanning, similar to that which is imposed by the summers of our own climate; the other is the effect of the same cause, but admits not of being removed by place or circumstances.

But we need not leave our own climate, in search of evidence, that the influence of the sun, shining through a humid atmosphere, is capable of fixing in the skin a permanent dye; not indeed black, like the complexion of a negro, but which tends towards it, and is already not more remote from the sable colour of the negro, than it is from the milk-like whiteness of some of our countrywomen; and therefore seems to warrant the conclusion, that the one may only be the completion of the other.

Does a white complexion, by the influence of the sun, become brown, is it unreasonable to expect, that that which is brown should become darker from the same cause, but under more favorable circumstances, and not stop till it reached its maximum in complete blackness? Already, the fact I allude to, is anticipated. A freckled face presents itself to the imagination of the reader. Freckles are well known to be the production of summer; and when once fully formed, can no more be removed by art, than the skin of an Ethiopian can be robbed of its blackness.

The seat of freckles is not in the cuticle or scarf skin, for should this be carefully removed, they are not destroyed; the skin is still freckled; they are not superficial, but have their seat in precisely the same place in the skin, as the colour of the negro; and they are affected by the same circumstances, and observe the same laws. If a negro has suffered from a deep burn or cut, so that the whole of the skin is destroyed, upon the healing of such wound, the original colour is not resumed, but a sickly whiteness is substituted in its place; the negro colour disappears. If the wound be inflicted on an Euro-

European face, covered with freckles, these never afterwards resume their places, nor is the skin susceptible of the influence of the sun; it is never tanned; who ever saw a scar freckled? Misfortunes of this sort too frequently happen to render it necessary to particularize any individual. Any scar on the face, is an evidence of the truth of what has been asserted. The scars occasioned by the small-pox are not freckled; a similar affection destroys the blackness of an African. Freckles are natural to no one, for an infant is never freckled; exposure to the weather produces them in some perons, in the same way that it tans others. The parts most exposed, as the face and neck, are those which are the most liable to be freckled. The colour of the African may be called one entire freckle; were the freckles of an European concentrated, they would form a very considerable spot, of a very dark colour. But what is the reason that an European face is freckled, and not covered over with one colour? The *corpus mucosum*, it has been observed, adheres to small vessels which pass from the lower to the upper coats of the skin; whether these are secreting vessels, or not, it is unnecessary to enquire; the fluid attached to each vessel is doubtless secreted near it, and is always from the same source. Now it does not require a great effort of the mind to conceive, that the fluid discharged by one vessel, is not precisely of the same nature as that discharged by another; or, to state the case in a different manner, each secreting vessel is not equally under the influence of the sun, and consequently the fluid discharged is not precisely of the same nature. One vessel may be stimulated so as to secrete a fluid considerably more gross than others which surround it, as we know is often the case when other organs are concerned. In this way, I conceive, the formation of freckles may be explained.

Freckles first appear when a child is about four or five years old; earlier than this, the skin does not seem capable of forming them. But after they have appeared, they increase in number every year, till the growth of the body is complete, should care not be taken to prevent it; although many complexions are so fair as to appear entirely free from these spots, yet, on close inspection, many will be discovered on every face. Such is the proneness in complexions the most remote from that of the negro, to assume in part, a colour which approaches towards it.

At birth, the child of a negro is not blacker than an European's, but the tendency to colour is so strong in them, that it appears much earlier than freckles in an European, but corresponds with them in being the darkest at the same period of life.

In old age much of the colour an African possessed in his youth disappears. Dr. Camper has preserved several specimens of the skins of Africans which have lost much of their colour. Freckles not only fade as the current of life begins to ebb, but entirely leave the

the skin, and never afterwards appear. Some change evidently passes on the vessels which secrete the colouring matter of the African skin, by which its colour is diminished; and as the colour of a freckle is fainter, it is obliterated.

The idea I wish to enforce is, that the nature of the colour of freckles, and of the entire colour of the African, is the same, and differs only from circumstances which admit of explanation. No aged person is freckled, nor is any so completely a negro as in youth. Freckles are produced in summer; in winter they almost disappear; but the cause of their existence is so deeply rooted, that age alone can expunge them. In many cases, it is easy to trace the exact portion of the face and neck that had been uncovered and exposed to the weather; and in some instances the person is acquainted with the precise season in which the freckles became numerous and of a deep colour, and have assigned it either to a summer when the bath was frequently used, or of great exposure to sunshine and moisture.

But it may be asked, why are not all, who are equally exposed, equally freckled? Freckles suppose, as has been said, a want of uniformity in the strength of the vessels of the skin, so that fluids of different qualities are secreted; one description of fluid admits of colour, another not; as the skin of no two individuals appears alike, so neither are the vessels that compose them. Where the greatest uniformity prevails, the colour is most general; what is usually called a dark complexion is of this description; and where the vessels are most irregular the greatest diversity is apparent: here a freckle of the deepest dye, there the most complete and pearl-like whiteness. Persons with dark hair and dark complexions speedily tan, and become darker; those, on the other hand, whose hair is of a light flaxen, bordering on whiteness, and whose complexions are extremely delicate, resist the influence of the sun and are seldom tanned. The thinner and more delicate the skin, the more it will bear exposure to the weather without losing its fairness; the cause of which I shall, in its proper place, endeavour to point out.

If black-haired persons are most susceptible of being tanned, those with red are most liable to be freckled. Let us enquire into the cause of this singular fact. Red hair has all the coarseness of black, and appears from all its sensible properties to be well fitted to possess that colour. Red is the midway from white to black; the complexion of a mulatto is brown, approaching to this colour. The eyebrows of a person advancing in life, however black they may have been, now become red. The same principle which causes the negro to be black, causes the colour of the mulatto to be brown; the variation is in degree, and not in kind. The same may be said of the hair; a little more intenseness, and that which is red would become black; a little less, and that which

which is black would be brown. As is the state of the hair, so is that of the skin. The connexion between them is striking; if the colouring matter be deficient in the one, so it is in the other; hence the skin is spotted with freckles, in place of being of an uniform colour; and the hair is red with the coarseness of that which is black. In other words, the *corpus mucosum* of a person much freckled, is very incomplete; some of the vessels whose office it is to secrete this fluid, pour out that which is very susceptible of colour, while others discharge this function very sparingly; hence from some vessels there is a redundancy, from others the quantity is deficient. And, as an evidence that this opinion is founded in truth, the skin that freckles does not tan; both do not exist in the same person in a great degree. When the hair becomes white, we have no hesitation in pronouncing it partially dead; it has lost its vigour. When the skin is freckled, the conclusion is as fair, that its vessels want uniformity of strength. If on the same person one hair is black and another white, we cannot suppose the bulbs from whence they grow are in every respect the same; neither can the vesels of that skin be the same in which a point of colour is surrounded by a skin which is wholly destitute of it. Although the skin be imperfect, and a disposition to the formation of freckles be present, yet they never appear without the influence of the sun and moisture. That part of the body which is without a covering is principally the seat of them. Millers are less freckled than other labourers, in consequence of the flour, with which they are constantly covered, sheltering their faces from the sun.

From the above facts, there appears so great a resemblance in the nature of the freckles, so common in this island, and in the uniform colour of the natives of other climates, that a doubt can scarcely exist of their being radically the same.

SECT. 3.

Of the Sun's Influence.

AS the sun is an agent so important in all its operations, and so influential in the production of colour in the skin of man, its nature and properties are entitled to all the attention which can be given to them.

It may be asked, are not the rays of a lighted candle similar to those of the sun? Assuredly not; they have not the same properties. Both are compounded of light and heat, by no means very intimately connected together, and which therefore easily admit of separation; beyond this there is no agreement. In the passage of the sun's rays to the earth, the heat and light move at the same rate, and continue to be united in many of their operations; in all of which their action is very unlike that which is produced by rays emitted from any of the combustible substances of this globe. The light of a torch adds no strength to the meridian blaze of the sun, but sinks into obscurity, and is lost before it; yet the light of one torch unites itself with that of another, and they shine with a joint brilliancy: one torch may have produced a light equal to that emitted from the sun, but another is nevertheless not obscured by it. A furnace dazzles the eyes, but its light adds nothing to that of the sun's; they cannot shine together. The heat of a fire kindles any combustible matter which may be near it, but the sun shining on a fire already kindled, extinguishes it. We screen the fire that warms us; we shade it from the light of heaven; its strongest blaze is first robbed of its brightness, and then goes out; it dies away before the light kindled by Omnipotence to fructify our earth. It is to us a paradox, that heat should destroy heat; but so it is: it marks their natures to be opposite. Even the sensations communicated to our bodies by the sun, and by an artificial fire, are very different. The heat of our apartments in winter is very unlike,

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in the impression it makes on our senses, to the heat of the atmosphere in summer. The sun shining on a person not in action presently becomes unpleasant, but we remain several hours before a fire without inconvenience. Were the light and heat of the sun of the same nature as those of a fire of our kindling, they would render the world uninhabitable; no living creature, or any combustible body, could withstand their power.

At Bassora, in the year 1780, it has been ascertained, that the heat of the atmosphere, in the sun, was 162 degrees of Fahrenheit's thermometer. *(Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge*, v. 1, p. 57).--- A heat thus intense, falling on a rock, is accumulated so as almost to double its strength. And though there are not many bodies that are combustible at so low a heat as that of 300 degrees, yet a little friction, or an accidental spark, would easily kindle a flame in matter so circumstanced, and spread devastation through a country, when covered with parched and withered vegetable matter. So great a heat from an ordinary fire would have this effect. But the sun does not fructify and then consume; it is a guardian, and not an enemy, to the productions of the earth; its properties are indeed wonderful; it is a fire which burns not; it is a fire which extinguishes all other fires; it is our security against an element that might destroy us, and that element is fire. Heat, derived from any other source, of equal intenseness, would scorch the face of nature, and rob even the oak of its sap. Were a log of wood exposed for a length of time to a heat equal to only 200 degrees of Fahrenheit, from an artificial fire, it would destroy its texture and convert it to charcoal; a spark would cause it to take fire, and the heat that converted it to charcoal would assist its combustion.

But the greater the heat of the sun, the less is the danger of fire. A flash of lightning strikes our dwellings and they are consumed, but even here darkness assists the conflagration. Should it so happen that the lightning falls on a turf, or peat moss, and kindle a fire in it, as is sometimes the case, the peat burns with a smothered flame; but those who have noticed the circumstance have observed, that the fire gained strength in the night and lost it in the day.

In Tartary, great care is taken not to set fire to the withered grass, because it spreads so rapidly and so wide as to drive the animals from the country, and thus destroy the prospect of the hunter. But Tartary is a country where the sun does not shine in his strength.

In the torrid zone vegetation is as strong as in Tartary, and when matured must be quite as dry. Here the lightning is very vivid, and often lights into a flame, not only the dried herbage, strewed over the ground, but the sapless trees of the forest; yet age after

after age passes away, and no evil ensues. If in Tartary a fire spreads to such a distance as to frustrate the designs of the huntsman, why do we not hear that India is rendered a desolation and a waste? The danger is always apparent, but never real. I know of no other cause than that the sun's heat has properties peculiar to itself. Pliny indeed mentions the burning of plantations of bamboo by fire kindled by the friction occasioned by a high wind; but high winds imply gloomy weather, or at least a lessening of the sun's influence.

The negroes about the river Senegal, and elsewhere, set fire to the grass, which grows there in abundance, but they do it immediately after the breaking up of the rainy season; when the weather is still hazy.

I do not remember to have read of any long continued combustion of vegetable matter between the tropics, while the sun was shining in his strength; nor do I apprehend it to be in the nature of things that such an event should happen. It is true, that the sun's rays, concentrated into a focus by a lens, are capable of producing combustion in many substances; but it ought to be considered, that the sun's rays, after passing through a glass, are no longer what they were; the light and heat are separated by this means, and form different focuses; thus divided, they assume new properties.

That a decomposition does actually take place in the sun's rays, admits of demonstration. Let a plate of glass be held before the face, the rays of light are not obstructed for an instant, but the heat is some time in passing through. This observation was, I believe, first made by Scheel, and indisputably proves that a division had taken place. Should it be observed, that the mere separation of the rays ought not to produce any considerable effect on their properties, it may be answered, that it is in the nature of a compound to alter the properties of the substances that compose it, and sometimes to produce their very opposites. Water extinguishes fire, but water decomposed is the most inflammable of substances. Oil is an inflammable substance, but manufactured into soap it is not so; it has then none of the distinguishing properties of oil. The same may be said of compounds in general; how then can it be doubted of the sun's rays?

Again, the rays of the sun, in passing through our atmosphere, communicate no heat to it. An areonaut ascends above the tops of mountains, he looks down to behold the world, but the higher he rises the colder he feels; he is not invited into the air to bask in the sunshine of a perpetual summer. The sun does not admit of being approached. The Alps and the Andes point their heads towards heaven, but perpetual snow covers them.

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A common fire heats the atmosphere, it also warms those who approach near to it; but that the sun may communicate heat, its rays must be obstructed by an opaque body, and reflected: now a reflected ray loses some of its original properties, and acquires others; it is broken into parts, and exerts a divided influence, which consequently does not produce the same result as if every part were conjoined. In consequence of this reflected and therefore divided state, the atmosphere is warmest near the earth; it becomes a focus, from whence the sun's rays, though broken, again diverge. The heat of other fires, when propelled from the bodies that gave it birth, imparts heat as it moves forward, till a mean temperature is established. Thus a stove heats a room, the remotest part of which is last benefited by its influence.---The sun also communicates heat to the air of a dwelling, but the mode of communication is different from that of a fire; it is not enough that the rays enter the room, they must strike against the wall, or be obstructed by some other body, and from that point heat is diffused. Did an ordinary fire concentrate its rays on the wall opposite, it would be of as little avail to approach the fire to receive warmth, as it is to approach the sun. Our stations would be round the point which had obstructed the rays, because there the greatest heat would be felt; but experience has taught us otherwise, which shows the most marked and striking difference in the nature of the sun's heat and that of an ordinary fire.

Another peculiarity is, when the atmosphere is overcast and beclouded, and the rays of heat are obstructed in their passage to our globe. When this occurs, our medium is sensibly colder. But where is the heat that was emitted from the sun? It has not entered the clouds and become latent, for in a short time it would be given out again and become sensible: but no accession is felt at the breaking up of a cloudy season; none when a shower of rain refreshes the ground; the question therefore recurs, where is the heat which was emitted while the face of the sun was hid from us? It has not been retained, neither has it been reflected; if it had, the air above the clouds would be warmer than that below them, which is contrary to experience.

Is not the sun's heat material? many chemists contend that it is; but the above facts make it questionable. No such ambiguity however attaches to the heat of an artificial fire; it has greater claims to materiality; its expenditure can always be ascertained; something is rendered warmer by it, and the atmosphere being the surrounding medium, receives the greatest portion; on it is expended much of the heat produced by combustion. We can, in no instance, trace the annihilation of such heat; and therefore we may infer its existence and accumulation.

On this idea we may explain the fact, that countries which the Romans deemed

uninhabitable, those for instance which are situated more than 45 degrees north, and which now afford a comfortable residence to man. There was a time when the vine would not grow in France, but now it flourishes: this country also, is more friendly to the growth of many of its productions; its climate has therefore been improved.

But besides the sun, besides the fuel we consume, there is another source of heat, hitherto but little considered; I mean that of the globe itself. Is the globe hot? Yes; like the sun, it possesses and imparts heat. The heat of summer, and the cold of winter, penetrate its surface and its surface only. De Luc, if I mistake not, remarks, that at Geneva, the heat of summer enters the earth about twenty-nine feet, and that the cold of winter does the same; below this depth the temperature is uniform. In some countries the heat may penetrate farther, in others the cold; but in all, the influence is superficial. A heated body sends forth its warmth to one that is colder. The rain which falls in this country is often not of a greater heat than 40 of Fahrenheit; it penetrates the earth to a considerable depth, and at a distant part guggles up in a never-ceasing stream, and is then at a heat of 52. The earth has communicated warmth to the water, then why not to the atmosphere?

But, to pursue the idea,---the meridian of London is 52 degrees; by ascertaining the latitude, two important facts are established: first, the heat of the water, as it rises from a perennial spring; secondly, the medium temperature of the climate. At London the water is at 52 degrees, and so is the mean heat of the climate; at Madrid, both these elements of nature are at 60. Mark the fact,---water at the fountain is, in all seasons, of the same temperature; a temperature which corresponds to the heat of the climate. Is there, then, not a connexion, a mutual aid and influence in its producing?

The sun rules the day, and the moon the night, but this respects the light; the earth affords the greatest portion of heat, and consequently rules its temperature. Were there no heat from the sun, the atmosphere round this globe would be of a given temperature, but its temperature would not be of the same degree as that of the earth, because the capacity of earth, water, and air to receive heat, are not the same. But it is so appointed, that the want of capacity in the air should be made up by the influence of the sun.

That the earth doth yield to its inhabitants a considerable portion of heat is demonstrable by a single fact. The inhabitants of Greenland do not receive a ray from the sun during their whole winter of six months; the climate is thus rendered cold and inhospitable; no water flows from its source, no footstep can be traced. But still the degree of heat felt at Greenland is greater; it is further removed from positive cold, from

from the actual zero, than the heat of India is from the temperature of Greenland. The heat of the coldest place on our globe, at its coldest moment, is more, far more, than half the heat of India. The greater heat of India is occasioned by the sun, but some other source yields to the atmosphere the first portions, the stamina of its heat, if they may be so called, and to what other source can we look, but to the globe? I might enlarge upon this subject, and enquire into the share the atmosphere itself has in engendering cold; but it is my intention, at a future period, to consider the nature and effects of climates; when such subjects will come properly before us.

But it may be asked, what becomes of all the heat that is generated on the surface of the globe? Part remains to temper the winter's blast, part is converted to other purposes. Animals and vegetables, in the strict sense of the term, do not generate heat; they receive it from the atmosphere, and in part restore it again. Oxygen gas, which is considered as the soul and spirit of vital heat, must itself be warmed, or it is useless. Neither animals nor vegetables can live at the poles, however free their access may be to oxygen. A tree, in our climate, during the winter, is hotter than the atmosphere; but it does not hence follow, that the tree is the source of heat; it may merely have the power of retaining it. Indeed we know, as a general fact, that vegetables, so far from heating the atmosphere, cool it. India is delightful to its natives; but Arabia, where no vegetables luxuriantly grow, burns as an oven.

I am aware that it will be said, that the heat of a fire, and that of an animal, are derived from the same source, and therefore both ought to contribute towards ameliorating the rigour of a climate. But combustible matter is diminished by heat, an animal is not. A fire gives out its whole heat, an animal appears to retain a part, and to convert it from the purposes of heat to that of nutriment.

Let me illustrate my meaning. If I take a lump of alum, and pound it in a mortar, I cannot discover that it contains water; but if I put it on a fire, half its weight is found to be of that fluid. In the same way as water is essential to the formation of alum, heat, I conceive, to be essential to the composition of animal and vegetable matter; it becomes part of it. Friction, putrefaction, and a thousand other circumstances, call it forth; but it must first have been received and consolidated.

The light of the sun is, I presume, more essential to the production, certainly to the fructification, of vegetables, and to the health of animals, than its heat. But were I to notice every different effect of the heat of different bodies, I might occupy several pages; but my aim is not to enter into detail, but to establish the general fact, and enough for that purpose has, I presume, been said. I shall, however, make one additional remark, because it may be useful.

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Articles of manufacture are variously affected by different kinds of heat. Clocks made in England, the pendulums of which are of one metal, will not go in America; but we do not find this effect from removing a clock from one room to another, however different their temperatures may be from each other. A given temperature is necessary to the manufacturing of cotton; and probably the nature of the heat by which the temperature is maintained may be important: the machinery also, by which the work is performed, is under the same influence. In dyeing, it is also desirable to ascertain the nature of the heat made use of: the sun dispels a colour, which the heat of fire will not affect.

Here let me make one other remark. It was in the infancy of science that the nature of heat became a subject of enquiry. Lord Bacon first asked the question, What is heat? Is it matter, or is it motion? Is it a quality, or is it a substance? His own opinion was decisive in favor of its being a quality, consisting in motion or vibration. In this opinion he has been ably supported by most of the mechanical philosophers, as Boyle, Hooke, and Newton. The chemists, in general, have taken the opposite view of the subject; but Pictet, Rumford, and Davy, are with the philosophers. It has the appearance of vanity to propose an improvement to the discussions of such men, but had they not considered heat as universally of the same nature, they would have avoided many errors, and have saved much time. Sir Isaac Newton would not then have calculated the heat a comet receives from the sun, and Rumford would have limited the inferences he drew from his ingenious experiments.

The heat of a fire will not communicate warmth to a jar of water when applied to its top, yet the heat of the sun imparts warmth to the ocean. Here, then, is another instance of the accumulation of heat on our globe, for the ocean must have been colder than it is. It is also a proof, that the experiments of Count Rumford require to be reconsidered; and the term *caloric*, which the French chemists have with so much assiduity imposed upon that science, must be erased, as conveying an erroneous sentiment.

SECT. 4.

The same Subject continued.

AS in the preceding remarks a general view only was intended to be taken of the subject, I appropriated a chapter expressly to them; and now proceed to enquire, What influence the sun's rays, and the rays from other heated bodies, have on the complexion? Do they exert a similar power? Is their influence the same? Do they both colour the skin? Certainly not. A fire never tans; the face of a smith is constantly exposed to its direct influence, without the accession of a single shade of colour. The man who lives in Spain, or in any country where the mean temperature is above 60 degrees of Fahrenheit, is invariably dark-complexioned; but a room, heated to a still higher degree, robs its inhabitants of their beauty; they lose their colour by the fire whose rays dart immediately upon them. When a person enters a place thus rendered hot, with a complexion as ruddy as the morning, in a few months he is as pale and wan as one just risen from a bed of sickness. Instances of this fact are so familiar, that it is scarcely necessary to point them out. See the refiner of sugar, the comber of wool; see, in short, any individual whose occupation requires the use of a fire, and you can witness to the fact, that artificial heat is inimical to a ruddy countenance.

I have sometimes thought, that the Russians, the Germans, and others, whose complexions are colourless, owe it in a great measure to the stoves which they have in their dwellings, and by which they raise the temperature higher than that of our summers; for we can scarcely believe that their ancestors were as pale as they are; indeed we have evidence that, at least, the Russians were not so. Mr. G. Turberville,

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secretary to Randolph, ambassador to the Emperor of Russia, in 1568, who it seems was a poet, speaking of the Russian women, says,

" Is not the meanest man in all the land, but he,
" To buy her painted colours, do allow his wife a fee,
" Wherewith she dies herself, and dies her taunie skinne."

Again, when speaking of the men, he says,

" Flat-headed for the most, with faces nothing fair;
" But broune, by reason of the stoure and closeness of the air."

Hakluyt.

The same is probably true of the Germans; but I do not recollect an authority. I shall now dwell no longer on this subject; it will be conceded, that a heated room robs the countenance of the animating tint of health, and supplies its place with a paleness equal to that of death.

But what is the effect of the heat of the sun? Does it bleach the complexion? Does it operate in the manner of another fire? No; they are antagonists, in perpetual conflict; what the one effects, the other destroys. Many European families, allured by the prospect of gain, have taken up their residence in the East or West-Indian settlements; their children, born in those parts, are often fairer than their parents; for though the air of the room in which they reside is necessarily hot, yet it is the heat of the reflected rays of the sun, which have lost their capacity of imparting colour. But such children must be very cautious in what manner, and at what time, they leave their houses; they must avoid the immediate light of heaven as the Arabian avoids the blasts that pass over the desert and threaten him with destruction. When they go abroad, it must be at an hour when the sun is beclouded, or when he is near the horizon, and even then they must be so secured from the weather, so shaded in every direction in which they move, that they still may be said to enjoy the protection of a roof; a single hour of sunshine would undo the labour of years, a labour which has cost the sacrifice of many of the pleasures of life: but who regards sacrifices, when pride demands them? Truth and benevolence do not ask for as many, yet they are thought rigorous.

Again, perspiration does not promote colour, but quite the reverse; for perspiration is an excellent cosmetic, especially when excited by labour. To saunter about a garden till idleness is mistaken for fatigue, or to pass from one amusement to another, and fancy the day to have been fully occupied, and properly spent, neither animates the countenance nor improves the complexion: the whole aim of such of our countrywomen is, to divest their feelings of ennui. A dull and inanimate skin is the effect of indolence, but the business of life calls for exertion; duties are to be performed, with which lan-

languor and inactivity are incompatible. The complexion gained in a prison and in a cottage are in direct opposition to each other, and has exercise no share in producing it? An animating glow of health is the offspring of industry, while the want of it excites pity or leads to contempt. Not only does exercise divest the skin of the delicate of its sallowness, and the indolent of its dulness, but even the perspiration, which disease occasions, robs it of its colour. A disease, unaccompanied by perspiration, has not the same effect, at least in not the same degree. But no exercise, no disease, promotes a soft and delicate whiteness, unless the sun's rays be excluded; the presence of the one is incompatible with the existence of the other: besides, great whiteness of the skin is unnatural, it is artificial, and therefore ought not to be esteemed or coveted. Does not the animation which full health inspires, make the most forcible and permanent impression? When one of these artificial Indian fair-ones leave their retreat, and, as becomes the human race, feel a sufficient protection in the canopy of heaven, the sun's rays riot in their dear-bought paleness, and speedily impose a more durable colour. To tread a soil on which the sun darts its vivid blaze, is not the privilege of those who boast of being fair, even the feeble light of our sickly sun is too powerful for such complexions. It was never designed that the human race should rival in whiteness the snow of Greenland; and those who attempt to obtain it, are slaves, voluntarily shut out from many of the blessings of life.

From the foregoing remarks it appears, that the sun's rays have a specific effect; but it is not light and heat, by themselves, or conjointly, that produce the colour of the skin; nor is it water, for in that case women engaged in washing, and artificers whose occupation obliges them to be constantly enveloped in steam, would acquire colour, which is contrary to fact; but it is all these agents united, by which the operation is performed; by them a complexion is adapted to the climate, one that is forced exposes to disease, but that which is suitable promotes enjoyment and health.

It may still be asked, what is the nature of the process by which one colour is substituted for another? The converting of a fabric from white to black, without injuring the texture, conveys the idea of a chemical process, and so in part the colouring of the skin may be considered. But a chemical process relates only to the substance immediately present, it has no respect to any other; if therefore an impression be obliterated, a new process is requisite to its renewal; no principle of reproduction resides in itself. But this is not the case with the colour of the skin, a physical change is produced, by which its functions are altered; a change of colour not only takes place in the existing skin, but in that which generates the future; for it is the nature of the skin to be constantly leaving the body and making way for a fresh accession, which accession is always

always of the colour of that which precedes it. A skin once the colour of the mulatto, is always so; a freckle ever remains a freckle, till old age obliterates it; a mere dyeing, a mere chemical process, is not sufficient to account for the pertenacious continuance of the colour which all skins possess; we must look to another cause, we look to the blood and its vessels, it is the great pabulum of our existence; from it is derived that supply which the various parts require. The flesh, the bone, the sinew, the hair, owe their existence to the blood; it is therefore not homogeneous, but capable of division into many parts; each of which has its appropriate use. The fibrina, which is one part, is thus known: when blood is agitated by a stick, something adheres to it, that something is fibrina. This constituent of the blood in the living animal composes the substance, and afterwards supplies the waste of the muscles. The phosphat of lime, which is also a constituent part, performs a similar office to the bones, that the fibrina does to the muscles. The other and more fluid parts of the blood, are divided among the various glands; each of which select and appropriate that which is proper to it: those of the eyes separate the tears; of the mouth, the saliva; and so of other glands. And thus the whole substance of the blood is applied to important purposes, except one obvious part, the colour; and is it of no service? The mere supposition, implies an arrogant and presumptuous mind. For if the fountain of life contains an unnecessary and useless part, that part may become injurious and baneful. It is to assert, that power has been exercised without judgment; it implies unskilfulness. But man was not created by a power capable of error. The colouring principle, of which we have been speaking, is not always of a given quantity; nor is it, according to the nature of things, that it should be. It must be exhausted and replenished, like other parts; for nothing is permanent in man.

But the question recurs, of what use is the colouring principle of the blood? May it not give colour to the skin, and regulate the discharge of its functions, and thus prove of the highest utility? Before I attempt to establish this as a fact, I shall endeavour to obviate an objection. Why are many of the human race without colour? To this I reply, that no function is discharged uselessly; the eyes could always shed tears, the mouth could always discharge saliva, but it is not requisite; therefore, the fluid that would have been discharged in this way, passes off by some other means; it is not accumulated, but it is always present. Apply this to the colouring principle of the skin.---Man is lord of the creation, and it is for him to occupy the whole of his inheritance; to qualify him for which, a certain capacity is given to his skin; the capacity is common to all the human race, but is called into exercise only in a part.

The northern Europeans are white, because their climate does not require to be much

much resisted; any complexion can endure it. Their skins are languid and feeble, but a single degree southward imparts to it some vigour; which increases as advances are made. The consequence of that vigour is, to impose colour; and by it a judgment may be formed of the heat that can be pleasantly endured.

Here I must again call the attention of the reader to this striking fact; for, as is the colour of the skin, so is the capacity of man to possess the globe. No property is given up when colour is gained. A negro can bear cold as well as one of an opposite complexion; and he can enjoy the heat that would destroy those we admire for their delicacy: hence, when I speak of vigour being imparted, I am justified by facts. Allow that the blood-vessels are stimulated by the sun and moisture to an increased action, and every consequence contended for will follow.

SECT. 5.

Of the direct Cause of the Colour of the Skin.

IN tracing a subject of a physical nature, prolixity is almost wholly unavoidable. Nature will not give up her secrets to a casual observer; nor admit of their being explained, without a patient exercise of the understanding. But it is important to know all that can be known on such subjects. The laws to which our bodies are subject, are certainly worthy of our regard, and are calculated to excite it. But the world has rolled round four thousand years, and what do we know concerning them? This ignorance has not made us diffident, but presumptuous; we despise others because they are unlike ourselves, without knowing the cause of the difference. In endeavouring to trace that cause, as it respects the colour of the skin, several pages have already been filled, and we have only enquired into some circumstances respecting the cause of the colour; we have hitherto said nothing of the nature of the colour itself. In other words, what is the particular substance which gives the colours we have in former chapters been speaking of. Chemists are well agreed in assigning it to phosphat of iron; a substance too ponderous, too active, too much disposed to enter into combination with other substances, not to be of considerable importance in the animal economy. Iron is the great colouring matter of nature, it pervades all substances, animals, vegetables, and man; and imparts properties to each. When a coloured body of any kind is put into the hands of a chemist to analyse, his first attempt is to discover if it be not iron which has caused its colour. Iron forms a part of every substance; the animal creation not only possess it, but it appears essential to their existence; and what seems almost incredible, it is capable of being constituted by an animal process. For if an animal be not allowed to eat of any substance which contains this metal, by its being first extracted from the food allowed for its use, still its body will abound with it.

A pro-

A professor at one of the Universities, whose name I have not liberty to mention, fed some chickens, from the time of their being hatched, on corn, part of which had been analysed, and the iron it possessed accurately ascertained. After living a length of time on this food, the chickens were killed and analysed, and the iron obtained from them was more than had been contained in the corn they had eaten.

This fact, which I have every reason to credit, from the high authority from whence it comes, proves, that iron exists in a state of decomposition, its elements only being possessed; but by an animal process these are brought together, and the metal, ponderous as it is assumes a form iron: is constituted.

Evidence thus strong and conclusive, renders the mention of any other unnecessary. By it we learn that the animal body is greedy of iron, and discovers and appropriates its elements, when hid from the scrutinizing search of the most expert chemist.

But hitherto the existence of iron in the animal body only has been proved; it has not been ascertained that it is the cause of the redness of their blood. There is even an objection to the principle, which should first be obviated. Vegetables contain iron, but are not red; their ashes are even attracted by the magnet, so abundant is the metal they contain. But this objection has no weight: iron does not invariably, and under all circumstances, communicate redness; it does not communicate it to an infusion of nut-galls, it does not communicate it to any astringent vegetable matter, nor to many other substances; but it communicates it to animal jelly, it communicates it to the serum of the blood, which is an animal jelly.

For this fact I am indebted to my learned and ingenious friend and instructor, Dr. Thompson, of Edinburgh, who exhibits the fact in his lecture-room.

We have now two facts before us---the existence of iron in the blood, and the capacity of the sub-phosphat of iron to communicate redness to animal jelly.---I am not certain that any direct and positive proof can be advanced, that the colouring principle of the skin is identically the same as that of the blood, for the *corpus mucosum* is difficult to obtain pure, and has not, so far as I know, been analysed; but there is collateral evidence, which very strongly supports the supposition. Black is a colour as proper to iron as red; as iron produces one colour there is nothing improbable in its producing the other: but this is conjecture, and the reader requires evidence, and I derive it from the correspondence in the hair, the eyes, and the skin; there are exceptions to this rule, but the principle is general: a fair skin is connected with light hair and grey eyes,---a dark skin, with black hair and dark eyes; the connexion is inseparable. A brown-complexioned man, an Italian, or a Spanish Jew, with grey eyes and flaxen hair, is contrary to common observation. A connexion which is always maintained

tained, implies mutual influence and dependance. The object therefore before us is, to prove the cause of the colour of the eyes and of the hair, and from hence we shall learn that of the skin. They may be said to form a circle, the point of the compass which can reach the one, reaches the whole; they are all under one influence.

But still it may be asked, what evidence is there that the iron which was discovered, was the cause of the colour? Before I answer this question, I shall state another fact. Some animals, and even men, possess in their eyes no colouring matter; to which the hair and the skin correspond; the connexion is kept up; when the eyes are without colour, such is the hair, such is the skin; they do not admit of separation: the spring that moves the one, moves the other also. Many individuals, in whom there is no colour in their eyes, their hair, or their skin, have been the children of negroes, (the Albinoes). Of English parents, also, there have been born, and I believe still exist, individuals of the same description; individuals whose eyes are red and whose hair and skin are white. A few years since an opportunity was afforded the public of seeing such an one for a small piece of money.

Turning for a moment from the human race, and glancing the eyes over the brute creation, a thousand examples present themselves. There is scarcely a boy who does not make his first effort at accumulating property by possessing himself of rabbits; and to add to their interest, they are selected of diverse colors; among others, the red-eyed rabbit attracts his notice. I make choice of this animal to illustrate the theory I hope to establish, because the animal may be killed, and the fact ascertained. The eye is composed of many parts; there is first the external covering, then a covering of blood-vessels and nerves, above these a quantity of *mucus*, more or less coloured, and which gives the eyes their colour; above these are the fluid and transparent parts of the eye, those parts which are discharged when the eye is punctured. With this view before us, we can proceed in the investigation. If the coloured *mucus* were removed, it necessarily follows, that the blood-vessels would be presented to the eye of the beholder; now this is the exact case with the red-eyed rabbit; every part of the eye which is above the blood-vessels is transparent; there is in them no colouring matter. The part which appears black or blue in other animals, they are destitute of; and what constitutes their redness, is the blood itself; the vessels are thin, and it shines through them. Red-eyed Africans, red-eyed Europeans, are in precisely the same state; there is a total deficiency of that capacity in the blood-vessels, which is in the freckled person defective and irregular.—Now mark the connexion; if the eyes are without colour, so is the hair and the skin. The sun of Africa cannot tan the man whose eyes are red; a total want of capacity in the vessels from which the colour-

colouring matter is secreted renders it impossible. The connexion here pointed out, assuredly inplies a sameness in principle.

Again, the eye is the part most susceptible of colour, and is an index of the whole body; when no colour is manifest in the eyes, the whole system is destitute of it. This fact admits of explanation, but I shall not interrupt the attention by entering upon it; I state the fact, and appeal to evidence. Does there exist a rabbit, or any other animal, that has a spot in its fur, and its eyes red? The fur may be white, and the eyes black; but the eyes can never be destitute of colour and the fur possess a shade of it. Ascertain the colour of the eyes, and you possess a clue by which that of the hair and skin may be known. A deep shade in the eyes, implies it in the hair. Thus, if the process be entirely chemical, and consist, according to the view we have taken, in the colouring matter of the blood combining with the *corpus mucosum* of the skin and eye, and the substance of the hair, and in this state of combination yielding a brown or a black colour, there is nothing inconsistent in assigning to the same principle different operations: the blood, which is red in the veins, becomes black from putrefaction. The theory advanced is substantiated; or if it be merely allowed that a connexion is maintained in the coloured parts of the system, the same consequence follows; for the hair and eyes have been analysed, and found to contain iron; and hence it is inferred, that this metal exists also in the skin. The analysis of hair, of blood, and of eyes, affords the same result, as to iron; and as there is no other colouring agent, that we are acquainted with, possessed by either, the conclusion is warranted, that one and the same cause produces the colour of the whole body.

But all this may be effected without the agency of the sun; its rays do not assist in producing the colour of the blood; how then do they affect the skin? I have already said, that iron, striking a black, a brown, or a red colour, according to the combination into which it may enter, is of a chemical nature, and requires the presence of no other agent. The sun does not aid it, it has no influence on iron, it has none on the *corpus mucosum*; they require not, neither are they assisted by its influence; darkness is to them the same as light; no circumstance can prevent the *corpus mucosum* of an African being black, but still the sun is the exciting cause of colour; its influence strikes deeper than the outer covering of the skin; it reaches the blood vessels; it acts upon the organs which secrete the *corpus mucosum*. As is the dependence of a stream on the fountain, so is that of the *corpus mucosum* on the secreting vessels; it owes its colour and its properties to them. Suppose a fair complexioned person to become brown, is the *corpus mucosum* he possessed when his skin was fair, altered? Has it undergone a change, or has it not rather been absorbed,

and one of a different colour substituted? The sun does not perform the part of a dye, it is not a pigment, nor does it scorch the skin, and thus change its colour; and without possessing one or other of these properties, it could as soon cause water to be black, as the *corpus mucosum* of an European. The existing mucus is not changed, but in the course of nature is absorbed; and the sun determines the quality of that which succeeds. For instance, when a blow is received, which occasions blackness, the return of the natural complexion is anticipated only in consequence of the black effusion being absorbed. No change is effected in its colour, that which is black does not become white.

The same remark is true when a change is made in the complexion from white to brown; were it occasioned by the sun acting on the *corpus mucosum*, a permanent change of colour could never be effected. A weather-beaten sailor, returning to his native country, in a few months would inevitably recover his natural colour; for the *corpus mucosum*, possessing no principle of life in itself, is frequently renewed, and the original complexion would be thus restored.

But if the influence of the sun has no power on the seat of the colour; if the *corpus mucosum* receives its shade of brown or black independent of the sun, in what way then can the sun's rays, in conjunction with moisture, be the exciting cause of colour? They act, as has been said, on the blood-vessels; from them the *corpus mucosum* is derived, and thus they determine its nature and properties.

The skin, it may be observed, is divided into three principal parts; the upper two of which, namely, the cuticle and *corpus mucosum*, are insensible; and being unconnected with the living principle, may be considered as dead; the purpose they serve is that of a covering, a defence to the other part, which is acutely sensible and full of life; those which are dead are acted on as inorganic matter, and are like all other excretions, frequently removed, to prevent their action on the system. The living part of the skin is the source from whence these two are derived, and on it consequently their properties depend.

To present at once the view of the subject I wish to convey, consider the living part of the skin as a congeries of secreting vessels, which is their true and proper office. Now all secreting vessels are acted on by stimuli, and what is of still more importance, each has its own peculiar stimuli. The same stimulus which excites the glands of the eyes to tears, causes a dryness of the mouth; if perspiration be promoted, the action of the kidneys is diminished; and so of all other secreting vessels: their action is specific, and require specific stimuli. Pungent oils, the sting of an insect, a blister, all stimulate the skin, and occasion an increased secretion from its vessels; yet although the part

part be swollen, the colour is not changed. But there are other stimuli which produce the latter effect: the bite of some serpents occasion yellowness, a blow occasions blackness, the heat of the sun occasions many shades of colour. It may be objected, that the blackness occasioned by a blow, is in consequence of some of the blood-vessels being ruptured and the blood extravasated, which often happens; but in some individuals so slight a blow produces blackness, that the idea of a rupture of the blood-vessels cannot be admitted. The other secreting vessels are operated on in the same manner. The secretion by the kidneys is of various colours and qualities, according to the nature of the stimuli used, and so is that of the skin; but each requires its own specific influence. How this influence operates, I do not presume to enquire. I do not know why a disagreeable piece of intelligence should excite the glands of the eyes, so as to occasion tears; nor how the rays of the sun act on the vessels of the skin, so that the nature of their secretion is changed. That the fact exists, is sufficient for our purpose.

In the action of the sun upon the skin no violence is done to nature; no faculty is created, none are destroyed; no force is exerted that even constrains the operation of the functions of the skin, but latent properties are brought into exercise, vigour is imparted where there had been weakness, and colour becomes permanent which before was uncertain. But every skin is susceptible of the same impression. That of the European is constructed in every respect like the African's, but a difference of situation on the globe has exposed to different degrees of influence: the sun in Europe has not the same strength as in Africa; it does not call into exercise the principle of colour which lies dormant, but it is in existence, and only waits the aid of circumstances to bring it forth.

It may be asked, how can this be ascertained? There is no instance of an European becoming a negro. Granted; but the truth of the assertion may be established without such evidence. Pregnancy very powerfully excites the vascular system; by it the blood-vessels change their nature of action; and however strange it may seem, this change is very similar in its effects to that which the sun occasions. The kindness and the care of the Great Author of being is in every thing manifest. It is so appointed that an infant should rely on its mother for the means of its subsistence; but before this can be procured, a very considerable change must take place in her constitution; the glands that secrete the milk must assume a new action, all which follow in their course; but what concerns us is, the external appearance. From the publicity with which many Europeans, in the lower walks of life, suckle their children, it is familiar to most of my readers, that the areola round the nipple of many is as black as the skin of an African. Can it be doubted that it is precisely of the same nature? It has the same

seat,

seat, it is derived from the same source, and has, in every respect, the same appearance and the same properties. It has not been analysed, and therefore the evidence is defective: but so far as a judgment can be formed without direct evidence, it is the same effect produced by different causes: in the one instance, it is a defence to the nipple against the action of the mouth of the child; in the other, it is a defence against the climate. Here, then, is the negro complexion called into existence by a specific stimulus, applied to the breast; a stimulus, distinct from that of the sun, but productive of the same effect; its operation is partial, but it is as extensive as its utility; they terminate together. But the influence which occasions a particular part to assume colour, were it general, would communicate to the whole body the same. I assert this with confidence, because nature, ever ready to give evidence of her power, has not left us without examples in every part of her dominion; for there have been individuals in a state of pregnancy, whose nipples not only became black but their bodies also. Of this, Dr. Camper has recorded an instance. "It sometimes happens," says that skilful anatomist, "that this reticular membrane becomes as black in our fairest women, during their pregnancy, as that of the blackest negro of Angolese. Of this a curious instance presented itself in the year 1768: the abdomen and breasts of a woman, naturally of a fair complexion, had wholly changed their colour."---Le Cat, also, bears testimony to a similar fact; he says, p. 141, "Une paysanne des environs de Paris, nourrisse de son metier, a regulierement le ventre tout noir a chaque grossesse, et cette couleur se dissipe par l'accouchement. Une autre a toujours la jambe gauche noir dans cette circumstance," &c.

The nipples, indeed, seldom retain their colour longer than the period of suckling, for the cause being then withdrawn, the effect ceases; were the blood-vessels stimulated for a longer period, it is fair to conjecture that a perpetual blackness would be fixed in the part, and thus the resemblance to the negro be more complete; it is only requisite that a habit be formed, and to this the animal economy is prone.

Again, if the lungs are diseased by dropsy, by inflammation, or asthma, the lips, to a considerable distance round the mouth, sometimes become black, and remain in that state after the death of the person; a proof, that, from an increased fulness of the vessels, there had been a change in the colour of the *corpus mucosum*. A full meal has a somewhat similar effect, for a brown-complexioned person is always darker after such a repast. The eyes also of many persons assume a dark circle when out of health.

But it is unnecessary to dwell on circumstances so minute and collateral; such aid is not required. One general fact establishes a general proposition, and such a fact has been advanced. Shall I repeat it? No dark-complexioned English woman becomes a mother,

mother, without in part becoming black, like a negress. Who then will dare to scoff, for the wisest of the race has probably been nurtured at such a breast?

From such facts I argue, that the principle, the capacity to become black, is as universal as man, and waits only the aid of circumstances to call it into existence. The whole world is therefore not dressed by the hand of nature in the same sable vestment; the European is not dressed as the negro, not on account of any radical difference, but because the circumstances in which they live are dissimilar. A plant refuses to grow in every soil, nor will every climate develope the complexion. Let the colour of the hair be acknowledged to be of the same nature as that of the skin, and it establishes the preceding theory; for there are individuals with black hair in every region of the globe; the phosphat of iron has been detected in its substance; and the vessels which supply it with nourishment being intimately connected with, if they be not identically the same as those of the skin, it may be said with confidence, that the same vessels supply a fluid which lodges in the skin, or which the hair receives unchanged. That ornament of our heads, like the nails of the fingers, is not endowed with the principle of life; it is an excrescence; it performs no functions; it induces no change in its own substance; as its colouring matter is prepared in the glands, so it continues. When the gland, or rather its vessels are enfeebled by age, the hair loses some of its qualities, especially that of colour. The skin also does the same. Let there be an identity established in the nature of the colouring principle of the hair and of the skin, and the point at issue is conceded; it is to acknowledge, that in countries where the hair of the inhabitants is black, their persons would be of the same colour, were it not prevented by circumstances unfavorable to its developement.

Thus we prove, that all over the world there exists but one brotherhood, one stock, one family.

The aid given by water to the sun in producing the colour of the skin is difficult to explain. I have said it answered the same purpose in the animal economy that a *mordant* answers in the dyeing of our garments. How far this may be strictly correct I am not prepared to say, for where the action of the living principle is concerned, we can only judge of facts, and not of the mode of their production. To these then I appeal rather than to theories, and feel on ground that is firm.

Let the skin be moistened, and exposed to the sun; continue the process only a few days, and then judge of the effect; the result is invariably a great increase of colour. This truth establishes the position advanced, and renders others unnecessary; we shall however mention another instance of the influence of water on the skin,

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in order that its power may be seen. Suppose a person to receive a violent blow, by which the flesh was bruised, and a swelling followed as a consequence: were the bruised part held before a fire till the heat became painful, the injured part would derive no benefit; no cure would have been effected: but if warm water be applied, the pain abates, the swelling subsides, and the blackness is lessened. Heat, whether of the sun or of a fire, of itself is inefficacious; but water made warm is active and powerful; by its influence, an action of the vessels of the injured part is excited; the injury they have received is overcome, and health is restored. Heated water is sensibly beneficial to the injured person; it alleviates his sufferings; its influence to him is unequivocal; it is an agent of considerable power, and where power is great, it is never confined to one operation; different degrees, exerted under different circumstances, produce various effects. Indigo is first green, then blue; water applied copiously to the skin excites its vessels so much that they remove an extraneous substance from it. Water applied sparingly, and heated by the sun, also excites the vessels of the skin; but their action is less, and the consequences are different.

I may here remark, that physicians have hitherto paid too little attention to the nature of heat. They often advise it to be applied, but the medium through which it is to be conveyed, is seldom considered as of consequence. In the instance of a strained ancle, or of a bruise of any kind, we find hot water a speedy and an effective remedy; but heat, without such a medium, as has been remarked, has not such an effect. A heated room has not the same properties as a hot bath. But I shall not pursue the subject; which, however, from its practical effects, is entitled to much attention.

Whether a *corpus mucosum* be formed before a child is born, I have not been able to ascertain; if it be formed, it is very imperfect. The eyes and the hair of a negro infant are black, and if the skin were complete, I am unacquainted with the cause why that is not black. The child of negro parents arrives at the eighth day of its existence before it begins to manifest its family complexion; some change therefore is produced in the skin before the colour is evolved.

This subject leads us to the consideration of a circumstance which passes almost daily under our own observation, and which throws some light on the leading object we have in view in this chapter. Many of our children, and all the Scotch, are born with blue eyes, some of which afterwards become black. This change could not take place were not the capacity of the vessels which supply the colouring matter influenced by external circumstances; at one period the eye is of a blue colour, at another of a black. It is not the quality of the colour which has changed, but its quantity.

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Let us illustrate this remark. In consequence of the small-pox, or from other causes, it sometimes happens, that a pearl forms over the pupil of one of the eyes, the sight of which is lost: if the eye on which the pearl had formed was of a pale blue, it ever remains the same; but the eye whose sight was perfect, may, and often does, become black. Such instances occur in every town, and, I think, can only be accounted for on the principle of the vessels (which secrete the colour) possessing more strength at one period than at another, and that *that* strength is derived from the influence of the sun.—If this be the case with the eyes, why not with the skin? Why may not its vessels change their capacity also?

There is yet another circumstance connected with this subject, which it may be proper to enquire into. It is well known that a long residence in a warm climate, not only effects a change in the colour of the face and hands, but of the whole body. Now it may be asked, if the skin owes its colour to the influence of the direct rays of the sun, how can the covered parts of the body be affected by it? To this it is answered, that so long as the colour is confined to a mere superficial tanning, those parts only which are exposed receive the impression; but when a constitutional change takes place, when the vessels have received such an impression that they no longer require the aid of the sun to continue the same colour, every part seems to partake of the influence; a sympathy is felt and communicated over the whole body, and the system is disposed to the change; for when the eyes and the hair are already black, it implies a predisposition in the skin to assume the same colour, and a permanent change readily follows, on the exciting cause being present. But in those individuals whose hair and eyes are not black, the strongest exciting cause produces but a slight effect: their nipples are not black in pregnancy; a campaign, served on the plains of India, scarcely tans them.

The facility with which one complexion acquires colour, and the difficulty of communicating it to another, appears, at the first glance, to be an objection to the theory advanced; but a closer examination converts it into a proof of its truth. He whom India has no influence over, he whose eyes are blue and whose hair is flaxen, possesses a skin, the vessels of which are evidently weak, so that a powerful stimulus is inoperative: the skin of such persons is imperfect; in it there is just sufficient capacity to prevent the eyes being red: it is only in the first stage of that process which dyes the negro black. A dark-eyed person is advanced a step further.

I say a skin is defective when it is insensible, as I say the sight is defective when the eye is dim; when the light of heaven is not sufficiently stimulant to render objects clear to persons which are conspicuous to others, the one is inferior to the other.

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Children brought up in India are darker than their parents, because the sun's influence has been shed upon them while they were most sensible to its power, for a child is sooner tanned than an adult, and in a few generations a deeper colour becomes hereditary. But a person of the melancholic temperament in England is as far advanced towards the Indian complexion as the descendant of parents with light flaxen hair, residents in India, are in three generations. Such complexions, like tender plants, improve by cultivation; they are naturally the same as others, but more feeble. Flaxen-haired and blue-eyed persons are therefore the furthest removed from the African constitution.

Four centuries since, grey eyes were more common in England than at present; the monks and nuns of those days, however humble they might fancy themselves to be, were not unwilling that their persons should be subjects of the artist's pencil. Of the portraits taken at that distant period, and which have been handed down to us, scarcely any are dark-complexioned. As such complexions are not natural to the climate, they have undergone some change, and that extreme delicacy is now become less common. I may here remark, that this change is more decisive in the southern than in the northern part of the kingdom. In the neighbourhood of London, more than half the inhabitants are black-eyed; in the neighbourhood of Manchester, the proportion is much less.

From what has been said, it is evident that I consider a very light-haired person as approaching, in the state of his skin, to the Albinoes; I mean it not as a reflection, for disgrace cannot attach to the person of man, as it comes from the hands of its Maker: it is not the person, but the baseness of passion, and the grossness of ignorance, which separate the human race, and sink them below the standard of humanity.

It may be asked, can an ignorant and forward youth be of the same nature with him who was meek and lowly of mind? Can the sensualist be of the same nature with him who was pure in heart? If there be two species of the human race, conduct is a stronger evidence of it than colour. It would indeed be well, if we were less vain of our persons, and had more reason to be satisfied with our understandings and our hearts. Here alone is the ground of our superiority. If we are not wiser and better, we are not superior. Having power over the negroes, we have mistaken it for rank; and while we degrade ourselves by the most iniquitous conduct towards them, still we imagine ourselves great. It is certainly high time to take another and a juster view of the subject, and to rest our claims of superiority on their proper basis.

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As a summary of what has been said, it may be observed, that the colour of animals and of vegetables, is derived from various sources; but that the colour of the hair of animals, and of the skin of man, has the same origin and the same properties, both being derived from the blood, and both resisting any effort of art to disperse them. That the colour of the hair and eyes corresponds so exactly with that of the skin, as to shew a dependence on each other. That the skin of the whole human race is of the same structure, but various in colour. And, lastly, that the colour of the skin, and that of the blood, are from the same cause.

The subject is not exhausted; many additional facts will present themselves to the reader; but if the principle be established, our object is accomplished.

SECT. 6.

Of the Influence of the Skin upon the Health.

THE natural defence of man, against the vicissitudes of the weather, is his skin; and the defence is sufficient. No barbarous people who live in a climate fit for the residence of the human race, seek for any other; they weave no garments, they covet none. But civilization establishes a new order of things; when its benign and salutary influences are shed upon a people, they then clothe themselves, because they find it to be convenient, decent, and useful; but the necessity of clothing is neither felt nor pleaded for; it was not felt by our ancestors: and even now that an abuse of civilization has produced effeminacy, the nation half unclothe themselves from the capriciousness of fashion, and say it is without evil---that health does not suffer---and that decency is not violated. But whatever may be the present opinion, a sense of decency was, I believe, the origin in most nations of the wearing of apparel; it was not as a matter of necessity.

If this fact be borne in mind, the importance of the skin to the comfort and health of man will at once be perceived. We owe to it much more than to our garments. Hence a skin suited to every climate is of inestimable value. We often speak of hardiness as the effect of rigorous treatment during the period of childhood---such as insufficient food, ragged clothing, and a comfortless bed; but this is an egregious error; those alone are hardy who are dark-complexioned. You cannot make an animal hardy by treating it with cruelty; the hardiness of an animal is in its constitution, so is that of the human race, and the skin is an index of it. The fur of an animal is adapted to the climate it lives in, and so must the skin be if a person enjoys himself.

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Whether contagious diseases be received by the skin, on the lungs, or whether both have a share, has, I believe, never been ascertained. But thus far at least we may assert, that some diseases are communicable by the skin; hence inoculation. The want of accurate information respecting the functions this important part of our system performs, renders it impossible to particularise the diseases it gives birth to; but it is highly probable that those which are most common, and most afflictive, owe at least their prevalence to a too great delicacy of the skin; I mean, consumptions and scrofula: to neither of these maladies dark-complexioned persons are not often victims.

But whatever may be the case, as it respects particular diseases, if we view the subject in the aggregate, there is reason to believe that England is a more sickly country than France or Spain, or indeed than any country the inhabitants of which bear the impression of its climate; and I am unacquainted with any cause, of so general an application, as that of the state of the skin.

Another circumstance respecting the skin, as it is connected with health, is, the influence the seasons have upon it; as is evident, by the change which takes place in the nature of the perspiration. In the winter this salutary discharge is unctuous, adhering to the surface, and entangling the dust with which the atmosphere of a city is always loaded; in the summer it not only is excited more easily than in the winter, but it is always more fluid; in the autumn the pores of the skin are liable to be obstructed, and hence a foulness of it is common at this season.---Animals, also, evince a similar susceptibility to the influence of the climate: in the autumn, the perspiration of a horse flows down the animal as fluid as water; in the spring, by the chafing of the bridle, it becomes a foam. It is impossible to state a circumstance which more fully proves that the skin is acted on by the climate; indeed each season has a specific action; it is therefore highly desirable that the state of the skin should be such as to co-operate with the general impression of the climate: that impression which it makes at all seasons of the year, and of which it is not possible the health can be independant. Why are we afraid of passing from a heated room to a cold blast, but that we are aware that our skins will not be so suddenly adapted to the change? It is, I imagine, on the same principle that an Englishman, when he becomes a resident in another climate, is so susceptible of disease; he has passed from one region to another, and his skin does not correspond to both climates; he is like a person roused from a bed of ease and slumber to meet a winter's storm. The impression is never salutary, because he is unprepared for it.

The skin is essential to our existence; even the scarf-skin, which is insensible and dead, cannot be removed but at the expense of life; it might perhaps be removed from

from the arm, and no permanent evil ensue; but were the same extent removed from the body, especially if it were by being burned, death might be apprehended. If, then, the sudden destruction of that part of the skin, which is already dead and about to be cast off, be of such vast importance, it is rational to conclude, that its proper state, as well as that of the other parts of the skin, is essential to the enjoyment of health.

But it is asked, what is the general outline, what the standard, by which a skin may be known to be proper to a climate? I answer, its colour. We have demonstrative evidence, that a change does take place from white to brown, and from thence to black, and the reverse, as we move from country to country; and why is the avenue, why is the access, the outposts of the constitution, changed and modified by the climate, if they have no respect to the health? We indeed know of no property in the phosphat of iron, to fortify the body against the seasons; but the existence of a given portion, indicated by the shade of colour it produces, characterizes a given state of the skin; and experience has taught the fact, that such a skin is well adapted to a given climate.

The colour of the negro is not by chance; it is not indifferent to him what is the state, and consequently what the colour of his skin; for none but that which is black is suited to Africa, as experience shows.

In the pride and vanity of our hearts, we have cherished the notion that the complexion of an African is much less to be esteemed than our own. Blackness we think incompatible with beauty; and hence we arrogate a superiority over those of our brethren who are of that colour. But we betray our ignorance; we are unacquainted with the benefits derived from the complexion of the African; we have never weighed its utility against its appearance; and although health is essentially connected with the subject, yet that has not brought it into notice; we are under the influence of prejudice, and judge from its dictates, when we speak of the colour of the skin.

Living in the nineteenth century, and professing to enjoy the accumulated knowledge of many ages, it might have been expected that wisdom was our guide, and that when a distaste was manifested for the complexion of the African, it related to some property it possessed or indicated. But what is the fact? no property has been named; the tongue has been exercised in slander; ridicule has been substituted for reason; but it has not so much as been hinted, by what law of nature a black complexion is less desirable than one that is white. Were this ascertained, then Europeans might laugh or sneer; but to be detected laughing at that which is not understood, is to exchange places with the object of derision. When it is asked of him who scoffs at the

the negro, why a black complexion is so much despised? He replies, because it possesses so little of beauty. Yet what is beauty, but the expression of something that is desirable? And if there be any such property in a black complexion, it cannot be destitute of beauty; so that even this ground of dislike is merely prejudice.

Beauty is not an independant principle; its excellency is not in itself, but in what is implied by it. The heavens are rich in beauty, no one can behold them in the night season, without emotions of delight. But if we considered the stars, which catch the eye by their spangling, and by their order, harmony, or number, invite the imagination to feast on pleasure, or if we suppose that the clouds, which sometimes exclude the heavens from our view, and present ten thousand forms, decorated with all the rich varieties of the colour of the rainbow, to have no further object than to be gazed at, such a supposition would impeach the wisdom of the Author; for to be only beautiful, were it possible to be so, would be to be worthless. Beauty is not useful in itself.

Apply this reasoning to the complexion: it cannot be merely to gratify our pride and pleasure that our race is diversified in colour; another standard must be erected another measure produced, by which the value of the complexion is to be appreciated: that standard is its utility. Can the African endure the region in which he was born, can he enjoy the climate of his native soil? Yes; it is salubrious and balmy to him, but it is not so to others; an European inhales from it pestilence and death. There is some natural cause for this difference; and that cause, I scruple not to say, is indicated by the complexion; a certain state of the juices of the body being ever connected with a certain state of the skin. The assertion is bold, and may disgust and offend, but I advance it without fear of refutation, that the perfection of the human colour is the negro blackness; it is the most complete, the most permanent, and the most useful, and therefore it is the most perfect. The negro can bear the hottest, or the coldest regions; he can sustain the vertical blaze of the meridian sun; he can traverse the arctic circle unannoyed; he resists every vicissitude; but it is not thus with any other people. An European shrinks even at a change of seasons; what he calls the fervid heat of summer, or the chilling blasts of winter, are to him objects of apprehension and dread, but they are not so to a negro. Has an European determined to leave his native country in quest of honour or wealth, his mind is filled with alarm for his personal safety; disease in a thousand horrid forms presents itself to his view; to guard against which, his dress, his conveyance, his mode of life, even to the minutest particular, are all directed by experienced persons; he dares not trust himself to the direction of his own understanding, so imminent is the risque

to which his life is exposed; a risque so imminent, that with all the precaution which is taken, a very small proportion of those who exchange England for India, ever see her shores again; and those who are gratified with the sight, often feel the pressure of an incurable malady: and does not this imply an imperfection unknown to the African? But India is not the only place of death; it is not the only place which evinces the superiority of the African constitution; every distant country, though in the same parallel of latitude, sends forth noxious vapours, as Europeans report. Philadelphia, they say, is not like Rome; here there is disease, there there is health.

But it is unnecessary to travel so far for examples of the injurious effects arising from a change of country. Sardinia, though not far from Rome, was a grave to the Romans; that country was abhorred so much, that it was made a place of banishment to criminals. Holland has long been reputed the grave of Germany. The history of the crusades are replete with stories of unhealthy places: even a campaign in France or Germany is more destructive than the same exposure, and the same hardships to British troops, at home. Indeed, I am not certain, that an Englishman, in good health, renders it more permanent by any exchange of climate: he sustains a shock, his constitution is assailed, and it often suffers under the most favorable circumstances. But a person out of health is under other laws, and the struggle for mastery, between the disease and the climate, is often salutary. But cases of disease are not subjects for our consideration; I may therefore assume it as a fact, that every climate is injurious to an Englishman but that in which he was born.

Here two remarks present themselves; the first is, that the climates which are complained of, are not in themselves essentially bad, for those who are natives of them, live in health, and people of colour are not injured by them: it must therefore arise from some defect in the person that suffers; he is unlike those who are native; he is more feeble than the negro; the defect is in himself and not in the climate.---The other remark that presents itself is, that our being so limited in our capacity to bear vicissitudes of climate, is not proper to man; it is a defect which requires a remedy.

The birth-place and inheritance of man is, the world: it is a gift which was presented to him by his Maker, and can he not possess it? Must he be confined to a narrow spot, and not traverse his domain--- not know the extent of his blessing? The world presents but one family, the members of which have wants which must be reciprocally supplied; and can there be no intercourse but at the expense of life? These

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wants were planted in our natures that we should assist and know each other, and must they only be felt? Must a narrow circle be drawn round man, beyond the verge of which he has duties to perform, and is prohibited? This would be to inflict a punishment. The nature, the character, and the rank of man, imply his power to exist in the full and equal exercise of his faculties in every region; for were the atmosphere to occasion his degeneracy, he might lose his authority over the brutes, and even sink beneath them.

But it is unnecessary to appeal to such arguments, there are others of more easy apprehension, which equally prove the necessity of the human race being so endowed, that where corn will ripen they may live and partake of it. I refer to the productions of the earth: the necessaries of life are every where provided; the wants of the barbarian are supplied; but, as knowledge increases, other wants arise and claim attention. What are the wants we feel? We want the timber of Norway, the tea of China, the dye of India, the cotton of America, the sugar of Africa, the wine of France; none of which are essential to our existence, but all are conducive to our pleasure, and mark the wisdom of God. While he gives food and raiment to all without exception, he has blessed almost every country with the possession of some useful and pleasant plant, the produce of which is made the basis of a friendly and advantageous intercourse between distant nations.

The same remark holds true of minerals. Iron, because it is necessary to man, in almost every stage of civilization, every where abounds; civilization is promoted by its use; it abridges labour, it lessens toil, which is the first step towards refinement. Iron is in every country to be obtained; but tin is peculiar to Britain. By trading in this article the best of blessings have been gained. The Phœnicians, who came to purchase it, instructed us in useful arts, and by increasing our knowledge prepared the way for our early reception of revelation. China, abounding in all the blessings of a fertile soil, seems to be left without a want; but the world has made choice of silver as a medium of commerce, and therefore every country must possess a portion of it; but the mountains of China do not yield it, and she is compelled to buy it of others. Gems are found in India, gold in Peru, in this way we may treat of every country and find something which it possesses that others want, and hence intercourse between distant nations is excited. It is a means by which knowledge is promoted; I will say more, it is an appointed means of Providence; for divine truth was communicated to individuals to be disseminated through the world; and this supposes previous and subsequent intercourse: and shall he be punished with death who discharges a duty? Is it appointed that men of every tribe and nation should know each other, and is there

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no path of safety? Can they not meet without a messenger of death breaking up the interview? Certainly they can. Of this we will presently enquire.

Here I shall stop a moment to observe, that it is to the honour of our nation that she maintains so great an intercourse with the world; but it is to her disgrace, that she abases it. Intercourse has been promoted between nations without good arising from it; it is a crime not to aim at mutual benefit. Are we so selfish, that we spoil our friends? The Greeks and Romans communicated all the blessings they were in possession of, even to their enemies; they delighted in civilizing and making better; and are we too greedy of gain, to discharge the common duties of humanity? Are our colonies our shame. What present good has India gained? Are we not a bye-word among that people? We have been sent on a mission which we have not executed. Man is not to be the slave of man, but to administer mutually to each other's wants. The Hindoos have administered to ours, but where has been our return? An obligation to consume foreign productions being enjoined on every civilized country, gives an opportunity of imparting and receiving knowledge, and of exchanging the courtesies of life; this intercourse ought to have good-will, not robbery and plunder, for its basis. This important law of nature; this law, which imposes wants, which implants the principle on which commerce is founded, not only exemplifies the real state of the moral character, but it developes the energy, the personal courage, the spirit of a people.

An Englishman, who loves his country, is as bold and enterprising in his plans, as he is generous and noble in his disposition; he goes with cheerfulness to the remotest corner of the globe, to serve his country or his friend. The cold phlegmatic German forgets his country almost as soon as he has passed its borders; but he perseveres amidst difficulties, and is known all over the globe. The French, attached to the amusements of their nation, love her on their account, and unwillingly lend their aid to serve the common cause. But which nation soever is most forward, or which the most reluctant, to embark in foreign enterprize, the lives of all who venture are more or less endangered; the feelings more or less violated, although they possess every accommodation and comfort that personal liberty and property can procure. But an African, in the capacity of a slave, with the worst accommodation, is taken to the worst of climates and subjected to the harshest treatment, yet he endures it; he does not complain of the air he breathes, or that the heat oppresses him: but that being a man, he is made to suffer and toil with the brute: to him no climate is unhealthy, the mountain or the plain---the dry air of the desart or the humid air of Greenland; the scorching heat of the torrid zone, or the piercing

piercing blasts of the arctic circle, are alike sustained by them. It excites no surprise that the Esquimeaux resist the cold of a high northern latitude; we say it was their birth-place, and that they are inured to it, and this remark satisfies the common enquirer; but that a negro should do the same we are not taught to expect, by common experience or by analogy.

If it can be proved that the negro does possess this property, it is an evidence of superiority; it is an evidence, that what was declared of a black complexion, was not a mere assertion.

The subject being of importance, it may be proper to give to it particular attention; we shall therefore make it the leading subject of consideration in the following section.

SECT. 6.

The same Subject continued.

TO bear all the varieties of climate, to which our globe is subject, belongs only to man; none of the brute creation possesses similar properties; as their utility is limited to certain countries, so is their constitutional capacity. If to be unlike the brute, is to rise above them, I claim this honor in its highest degree for the negro: they, of all the inhabitants of the world, can best endure its various climes. That heat does not annoy them we are well assured; they feel its influence in the cradle, and enjoy all the animation and pleasures of youth while subject to its power. That cold does not annoy them admits of evidence almost as satisfactory and complete.

The first instance I shall adduce, is related by Capt. Cook. It will be remembered, that the leading object of that navigator's first voyage, was to observe the transit of Venus over the sun's disk; it was therefore proper that he should be accompanied by gentlemen who were competent to assist him in accomplishing the object of his voyage; to this office, Mr. Green, Mr. (now Sir Joseph) Banks, and Dr. Solander, were appointed. Mr. Banks and Dr. Solander, eager for the furtherance of knowledge in all its branches, landed at the island of Terra del Fuego, accompanied by a party of draughtsmen and servants; the party ascended a hill, and unexpectedly found themselves on a swamp. The weather was intensely cold; all were affected by it: but Mr. Buchan, (probably from the name), a Scotchman, was the first whose strength became exhausted, and whose faculties were enervated by its influence; he fell into a fit, from which he was recovered by lighting a fire. The cold increased; Dr. Solander charged the party not to give way to sleep; emphatically remarking, "whoever sits down,

down, will sleep; and whoever sleeps, will wake no more." The Doctor, a native of Sweden, was the first to forget his own admonition, for being overcome with sleep, he laid down in the snow, as he said, to repose himself. One of the black servants, at the same time became weak and faint, and was about to follow his example.--- It may be proper to observe, that two Europeans felt the overpowering effects of cold, and would have fallen victims to its influence, before an African: they, it may also be remarked, were gentlemen, who probably were better provided with clothes than their menial servants. Dr. Solander, and the black, were both persuaded to exert themselves, and they proceeded to the confines of the swamp, where they sat down and fell asleep. A fire was kindled at some distance, and Mr. Banks awoke the Dr., whose limbs were already stiff: but the negro was more insensible, and therefore was left in the care of the two on whom, of all the party, the cold had made the least impression: and who were these two? one was a negro, the other an English sailor. In performing an office that required little exercise, both were benumbed; the English sailor finding it unavailing to stay, and being nearly exhausted, set out as well as he was able in search of the party; but the negro staid by the body of his friend after his death, for that event appears to have happened. The sailor was met by some of the company, and conducted to the fire, by which means he was recovered. Mr. Banks, accompanied by four others, proceeded in search of the blacks; of whom, when they found them, one was dead, the other was still standing, but so benumbed as to be incapable of walking; and the party themselves being so far exhausted as not to be able to carry him, he lay down by his friend and countryman, and died!

According to this narrative, both the negroes perished, but their circumstances were so peculiar, as to justify me in quoting their case, in illustration of the position advanced,---that Africans can resist cold as much as Europeans.

When the party were alarmed for the safety of Dr. Solander, on whom much of the success of the expedition depended, however great the benevolence of those who were present might be, and doubtless it was great, it was not in the nature of things but that the master should excite more attention and receive more assistance than the servant; both would have died, had they been allowed to remain in the situation in which they were; both could not be assisted, and the Doctor had a prior claim. Had the negro been conducted to the fire he would have survived, and the Doctor would have perished: they were alike helpless, alike dependant on others for assistance. It was not the Doctor's hardiness, but the greater attention that was paid to him, to which he was indebted for his life, while his companion in suffering died.---The other negro, who was selected to guard the benumbed body of his countryman,

tryman, was at that time, with the exception of a sailor, the most vigorous of the party: he was active when they had become torpid; he was discharging his duty when they needed assistance.

Taking all the circumstances of this interesting narrative into one view, the hardiness of the Africans is conspicuous: they sustained the chilling blasts, they resisted the piercing frost of an inclement climate, to which the inhabitants of the north had nearly fallen a sacrifice. Had the Europeans not required the attendance of the negroes, could they have prosecuted their journey uninterrupted? One of them would doubtless have arrived uninjured. A negro and an English sailor were fellows in hardihood. This one fact is sufficient to establish the character of that people; but I shall mention another, which happened near Liverpool; the circumstances of which were related by Dr. Currie, and published in the *Philosophical Transactions* for 1792.

A ship was stranded soon after leaving port; the wind was piercing, accompanied with showers of sleet; the waves passed over the deck, so that the sailors were constantly wet and motionless, and were obliged to tie themslves to the ship to prevent their being washed overboard. In this state they remained twenty three hours. Among the crew, which consisted of fourteen, was a negro; if he had been a man more delicate than Europeans he must have died, for the whole crew had nearly perished from the cold.---But Dr. Currie informs us, that although three of the crew died of cold, the negro lived, and appeared to have suffered the least of the fourteen.

To these particular instances I may add an illustration of a more general nature. The commerce of England, extending itself to the remotest corners of the earth, exposes those who are concerned in it to the greatest vicissitudes; hence, in manning a ship for a particular voyage, or for a particular purpose, the health of the men, and their capacity to bear the alterations of heat and cold to which they may be exposed, are considered; and many who apply are rejected as incompetent. The sailor who had made many voyages to the coast of Africa, is seldom solicited to engage himself on board a Greenland ship; he is judged to be too much enervated: but the man who was born in Africa is not refused on that account; he is not thought to be feeble and tender: on the contrary, on board a Greenland ship it is not uncommon for a negro to serve. He is not alarmed or injured by the rigour of that climate, which diverts an element from its destined use, which locks up the waters of the ocean and holds them in perpetual bondage; they are destined to flow and water every shore, but here they become a rock, hard and impervious.---In such a situation, amidst such over-

overpowering influence, the negro dances to the music of his tambarine. Ice in his native country is unknown, and now that he is surrounded by it, he is without dread or annoyance.

There is, doubtless, an advantage, a privilege, in being fitted for every vicissitude of the weather, for every change of climate. There is an advantage in being like the negro. Contrast his case with that of the pale, but proud European, who arrogates to himself a vast superiority over others: he endangers his life by leaving his birth-place; his complexion is unformed, yet he boasts of it; a few hours' sunshine, and its imaginary beauty is gone, it is tarnished. That which is unfixed and changeable, is unworthy of high estimation. The negro can bear heat or cold; but some Europeans can sustain neither.

It may here be asked, whether it follows that blackness, because it is unchangeable, is the perfection of the human colour? There is no perfection of colour, for all are perfect that are natural. Perfection consists in utility. It is ascertained that a negro can circumnavigate the globe, and in every stage of his progress feel little more inconvenience from the climate than the natives. It is probable that the ancient Britons could have done the same, yet they were not black. I say probable, because direct evidence cannot be produced. But there is a fact highly interesting to Englishmen, which justifies the supposition: They were sold as slaves to the Africans; if they could not have borne the climate of Africa, they would not have been imported; and if they could bear that climate, none would have been destructive to them.

It is a well known historical fact, that the Carthaginians traded in our blood; they sold our countrymen, perhaps to the Egyptians, and they perhaps to others; we were the injured people of those days; but our constitutions could bear it. The question naturally occurs, why then can we not bear what they sustained? The answer leads us to an interesting fact. They had learned to endure one climate, and this prepared them for others. They had no contrivance to shade them from the sun, to shield them from the storm; it was what was natural to their country, and therefore was not injurious. The way they attained this hardihood was by the frequent exposure of their persons; they had met the storm till they had ceased to fear it. Their complexion was that which was proper to the climate.

The same may be said of all rude and barbarous people; of all who have endured the climate of their native country unprotected by garments. The weather having exerted its full influence on such, their skins become as complete a defence as those of animals are to them. No uncivilized people are tender, or very susceptible of disease; all can bear a temporary change of climate. The most northern of the

hordes which invaded Rome did not complain of its climate but coveted it; nor does subsequent civilization destroy this hardiness; it may lessen it by inducing a tendency to disease, but it does not wholly destroy it. A polished negro is little inferior to one untutored in the ways of civilized life; but a mixed race, a race produced by the natives of one country marrying with persons of a more northern origin, are without such hardiness; they are sickly at home, and to leave it is death. In England, people more fair and delicate conquered and incorporated themselves with the original inhabitants, or drove them away, and possessed themselves of the soil; a want of adaptation to the climate has been felt by their descendants, sickness engendered, and the place pronounced unhealthy; and to such indeed it is unhealthy; but it was not unhealthy to the original inhabitants; to those whom Cæsar found here.

It may be asked, how can it be ascertained that a people are so familiarized to a climate that it is made to them healthy? One leading mark is, the uniform colour of the skin of all the people. In England, one individual is white, another is brown; but in Africa, all are black. In America, all the aborigines are copper-coloured. In Germany all who lived in the days of Tacitus, were fair.

"Ipse eorum opinionibus accedo, qui Germaniæ populos, nullis aliis aliarum nationum connubiis infectos, propriam et sinceram, et tantum sui similem gentem extitisse arbitrantur. Unde habitus quoque corporum, quanquam in tanto hominum numero, idem: omnibus truces et cærulei oculi, rutilæ comæ, magna corpora, & tantum ad impetum valida". (*Tac. de moribus Germanorum.* cap. 4.)--No writer with whom I am acquainted, speaks of a nation, that had always lived on the same soil, being diversified in complexion. The temperaments produce a shade of difference, but it is only a shade; it is scarcely sufficient to attract the notice of a stranger. Their general aspect is so similar, that he does not notice this slight distinction.

There are other marks and evidences, besides uniformity of colour, by which a people may be known to have been naturalized to a climate: such as the natural productions of the country being sufficient for their wants, and equal to their desires, for all the leading and essential purposes of life. But as these are not immediately connected with the subject before us, we shall pass on to other considerations.

A common consequence of exposure to the weather, in any climate, is a darkening of the skin. It is honorable to the negro, that in every country the colour of its inhabitants verge towards his: it is thus made a standard, thus held up to general notice and observation. What is a freckled, or a sun-burned skin, but an approx-

approximation to the African complexion; and not to be sun-burned or freckled, supposes care and trouble in preventing it.

Mr. Hunter was of opinion, that the original colour of man was black; be that as it may, certainly it is a colour friendly to health. Even in England, where a skin as pale as the image of death is cultivated and thought comely, a dark complexion is preferred for its healthfulness. Do we not say of such, they look hardy? Do we not prefer such for our servants? Thus we honour, while we affect to despise, the colour of the negro; and thus we bear our testimony to the position advanced, that a dark complexion bears its possessor above the vicissitudes of the weather more than any other.

The continent of America is repeopling from Europe, but the climates of the old and new world are not similar; it therefore is not strange, that after having resided in their adopted country some length of time, the effects of this new situation should be manifested in a want of health. Generations must pass away before America will be to them as Europe. Copper is the colour proper to America; and as colour when applied to the skin, supposes certain properties to be connected with it, it is in vain to attempt to communicate the qualities of the negro's to the European's skin, without the colour; the connexion is inseparable. Hence is it rational to suppose, that a skin more pale and delicate than that which covered the original inhabitants, can be equally desirable in that or in any region of the globe? Will America not bear the character of being healthy, till her people are of the colour of those whom the present race have dispossessed? Probably not. It was the climate that made them copper-coloured, and they were robust and hardy: the same cause will make Europeans of the same colour, and they will be robust and hardy also; and I do not know that they have a right to expect it sooner.

Happily for America it is not necessary for her to wait, till by the slow process of the climate such a change shall be wrought. She retains within her borders, as the means of her safety, many thousands of negroes, of the real value of whom she may in time form a just estimate. Her sickly climate yearly sends to untimely graves the adventurous Europeans who covet her freedom or her wealth; they go there with all the pride and fancied excellency of white-complexioned men; they seek a residence in a town, and if its inhabitants be numerous, they almost invariably sicken, and their existence is greatly hazarded. But a man of colour lives in health; no sickly sun interrupts his enjoyment, no vapour alarms him. An European, especially an Englishman, anticipates what he terms a seasoning to the climate of his adopted country; he expects to be unwell, and if he recovers

recovers he fancies himself naturalized: but he is deceived, contagion still finds him a ready prey; he has not strength to resist its attack or to sustain the malady. It is not thus, at least to the same degree, with persons whose constitutions are assimilated to the climate.

The Americans may continue to ascribe the cause of their plagues to some circumstance of their country, to the filth of their cities, or to articles intended as merchandise, falling into a certain stage of putrefaction while stored in their warehouses. They may give names to the deleterious air by which they fancy themselves annoyed. But is not the evil in themselves? Are they not in a situation for which they are not fitted? The climate does not injure others, why then does it injure them? There is a littleness in complaining if the event is inevitable, but it becomes contemptible when the cause might be removed, did not pride prevent it. The natives are vigorous and healthy; the yellow fever does not break up their families: to them the climate is salubrious: but Europeans cannot bear it, and therefore it is thought unhealthy.

But a question ought to have been asked, what enables the aborigines to bear a climate that strikes others dead? It should be answered, that they have long been accustomed to it; they breathed it in their infancy, and therefore they bear it.

It again may be asked, what change doth it effect in them? Wherein do they differ from other men? It has given to their skin a new colour, and consequently a new power. It is upon the skin that the blast blows, that the heat falls, that contagion lodges,---but it resists their power. An European eats the same food, he breathes the same air, he drinks of the same stream, he lodges under the same roof, ---but whilst disease passes by a native it fastens upon him, and he falls a victim.

The fact is indisputable, and the inference is equally so; aborigines are assimilated to the climate; it is to them pleasant and healthy; they require no raiment to shield them from its influence. The mark, the token of their adaptation, is the colour of their skin. Would Europeans enjoy the blessing, they must submit themselves to the means: it is in vain to resist the laws of nature; it is in vain to expect health without the use of proper food; it is equally in vain to expect it without a suitable natural defence against the climate. One year, or one generation, does not reconcile a family to a foreign climate: if the parents have learned to bear it, their constitutions are not altered, and their children, who inherit from them, are as much Europeans as if they had been born there; they are of the same colour. Hence it is, that so many of the inhabitants of America are unassimilated to the climate

climate, and are the subjects of diseases which otherwise would not have been known; for who of them does not dread the yellow fever when it rages.

A skin unsuited to a climate, like a leafless tree, exposes rather than protects. What is an imaginary beauty of colour, when compared with health? Who would not prefer a dark complexion to a fit of sickness? and such in America is the alternative.

I do not enquire what differences there are in the discharge of the functions of the body in the inhabitants of different countries; but be they what they may, the skin is the index by which they may be known: as is its colour, so is the constitution, so are the functions, so is the climate that can be sustained.

Should it again be asked, what are the evidences that the skin is influential on the health? We may answer, that it is endowed with a high state of sensibility, and is therefore a delicate organ; between which and the internal parts, there is a constant communication. Innumerable ducts, which perforate the skin, continually convey fluids to and from the system. If the wind blow upon it, when these ducts are in a certain state of action, disease follows; perspiration, checked by cold, threatens destruction. Heat or cold, by which we in general estimate the healthfulness of a climate, are sensible only to the skin. The tongue is neither hot nor cold; we impute the evils of the east to the heat of it, surely then the state of the skin is important. A negro does not feel any climate hot, his skin is ever cold to our touch. Heat and cold, therefore, are relative terms, and must be considered in connection with the state of the skin. Is not the heat of the body determined and regulated by the manner in which the functions are discharged? If its heat be too great, perspiration lessens it; if it be too little, the skin contracts, that more heat may not escape. Even the perspiration receives its qualities and its character from the skin. In the torrid zone, it is unctuous; in the temperate, it is more fluid, and the effluvia are different.

Thus we have assigned considerable importance to the proper discharge of the functions of the skin in a well-balanced state of the animal economy; as they are discharged we are strong or weak, healthy or diseased, robust or delicate; we have also pointed out such characteristic marks of difference in its colour and functions, as to justify the inference that the skin is not similar, unless the climate be so in which the constitution was formed, and the colour of the skin developed.

But why is there a difference in the state of the skin? Why are we unlike each other? Is it not to answer some purpose friendly to man? And what better purpose can be answered, what greater comfort elicited, than those which have been mentioned? Should none other be pointed out, we are at liberty to draw our conclusions. I repeat it,

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it is in vain to resist the laws of nature; they are never broken with impunity. We are assured that an European cannot retain his complexion in Africa; then it is folly to attempt it. The same remark applies to every other country; the laws which qualify the natives to endure their climate are blessings to them: he who would live in the enjoyment of the same, ought, as soon as possible, to resemble those who possess them, in their appearance and in their general habits.

America is sickly to her European colonists, and will continue to be so, till a brown complexion is beheld with complacency. A brown complexion has ever guarded the aborigines from the yellow fever, and will guard the recent settlers. But how is a dark complexion, one that is constitutional, and that will descend to their children, to be acquired? Two ways present themselves; first by the climate being allowed to operate in its full force. But the manners of a civilized people are incompatible with this method, and therefore it is unnecessary to dwell on it, they must be clothed and sheltered, which exclude the full force of the climate. Another way, by which the next generation, at least in part, may be assimilated to a climate strange to their parents, is, to contract marriages with the natives; but the customs and the ignorance of the Americans are insuperable barriers. There is yet another way, and which has only one obstacle to its accomplishment, and that obstacle is prejudice; remove this, destroy its force, by suffering a drop of negro blood, a shade of their skin, no longer to be considered as degrading, indeed they are not in reality so, and the object is attained. A mulatto wants no powers of body or of mind to fit him for a place among Europeans. In the estimation of Raynal, and other competent judges, people of colour possess the strongest minds, in the strongest bodies, of any of the human race; they are therefore fit companions for any rank or for any nation. Repeated intermarriages of the members of the same family invariably occasion degeneracy in the offspring, and such marriages are common in colonies; the opposite conduct produces the reverse. Even the bastard Hottentots, at the Cape, are active, enterprizing men. The Algerines, who are of the colour of mulattoes, are remarkable for the strength of their bodies and the fortitude of their minds. And the negroes themselves are remarkable for fidelity, suavity, and kindness. Every virtue, every faculty, that distinguishes man, are eminently possessed by persons of colour. They may want refining; the hand of the cultivator may be required; but the seed is sown which will bear flowers and fruit, if it is not neglected.

The blessings we covet for ourselves, we ardently desire for our children; the feeling is common to man. Health is a blessing of all temporal goods the greatest, and therefore the most entitled to our care: in a foreign climate this blessing is endan-

endangered, it is rendered precarious, and our children are exposed to the same risque with ourselves; a risque, to which I question whether we have a right to expose them; our power over them is great, but it does not allow us to hazard their lives. We have therefore an obligation imposed on us when we emigrate from the place of our birth, to make a permanent abode in another country: it is, that we so marry, that the children may not possess foreign constitutions. Were an European settler in one of the southern states of America, to choose a companion for himself, and a mother of his children, would he do well to select an European? One who had lost her activity, her spirit, and her beauty? one whom the climate had affected and injured, and one whose offspring would be like herself? Certainly he would not do well by so marrying.

But it may be said, that children born in a climate are naturalized to it; this, however, is erroneous. It is not one generation that assimilates a family to a climate: the children resemble the parents, and the parents were not naturalized; they had only attained so far as to be able to bear the climate; their constitutions had undergone no considerable change. It is only after the lapse of many generations that a family is so reconciled to a climate that it becomes their own; when this takes place they are no longer Europeans in complexion, any more than they are in constitution: they are Americans, if America be the country which their ancestors chose for a residence; and so of other countries. Montezema, whom the Spaniards found on the throne of Mexico, did not possess more genuine American blood, than the descendants of the very men who deposed him, and spoiled the nation of which he was ruler, now possess. To speak of their being extracted from Spanish ancestors may flatter their pride, but it proves their ignorance. They may lord it over the aborigines, but they possess no superiority. If there be any excellency in the European blood, which by the bye is very questionable, they have lost it. Old Spain would be to the Spanish Americans as a foreign country; its air would be unnatural and unpleasant; their complexions and constitutions are those of the aborigines of America, and they can only endure it by the hardiness which a constitutional colour always communicates.

As a family must be reconciled to a climate before it can be enjoyed, it is certainly desirable to obtain this blessing soon; and it may be so obtained by the means suggested. Marry with those who are already naturalized, and by the first marriage the object is in a great measure accomplished. But it will be objected, that such persons are dark-complexioned; they are people of colour; that three generations back the family were creoles; be it so, it is to your advantage and to theirs. Thunberg says, "Children so descended, are exquisitely beautiful". *(Travels to the Cape.* p. 67.)

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And if education has made them suitable companions, their constitution renders them fit to be parents. Their children are not like exotic plants, killed by the air that surrounds them; they are vigorous, and grow up in the enjoyment of their faculties.

If a pale-complexioned person can alone be thought lovely, America is not a proper country; such a person had better remove to Germany. He is only entailing a curse on his offspring in attempting to bring them up in America. The yellow fever is not reckoned among the diseases of the aborigines of America, nor is it among the imported Africans; and it certainly must be the wish of a father that his children were like them; that they are not so rests with himself.

There is another advantage the negro race have over the native tribes, in naturalizing an European family to the climate of America, by intermarrying with them. It is this: the African complexion was formed in a climate hotter than that of America, and will of course bear an intermixture of European blood, and still retain as great an impression of climate, as America can impose; which cannot be the case if a marriage be contracted with an American; the offspring from such a marriage are not Americans in constitution.

Another remark I shall make is, that civilization retards, and nearly renders impossible, the full acquisition of the complexion of an adopted climate. The person is so much covered and concealed, that the climate very partially exerts its influence upon it.---I shall mention one instance in illustration of what I assert.

In the 7th century, the last king of the Persians of the dynasty of Sanasides was dethroned by the Mahometans; several of his subjects took refuge in the province of Sablustan, from thence they came to the isle of Ormus, and from thence to Surat, the capital of Gazarat, which forms a peninsula between the Indies and Malabar, and from thence to the pleasant country between Damam and Bacaim.----Here they have lived, retaining the name of Perses, the religion of Zoroaster, and the manners of their former country. They have never intermarried with the natives; and finding themselves much their superiors in knowledge when they obtained leave to live in that country, they assumed a superiority over the natives, which they still retain. *Raynal, v. 2, p. 249.* No one of them is employed in any laborious business: in consequence of which refinement, they have not acquired the colour of the natives, although they are much darker than modern Persians.

The Europeans who sought for, and obtained a footing in the east, were so much refined, that the meanest sailor was furnished with the means of warding off the weather, or of subduing its effects: every one was covered from head to foot with a garment,

ment, and screened in a variety of ways from the sun; and no European has visited that country since, without similar accommodations; so that we may look in vain for any of their descendants being black, unless they become barbarous, or expose themselves to the climate like the natives.

I might here make many remarks on the variety of complexions common in England; but to make such remarks at all useful, they must be professional; and as I am not writing on medicine, I pass the subject by.

SECT. 7.

Of Persons of different Complexions resident in the same Country.

IT is well known that the island of Madagascar is inhabited by people of different colours: some are negroes, others not. It may therefore be asked, if the preceding remarks are correct, and if the climate be the exciting cause of colour, how it can be reconciled with such a fact as that here presented? People of various colours, living together for ages in a state of barbarism, countenances the hypothesis advanced by some philosophers, of the existence of two species of men. Let us enquire into the subject.

The nearness of several islands to the coast of Africa, gives to the people of that continent a ready access to them. Madagascar is one of these: hence the negro race who dwell there. The other inhabitants, those of fair complexions, are doubtless descended from the natives of remoter shores, and remain distinct and unmixed with the negro race; from pride or superstition, such will not intermarry: and their habits, or the little influence of the climate, are hindrances to a gradual approximation of colour; there does not exist a sufficient external influence to effect it; for whatever may be the latitude of Madagascar, its being an island assures to it a temperate climate. That natives of other shores, with other complexions, have reached Madagascar, and taken up their abode there, is easy of belief, because there are parallel instances, well authenticated; but a bare appeal to general facts excites but little interest, we must descend to particulars.

No people resident on the sea-coast are without boats, and none of them are so timid as not to undertake voyages of some distance; while thus venturing, a gale of wind

wind may alter their direction, and frustrate their designs. Perplexed and bewildered, without experience, without direction, they move forward, a sport to the winds. To them the ocean seems interminable; and though the heart of an European, in such circumstances, would faint, and he surrender his life a tribute to the ocean, as a debt we all owe to nature, and which he would believe was then demanded of him, an untutored man, under such difficulties, perseveres; like a bird caught in a snare, he struggles till he dies. An animal feeling directs his measures; it is the love of existence which he feels, and he has not learned to reason, The experience of others does not terrify him, for the little history of his island is without such records. A bird does not consider the strength of the snare, or it would wait for its fate; nor does a savage measure his capacity by his difficulties; of their extent he is careless; hope and despair are therefore strangers to his bosom; for he cannot hope for that of which he is ignorant, he cannot despair without reflection. He may wish to reach his native country, but he knows not where it is, and he is without information of the existence of another. The effort to regain a small point, in the midst of a vast abyss, to an European would appear vain; but the savage does not despond, for despondency implies that of which they are not in possession, knowledge. In like manner as the entangled bird makes unceasing efforts to escape the hand of the fowler, stretched forth to sieze it, so does the bewildered savage to escape the evils that surround him; evils which threaten his existence, an existence to which he is almost but not altogether indifferent.

Were not this the case, the world would not have beeen peopled to its remotest shores. It is not recorded of a civilized people that they colonized a desart; if their ships mistook their course, while navigation was yet unknown as a science, the crew, abandoned to despair, have ceased to exist. We have not an idea of a shipwreck, but it is accompanied by reflections on the unceasing efforts of the crew to regain their native country, and we imagine them perishing in the attempt, or dying in despair. But this is not the case when untutored people are the subjects of our consideration. If therefore, we say, that to the skill of the mariner the world is indebted for its knowledge of remote nations, yet the world does not owe to his art its widespread population; it is by the canoe, and not by the ship, that the islands, and even continents of the globe, have received their people. Habituated, from indolence, to privation of food, accustomed from childhood to swimming in the ocean, the upsetting of their canoe does not endanger their lives; in a little time they place it again in its proper position, and proceed on their voyage unannoyed, unalarmed. Expert in taking fish, they insure to themselves the means of subsistence; they want but little,

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and that little is within their power. By such a people, and from such circumstances, the remotest isles have become possessed of inhabitants.

When Perouse touched at Kamtschatka, he found nine Japanese, who had been driven from their own coast in a small ship, and had been six months at sea before they reached the shores of Kamtschatka. A direct course for six months, would have enabled a canoe, or the rudest constructed vessel, to have crossed the ocean at its widest part. This well-authenticated fact removes every doubt as to the possibility of long voyages being made by rude untutored seamen. It destroys the reasoning of the sceptic; who, because regions which are far remote from each other are peopled, contend, that this must have taken place in consequence of different creations of men. What savage, say they, can pass in his rude mishapen boat from continent to continent? Had we not such evidence as that just mentioned, the question would present a difficulty; but with such evidence before us all doubts are removed.

But the Japanese are not the only people of whom such facts are recorded; the Malays, a people bold and adventurous, have spread themselves far and wide. Their language, like Ariadne's clue, enabled Perouse to trace their wanderings through the vast space in the Pacific Ocean; New Guinea, New Britain, the island of Formosa, the Philippine, the Friendly, and the Sandwich islands, owe their inhabitants to this peninsula of India. Their language is the same as that which is spoken there; they are therefore Malays, driven from their country probably by accident. Should it be asked, how could they exist through so long a voyage? The answer is obvious; as the Japanese existed, by fishing.

Again, the Otaheiteans, we are informed, are in the habit of making voyages to islands so distant from their own, that in accomplishing their object they frequently lose sight of land; and as in such a case their only guide can be a star, which may be obscured, and they miss the point they had designed to have reached: thus cut off from their own country, and incapable of discovering that they had designed to have visited, they must necessarily move forward till they discover land or perish in the ocean. To such a spirit of enterprize, connected with such accidents, many places have doubtless been indebted for their inhabitants. Among that number I would rank the island of Madagascar.

Were two boats, one with negroes the other with whites, to arrive at two islands near each other, and were they to such an event to owe their inhabitants, a modern philosopher, ignorant of the circumstance, would, without further consideration, pronounce them to be of distinct species. He would argue, because their look was different, that their nature must be so; and this slight, this superficial argument, would

would satisfy his mind. I know of no class of men more willing to deceive themselves, than those whose opinions run counter to revelation; they laugh at its doctrines, yet believe without evidence. The colour is with him sufficient to determine the species, but he has never enquired into its cause.

But the climate might not possess those properties by which colour is induced, nor might it be so unfriendly to the existence of colour, as to occasion it to be dissipated and lost. In this state appears to be the island of Madagascar: it is too warm a climate to rob the skin of its colour, and yet it is not friendly to its formation. It is like England, a neutral territory.

SECT. 8.

On the Diminution and Acquisition of the Colour of the Skin.

THIS subject may be supposed already to have been anticipated, and indeed some scattered remarks may be collected in the preceding pages which relate to it, especially to that part which respects the acquisition of colour; but the subject in its nature is too important to be passed by without more particular attention.

The first object that presents itself is, the proof that can be fairly advanced, that no complexion, however dark, however fixed in the constitution, and aided by hereditary descent, is absolutely permanent: whether it remains for a season apparently undiminished, when a few generations have breathed the air of another and a more temperate climate, a climate therefore to which a much higher complexion is proper; when this has taken place, whether the skin, which was black, becomes less so; whether it gives evident tokens that it was the creature of circumstances; for if it fades, when the circumstances which gave it existence are withdrawn; if it cannot permanently exist without the aid of external circumstances; if its energies require to be invigorated by something which it has not in itself, it ceases to be a natural colour, it is an artificial one.

It has been already said, that colour, from the slightest shade to the darkest, is produced in consequence of the light and heat of the sun coming in contact with the skin, especially when covered with moisture; that the effect at first is transient, and passes away when the cause is withdrawn; but if the cause be long continued, it produces a habit in the vessels of the skin which secrete the colouring matter; this habit once formed, is with difficulty destroyed. But there is nothing inconsistent with the order of nature, in what is here stated to take place. Vessels which are for a time

a time roused into greater than their accustomed action, readily resume their former state. Yet a long application of the exciting cause destroys their natural condition; nature has lost the power of recovering it, and that which was at first the effect of violence, is now produced as a matter of course.

The climate of Africa does not at once produce the negro complexion; the first shade it gives is brown, then olive; the accession of colour from the sun is always gradual, it deepens with every generation. In other words, the blood-vessels, while exposed to the exciting cause, uniformly gain an increase of strength.

This leads to another preliminary enquiry. Allowing it to be granted, that the colour of the negro was acquired, what length of time has it taken to produce it? Here it is proper to ask, what was the colour of our first parents? Could that be ascertained, it would greatly assist us in resolving the question. A learned friend informs me, that the name Adam is derived from a Hebrew root, which signifies redness, *(damam rubuit)*, and hence some infer, that it alludes to the colour of the person. Could this be fully ascertained, it would remove many difficulties; for redness is so much a medium colour, that it was well adapted for the descendants of our first parents to have commenced their migrations with. And should this also have been the colour of the family which repeopled the world after the deluge, and from the country in which they lived, it is highly probable that was the case, the difficulty in point of time of producing the various complexions which obtain in the world, is removed.

Suppose Ham, or if the name used by profane authors be preferred, Ammon, in his own person to have taken possesion of Africa, and that the colour of his complexion was red, he would already be far advanced towards the complexion his descendants now possess. When a mulatto marries a negress, their children are of the colour he was of, they are red; if they marry persons who are black, in two generations the complexion of Africa is fully formed in them.

If, on the other hand, a colony of red-complexioned persons were to possess themselves of Germany, the climate would be inimical to its continuance; it would fade and disappear. Besides, is there any thing inconsistent in supposing that the same irregularities, the same deviations from the ordinary operations of nature, took place in the early periods of the world, which take place now, and which daily pass under our observation? We do not deem it strange or monstrous, that Albinoes exist; the many persons of that description who inhabit the globe, prevent surmises of that nature. Why, then, may they not have existed formerly? Why not suppose that some were born in Germany, when the number of its inhabitants were few, and

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that by intermarrying with the other people of the country the colour of their descendants rapidly became less red? This, it will be said, is mere supposition; but it is a supposition founded on the nature of things. If Albinoes at that time existed, and we have no right to suppose the contrary, their marriage with a red, or even a black, would hasten the production of a race of men, pale like the Germans.

But it may be said, why did not this happen in Africa? It did happen; Albinoes have frequently been born there. What I have seen, says Count Buffon, independently of the relation of voyages, leaves me no room to doubt the origin of white negroes. But they seem to have excited the abhorrence of the negro race, and not to have been allowed to incorporate with them. They were driven out, or have formed distinct societies.

It is worthy of remark, that in all the countries in which Albinoes exist as distinct societies, the other natives are dark-complexioned: the Chacrelas of Java; the Bedas of Ceylon, and the Indians of Van Dieman's Land are Albinoes, and with them the natives will not incorporate. There is no instance of the same kind among people of fair complexions: from Europe we trace no such evidence of their having been driven, or of their having been abandoned; and as they certainly are frequently produced, it is reasonable to suppose they may have incorporated with their countrymen, and thus lessened the colour of their complexions. I say so, because it is natural to admire that to which we find ourselves prone, unless sentiments previously acquired prevent it. Black is the colour which most delights the African; hence we may readily suppose, that Albinoes would be disowned by the negro, and banished from their society. But to a people verging towards whiteness they would be looked upon with other sentiments. In the Albinoe is the consummation of that which the European had begun to admire.

There are other theories which have been advanced respecting the colour of the skin of our first parents: the first is that of Buffon's, which supposes them to have been white. The arguments by which this great man supports his theory are, that white children were born of negro parents, but that black children were never born of white parents. It is unnecessary to make any remarks on this theory, as the preceding observations will furnish them. The other theory has been already hinted at, and is that of Mr. Hunter, which supposes the first of the human race to have been black. But we have no positive evidence on the subject, and shall therefore pass to the immediate subject of the section before us.

When we speak of the person of a negro, our mind is at once directed to the natives of the Gold Coast; to those unhappy persons whom we bind in fetters, and scourge

scourge with scorpions; to those whom, having injured, we dislike, and against whom we excite the prejudice of our children. But there are other nations equally as black as the Gold-Coast negroes; the Caffrees, a people who, in the form of their persons, excite the admiration of Europeans; in them there is nothing of the negro but their colour; thier features are European, the shape of their skull is European, their limbs are European, but their complexion is African. In the East Indies also, a considerable proportion of the members of the British Empire are as black as ebony; but they are not despised on account of their colour.---Thus there are at least three distinct families of the human race who are black. These cannot all be the link nearest the brute, and consequently their colour cannot determine, even in the estimation of the friends of gradation, their rank in the scale of men. Besides, there are black Jews: Benjamin De Tudela asserts the fact. He travelled into Africa, and scruples not to say, that some of his countrymen, the children of Abraham, are black like those of Ham. I am aware that the credit of the last mentioned author is not of itself sufficient to establish his assertion; but in the East Indies also there are Jews, with negro complexions, and their number is so great, that they are known by an appropriate distinction---the Black Jews.

The Portuguese and Spanish settlers in Asia and Africa are entitled to the like distinction; they also are black. And the first European settlers in the hottest parts of South America are now as dark-complexioned as those their ancestors found there.

In all these instances colour must have been acquired; and if acquired in one case, why may not every individual be susceptible of it? The progress, with civilized persons, is indeed extremely slow; witness the Perses of Surat; witness also the Moguls and the Algerines, who have long enjoyed and abused a tolerable degree of civilization, are none of them so dark as their climate would lead to the expectation of; those whose manners are most polished, are the fairest. The Moors, who drove away the natives from the south bank of the Senegal River, and possessed themselves of it, are far from being as dark as the Jaloffs, who reside on the opposite bank; for as soon as the wet season commences, they retire to the desart, with their flocks, and thus avoid the season best adapted to darken their skin.

But setting aside the credibility of the existence of black Jews, and black Portuguese, and taking it for granted, that a civilized people never will become black, there is one instance which puts it beyond a doubt, that uncivilized persons, from being brown, in a few generations become black, as readily as fair persons become brown. I mean the Fowlahs, who having conquered countries at a remote distance

from each other, drove out the inhabitants, and fixed themselves in their places; and are now as black or swarthy as the land they live in is more or less hot.

But such exceptions do not invalidate the fact, nor is it invalidated by the more common observation, that the colour of the Jews and others who are now black, but whose ancestors were not of that colour, was the consequence of marrying persons of colour; but neither the Jews, nor even the Madagascans, have in general done so. Such an objection could only be made by those who were ignorant of the religious and personal prejudices of mankind.

If it would at all strengthen the argument, it would be by no means difficult to trace the various shades of colour, from the death-like whiteness of the Albinoe to the unmixed black of the darkest negro. But the work is already sufficiently extended. I may however remark, that if one country, apparently more favorable to the production of colour, by being nearer the line than another, is not possessed by aboriginal inhabitants so dark as another at a little further distance, the cause will be found to arise from the greater degree of moisture, of exposure of the person, or of a less elevation above the level of the sea; which compensate for a somewhat greater distance from the equator.

But although there are a few such slight exceptions, yet, as a general fact, the statement of Count Buffon may be acquiesced in: Who says, that nothing can be a greater proof of the influence of climate upon the colour of the skin, than to find, under the same latitude, and distant from each other more than 1000 leagues, people so similar as the Nubians and the people of Senegal; and to find that the Hottentots, who must have originated from a black race, are the whitest people of Africa, because their country is the coldest.

In chemistry, a proposition is completely solved, and the theory connected with it placed beyond controversy, when the experiments on which it rests admit of a double application. For instance, we say that water is a compound of hydrogen and oxygen, because when decompounded it resolves itself into these gases; and because hydrogen and oxygen, when made to unite, constitute water.

Connect this idea with the subject before us. We have already attempted to prove that the complexion of the negro was not an original, a primary colour of the human race; one proof of which is, that, at least in some instances, there is the strongest evidence of its having been acquired: and what is known of a part, is inferred of the whole. What remains, is to show, that in cases where it appeared the most constitutional and complete, it has given way and yielded to the operation of external causes; so that, as in a chemical experiment, we may have the composition and the decomposition.

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In America there are negro families that have resided on that continent several generations. And Raynal assures us, that the children of Africans, born in America, are not so black as their parents, and that their colour lessens every generation. v. 4, p. 42.---Dr. Camper, also, bears testimony to the same general fact. That learned anatomist assures us, that darkness of complexion diminishes in process of time, and that he had witnessed the fact. p. 17---Dr. Stanhope Smith notices the same circumstance. Even the smell so common to the torrid zone, and which arises from, and is connected with, that state of the skin which produces the darkest complexions, is gradually becoming less in those negroes who are born in the United States.---- *Causes of the Variety of Complexions and Figures of the Human Race, p.* 56.

The progress from black to white is assuredly very slow, and will require centuries to effect it, even in the most favorable situations; but we are assured that this process has commenced, and therefore we may, with some confidence, anticipate its completion. In some cases (but in these the climate had no share) the change from black to white has been unequivocal and complete. Henry Maurice, of Northampton, in America, underwent this change. And in the year 1801, a negro, of New-York, began about seven years preceding that period, to lose his colour; a white spot first appeared in his right side, which attained to the size of the palms of both hands; another spot appeared on his breast, and several others on his arms and shoulders, so that he is now completely spotted. Indeed, this and similar facts, merely tend to show the possibility of a negro becoming white; they do not prove that it is in the power of the climate to effect it. But the facts that have been mentioned, are, I conceive, satisfactory on that subject.

That a black complexion is with difficulty eradicated, ought not to excite surprise; it is a deviation probably from the original colour of man, which nature approves and sanctions, as she approves and sanctions slight deviations in the shape of the person, as noticed in a former chapter.

A child resembles its parents in colour with as much uniformity as it resembles them in shape. A black eye is not more fixed and permanent than a black skin; and we should not, in any situation, expect a change in the colour of that organ in one generation. But eyes of a different colour are proper to Germany, and therefore in time they would be produced there, although they were not so in those who originally settled there. It is true, that in old age, the eyes and skin are less dark. But a child does not derive from his father the infirmities of age, but the natural constitution of a child. It is not by degeneracy that I will allow the change to happen. If it

it be not by the slow and steady operation of the laws of nature, I relinquish the argument, and give it up into the hands of him who refuses to call that man his brother, who, though he may surpass him in every moral virtue, yet has not so white a complexion as himself. I give it up, and say to those who seek to isolate themselves, if natural causes do not increase and diminish the colour of the skin, use the fact as an instrument to draw a circle round yourself. But let me ask one question,---what benefit do you derive from being so distinguished?

SECT. 9.

Of the Colour of the Aborigines of America.

LET me here make one remark. When Columbus, actuated by a spirit of enterprize and discovery, unknown before in the world, first visited the shores of America, all her people were of the same colour; a similar spirit, at that juncture of time filled the breasts of many individuals, and made Europe acquainted with the eastern and the western worlds, and with men of every complexion: after having led Gama to the east, it conducted Willoughby to the north; the love of gold, the lust of power, planned the enterprize, but the discovery which was the consequence of it, was of more importance than gold: it made us acquainted with men, barbarous and rude, who needed our assistance to increase their knowledge; it discovered a passage to Russia, and the intercourse which followed has led, by rapid steps, towards the civilization of her people.

Such have been the valuable consequences of that enterprize. But when the spirit which had immortalized Gama among men, had descended first upon Columbus, and he unfurled his sails to the eastern breeze, confident of success; after he had braved danger in various shapes; after he had silenced the mutinous murmurings of his crew, he discovered land, and opened to the avarice of Europe the consummation of its utmost wish. But it is not in the nature of that passion to say, it is enough. The thirst continued, and the discovery has hitherto been a curse; it is a curse to Spain, for she is become the most wretched of nations; it is a curse to America, for her land has been depopulated. Would to God, that when the nations of Europe fixed their standards in America, they had planted the olive branch by their side. It is greatly to be lamented, that no nation beyond the confines of Europe has yet been benefited

by an intercourse with her; we have reaped where they have sown, but we have not designedly promoted their furtherance in civilization, or increased their personal comforts.

In attempting to establish a theory, it is as important to answer objections, as to urge direct evidence in its support. The theory here brought forward, is met and opposed by the aborigines of America, who are indeed an apparent exception to any theory formed from observations made on the natives of the old world, respecting the general cause of the colour of its inhabitants. America produces no negroes, it produces no whites; one unmixed, unvarying colour, reaches from the equator to the poles. Were the theories of Buffon, of Smith, of Berthollet, of Blumenbach, incontrovertible by any circumstance on this side the Atlantic, on the opposite side the strongest objections are presented to each of them; nor is the theory attempted to be advanced in these pages more exempt: for it may be asked, if light, heat, and moisture be the remote causes of the colour of the African, why do they not produce a similar effect, under the same latitude, in America? Why were the people of that continent of one colour?

Let us attend to the subject. When Columbus, and those who succeeded him, descried the shores of the West-Indies and of America, they were covered with inhabitants: here a monarchy, there a republic; here a city, vast in its treasures, there the huts of a wandering tribe, delighting only in war and in the chase. Still their complexions were the same; no condition of life in which they were found, no situations, however remote, presented any variation in the colour of the inhabitants. The inference that a friend to the doctrine of gradation would draw from this circumstance is, that the Americans are brethren. Her vast extended continent, they would say, knows only one race, one species of man. Here they would contend, there is no need, by subtle arguments, to attempt to reconcile manifest improbabilities; such as that, a family of European extraction should ever become negroes. Analogy and experience forbid such an expectation: and America is an evidence that it never has taken place. On that continent, the vertical sun shines in resplendent majesty: there the sea-breeze, charged with humidity, or the foul exhalations from stagnant pools, hindered from ascending by the thickness of the forest, fall like dew on the inhabitants, and render the utmost assistance to the influence of the sun. Africa never received a beam more direct, nor under circumstances more favorable to the colour of her inhabitants, than falls on the Mexican; it must therefore have been by the mandate of Heaven that the people of Africa should be black. No secondary cause gave birth to their complexions; it is a mark fixed on them to discriminate their species

species. While the sons of America traverse that vast continent, and are not repelled from intercourse by any sentiment or feeling of superiority, they can claim no right to arrogate to themselves a superiority over those of another: but in the old world, the ugly countenance, the repulsive colour of the negroes, at once suggest and confirm the idea, that they are an inferior race of men to Europeans.---This reasoning is sufficiently specious; but let us take a nearer view of it.

Though Africa and Mexico are under the same latitude, it does not follow that they enjoy the same climate; it is not the sun's place which determines that circumstance. The unparalleled mountains of America; her rivers, across which no eye can reach; her forests, the boundaries of which no foot has ever trod, all contribute to render her climate peculiar. The heat of Africa is never felt there, and the heat which is felt is not attended by similar circumstances. The heat of Mexico bears a stronger resemblance to that of Bengal than to that of Numidia. Dr. Kirwan, to whom the world is greatly indebted for his philosophical labours, says, the American continent is ten degrees colder than in any parallel part of the globe: thus New-York is under the same latitude as Portugal, but the medium temperature is that of the north of Germany. It is in vain to look for the same effect from dissimilar causes.

Were there no other peculiarity in the climate of America than that just mentioned, it is of itself sufficient to forbid our expectation of finding negroes there. But America has other peculiarities in its climate than that of its being less hot; these cannot be pointed out by their sensible properties, but their effects show their existence: I instance, because it is least equivocal, its influence on beasts of prey. In Africa they are a terror to the inhabitants, but in America their fierceness excites no dread; even their rage is harmless: in size they are diminutive, in strength they are feeble. Why it should be thus, admits of no other explanation, that I am acquainted with, than that the climate has made them such; and if it produces this general effect on animals, it is not presuming too much to infer, that it must have some peculiar effect on the human race. The birds of America are more gaudy in their plumage than those of the old world. The vegetables of America are not similar in luxuriance to those of other regions of the globe where the medium temperature is the same; in some the growth is more rapid and strong, in others less so. Indeed, in whatever light the subject be considered, a marked peculiarity of the climate of America is manifested.

Should it be granted, that the continent of America, not producing a race of negroes, is in consequence of the greater coldness, and other peculiarities not at present fully ascertained respecting its climate, yet there is another difficulty which presents

presents itself. Every temperature in America produces the same effect; all the people are copper-coloured. But this difficulty may also be removed. A climate not sufficiently hot and moist to impose a deeper colour than that of the Mexican, may be equalled by a less degree of heat, aided by other circumstances.

Dr. Smith informs us, that the children of Europeans are sometimes stolen by the Indians; and being, like themselves, almost constantly in the air without clothing, become like them in complexion; so much so, as in some instances, to be scarcely recognizable.

The gypsies of England, and the sailors, indeed all persons who are weather-beaten, approach to a copper-colour. Had the Mexicans been black, nations of negroes might have resided at a distance; for all states send out colonists in greater or smaller numbers. Hence, in Africa, some tribes live at a greater distance from the line than their colour would probably have been formed in.

Our forefathers, who contended for mastery with Cæsar, had not the same notions of beauty of complexion that we have; they admired a coloured skin; and because nature had not been kind enough to them in this respect, they painted theirs, and made it darker.

To be brown is the natural consequence of being in the air, to be black requires the coincidence of several circumstances; particularly it requires the strongest solar heat which is felt on our globe; less than this appears ineffectual, or Mexicans would be black. There are indeed negroes in Africa, whose residence is not hotter than Mexico, but they, in all probability, were colonists from a more southern nation.

The colour of the Americans is nearly uniform, and so would that of Europeans be, were all the natives barbarous; civilization has given birth to distinction in the various provinces of that continent; the same effect will follow from the same cause in America. Indeed distinctions are there already formed; the inhabitants of the northern states may be discerned from those of the southern; and time will multiply differences, as it has done in Europe, till Americans will be as dissimilar in their persons, as Italians and Germans, Dutchmen and Spaniards.

SECT.

SECT. 10.

Of the Colour of the Inhabitants of high Northern Latitudes.

THE Greenlanders are almost black; the inhabitants of Hudson's Bay are of a dark copper colour. The Indians of Port de François, in lat. 58, on the western coast of America, M. Perouse describes, as very brown. V. 2, p. 148. The people of Bay de Castries, N. L. 51, the same navigator informs us, are low of stature, with high cheek bones, small blear eyes, placed diagonally, a flat mouth, a short chin, almost beardless, and an olive-coloured skin. p. 435.

Many other examples might be mentioned, but the fact is too general to make it necessary; for all northern people are dark-complexioned. Hence arises an objection to that theory of the cause of the colour of the skin I have attempted to establish; for a cold climate, and a hot one, do not promise a correspondence in their influence. The coast of Africa, and the coast of Labrador, are in all their circumstances the opposite of each other; but in both, the inhabitants are dark-complexioned. Is not this a proof, it may be said, that the colour of the skin is by the immediate appointment and imposition of Providence, and not produced by natural causes? Before the objection is attempted to be answered, let us state it in its full force.

It has been said, that the hair, the eyes, and the skin, correspond; and that animals are in some measure subject to the same laws respecting the colour of their hair, as the human race is. Hence the climate which occasioned darkness on the one, ought to occasion it in the other also: but in all cold climates the animals, during the winter, are white, yet the people are brown. Thus the objection is strengthened.

To the contradictory circumstance of cold producing the same effect as heat, is added the fact, that animals are not subject to such influence. To this objection it is answered, that the fur, the hair, and the feathers of animals, are white only in winter; in summer they are clothed in the same gay livery those are accustomed to who inhabit other parts of the globe. Their becoming white at this season arises from a circumstance which is peculiar to the merely animal creation. Those of them which possess an uninterrupted sway, and are destined to reside through the year in the vast silence of those bleak and comfortless regions, undergo a change in the texture of their covering, which affords them additional warmth, but excludes from it the principle of colour: the fur becomes much more soft and delicate, and is fitted to the animal in the season it is about to endure.

But man is not prepared, like them, to brave the elements; the laws of his economy are somewhat different from theirs. He retires underground; he seeks a retreat beyond the influence of the weather, while yet the light of heaven shines upon him; there he remains entombed, holding no intercourse with any animated being, save his own little family. It is not desirable, or even proper, that man should thus live; countries which require such observances ought to be abandoned: man is not destined to live under ground. But in this immured state the Greenlander resides, till the sun has melted from his cabin the vast piles of snow which had been accumulated upon it during the winter; then the door again turns upon its hinges, and he comes forth, like one reanimated, to taste anew the blessings of life, and to enjoy a long and uninterrupted sunshine of many months' continuance.---There is, then, a radical difference between the economy of man and the other parts of the animal creation. Let us pursue it a little further.

In the autumn of the year all nature feels a certain impulse; it receives a warning to prepare for the approaching winter. The fruits of the earth ripen, the animals migrate, or a change takes place in the state of their skin, which enables them to resist the cold, or they become torpid and are insensible to it. When the skin only undergoes a change, some properties, similar to those which old age produces, come into exercise; the vessels of the skin cease to admit the blood, hence they wither and collapse, and the fur becomes white, but in greater abundance and more soft; the covering is thus rendered warmer: the animal, at the same time, is robbed of part of its sensibility, and becomes in a measure torpid: by these conjoined means it is enabled to bear the climate.---But man is endowed with reason; the influence of the seasons is less strongly felt by him; he is sensible to no powerful impulse, urging him to another region; yet there are seasons, against which his skin is not a sufficient defence; to avoid

avoid these, he hides himself from the face of heaven; he forces himself to inhabit a country which promises neither enjoyment nor safety, indeed it would be as wise to build a house upon the sands of Arabia; but the choice having been made, we have no further concern with it, than to enquire into the different effects the climate has on men and animals. Some of these the preceding remarks point out; to them another may be added.

A hot climate does not produce a black colour in the hair of animals, though it does in the skin of man; a cold climate does not bleach the human skin, but causes it to be black, yet it robs the fur of animals of its colour. The colour of hair, though of precisely the same nature as that of the skin, is not produced by precisely the same stimuli; the hair is independent of external causes, its colour is as completely formed in the fœtus as in the full grown animal: but the skin is sensible to a stimulus, which is felt in Greenland, on the Gold Coast, and in every other region of the globe. Thus the external stimuli which influence the skin, do not immediately influence the hair; they must first become constitutional, and then they influence the hair. If the eyes be black, there is a strong tendency to the same colour in the hair; but in animals the climate does not produce it in either. The same cause which tans the skin does not darken the hair, yet the colour of both is of the same nature, and from the same source. The sap which produces blossoms and fruit, flows in the vessels which yield the leaves, yet is under different laws; there would be no fruit if there were no leaves: the presence of the latter, supposes the sap to be in such a state, that the former would be produced were certain appropriate stimuli present. So it is with the hair and the skin. The objection arising from the different appearance of man and animals, in high northern latitudes, is therefore not an objection to the theory advanced; they are under different laws.

Our next enquiry is, into the causes which produce a dark complexion in a cold climate.

It has already been suggested, that the exciting causes of the colour of the skin were light, heat, and moisture; if this suggestion be true, it is of invariable application. Exceptions weaken the probability of the truth of a theory; but if in situations remote from each other, and under circumstances apparently dissimilar, the same effect is produced, by the agency of the same means, that which had all the doubt and suspicion which attend a theory, receives the force and evidence of demonstration. Such is the case with the observations that have been advanced concerning the colour of the skin. The circumstances of Africa, and other warm and temperate

rate climates, have been considered, and we have now to apply the reasoning to the cold and frigid.

The rays of the sun, in the torrid zone, are an indisputable source of colour; but are they the same at Greenland? Do the torrid and the frigid zones embrace? Yes, as it relates to the complexion; the one is a counterpart of the other. Is there much sunshine on the plains of Africa; is there much moisture there, falling on the skin of the traveller; such also is the case in Greenland. There is a brilliancy, a splendour, in a northern summer, which those who have beheld it, speak of in terms which excite a desire to witness it. There the sun has ceased to rise and set; there, at all times, he blesses the inhabitants with his presence, and his splendour is without a cloud. But this beauty, to him who gazes upon it with admiration, has one drawback, the climate is extremely foggy, and casts a frequent veil over the beauties of nature: no where, perhaps, on the globe, is there so much sunshine, and so humid an atmosphere, as in Greenland.

If the sun's rays, shining through a dense atmosphere, tan our skins; and if the same cause, rendered more intense in Africa, occasions the blackness of night to be impressed upon that people, in Greenland they are also present; and it would be unreasonable to suppose, that the same effects did not follow. Let it not, then, any longer excite surprise, that the Greenlander is nearly black; that he is so, is indisputable; every traveller bears testimony to the fact; and in place of its being an exception to the general theory advanced, I mention it as a strong corroborating evidence of its truth. Light and moisture characterise the climate, and produce the same effect, in two opposite regions of the globe, and on people in every other respect unlike in their persons and in their manners.

The friends to the doctrine of gradation will not contend, that the negro and the Greenlander are the same people; that they sprang from one stock: if the complexion, therefore, be a hindrance to our embracing the Africans as brethren, it is equally so to our embracing the Greenlander: and was not Greenland peopled from Norway? and has England not received part of her inhabitants from the same country? If we make blackness of complexion a line of distinction we convict ourselves, for we are allied to some who are black.

But let us trace the subject with more care.---In the preceding sections it has been stated, that it was a commonly received opinion, that the colour of the inhabitants of warm climates originated in the influence of the sun; hence the name *Ethiopian*, which signifies *burned face*. And that this was greatly strengthened by the shade

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of colour becoming deeper as the climate became hotter. In France the first shade seemed to commence, in Africa to terminate.

The same forcible evidence applies to the colour which cold climates produce. It has also its minimum and maximum; its commencement and completion. Considering England, according to a former statement, as neutral territory, we must proceed beyond her borders; but no sooner do we leave them, than a northern climate, and a northern complexion begin to be manifest: in the Highlands of Scotland, both commence. There the summer sun shines with much beauty, and with long continuance; the days are longer, and the nights shorter than they are in England; but neither the season of the year, nor the beauty and brilliancy of the sun, nor the cloudless state of the horizon, can prevent a fog from rising in the east, and passing to the west, even at noon-day. It is indeed frequently of short continuance; a single hour, and the sun again appears without a cloud. This I call a characteristic mark of a northern climate. Let us now judge of its effects.

On the western coast of Scotland, summer fogs *(eastern haws,* as they are called in the country) are more frequent than in any other part of that kingdom; consequently their effect must be greatest there: and what is that effect? My view is directed to the complexion; on it their influence is considerable and decisive; and where the fogs are most frequent, the natives are the darkest-coloured. It is unnecessary to say, that all Highland peasants are somewhat swarthy, but that swarthiness increases as the conjoined influence of light, heat, and moisture become greater; hence its cause.

If we pass from the eastern to the western hemisphere, the same cause and the same effect strike our attention. The Californians who inhabit a country like Scotland, moderately warm, but extremely foggy, nearly approach to the colour of those negroes who are without woolly hair. *Perouse, p.* 197.

If we go thirty degrees farther north, we find the people of Hudson's Bay dark in their complexions; but the eyes of only part of that people are black; and their children are fair. The same may be said of the Scotch. The reason is obvious. The agents by which the skin is first tanned, and afterwards rendered of a permanent colour, though they are exerted with considerable force, in the countries we have been speaking of, yet they are limited to a few months in the year; so that little more than a tanning can be produced. And such is the fact, that children born in the Lowlands of Scotland, or the children of the noble and opulent families in the Highlands, are delicately fair; by being excluded from the climate, they are strangers to its complexion.

But the northern darkness is not every where a superficial colour; it is as complete and constitutional in the Greenlander, as the southern blackness is complete in the negro; from no other cause, I apprehend, than that the means of its production are greatest in those countries. In Greenland, black eyes, black hair, and a nearly black complexion, are uniform in all the inhabitants. So intense is the blackness, so powerful has the influence of the climate been felt, that were it continued through the year, it seems probable, that the blackness of the frigid zone would exceed that of the torrid.

Although I have cited the state of but few cold climates in evidence of the truth of what has been asserted, it has not been because they do not illustrate and confirm the position, but because of their uniformity and sameness; I therefore make the appeal general, and assert, that in every cold climate, in proportion to the length of the days and the fogginess of the atmosphere, the people are dark-complexioned.

Here I shall close my remarks on the nature and cause of the colour of the skin. If I have succeeded in proving it to be acquired, and not in any instance, originally to be an endowment, an unsought gift of nature, I have, I conceive, rendered some service to mankind, by removing inordinate prejudice, and by substituting a belief that the colour of the skin is neither capricious nor unuseful, but the great means by which man is enabled to possess and enjoy his vast domain. Thus constituted, he traverses the globe, and every where finds a mansion where he can repose himself. His home is every where; he knows of no place that is forbidden to him, in which food suited to his subsistence will grow; and this vast capacity of possessing, he owes to those powers of accommodation which reside in his skin.

SECT.

SECT. II.

Conclusion.

THERE are many who, with a sneer, protest against books being published which the circumstances of the times do not call for; and not a few will declare the present work to be of this description. They will say, that its great object, as it respects the Africans, whose cause it espouses, and whose condition it aims at alleviating, (by urging their right to the common blessings which the Author of being has poured upon man) was already accomplished; that their persons are no longer merchandise. No longer merchandise! Ask the planter, who it is that cultivates his land? Ask him, in what his property consists? And so long as Africans form a part of it, their cause will retain its interest with the benevolent and the just; and every view in which the subject can be considered, will be acceptable to them.

It is true, indeed, and it is an honorable truth, that the British flag will never more stream over the bodies of men purchased as oxen, and transported from their native country; but still slavery exists; and its miserable victims reach forth their hands to the humane, that preparatory steps may be taken for unloosing their bonds. Much, therefore, remains to be done. The first and greatest step is taken, by the abolition of the trade; and their complete emancipation may, by a continued attention to the subject, follow in its course: the nation long asked as a boon, that their brethren of Africa might be treated as men: it cleansed its hands of their blood, and the crime rested with the government. At length a band of patriots guided our counsels; and iniquity hid herself, while humanity triumphed. Yes! the slave trade is no more. The names of Fox, of Grenville, and of Howick, are made

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one with the fact.* They dared the opposition and malice of the interested! They discharged their duty, and braved the consequences. Posterity will reward, by approving their conduct; and will entwine for them the civic crown, which will never wither on their brows; for the last generation of our race will preserve, protect, and honour it. But it may be said, they already live in the affections of the people, which is manifested by their gratitude. No; they do not so live. Their services are forgotten. The men, by whose influence the slave trade was abolished, meet with no honour; they who were eager in asking the favour, withdrew their countenance when their request was obtained. It is true, the exalted rank, the unshaken patriotism, the consummate knowledge of these friends to their fellow men, command some attention, but it is extorted, and not freely given; therefore it is to posterity they must refer their conduct. Such treatment is not new in the annals of the world, for exalted worth has generally been neglected; and that merit is exalted which could effect so great an object as the abolition of the slave trade, an object so great, that it will be remembered, when the marble that shall bear the names of those by whom it was accomplished, shall have crumbled into dust.

For an explanation of this strange ingratitude we are directed to the corruption and ignorance of mankind. True, mankind are corrupt in their practice, but yet they are right in their judgment, and are therefore worthy of reproach.

The patriots of other ages, and of other countries, are admired and venerated; their busts ornament our dwellings. Their contemporaries rendered, as we do, an unwilling assistance, a feeble aid, to virtuous exertions; but now that co-operation is impossible, and envy is silenced; the voice of fame is loud in their praise; it will be loud in the praise of those who abolished the slave trade. Man naturally seeks for honour, and the most corrupt are frequently the most eager to possess it. Now mark the fact, Cæsar died covered with laurels; all that his contemporaries could do, to perpetuate his praise, was done; but posterity has taken the chaplet from his brow, and placed it on the head of Cato, and have enrolled Cæsar among the infamous. The judgment of posterity is ever in favour of virtue; the conduct of moderns countenances vice. Who, of the present day, does not wish that Cæsar had never lived, that Cato had never died? No mere warrior is honoured by posterity,

* I might here mention the name of Mr. Wilberforce, and of many other zealous advocates for the abolition of the slave trade; their services are before the public, and a reward justly awaits them; but there can be no comparison, in point of merit, between those who, supported by the voice of the nation, made more than twenty unavailing efforts, and the men who, under less favorable circumstances, succeeded at once.

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though in his life time no favor is denied him. The Spartans, who drew their swords at Thermophylæ, were patriots; Regulus was a man of honour: in short, every individual who has shed blood, and yet is spoken of with commendation, is indebted for that commendation to his personal virtues and not to his public profession. A poet is more honoured than a warrior, and a philanthropic philosopher rises far above the ordinary statesman. Homer and Virgil, Socrates and Plato, Thucydides and Tacitus, bear away the palm of honour from him who has conquered, enslaved, or corrupted his country.

If we limit our enquiry to the illustrious of our own nation, which are the names we admire, revere, and honour? Are they not those of Bacon, of Boyle, of Newton, of Shakespeare, of Milton, of Pope, of Arthur, of Sidney, of Russel; in a word, are they any but those who have enlightened their country by their wisdom, refined it by their taste, or benefited it by their patriotism. To the small number of such characters we can boast of, the present age makes an honourable addition: it adds the name of Fox. He greatly aided in breaking the negro's bonds, and has merited a place among the benefactors of the world. I am not here speaking on general politics; these I leave to others; but I have endeavoured to show, that those who were the chief instruments in abolishing the slave trade, are entitled to present, and will receive future, honour; and that so long as slavery itself shall continue to be exercised, it will be right to shew, that the master is not naturally superior to his servant.

In the preceding pages another object has also been embraced. The growth and consummation of the human body has been in some measure considered; and in proportion as health and beauty, activity and strength, are more desirable than their opposites, so the subject treated of is in its own nature interesting, and justifies the Author in his attempt to enquire into it.

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