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ON THE NATURAL VARIETY

OF

MANKIND.

AS I am going to write about the natural variety of mankind, I think it worth while to begin from the beginning, that is, with the process of generation itself. I do not intend to put forth a system, or frame hypotheses, or enter into the intricacies of a labyrinth, out of which I should scarce find an exit; or, lastly, stir up cud already chewed a thousand times. Nor am I one to write the Iliad after Homer, that is to say, the universal history of generation after the immortal labours of the great Haller; but to spend only a few words upon a matter, which may be considered as demonstrated from the repeated observations and profound judgment of the most learned men, and which will throw some light on my subject.

The part which each sex takes in the generation of the foetus, and which of the two has the greatest influence has occupied the principal philosophers and physicians for many thousand years. It was reserved at last for the profound sagacity of Haller, to be the first who was bold enough to break open the bars of nature's doors, and to unfold, from observing the incubation of eggs, so often investigated before by eminent men, that great mystery, which it was thought could be explained by nature alone; and in the fewest possible words I must here give his account of the matter¹. A close dissection of impreg-

¹ I use almost the exact words of the illustrious discoverer. *Opusc. min.* II. p. 418. *Physiol. T.* VIII. See also Bonnet, *Corps Organises*, I. p. 107.

nated eggs shows that the intestine of the chick is so of a piece with the envelopes of the yolk that the first envelope forms the skin of the foetus; the second envelope forms the exterior lining of the intestine jointly with the mesentery and the peritonæum of the foetus; the third is the covering of the interior intestine, and is produced from the same membrane as the ventricle, the œsophagus, the throat and the mouth, from what is in fact the skin and the epidermis of the foetus: that the yolk takes up the arteries from the mesenteries of the chicken itself. It follows from this, that the whole egg is part of the mother, in whom the ovarium lies with all its eggs quite perfect, before any contact with the male has taken place. Then, that the foetus is part of the egg, or at all events is joined to the egg by an inseparable bond, for the yolk (and that alone) constitutes the egg, together with its envelope, whilst it is in the mother, but that yoke is so united with the foetus by its duct, that it forms but one continuous body. Hence it is proved, by direct demonstration, that the embryo is contained in the maternal egg, and that the female supplies the true stamina of the future foetus. That primeval germ would lie buried as it were in eternal slumber, were it not aroused by the access and stimulus of the fertilizing seed of the male, and particularly by the subtle odour of his parts, which are particularly adapted for causing irritation; and then it breaks forth from the Graafian follicle in which it was shut up, runs through the canal, and in this way comes into the womb; there again it is finally unfolded and developed, and changed in some of its parts by the influence of the male, comes out like its parents. It leaves a manifest trace of its former habitation in the ovarium, in the shape of an opaque body, which takes its place¹. The offspring at last brought to light, and in the process of time become adult, can produce like with the other sex of its species, whose posterity ought to go on forever like their first parents. What then are the causes of the

¹ As to this little body, which was also illustrated by the labours of the great Haller, see *Hist. de l'Acad. des Sc. de Paris*, 1753, No. VII., and *Physiol.* T. VIII. p. 30. It is well delineated from dissected bodies by W. Hunter, *Anatomia Uteri Humani Gravidi*. Birm. 1774, Tab. 15, 29, 31.

contrary event? What is it which changes the course of generation, and now produces a worse and now a better progeny, at all events widely different from its original progenitors? This it will be our business to answer in the course of this dissertation. But in order not to break the thread of the discussion, it will be better to make a few preliminary observations.

First of all I will say a few words about the influence of climate, whose effects seem so great that distinguished men have thought that on this alone depended the different shapes, colour, manners and institutions of men¹. There are, however, two ways, in which men may gather experience of a change of climate, both of which are to our purpose. They may emigrate and so change the climate, and also it may happen that the climate of their native country may sensibly become more mild or more severe, and so the inhabitants may degenerate. Several examples of each kind will be given in the proper place. It will be sufficient to say here that there is no diversity of habit, which may not be produced by varieties of climate; which is extremely apparent, even from the history of brute animals. If European horses are transported towards the east, as to Siberia, China, &c., in process of time they, as it were, dwindle, and become much smaller in body, so that at last you would scarcely recognize them as being of the same species. Cattle, on the contrary, whether they are sent to the Yakutan peninsula, or Kamtshatka, or Archangel, turn out taller and more robust, and the same thing has been experienced with English sheep in Sweden.

The squirrels on the river Obi are larger by one third than those which are found at Obdorsk², &c., to say nothing of the difference in colour, which observation shows to vary with still greater facility. But that the climate of the same country may

¹ Polyb. T. I. p. 462, ed. Ernesti: "for through this cause and no other we differ most from each other in our ethnical and universal distinctions, in customs, in shape, and colour, and in most of our institutions." Comp. besides, Cardan in Hipp. *De aer. aq. et loc.* p. 218, who goes at length into the effects of climate on human bodies.

² Steller, *von sonderb. Meerthieren*, p. 41 sqq.

undergo a change, no one can doubt, who will only compare this very Germany of to-day with ancient Germany, or our own contemporaries with our ancestors¹. There was a time when the elk, now only an inhabitant of the extreme north, was common on the banks of the Rhine, and when that very river was so often frozen that the Gauls themselves used to offer sacrifices to prevent its affording a passage to our ancestors, their neighbours; when the most prodigious forest covered almost the whole country, and when there were no vintages, and other very good reasons of the same kind, which will account for our being unable to find the huge bodies of our ancestors, powerful only for attack, their firm limbs, threatening countenances, and fierce eyes, in the Germans of our age.

Besides the climate there are other causes, which have indeed an influence in altering bodies; many of these you might say depended, however, upon the climate themselves, but there are others which it is very clear have nothing to do with it. Amongst these influences above all we must set down the mode of life and of bringing up. The examples of domestic animals are trite, which manifestly have diverged into astonishing varieties, and almost put off their original nature. I have mentioned the effect climate has upon horses, and we shall now see how they are affected by mode of life. It is quite astonishing how wild horses² differ from our geldings by their small stature, their large heads, their murrey colour, their shaggy coats, and by a ferocity of disposition, which is almost untameable, so that they seem to approach almost nearer to the ass than to our domestic horses. Indeed, the famous Gmelin had scarcely any hesitation in believing that the tame horse, the wild horse, and the ass, were all of the same species, and that the latter had by circumstances alone degenerated from the tame horse; but this is going too far, because the ass has

¹ Conring. *De Germanic. corp. habitus antiqui ac novi causis*, learnedly according to his wont.

² Rzacyński, *h. n. Pol.* p. 217. Pallas, *Reisen*, I. p. 211. S. C. Gmelin, *Reis.* I. p. 44 sq. *fig.*

certain interior organs which are wanting in the horse¹, and the reverse also is true. However, among horses certainly wild, and also among our own, we may perceive a great difference in strength between those which feed upon natural pastures², and those which are kept in stables. For example, it is known that a colt, if it is born in a feeding-ground of the former kind, within half-an-hour after its birth will run after its dam seeking food, but if it is born in a stable, it will frequently lie for twenty-four hours and more on the ground, before it dares to stand on its feet.

As yet I have touched on two causes which change the form of animals, climate and mode of life. It remains to speak of the third, namely, the conjunction of different species, and the hybrid animals thence produced. It is a difficult subject, although after the labours of recent authors³ I may treat it briefly.

There are three cases in the discussion about hybridity which ought to be clearly distinguished. First, the mere copulation of different animals; secondly, the birth of offspring from such copulation; and, thirdly, the fertility of such offspring and their capacity for propagation.

The latter case, although rare, (and that by the providence of the Supreme Being, lest new species should be multiplied indefinitely,) I would admit of in beings closely allied. At all events there are many testimonies to the fertility of mules⁴. There is no reason for doubting that hybrids have sprung from the union of the fox and the dog, and those too capable of generation, as the Spartan dogs or alopekides of the ancients.

¹ On the organs of the voice, Herissant, *Mem. de l'Acad. des Sciences de Paris*, 1753, Tab. 9 sq.

² As the *Lippenses*. Comp. J. G. Prizelius, *Vom Senner gestüte*, 1771, 8vo.

³ Buffon frequently but especially on the degeneration of animals, xiv. p. 248, and *Suppl. T. III. p. 1*. H. S. Reimar, *Natürl. Religion*, p. 411. Gleichen, *Saamenthiere*, p. 24; and above all Haller, *Physiol.* viii. pp. 8, 100.

⁴ Aristot. *De gen. an.* II. 8, says they can only be conceived at a certain time. Varro, *De re rust.* II. 1, 27. Columella, VI. 37, 3. Plin. VIII. 44, and Harduinus. *Barthii Adversar.* 42. Bochart, *Hieroz.* I. 2, 20. Recently Rozier, *Obs. sur la phys.* 1722. Comp. Gleichen, *l. c.* p. 25. Such things are often mentioned among the prodigies related by Livy and Obsequens.

There is still at Göttingen the daughter of a fox (from which many children have been born) which was impregnated by a domestic dog; and in it you may still recognize the smooth forehead and other marks of the ancestral form. The experiments of Sprenger¹ prove the prolificacy of hybrid birds.

The number of infertile hybrids is so copious as to be tiresome to count. Of all these, mules, so far as we know, are the most ancient. For although we may doubt their being antediluvian², nor dare ascribe their discovery to Anah³, yet their extreme antiquity appears even from profane authors⁴, and almost the first monuments of art⁵. To these rarer hybrids may be added the one Linnæus saw from the copulation of the *Capra reversa* with the *Capra depressa*⁶. But I do not quite trust Hesychius, when he says that the jackal comes from the union of the hyæna and the common wolf⁷. With respect to the union of dogs and apes⁸, and the hybrids so born, I still remain in doubt. The animals seem too different; still I have known two instances, where bitches are said to have been impregnated by male apes, to which I should think it wrong to refuse credit. One took place in the territory of Schwartzburg; and a picture of this hybrid, carefully drawn, is in the possession of Büttner, who very kindly lent it to me. It represents a dog, of smaller size than the domestic dog, and of a dirty yellow colour; its eyes, ears, and hairy collar differed from the common dog, but it is said were very like those parts in the father. The other instance is related by an eye-witness, worthy of all belief, to have occurred about three years ago at Frankfort-on-the-Maine; that a bitch brought forth offspring by the *Simia Diana* of Linnæus, in ferocity, disposition, and in its gibbous habit

¹ *Opusc. Physico-math.* Hannov. 1753, p. 27.

² Pererius, on *Genesis*, T. II. p. 185, discusses at length the question if the mule entered Noah's ark or not?

³ *Genes.* c. 36, v. 24. Bochart, *l. c.* at length.

⁴ Hom. II. B. 852, who derives them from Enes.

⁵ On the coffer of Cypselis. Heyne, *über den Kasten des Cyps.* p. 58, circ. B. c. 660.

⁶ In the Clifford menagerie. *Syst. Nat.* ed. XII. p. 96.

⁷ Bochart, *Hieroz.* I. p. 832.

⁸ Osbeck, *Ostindisk Resa.* p. 99.

and long tail, exactly like its father. I leave this business to be investigated by those who, perhaps, may have an opportunity of more accurately observing it; for the difficulties are well known which occur in experiments of this kind. It is very hard to prevent the animals upon whom the experiment is to be made from consorting with others, and at the same time not to destroy the desire of copulation: moreover, if offspring have anything peculiar by accident, it is instantly attributed to a diversity of parentage. And what makes me suspicious about these things is this especially, that I have seen many apes of both sexes and different species constantly living for many years in the midst of dogs, also of different sexes, and yet never saw anything of the kind. On the other hand, instances of false reports are very common, as that of a cat, born together with two puppies, the report of which reached this neighbourhood a few years ago; but when it was properly examined, the little creature which they called a cat, was easily recognized by the more sagacious as a puppy slightly deformed, and the whole prodigy became a joke. Nor can I otherwise interpret Clauder's account¹ of a cat being impregnated by a squirrel, of whose litter one is said to have been like the father, and the rest like the mother; and other stories of the same kind.

From all this we must carefully separate the plainly fruitless unions of animals of different species. I will allow that male brutes when burning with desire, and unable to obtain females of their own species, may sometimes be so excited by others, whom they come in contact with, as perchance to copulate with them; but I think that with very few, and those only very nearly allied, is this actually successful, and in most cases the attempt is ineffectual. There are, however, good reasons for refusing to believe that from any incongruous attempt of this kind, offspring can be born or even conceived. Here let us consider the unequal proportions of the genital organs in many²; which parts are providently and carefully adapted for copulation

¹ *Eph. N. C. dec. 2. ann. ix. p. 371.*

² *Haller, Physiol. viii. p. 9.*

in either sex of the same species; but in distant genera render the whole thing impossible, or at all events very difficult, and certainly unfit for the purposes of conception. Besides, I do not see according to what laws the offspring of this kind, coming from diverse parents, is to be formed in the womb, since in each species of animals there are certain and very definite periods for the gestation and pregnancy of the mother, the formation and progressive development of the fœtus. It will, however, be worth while to relate some instances of connexions of this kind which have been formed contrary to nature.

Of all these the most paradoxical seems to be the union of a rabbit with a hen, so celebrated by Reaumur¹; but on which doubt has been thrown by his own pupil Buffon², Haller³, and others; indeed, Buffon could not even succeed in raising a progeny from the hare and the rabbit, animals so nearly allied, although he suspected copulation took place. That illustrious philosopher seems, therefore, correct in supposing that if the rabbit of Reaumur ever did tread the hen, it must have been done from extreme lasciviousness, and had there been no hen the animal would have made use of something else for the same purpose. Meanwhile there are other evidences to this remarkable fact. Thus my revered tutor Büttner, himself, often saw rabbits treading hens, and they afterwards laid empty eggs (*hyponemia* or *zephyrea* as the ancients called them).

I have often seen a rabbit running about alone amongst broods of fowls, and playing with and imitating them, but I never could observe that it attempted anything more, or really had connexion with them. I have been told the same story about a house dog of Matthew Gesner, who they say also used to tread hens. I am not much surprised at this, since it is well known that dogs, when in heat, make use of inanimate things sometimes in order to effect their purpose. It is said that the *Gallus calecticus* has been known to tread the duck, and in the

¹ *Art de faire eclorre les poulets*, T. II. p. 340.

² *Hist. Nat.* vi. p. 303.

³ *l. c.* and in Bonnet, *Corps Organ.* II. p. 214.

same way that the drake treads the hen, and that chickens of wonderful forms are the result¹. They have often been observed to copulate. There is still in the town a drake which treads the hens, but they are barren. But I will pass over many instances of this sort of monstrous and fruitless copulation, since I wish to say a little about the jumars, those famous hybrids from two clearly different species, the bovine and the equine.

I do not know whence Buffon² took it, that Columella had mentioned jumars, and that he had been quoted by Conrad Gesner. I cannot find either the mention in the one, or the quotation in the other. On the contrary, I think Gesner was the first to mention jumars³. For I cannot take notice here of the filly born from a cow at Sinuessa in Livy⁴, since he speaks of it as a most unheard-of prodigy. But Tigurinus Polyhistor says "that he once heard that a particular kind of mule was to be found in Gaul, near Grenoble, which was sprung from an ass and a bull, and called in the vulgar tongue *Jumar*. And in the Swiss Alps near Coire, in the Splugen country, he had heard on credible testimony, that a horse had been born from a bull and a mare⁵." Jerome Cardan, a contemporary of Gesner, has also mentioned jumars, and says they have superior teeth⁶, and are very strong and bold⁷. After him Joh. Baptist Porta reports that he himself had seen at Ferrara an animal of this kind, in shape like a mule, with a calf's head, two protuberances in the place of horns, black in colour, and with the eyes of a bull⁸. Things of this kind are repeated down to the time of John Leger, who discourses at great length⁹ about them, and also gives a print of them¹⁰. He says "that jumars

¹ *Physic. Belustig.* p. 392. Spal'anzani in *Memorie supra i muli.* p. 18.

² T. XIV. p. 248.

³ *Hist. quadrup. vivip.* pp. 19, 106, and 799.

⁴ *Dec.* III. l. 3.

⁵ *Comp. Jac. Rueff, De conceptu.* p. 48 a, in the history of monsters.

⁶ *Contradic. Medic.* I. II. tr. VI. *Contrad.* 18, p. 444.

⁷ *Ib.* p. 448.

⁸ *Mag. Nat.* l. I. c. 9. He adds that they were common in some parts of France, although he did not see one when he passed through.

⁹ P. Zachias, *Quæst. med. legal.* T. I. p. 533, from a mare and bull.

¹⁰ *Hist. generale des Eglises évangéliques de vallées de Piémont ou Vaudoises,* Leyde, 1669, p. 7, and in *Almanach de Gotha,* 1767, p. 63.

are born from the union either of a bull and a mare, or a bull and an ass: the former are taller, and called *Baf*; the latter smaller, and *Bif*; that the former have the upper jaw evidently much shorter than the lower, like swine; that the upper teeth are placed further back than the lower, to the distance of a thumb, or two fingers. In the latter, the *Bif*, the lower jaw is shorter than the upper, as is the case in hares, and the upper teeth project beyond the lower. So that neither kind can graze in the fields, unless the grass is so long, that they can crop it with the tongue. These hybrids are exactly like an ox in the head and tail, and the places for horns are marked by small protuberances. As to the rest, they are exactly like an ass or horse. Their strength is wonderful, especially compared with their small body; they are smaller than common mules; they eat little and are swift; that he himself went in one day 18 miles among the mountains with a jumar of this kind, and that much more comfortably than he could have done with a horse."

After this account more recent¹ authorities have received others in good faith, and report that jumars are to be found elsewhere besides in Piedmont; according to Shaw² at Tunis and Algiers, according to Merolla³ at Cape Verde, and by others in Languedoc⁴.

Naturalists gradually became more sceptical of the fact and were disposed to dissect this kind of hybrid. Reaumur⁵ met with a disappointment and so did Albinus, who had ordered one from Africa, which perished on the way. Bourgelat, the veterinary surgeon, was afterwards fortunate enough to be able to dissect a jumar in the theatre of Lyons⁶, but the results

¹ Venette, p. 324, from a horse and cow. It was reported that the offspring of an ass and a cow had cloven hoofs. Bourguet, *Lettres philosophiques*, iv. p. 160, and from a bull and an ass *Manuel Lexique*, Paris, 1755. *Encyclop. Paris*. T. ix. p. 57. B. S. Albinus in *Prælec. physiol. Msptis*. Still more recently the author of the book *Cours d'hist. nat. ou tableau de la nature*, T. I. Paris, 1770, 12mo. See Gleichen, *loc. cit.* p. 29.

² *Travels*, p. 239, ed. Oxf., 1738, there called *Kumrah*.

³ *Voyage to Congo* in Churchill's *Collec.* T. I. p. 655.

⁴ *Diction. Languedocien François*, par M. l'Abbe de S... à Nimes, 1756, 8vo. p. 256.

⁵ *Mem. sopra i muli*, p. 6.

⁶ *Avant-coureur*, 1767, No. 50 sq.

of his labours are not satisfactory, because he seems to have trusted too much to report. "The ventricle was in shape like that of the horse, but much larger. The jumar had altogether much more of the mare than of the bull, both as to its external form, and its interior constitution, especially as regards the ventricle, whose singular structure in the bovine genus, on account of their rumination, is well known. And thus the observation of those physicians stands confirmed, who assert that the mother has a larger share in the formation of the foetus than the father." The consequence therefore of this investigation was that the learned knew less what to think than ever¹. Afterwards Buffon had two jumars dissected; one from the Pyrenees, the other from Dauphiné. In neither of them was any trace of a bull to be found².

All this however was not enough for inquirers into natural history. And at last, at the request of some men of great note, Bonnet, namely, and Spallanzani, Cardinal delle Lanze had two jumars³ dissected by a skilful hand, and ordered anatomical plates of them to be engraved. It is very clear from these efforts that the pretended jumar is nothing more than a mere hinny⁴ (*bardeau*). The larynx, glottis, ventricle, biliary ducts, are all specifically equine and not bovine.

Thus was finally proved what was suspected from the first by the great Haller⁵. I myself have lately seen at Cassel quite closely two hinnies, which report asserted to be jumars. They were of the size of a large ass, and very like one in shape,

¹ *Dictionn. des animaux*, T. II. p. 555. Bomare, *Dict. Nat.* T. VI. p. 174.

² *l. c.*

³ Bonnet on Spallanz. ep. *Mem. sopra i muli*, p. 11. *Encyclop. par De Felice*, T. XXV. p. 242.

⁴ From the stallion and she-ass. Varro, *De re rust.* II. 8, 1. Columella, VI. 37, 5. Plin. VIII. c. XLIV. 5. Hesych. "Hinny, of which the father is a horse, and the mother an ass." Smaller than the mule, very patient of labour, tail like an ass, &c. Linnæus evidently transposed the terms of hinny and mule in *Amœn. Acad.* VI. p. 12, *gen. ambig.*

⁵ *l. c.* p. 9. "This seems to me too much, nor is there any proportion between the pizzle of the bull and the vagina of the mare." The same difficulty which I suggested above occurs here, if we compare the novimestral pregnancy of the cow with the undecimestral of the mare.

black in colour, with horses' teeth in each jaw¹; no vestige of rumination, &c.

But to return from this digression. What has already been said serves partly to show the difficulty of dealing with the accounts of hybrids of species very different from each other, and partly as some sort of proof of development; and will afterwards be of use to us when in varieties alone it will help to show that the greater part of the form in animals is derived from the mother, and very little from the father.

Let me say only a very few words about those human hybrids which credulous antiquity so frequently declared to be born or generated from brutes², but to which not only physical arguments but also moral ones of the greatest importance forbid us to attach the slightest faith; so that it seems extremely likely that the Supreme Being foresaw these disgusting kind of unions and took care to render them futile.

Those points which ought to be carefully attended to in any discussion upon hybrids, and which I took notice of above³, must not be neglected here.

That men have very wickedly had connexion with beasts seems to be proved by several passages both in ancient⁴ and modern writers⁵. That however such a monstrous connexion

¹ Comp. also *Bemerk. eines reisend. durch Deutschland, Frankr. Engl. u. Holl.* 2 Th. p. 60 sq.

² Jac. Rueff, Paræus, Aldrovandus, Schenk, Licetus, and other compilers of prodigies. On the Swedish girl ravished by a bear, and the hero she gave birth to, see Sax. Gramm. and Olaus Magnus. (The rage of bears against pregnant women and the singular remedy for it perhaps occasioned this fable.) A similar story occurs in Vinc. le Blanc, *Voyages*, p. 119 sq. The instances in the writings of the ancients have been studiously collected by Fortun. Fidelis, *De relat. Medic.* p. 493 sq. Storch, *Kinderkrankh.* I. p. 16, relates some more recent ones.

³ P. 73.

⁴ Plutarch in several places in the *Symposia* and the *Parallels*. Virgil, *Ecol.* III. 8. That Semiramis carried her passion for a horse to that point is asserted by Juba, in Pliny, VIII. c. 42.

⁵ On the 3000 Italian auxiliaries to the Duc de Nemours, in 1562, who were sent into Dauphiné, and who ravished the she-goats, see Bayle, *Dict.*, Art. *Bathylus*, T. I. p. 469. Th. Warton on Theocr. *Idyll.* (Oxford, 1770, 4to.), I. 88. p. 19. "I have heard from a learned friend, that when he was travelling in Sicily, and was accurately investigating the ancient monuments and the manners of the people, that one of the usual points of confession which the priests were in the habit of

has any where ever been fruitful there is no well-established instance to prove. Indeed those things which are related of the intercourse of Indian women with the larger apes and of their anthropomorphous offspring¹ seem dubious and fabulous even to James Bontius², who is in other respects sufficiently credulous. And even if it be granted that the lascivious male apes attack women, any idea of progeny resulting cannot be entertained for a moment, since those very travellers relate that the women perish miserably in the brutal embraces of their ravishers³.

I now leave this disgusting theme, and all the more willingly, because I must draw near our goal; but still a few words must be said upon the actual ways in which man differs from other animals, before we investigate the varieties of men amongst themselves. The theme is indeed a most fruitful and admirable one, but the narrow limits of this book do not permit me to linger long over it, and it is necessary in this place to dismiss it in a few words; although the slender matter which I have got together on this interesting subject, I will gladly promise to give elsewhere to the public.

I think I shall here perform my duty best, if I first say a little about the endowments of the mind, and then about the bodily structure. Not indeed that these two points have apparently the slightest relation to each other. For it would clearly be impossible to draw any inference from comparing the organic structure of animals with the human body, as to their respective mental faculties: which will easily appear to any one who compares an elephant or a horse with an ape (which Reines⁴ calls the copy of a man, or even a man as

examining the Sicilian herdsmen who spent a solitary life upon the mountains about, was whether they had anything to do with their sows."

It is said that the organs of the Manatis are so like those of women that the Arabs copulate with them. Comp. Michaelis, *Frag. an die nach Arab. reisenden*, p. 115.

¹ See Zucchelli, *Relat. di Congo*, p. 148.

² *Hist. Nat. et Med. Ind.* v. c. 32. "Let boys believe who have not yet to shave."

³ Comp. Wieland's elegant dissertation on this point against Rousseau, *Beytr. zur geh. gesch. des M. V. u. H.* II. p. 50.

⁴ *Var. lect.* p. 69.

regards the structure of the face, the *φοράν* and the motions of the limbs).

As to the discussions, which in this age particularly, have stirred up so many barren disputes about the mind, the reason, and the speech, &c. of brutes, they do not seem to me to be really so difficult or confused, if a man have only a moderate familiarity with the habits of animals, some knowledge of the physiology of the human body, and be sufficiently free from prejudices.

Man then alone is destitute of what are called *instincts*, that is, certain congenital faculties for protecting himself from external injury, and for seeking nutritious food, &c. All his instincts are artificial (*kunst-triebe*), and of the others there are only the smallest traces to be seen. Mankind therefore would be very wretched were it not preserved by the use of *reason*, of which other animals are plainly destitute. I am sure they are only endowed with innate or common and truly material sense (which is not wanting either to man), especially after comparing everything which I have read¹ upon the rational mind of animals with their mode of life and actions, and what perhaps is the most important speculation, and demands most attention, with the phenomena of death, which are very much like both in animals and men². Instinct always remains the same, and is not advanced by cultivation, nor is it smaller or weaker in the young animal than in the adult. Reason, on the contrary, may be compared to a developing germ, which in the process of time, and by the accession of a social life and other external circumstances, is as it were developed, formed, and cultivated. The bullock feels its strength so much as to threaten, though its weapons of offence do not yet exist;

Before his horns adorn the calf, they're there,
All weaponless he butts, and furious beats the air³;

¹ Very recently in *Deutsch. Merkur*. 1775, September, October.

² Cardan, *De subtil.* l. XI. p. 551, T. III. *Oper.* "Man is no more an animal, than an animal is a plant. For if an animal, although it is nourished and lives, does not deserve the name of a plant, nor is entirely a plant, because it has a life which feels over and above the plant, since man has a mind over and above the animal, he ceases to be an animal," &c.

³ Lucret. v. 1033. Comp. Reimar, *Trieb. der th.* p. 202.

whence unless from some interior sensation? To man, on the contrary, nothing of the kind happens. He is born naked and weaponless, furnished with no instinct, entirely dependent on society and education. This excites the flame of reason by degrees, which at last shows itself capable of happily supplying, by itself, all the defects in which animals seem to have the advantage over men. Man brought up amongst the beasts, destitute of intercourse with man, comes out a beast. The contrary however never occurs to beasts which live with man. Neither the beavers, nor the seals, who live in company, nor the domestic animals who enjoy our familiar society, come out endowed with reason.

From what has been said, the direct difference between the voice and speech of animals is plain¹, since we consider that man alone ought to be held to possess *speech*², or the voice of reason, and beasts only the language of the affections. In process of time, the mind becomes developed, and finds out how to express its ideas with the tongue. Young children give names to those they love, which is the case with no animal, although they can distinguish their master and those familiar to them well enough. Those stories are utterly undeserving of attention which the old travellers related about the language of certain distant nations, who they said were endowed with nothing but an inarticulate and, as it were, brutish voice. It is indeed beyond all doubt that the fiercest nations, the Californians, the inhabitants of the Cape of Good Hope, &c. have a peculiar sort of speech, and plenty of definite words, and that animals on the contrary, whether they be like man in structure, as the famous orangutan is³, or approach man in intelligence, to use the words of Pliny about the elephant, are destitute of speech, and can only

¹ Count de Gebelin says elegantly in *Plan général du monde primitif*, p. 10, "Language is twofold: that of the sentiments and of the ideas. The first is common both to man and the animals, though much more perfect in the former. The second is absolutely peculiar to man, for it can only be adapted to him, inasmuch as it answers to the operations to which he alone of all the beings who inhabit the earth can elevate himself."

² Hence some of the Rabbins not inaptly call man *the speaking animal*.

³ Th. Bowrey, *Malayo Dictionary*, London, 1701, 4to. Ott. Fr. v. d. Gröben, *Guineische reisebeschr.* p. 31.

emit a few and those equivocal sounds. That speech is the work of reason alone, appears from this, that other animals, although they have nearly the same organs of voice as man, are entirely destitute of it¹.

If now any one casts an eye on the human body, it would certainly be more easy to distinguish man from every other animal at the very first glance, than to lay down any fixed criterion² by which he differs from the rest. It would seem as if the Supreme Power had avoided giving any distinct and persistent characters to the human body, just in exactly the same proportion as this its highest master-piece far excels all other animals in its noblest part, which is reason.

But it will be worth while to reckon up, one by one, a few of those things which seem peculiar to our bodies. First of all I would speak of the erect position of man, which I cannot leave untouched because of the recent paradoxes of P. Moscati³; although it is very tedious to serve up, and as it were to chew over again a matter which has been most thoroughly investigated, and is clearer than the noon-day sun. It is true, I can believe that this elegant author, who is in other ways worthy of all praise, composed this book as an attempt and not quite seriously, partly because he has made use of arguments which you would scarcely expect to find from a man not only acquainted with human and comparative anatomy, but from one who constantly appeals to both; and partly because he leaves quite unnoticed points of indisputably great importance as to the bipedal structure of man, which have already been most diligently handled by the great Galen⁴, and the immortal Barth. Eustachius⁵. I could easily allow our author⁶ that there is little

¹ I have myself found the uvula in apes, and the other parts of the larynx exactly like those in man. See on the Pygmy, Tyson, p. 51.

² Linnæus could discover no point by which man could be distinguished from the ape. *Præf. ad Faun. Suecic.*

³ *Delle corporee differenze essenziali, che passano fra la struttura de' bruti, e la umana.* Milano, 1770.

⁴ Especially in his precious books *De usu partium*, l. III. c. i. p. 125 sqq., c. 16. p. 193; l. XIII. c. II. p. 765, ed. Lugd. 1550, 16mo.

⁵ Throughout the *Ossium examen*, pp. 175—182, ed. Venet. 1564, 4to.

⁶ P. 34.

weight in those common arguments for the erect position of man, deduced from the position of the great occipital foramen¹, the proportion of the feet to the hands, the mammæ, the chest², and the shape of the shoulder-blade; although there remain the greater difficulties of the parts which so wonderfully prove that the walk should be bipedal. I say nothing of the apex of the heart and its direction in the embryos of man and the brutes; this indeed our author³ mentions, but yet explains in such a way that he seems to give a handle to the opposite opinion. I say nothing of that powerful argument deduced from the movement of the head and its connexion with the first cervical vertebræ, and I omit it the more readily, because of that elaborate work of Eustachius on the point⁴, which I should have to transcribe almost in its integrity. The pelvis alone, and the construction of the feet would easily bring over to my view those in other respects acquainted with anatomy, if they would compare even cursorily the composition of the bones of the quadrupeds with those of man. Let any one look at the broad flanks of the human skeleton, ending below in a narrow hip, the short pelvis largely dilated above but narrowed below so as to open an escape for the fœtus, yet carefully provide for the prolapsus of the womb, and then compare these things with the oblong right-angled and almost cylindrical pelvis of quadrupeds with their wide hip, and their outwardly curved ischiatic prominences; lastly, let him observe the construction of the glutei muscles, and the connexion of the muscles of the leg in man and the brutes, and then let him say if he thinks it probable that they can have the same mode of locomotion. Let any one make the experiment on some fresh animal skeleton, or at least let him look at Coiter's picture⁵ of the erect skeleton of a fox, going along in the most ridiculous manner on its hind-feet, and then let him imagine a human skeleton resting upon its arms and feet, and

¹ Daubenton, *Sur les différences de la situation du grand trou occipital dans l'homme et dans les animaux. Mém. de l'Acad. des Sc. de Paris*, 1764, p. 568.

² See Eustach. *l. c.* p. 175.

³ P. 26.

⁴ *l. c.* p. 234 sq.

⁵ *Scelet. animal.* Norib. 1575, fol. mag. Tab. II.

he will not but see that a bipedal brute and a quadrupedal man would equally pass for prodigies. Inseparable also from the general consideration of the pelvis is that other proof derived from the *acetabulum*, and the head and neck of the thigh-bone. And that this neck is oblong in man, and goes downwards with a sensible obliquity, but is short in brutes, even in apes, and nearly horizontal; and the head more obliquely articulated with the hip; so the whole structure of the bones of the feet, the thick calcaneum of man, the juncture of the ankle with the sole of the foot, which in man too is oblong and broader, and many other things of the kind which point in this direction, disagreeably trite and too well known to students of anatomy, but difficult to be understood by those unacquainted with medicine. For which reason I think it would be foolish to say much about them, especially as I have indicated the sources to which those should go who want still more proofs of so easy a matter.

Another property of man comes directly from the foregoing, namely, his two hands, which I consider belong to mankind alone; whereas apes, on the contrary, must either have four or none at all, of which the great toe being separated from the other fingers of the feet serves the same purposes which the thumbs do in the hands. This is so certain, that on that account alone the foetus said by Robinet¹ to be that of a pongo, must certainly be considered a human embryo, even if no notice be taken of the other proportions of the bodily parts, and the whole structure which is entirely human. Hahn² besides Galen³ has written expressly on the admirable formation of the human hand.

All these things therefore being duly weighed, I am induced to consider even that famous animal the orang-utan as a quadruped. I know indeed that several authors of voyages have said a good deal about him, and given him out as a biped. The reasons which induce me to come to a different conclusion, besides the tendency of many travellers to exaggerate a little what is extra-

¹ *Essais de la nature qui apprend à faire l'homme*, Tab. IX. p. 155.

² J. F. Hahn, *De manu hominem a brutis distinguente*, Lips. 1719, 8vo.

³ *l. c.*

ordinary, are the following; in the first place, some who have described these animals have said only that it *frequently*¹ goes on its hinder feet, which at least excites a suspicion, that they do go on all fours like other animals: moreover, many are depicted in the plates as leaning upon a club, after the fashion of dancing bears². The palm of their hands is as deeply furrowed, and marked with folds and slits as the soles of their feet³. The depressed and receding heel-bones prevent their walking firmly. If you examine them more closely, the elongated pelvis, and especially the muscle called *elevator claviculae*⁴, make it highly probable that a quadrupedal gait is natural to this animal. The instance of the long-armed ape is favourable to the same opinion⁵. Man therefore is the only biped, unless any one likes to put forward the manati, birds, (especially penguins,) or the lizard *Siren*. The example of those unfortunate creatures who, according to accounts, have been here and there brought up amongst wild beasts, goes no way to show that the erect position is not natural to man. Hard necessity, perhaps too imitation, taught these wretches to go on their hands and feet at the same time that they were obliged to creep through woods and fruit-bearing copses, and even into the dens and receptacles of wild beasts; nor is it quite certain that it was the case with all. The Hessian boy⁶ found amongst the wolves *sometimes* only walked as a quadruped; the girl of Zell⁷, and the girl of Champagne⁸, and the boy of Hameln⁹ went upright. And the argument deduced from the first crawlings of infants is much weaker still, since it must be very well known to any one who has observed them, that they scarcely ever crawl as quadrupeds, but rather squat upon their buttocks, rest upon their

¹ Leguat, T. II. p. 95—*souvent*—Tulp. I. III. c. 56—*multoties*.

² Tyson, Edwards, Buffon. The orang-utan which I saw myself alive at Jena in 1770 could not go on its hinder feet without the assistance of a stick, nor walk about easily at all.

³ Le Cat, *Traité du mouvement musculaire*, Tab. I.

⁴ Tyson, *Anat. of a pygmy*, figs. 3, 12, p. 87. *Opusc.* London, 1751.

⁵ *Homo lar.* Linn.

⁶ Dilich. *Hessische Chronick*. P. II. p. 187.

⁷ *Bresl. Samml.* January 1718, August and October 1722.

⁸ *Hist. d'une fille sauvage*, &c. Paris, 1761, 12mo.

⁹ *Bresl. Samml.* December, 1725.

hands¹, and as it were row with their feet. Pliny² therefore was not quite correct when he said that the first promise of strength and the first gift of life was to make a man like a quadruped.

As to those who make out the erect position to be the fomentor of disorders, they must forget both veterinary practice and the diseases³ which we find afflict both wretched men and fierce quadrupeds.

Besides his erect position and his two hands there are some other things to be considered which also seem peculiar to man. Of all animals he alone seems to be placed on the earth *altogether naked and defenceless*, since he has neither powerful teeth, nor horns, nor talons, nor a shaggy hide, nor any other protection. It is no use objecting that there are other animals equally unprovided; something will always be found which keeps them protected to some extent⁴. He is usually without hair, whereas the quadrupeds which expose their body to the heavens and the seasons are provided either with a shaggy hide, or a thick skin, or shells, or scales, or spikes. Few parts of a man's body can be called hairy⁵, and his back is nearly bare, which is certainly another argument for the erect position of *man*. His teeth all on a level, round, smooth, and perfectly regular, are in one word so constructed, that it is clear from the first glance, they were given to man principally to chew his food with, partly also for speech, and in no wise as weapons of attack⁶. Even the teeth of apes differ greatly in form from those of men. Their canines are longer, sharper, and more dis-

¹ Thus the boy of Hameln. *Bresl. Samml. l. c.*

² VII. I. T. I. p. 369, ed. Hard.

³ See the hypochondriac tumors of the *juvenis hibernus* in Tulp. iv. 10.

⁴ The polypus has scarcely any enemies, and when it is accidentally wounded fresh animals of its own species are the result of the excrescence.

⁵ The instances of hairy men are no objection, and I am inclined to consider them as prodigies. The hairy family of the Canary Islands, in Aldrovandus, *Monstr. hist.* p. 16 sqq., even if we can trust a generally credulous author, are no more to be wondered at than the six-fingered families. Comp. Zahn, *Specul. physico-math. hist.* T. III. p. 70. I recollect myself that the back of that man-eating shepherd, who was executed in 1772, at Berck, near Jena, when he had been fastened to the wheel for some weeks and exposed to the weather, and his clothes fell off, appeared completely covered with shaggy hair.

⁶ Man is an animal mild and soft, whose strength and power consist more in wisdom than in force of body. Eustach. *De dentibus*, p. m. 85.

tant from their neighbours: the molars deeply incisive, bristling as it were with enormous tusks. Besides the teeth, man is marked out as a gentle and unarmed being, by the small bone which is covered by the lips, by which also he is distinguished from the apes and the other beasts like him.

It has been disputed whether brutes have the same affections¹ of the mind as man. This is a very difficult question, if we examine the ways in which men express joy and sorrow, and especially laughter and tears. That animals can cry is certain, since they have organs² exactly like those in man for weeping; but we must go deeper and enquire whether they do so in consequence of feeling sorrow. It is said to be so with some animals, as the orang-utan³, the sloth⁴, seals⁵, the horse⁶, the stag⁷, the turtle⁸, the tortoise⁹, &c. The narrative of Steller, amongst others, deserves certainly great credit; so that it is probable that weeping from sadness is common to animals and man. About laughter as the effect of joy there seems more doubt. Some animals have peculiar ways of expressing¹⁰ tranquillity or joy, but I do not think that a change in the muscles of the face¹¹, or the utterance of cacchination, has been observed in any other animal but man. The croaking of apes, or the cries of the sloth, have no more to do with this than the barking of dogs, or the songs of birds, as the indications of joy.

Women have something peculiar, which seems to be denied to all other animals, even if they remain untouched; I mean the hymen, which has been granted to woman-kind perhaps much more for moral reasons¹², than because it has any physical uses.

¹ On this point, see Moscati, *l. c.* p. 38.

² Bertin, *Sur le sac nasal ou lacrymal de plusieurs espèces d'animaux. Mém. de Par.* 1766, p. 281.

³ Bontius, *l. v. c.* 32. *Le Cat, l. c.* p. 35. But this good man seems to allow too much to the ape, in his endeavour to make out that there is an almost imperceptible transition from man to the rest of the animals.

⁴ Artedi *in descr. Mus. Sebæ*, 1. p. 53.

⁵ Steller, *v. sonderb. meerth.* p. 140.

⁶ Schneider, *de Catarrho*, p. 371.

⁷ Some look on these tears as dirt, osseous concretion, &c.

⁸ Quiqueran, *Laud. provinc.* p. 36.

⁹ Ligon, *Barbad.* p. 36.

¹⁰ The wagging of the dog's tail, the peculiar purring of cats, &c.

¹¹ James Parson, *Human Physiognomy explained*, p. 73.

¹² Read the great Haller, *Physiol.* l. XXVIII. p. 97.

I am inclined to allow the *menstrual* flux to the females of human kind alone¹. There are some who say that some other animals of that sex have also their menstrual excretions², and Buffon³ has particularly asserted this of many apes. The whole point depends upon the notion of a *periodic* flux, which, if properly considered, will scarcely be allowed to apes. I have carefully observed many female apes of more than one species, and that for many years, in the menagerie of Büttner, yet I cannot undertake to say that they have menstrual excretions. Meanwhile it is certain that they are afflicted with hæmorrhages of the womb, which however do not occur at any fixed period, but sometimes after one week, and sometimes after three or more, return in the same ape, which otherwise is enjoying good health; in some however it never appears at all.

These two things then, the hymen and periodical menstruation, I consider as peculiar to mankind⁴. As to the *clitoris* and the *nymphæ*⁵, there is no doubt that other animals also have them too; and in some the clitoris appears very large and almost enormous. The hymen, the guardian of chastity, is adapted to man who is alone endowed with reason; but the clitoris, the obscene organ of brute pleasure, is given to beasts also. A few examples are enough: in the papio mandril (*Simia maimonides* Linn.) which I dissected last winter, I observed the clitoris of half-an-ounce in weight, swelling, wrapped in a loose prepuce, and so prominent that it might easily have made an incautious observer think the animal was an hermaphrodite, and all the more because a little fold, which was visible in the apex of the member and impervious, increased the general resemblance to the virile gland. The *nymphæ* seemed worn down, or had coalesced with the callous and gaping lips of the pudendum. And I have observed those as well as the clitoris distinctly in a *Mongoz Lemur*, which I myself saw alive last summer at Göttin-

¹ Thus Plinius, VII. 15. p. m. T. I. p. 382. Solinus *ex Democrito*, I. p. m. 6.

² See in Haller, *l. c.* p. 137.

³ T. XIV. XV. frequently.

⁴ As to some of the old wives' stories about some nations of America, who are said not to menstruate, at this time of day they want no refutation.

⁵ It is doubted by Linnæus, *Syst. Nat.* ed. XII. p. 33.

gen. The *Didactylus ignavus* of the Royal Museum has a very round clitoris between the swelling lips of the pudendum. But the great Haller has collected many instances¹. These therefore are some of the points which are peculiar to mankind and which can be easily distinguished without any very delicate anatomy. I leave out others, as the immobility of the ears², or the hairs of either eye-brow³, which were formerly attributed to man alone.

A very extensive and at the same time a very pleasant field would be open to us, if we could now investigate the internal structure of the human body, in so far as it differs plainly from the structure of other animals. But the limits of this our book do not allow us to wander so far. It is therefore the business of those who want information on these points to go to the authors of comparative anatomy, and, above all, to those who have dissected carefully the animals which are most like man; amongst whom it will be sufficient to mention Eustachius⁴, Coiter⁵, Riolani⁶, and Tyson⁷. Let them study those who think that perhaps the orang-utan and some other apes are not so much unlike man, but that they may be considered as of the same species, or, at all events, as animals very closely allied to man. It is now my present intention to select a few points from many, and reckon them up briefly.

As the brain, the most noble entrail of the animal body, for numberless reasons which everybody knows, demands particular attention beyond all other parts, men of the greatest reputation have laboured⁸ on its comparative anatomy and have stirred up others⁹, when there was an opportunity, to similar labours.

¹ *l. c.* p. 80. Besides these is the perforated clitoris leading in the urinal bladder of the *Coocang Lemur* (*tardigrad* Linn. But it seems best with Parkinson to give it the name of its country) in Daubenton, T. XIII. p. 217, Tab. XXXI. fig. 4. Can it be likely that this was an abnormal accident?

² Aristot. *De part. anim.* II. ii.

³ Penault. *Hist. des anim.* P. III. p. 112. ed. Paris, 1732. He saw it in the elephant, the ostrich, the vulture. I have seen things very like the human ones in many apes.

⁴ Frequently.

⁵ *Principal. corp. h. part. tab.* Norib. 1575. fol. maj.

⁶ Jo. Rioli. Jo. fl. *Osteologia simiae*, Par. 1614. 8vo.

⁷ *Op. cit.*

⁸ Sam. Collin's *Comparative Anatomy*. Haller, *Physiol.* T. IV. and *Op. Minor.* T. III.

⁹ Haller, *Physiol.* T. V. p. 529.

Recollecting this, as I have been fortunate enough to dissect apes, last winter, of more than one kind, I have, above all, investigated their brains, and I exhibit as a specimen the base of one¹. It is the brain of that very mandril I was just speaking of. Cut off at the great occipital foramen, and taken out of the skull, it weighed three ounces and one drachm, whilst the rest of the body of the ape weighed eight common pounds and a half. The principal points in which its base differs from the human organ are these. The two anterior lobes of the brain are almost entirely unified. The cerebellum is large in proportion to the brain, more than is the case with the pygmy. The *pons varolii* is separated from the *medulla oblongata* by no apparent fissure, but is joined on, and down continuously with it. Not a vestige of the pyramidal or olivary bodies, as is also the case in the pygmy. The *medulla oblongata* much thicker than in the man or the pygmy. The second pair of nerves which were united in one great mass and then again divided at the very entrance of the orbits, was cut off before the separation. No *rete mirabile*. I omit other things of less importance, which any one who is skilled in anatomy will easily recognize; and I can assure such an one that the figure is most accurately drawn².

I have subjoined to the brain the skull of the same *papio*, in which, besides the deeper orbits, the thickness of the zygomata, the widely divergent teeth, the immense canines, and other things of smaller importance, that peculiar bone in which the incisors are set deserves particular attention. This man is without, although all the apes and most of the other mammals³ have it. I doubted whether it was to be found in the orang-utan; since in the figures of Tyson⁴ and Daubenton⁵ the skulls were not drawn in such a way that the sutures could be well distin-

¹ Pl. 1. fig. 1.

² Compare with my figure the brain of Tyson's pygmy, fig. 13, and that most elegant chart by Haller of the base of the human brain, Fasc. VII. Tab. 1. To make the comparison easier, I have preserved the same lettering, by which in Haller's chart the parts of the brain are marked.

³ The *Myrmecophaga didactyla*, whose skull I have, does not possess it.

⁴ l. c. fig. 5.

⁵ *Mém. de Par.* 1764, Tab. XVI. fig. 2.

guished¹: nor did the English author speak precisely about it²: but Fr. Gabr. Sulzer has settled the point, for he kindly writes me word that Camper, a great authority, has dissected animals of this kind, and found this bone in them. Another difference flows from this singular structure, namely, in the bone of the nose, which is double in the human head, and nearly of a rhomboidal figure, whereas it is seen to be single in the apes, and also triangular, which however, like the other things which may be observed in this figure, are very patent, and will easily be seen by those who know anything of osteology, and therefore do not want any further explanation.

Amongst other differences between the human body and that of the beasts there are some which are better known, and may be briefly touched upon. As, for example, the *membrana nictitans*, *periophthalmium*, or third eyelid, which Haller³ says is in man a very slight imitation of the organ in animals, although in animals also according to their class and order, their mode of life, and their size, it differs much in position and constitution⁴.

Besides this, the bulbous or suspensory muscle of the eye is common to nearly all⁵ quadrupeds, and so is the suspensory ligament of the neck, which is said to be wanting in man and the apes alone⁶. This white and tendonous part which is known to

¹ The figure of the skeleton of the long-handed ape in Buffon, T. XIV. Tab. VI, has the same fault; and even Coiter, who is famous in other things, has omitted to mark this bone in the skeleton of the tailed ape, the figure of which is added to in the book and place already quoted. Still it is most distinctly visible in the skulls of five different kinds of apes which I have before me.

² P. 65. "In a monkey I observed that peculiar suture Riolan mentions, but did not find it in the Pygmie, only in the palate of the Pygmie I observed a suture, not from the dens caninus, as was in the monkey, but from the second of the dentes incisores."

³ *Physiol.* T. v. p. 328, where there are a good many interesting things about this membrane. There is a good deal about it also in Peter Tarrarrani, *Cose anatomiche in Atti de' fisico-critici di Siena*, T. III. p. 115. De Pauw. *Recherch. philos. sur les Americ.* T. II. p. 70 n.

⁴ In some I certainly found a few traces, as in the *Lemur Mongoz*. It is small too in the apes.

⁵ It is wanting in Tyson's orang-utan, p. 85. Andr. Vesalius had falsely and obstinately assigned it to man. Comp. Haller, *l. c.* p. 421. Douglass Schreiberi, p. 40.

⁶ Linnæus, *Syst. Nat.* ed. XII. T. I. p. 48.

everybody, and is called by my countrymen, *haarwachs*; by the English¹, *packwax*, *tarwax*, *fixfax* and *whiteleather*; by the Belgians², *vast*, &c. is inserted for the purpose of sustaining the head and neck of quadrupeds³. But although man shares the absence of this with the apes, yet it by no means follows that apes are meant to walk upright, since in them the subtle structure of the vertebræ of the neck, and in man the peculiar bipedal walk, supply the defect of this ligament. The whole point about the bodies of these vertebræ is best explained by a comparison of these bones themselves, as they appear in the skeleton of the man and the ape, and for this reason I have had engraved the whole construction of the vertebræ of the neck in the same papio⁴ (Pl. II. fig. 1), the base of whose brain and whose skull we have just seen, because in that it may be seen as clearly as possible why he scarcely ever goes on two feet. I have subjoined the fifth and sixth vertebræ of the human neck (Pl. II. fig. 2). In these the bodies are nearly parallel, and almost disciform, whereas in the ape they descend by a sort of scaly process in front, and one is placed upon and dove-tailed into the other. So it can easily be made plain by experiment that the vertebræ in these animals support each other, and serve to sustain the head, which could not be done with man if placed in a quadrupedal position, on account of the smooth surfaces of the body of the vertebræ, for so it would be excessively difficult to sustain the mass of the very heavy human head, which would more and more collapse and subside by its own weight.

I have selected a few out of many points in which man differs most clearly from the other animals. I have said that there are many which go to demonstrate his natural position to be an erect one, and to separate him fairly from the apes, especially from the *orang-utan*. I have been induced to do this because of the

¹ Allen Mullen, *Anatomical Account of the Eleph.* p. 14. Ray, *Wisdom of God*, pp. 261, 338, and *Synops. quadrupedum*, p. 136. Derham, *Physico-theol.* p. 324.

² Vesal. *De corp. hum. fabr.* p. 361.

³ La Fosse, *Cours d'Hiippiatrique*, Tab. XI a.

⁴ It would have been tedious to transcribe from Eustachius and Coiter all the other points in which the vertebræ of the apes diverge from those of man.

opinions lately expressed by some famous men¹, who however are ill-instructed in natural history and anatomy, but who are not ashamed to say that this ape is very nearly allied, and indeed of the same species with themselves.

I do not think this opinion deserves any lengthened refutation for those who are adepts in the matter; but it will clearly not be foreign to our purpose if I say a few words about the orang-utan himself. After the labours of Buffon and others it is not worth while to spend any time on his habits and mode of life². But it would be worth while if the species were a little more accurately defined. For although this remarkable animal has very seldom been seen in Europe, and few authentic representations of it exist, still such as they are they differ so much from each other that they can in no way be considered as belonging to one and the same species. I shall pass by the delineations which are manifestly fictitious, or carelessly drawn, such as those of Bontius, Neuhof, Jürgen Andersen, Jo. Jac. Saar, and Franc. Leguat; and examine more closely the authentic ones alone. These are those of Tulp, Tyson, Edwards, Scotin³, Le Cat, and Buffon, which when they are compared together manifestly differ very much both in form and size. Recent authors have deduced from this a variety of species, and have called one the larger, and the other the smaller orang-utan. I do not however place much trust in this distinction. Some of the specimens which have been brought to Europe were very young, and there were indications which, considering that they all died prematurely⁴, forbid us to come to any conclusion as to their size. Still

¹ *Cours d'hist. nat.* T. I. That good citizen of Geneva *Sur l'inégalité parmi les hommes*, p. 157 n. *The Origin and Progress of Language*, Vol. I. pp. 175, 289. *Hist. of Jamaica*, Vol. II. p. 363, Lond. 1774, 4to.

² I shall only remark on the name *orang-utan*, that it is incorrectly translated "wild man," *homo sylvestris*. Man in Malay is *Manusia*, but the word *oran* is applied not only to man, but also to the elephant, whom the Indians think is sensible. Büttner, to whom I am indebted for this observation, translates it *intelligent being*.

³ Scotin's animal, Chimpansi, brought by H. Howe, master of the ship *Speaker*, from Angola to London, in Aug. 1738, was figured separately by Sloane, and repeated in *Nova acta erud.* Lips. Sept. 1739, Tab. v. p. 564. *Linn. Anthrop. Am. ac.* Vol. VI. Hauber, *Bibl. magica*, s. 35. Le Cat, above. The others are well known.

⁴ The one Buffon saw was two years old. Tyson's had not yet cut all its teeth.

the habit of their whole body and the conformation of its parts seem to me much more justly to constitute them into species. I may be allowed therefore to admit at least two species, and in order that names may not be unnecessarily multiplied, I shall give them some which occur in Linnæus, one which has been improperly appended to man by that illustrious author, the other to the first species of apes. Let there be then,—

1. *Simia troglodytes* or *Chimpansi*; represented by Tulp and Scotin, macrocephalous, sinewy, hairy on the back of its body alone; the front, except the shoulders, being bare.

2. *Satyrus* or *Orang-utan* of Tyson, Edwards, Le Cat, and Buffon; rather slender, with small head, clothed with thick hair, the hairs of the arm and fore-arm being in opposite directions. Such was the male which I mentioned having seen alive at Jena. It came very near to the figure of Tyson, and at the first glance was most unmistakably different from the *Simia sylvanus*, &c. I made a drawing at that time of this rare animal, but I regret that I neglected to measure its parts more accurately.

These are the observations made partly by myself, and partly by my first preceptor in natural history, I. E. Im. Walch. The stature was that of a boy about ten years old, colour brown, face sufficiently human, the fingers of the hands and feet rather long, the thumb widely separated, the calves more fleshy than in other apes, the scrotum pendulous almost square, rather white, the penis small like Tyson's figure. It was so much in the habit of leaning on a stick, that though it could stand and walk on two feet, most persons would attribute that way of walking to the effect of education. The same might be said of his way of drinking and eating, in which actions he used spoon and cup. He showed a great desire for the other sex.

Linnæus doubted whether the animals which we have divided into two species, but which in his opinion were only varieties, differed in anything more than in sex. It is quite true that those represented by Tulp and Scotin were females, and the others males; but still the silence of travellers and eye-witnesses like Bontius and Th. Bowrey, on any different form in the sexes, convinces me that besides the difference of sex there must also

be a variety of species. I cannot dismiss these animals without mentioning two points, of which one is concerned with a singular character of them which has been generally neglected, and the other regards their native country. I owe the knowledge of the former character to my great friend Sulzer, who repeated to me the words of Camper, who, I just mentioned, dissected these *Satyri* himself, "that in the front hands of these animals the nails of the thumbs were wanting." There are indeed nails in the plates of Tyson, Edwards, and Le Cat; but that singular and paradoxical character might very easily have been unnoticed; nor did I pay any attention myself to the nails of the Jena satyr. Was this a third species? that I cannot decide. The other point that remains to be mentioned is as to the native country of both species (chimpanzi and orang-utan). By almost all zoological writers the torrid zone of the ancient world is given out as their native country. Bancroft¹ however relates a report of the inhabitants, that the orang-utan may also be found in the thick woods of Guiana. This account deserves further attention, but there is this against it, that the author adds that the animal has not yet been seen by Europeans resident there.

There is another animal nearly allied to the Troglodyte and the Satyr, which is the *Simia longimana* (*Homo Lar*, Linn., *Gibbon*, Buff.), an animal exactly like man, if you look at its face: but differing from almost all other animals if you consider the enormous length of its anterior feet. They are indeed represented as somewhat shorter in the figure of the Bengalese ape, which is inserted in the Philosophical Transactions², and taken for the *S. longimana*, which however is clearly drawn by the hand of no artist, as is shown by the unequal length of either fore arm, and by other particulars.

Enough then has been said about the Troglodyte and Satyr. And now we must come more closely to the principal argument of our dissertation, which is concerned with this question; *Are*

¹ *Nat. Hist. of Guiana*, p. 130.

² Vol. LIX. P. I. for 1769, p. 71, Tab. III., of either sex. The female is repeated in *Gent. Mag.* 1770, September, p. 402. Comp. Pennant, *Synops. of Quadr.* p. 100.

men, and have the men of all times and of every race been of one and the same, or clearly of more than one species? A question much discussed in these days, but so far as I know, seldom expressly treated of.

Ill-feeling, negligence, and the love of novelty have induced persons to take up the latter opinion. The idea of the plurality of human species has found particular favour¹ with those who made it their business to throw doubt on the accuracy of Scripture. For on the first discovery of the Ethiopians, or the beardless inhabitants of America, it was much easier to pronounce them different species² than to inquire into the structure of the human body, to consult the numerous anatomical authors and travellers, and carefully to weigh their good faith or carelessness, to compare parallel examples from the universal circuit of natural history, and then at last to come to an opinion, and investigate the causes of the variety. For such is the subtlety of the human intellect, and such the rush for novelty, that many would rather accept a new, though insufficiently considered opinion, than subscribe to ancient truths which have been commonly accepted for thousands of years.

I have endeavoured to keep free of all these mistakes; I have written this book quite unprejudiced, and I have desired nothing so much as that the arguments which I have brought forward for the unity of the human species, and for its mere varieties, may seem as satisfactory to my learned and candid readers as they do to myself.

For although there seems to be so great a difference between widely separate nations, that you might easily take the inhabitants of the Cape of Good Hope, the Greenlanders, and the Circassians for so many different species of man, yet when the matter is thoroughly considered, you see that all do so run into one another, and that one variety of mankind does so sensibly

¹ Simon Tyssot de Patot, *Voyages et aventures de Jaques Masse*, T. i. p. 36. Bazin (Voltaire), *Philosophie de l'histoire*, p. 45. Idem in *Quest. sur l'Encyclop.* T. iv. p. 112, T. vii. p. 98, 179, is completely refuted by Haller. *Briefen über einige Einwürfe noch lebend. Freigeister wider die Offenb.* i. Th. pp. 102, 184, 196.

² Of this opinion were Griffith Hughes, *Nat. Hist. of Barbadoes*, p. 14. Henry Home, *Sketches of the History of Man*, Vol. i. p. 12.

pass into the other, that you cannot mark out the limits between them.

Very arbitrary indeed both in number and definition have been the varieties of mankind accepted by eminent men. Linnæus¹ allotted four classes of inhabitants to the four quarters of the globe respectively. Oliver Goldsmith² reckons six. I have followed Linnæus in the number, but have defined my varieties by other boundaries. The first and most important to us (which is also the primitive one) is that of Europe, Asia this side of the Ganges, and all the country situated to the north of the Amoor, together with that part of North America, which is nearest both in position³ and character of the inhabitants. Though the men of these countries seem to differ very much amongst each other in form and colour, still when they are looked at as a whole they seem to agree in many things with ourselves. The second includes that part of Asia beyond the Ganges, and below the river Amoor, which looks towards the south, together with the islands, and the greater part of those countries which are now called Australian. Men of dark colour, snub noses, with winking eyelids drawn outwards at the corners, scanty, and stiff hair. Africa makes up the third. There remains finally, for the fourth, the rest of America, except so much of the North as was included in the first variety⁴.

It will easily appear from the progress of this dissertation in

¹ *Syst. Nat.* p. 29.

² *Hist. of the Earth*, Vol. II. p. 211.

³ Comp. besides the English terraqueous globes, which by the liberality of our queen the university library possesses, and the Swedish ones of Akerman, a copy of which is due to the kindness of J. Andr. Murray, the maps of D'Anville, Stahlin, and Engel, and the more recent labours of de Vaugondy, *Sur les pays de l'Asie et de l'Amérique situés au Nord de la mer du Sud.* Par. 1774, 4to.

⁴ [33. *Mankind divided into five varieties.* Formerly in the first edition of this work I divided all mankind into four varieties; but after I had more accurately investigated the different nations of Eastern Asia and America, and, so to speak, looked at them more closely, I was compelled to give up that division, and to place in its stead the following five varieties, as more consonant to nature.

The first of these and the largest, which is also the primeval one, embraces the whole of Europe, including the Lapps, whom I cannot in any way separate from the rest of the Europeans, when their appearance and their language bear such testimony to their Finnish origin; and that western part of Asia which lies towards us, this side of the Obi, the Caspian sea, mount Taurus and the Ganges; also northern Africa, and lastly, in America, the Greenlanders and the Esquimaux, for I see in these people a wonderful difference from the other inhabitants of America; and, unless I am altogether deceived, I think they must be derived from

which of the four varieties most discrepancies are still to be found, and on the contrary, that many in other varieties have some points in common, or in some anomalous way differ from the rest of their neighbours. Still it will be found serviceable to the memory to have constituted certain classes into which the men of our planet may be divided; and this I hope I have not altogether failed in doing, since for the reason I have given before I have tried this and that, but found them less satisfactory. Now I mean to go over one by one the points in which man seems to differ from man by the natural conformation of his body and in appearance, and I will investigate as far as I can the causes which tend to produce that variety.

First of all I shall speak of the whole bodily constitution, stature, and colour, and then I shall go on to the particular structure and proportion of individual parts. It will then be necessary carefully to distinguish those points which are due to art alone, and finally, though with reluctance, I shall touch upon

the Finns. All these nations regarded as a whole are white in colour, and, if compared with the rest, beautiful in form.

The second variety comprises that of the rest of Asia, which lies beyond the Ganges, and the part lying beyond the Caspian Sea and the river Obi towards Nova Zembla. The inhabitants of this country are distinguished by being of brownish colour, more or less verging to the olive, straight face, narrow eye-lids, and scanty hair. This whole variety may be sub-divided into two races, northern and southern; of which one may embrace China, the Corea, the kingdoms of Tonkin, Pegu, Siam, and Ava, using rather monosyllabic languages, and distinguished for depravity and perfidiousness of spirit and of manners; and the other the nations of northern Asia, the Ostiaks, and the other Siberians, the Tunguses, the Mantchoos, the Tartars, the Calmucks, and the Japanese.

The third variety comprises what remains of Africa, besides that northern part which I have already mentioned. Black men, muscular, with prominent upper jaws, swelling lips, turned up nose, very black curly hair.

The fourth comprises the rest of America, whose inhabitants are distinguished by their copper colour, their thin habit of body, and scanty hair.

Finally, the new southern world makes up the fifth, with which, unless I am mistaken, the Sunda, the Molucca, and the Philippine Islands should be reckoned; the men throughout being of a very deep brown colour, with broad nose, and thick hair. Those who inhabit the Pacific Archipelago are divided again by John Reinh. Forster¹ into two tribes. One made up of the Otaheitans, the New Zealanders, and the inhabitants of the Friendly Isles, the Society, Easter Island, and the Marquesas, &c., men of elegant appearance and mild disposition; whereas the others who inhabit New Caledonia, Tanna, and the New Hebrides, &c., are blacker, more curly, and in disposition more distrustful and ferocious. Edit. 1781, pp. 51, 52.—This is the first sketch of the still famous division of mankind by Blumenbach: the well-known terms Caucasian, &c. will be found in the third ed. below.—Ed.]

¹ *Observations*, p. 228.

nosology and practical medicine, both which chapters recent authors have tried to obtrude into natural history, but which I shall endeavour to vindicate for and restore to pathology.

The first three things I mean to discuss, the whole bodily constitution, the stature, and the colour, are owing almost entirely to climate alone. I must be brief on the first of these points, since I have had no opportunity of exercising my personal observation on the matter, and but few and scanty traces are to be gathered from authors. That in hot countries bodies become drier and heavier; in cold and wet ones softer, more full of juice and spongy, is easily noticed. It has long since been noticed by W. Cavendish, Marquis of Newcastle, that the bones of the wild horse have very small cavities, and those of the Frisian horses much larger ones¹, &c. This was confirmed by the elegant experiments of Kersting, a physician of Cassel, and a most skilled in the treatment of animals. He observed², amongst other things, that the bones of an Arab horse, of six years old, when subjected to the same degree of heat, were dissolved with much more difficulty in the machine of Papinus than those of a Frisian of the same age. It is very likely that similar differences would be observed in the bones of men born in different countries, although observations are wanting, and conclusions drawn from a few facts are unsatisfactory. Here and there indeed we find bones of Ethiopians³ which are thick, compact, and hard; but I should be unwilling to attribute these properties to every skeleton coming from hot countries, since other instances occur of skulls of Ethiopians, about which the same remark has not been made⁴. The differences moreover are very great between the skulls of Europeans of the same country and the same age, which seem to depend, amongst other things,

¹ *Gen. Syst. of Horsemanship*. [The passage alluded to stands thus in the edition of 1743, Vol. I. p. 21. "I have experienced this difference between the bone of the leg of a Barbary horse, and one from Flanders, that the cavity of the bone in the one shall hardly admit of a straw whilst you may thrust your finger into that of the other."—Ed.]

² Horses' bones are much more easily dissolved than those of mules, and asses' with still greater difficulty.

³ B. S. Albini, *Supplex Rav.* n. XXIX. P. Paaw, *Prim. Anat.* p. 29.

⁴ In the *Leg. Rav.* n. XIII. and n. XXI, it is said that the bones of the Malabar women are very thin. See also J. Beni, de Fischer, *De modo quo ossa se vicin. accomm. part.*, L.B. 1743, Tab. III.

principally upon the mode of life¹. Perhaps the same is the case as to the sutures, which Arrian² says the heads of the Ethiopians are without, and Herodotus³ says the same of the Persian skulls after the battle of Plataea. The observation about the whole habit of the body, that the northern⁴ nations are more sinewy and square, and the southern⁵ more elegant, seems more reliable.

I go on to the human stature. It is an old opinion, that in very ancient times men were much larger and taller, and that they degenerate and diminish in size even now, that children are now born smaller than their parents, and all the things of this kind which the old poets⁶ and philosophers⁷ have said to discredit their own times.

But although this may be going too far, still we must allow something to climate, so far as that itself is altered by the lapse of time. The soil itself becomes milder, so that it may at last make its men less gigantic and less fierce. We have already spoken of an example of this change in our own Germany. But the idea that these differences of bodies in ancient and modern times have been enormous, is refuted by the mummies of Egypt, the fossil human skeletons⁸, the sarcophagi, and a thousand other proofs.

Nor do a few skulls conspicuous for their age and size⁹, scat-

¹ J. B. Com. a Covolo, *De met. duor. oss. ped. in quad. aliquot*, Bonon. 1765, p. 7.

² ἀρραφές κεφάλαι. Arato.

³ Cæl. Rhodig. *Lect. Ant.* XIII. 28. p. 501. ed. Froben.

⁴ For the *Lapps and Finns*, Leem, *Lules*, Högström, *Calnucks*, Pallas, *Greenlanders*, Crantz, &c.

⁵ For New Zealand, New Holland, &c. see S. Parkinson. The inhabitants of the island of Mallicolo, lately visited by Forster, are remarkable for their slender arms and feet, as I have been kindly told by G. C. Lichtenberg since his return from England.

⁶ Homer says repeatedly that Tydides, Hector, Ajax, Telamon, &c. (whose gigantic knee-cap Pausanias describes as being shown long afterwards) were much more strong and large than the men of his day, οἰοὶ νῦν βροτοὶ εἶσι. And he has been imitated in this by Virgil, who represents Turnus as equally large, not to be compared with 'Such human forms as earth produces now.'

⁷ Plin. VII. c. 16. Solin. v. Comp. more upon this point J. S. Elsholtz, *Anthropom.* p. 31, ed. 1663.

⁸ There is in the Museum of our University a fossil skull tolerably complete, of the greatest antiquity, the bones of the head very thick, but neither in magnitude nor form differing from a common skull.

⁹ Fabricius Hildan. *Fürtreffl. nutz und nothw. d. anat.* Bern. 1624, p. 209. Head of March. Dietzmann killed at Leipzig, 1307. Glafey, *Sachss. Kernhist.* Head

tered about here and there, prove anything more than those solid ones destitute of sutures, about which I was lately speaking. Some, it is clear, are diseased¹. But as to the bones which credulous antiquity showed as those of giants, they have long since been restored to elephants and whales². The investigation of the causes which in our days make the men of one country tall and another short is more subtle. The principal one seems to be the degree of cold or heat. The latter obstructs the increase of organic bodies, whilst the former adds to them and promotes their growth. It would be tedious even to touch upon a thing so well known and so much confirmed in both kingdoms, were it not that in our time men have come forward, and with the greatest confidence have presumed to think otherwise³. Experience teaches that both plants and animals are smaller in northern countries than in southern; why should not the same law hold good as to mankind? Linnæus long ago remarked in his *Flora Lapponica*⁴, that alpine plants commonly reached twice as great an altitude out of the Alps. And the same thing may be observed frequently in those plants, some specimens of which are kept in a conservatory, while others stand out in a garden, of which the former come out much larger and taller than the others.

I have before me the most splendid specimens in a collection of plants from Labrador and Greenland, chosen by Brasen⁵, which I owe to the liberality of my great friend, J. Sam. Lieberkühn, in which the common ones are almost all smaller than those which are obtained in Germany; and in some, as the

of Henry of Austria in the famous burying-place of Königsfeld. Faesi, *Erdk. der eidgen.* I.

¹ Fossil head of Rheims. Dargenville, *Oryct. T.* 17, f. 3, two osseous heads *Leg. rav.* in Albin. p. 4.

² J. Wallis, *Antiq. of Northumberland.* Dom. Gagliardi, *An. Oss.* p. 103. Even Felix Plater, who was the best lecturer of his day in all Europe, suffered himself to be led into error by the bones dug up at Lucerne in 1577, and after careful comparison gave them out as those of a human giant, *Obs. Med.* l. III. Wagner, *Hist. Nat. Helv.* p. 149: but they have lately been proved to be elephant's bones. *Erkl. der Gemäld auf die Kapellbr. zu Lucern.* This is also the case with the ribs of the Hun in the church of Göttingen.

³ As Henr. Home, *loc. cit.* p. 12. *It is in vain to ascribe to the climate the low stature of the Esquimaux, &c.*

⁴ *Prolegom.* XVI. 8. Comp. Arwid Ehrenmalm, *Aschle.* p. 386.

⁵ The same observation has been made by Haller, *Hist. Stürp. Helv.* II. p. 317.

Rhodiola rosea, which are common to both those regions of America, although their native soil is so near, yet the same difference is observed that the specimens from Labrador are somewhat larger than those from Greenland.

The same is the case with animals. The Greenland foxes are smaller than those of the temperate zone¹. The Swedish and Scotch horses are low and small, and in the coldest part of North Wales so little as scarcely to exceed dogs in size². It is however useless to bring a long string of examples about a thing so evident, when the difference of a few degrees in so many countries exhibits clearly the same difference. Thus, Henry Ellis³ observed in Hudson's Strait, on its southern coasts, trees and men of fair size; at 61° shrubs only, and that the men became smaller by little and little, and at last at 67° that not a vestige of either was to be seen. And likewise Murray, within the limits of a few degrees, and in Gotha alone, declared he could observe so well, that whilst he was travelling, although he took no notice of the mile-stones, yet he could easily distinguish the different provinces by the difference of the inhabitants and of the animals. In Scania⁴ the men are tall of stature and bony, the horses and cattle large, &c.: in Smaland they become sensibly smaller, and the cattle are active but little, which at last in Ostrogothia strikes the eye more and more.

The same thing may be observed in the opposite part of the world, almost under the same degrees, towards the antarctic circle. One example will suffice, taken from the most southern part of America, and compared with those European nations we have just been speaking of. The bodies of the notorious Patagonians answer to the lofty stature of the Scandinavians. A credulous antiquity indeed invented fabulous stories of their enormous size⁵. But in the progress of time, after Patagonia

¹ Cranz, *Hist. v. Gr.* p. 97. ² Th. Birch, *Hist. of the Royal Soc.* III. p. 171.

³ *Voy. to Hudson's Bay*, p. 256.

⁴ *Comp. Linn. Fauna Suecica*, p. 1.

⁵ *Comp. de Brosses*, I. p. 193; II. beg. &c. De Pauw, *l. c.* I. p. 281, and *Hist. gén. de l'As. Afr. et Améri.* par M. L. A. R. Vol. XIII. Par. 1755, p. 50. Thos. Falkner, *Descr. of Patagonia*, p. 126, "The Patagonians, or Puelches, are a large-bodied people; but I never heard of that gigantic race, which others have mentioned, though I have seen persons of all the different tribes of southern Indians."

had often been visited by Europeans, the inhabitants, like that famous dog of Gellert, became sensibly smaller, until at last in our own days they retained indeed a sufficiently large stature, but were happily deprived of their gigantic form. If you go down from them towards the south, you will find much smaller men in the cold land of Terra del Fuego¹, who must be compared to the Smalands and the Ostrogoths, and by that example you will again see how nature is always like itself even in the most widely separated regions.

But besides the climate, there are other causes which exercise influence upon stature. Already, at first, I alluded to the mode of life², and it would be easy to bring here copious examples taken from the vegetable and animal kingdoms, in which the difference of nutrition may be detected by the greater or smaller stature. But these things are too well known already, and so many experiments of the kind have been made on Swiss cows, Frisian horses, &c., that I may easily pass over any proofs of this point. I omit also the causes of smaller importance which change the stature of organic bodies, which have been already most diligently handled by Haller³, and I hasten to the last of those things which must be considered in the variety of mankind, that is, colour.

There seems to be so great a difference between the Ethiopian, the white, and the red American, that it is not wonderful, if men even of great reputation have considered them as forming different species of mankind. But although the discussion of this subject seems particularly to belong to our business, still so many important things have been said about the seat and the causes of this diversity of colour, by eminent men, that a good-sized volume would scarcely contain them; so that it is necessary for me to be brief in this matter, and only to mention those things which the industry of learned men has placed beyond all doubt. The skin of man and of most animals consists of

¹ Sydney Parkinson, p. 7, Pl. 1. 11. "None of them seemed above five feet ten inches high."

² p. 73.

³ *Physiol.* 1. xxx. s. 1, § 16.

three parts; the external epidermis, or cuticle; the *reticulum mucosum*, called from its discoverer the Malpighian; and lastly, the inner, or *corium*. The middle of these, which very much resembles the external, so that by many it is considered as another scale of it, is evidently more spongy, thick, and black in the Ethiopians; and in them, as in the rest of men, is the primary seat of the diversity of colour. For in all the *corium* is white, excepting where, here and there, it is slightly coloured by the adhering reticulum; but the epidermis seems to shade off into the same colour as the reticulum, yet still so, that being diaphanous¹ like a plate of horn, it appears even in black men, if properly separated, to be scarcely grey; and therefore can have little if any influence on the diversity of the colour of men.

The seat of colour is pretty clear, but for a very long time back there have been many and great disputes about the causes of it, especially in the Ethiopians. Some think it to be a sign of the curse of Cain² or Cham³, and their posterity; others⁴ have brought forward other hypotheses, amongst which the bile played the most prominent part, and this was particularly advocated by Peter Barrere⁵, following D. Santorini⁶. Although this view has been opposed by many⁷, I do not think it ought altogether to be neglected. The instances of persons affected with jaundice, or chlorosis, of the fish mullet⁸, and moreover the black bile⁹ of the Ethiopians, are all the less open to doubt, since more recent authors¹⁰ have observed the blood to be black, and the brain and the spinal marrow to be of an ashy colour; and the phlegm of

¹ If the epidermis were less thin and not so transparent, perhaps it would seem just as dark as the reticulum; Jo. Fanton, *Diss. VII. Anat. pr. renov.* Taurini, 1741, 8vo, p. 27.

² A recent supporter of this opinion is the learned Sam. Engel in *Ess. sur cette question quand et comm. l'Amér. a. t. elle été peuplée*, T. IV. p. 96.

³ *Mem. de Trevoux*, T. LXXIV. p. 1155.

⁴ B. S. Albinus has collected many in *De sede et causa color. ath. et cet. hom.* L. B. 1737, with the beautifully coloured plates of that capital artist, J. Ladmira.

⁵ *Diss. sur la cause phys. de la couleur des nègres.* Paris, 1741, 12mo. Comp. *Dict. Encycl.* by De Felice, T. xxx. p. 199.

⁶ *Obs. Anat.* p. 1.

⁸ Santorini, *l. c.*

⁷ Le Cat, *De la coul. de la peau hum.* p. 72.

⁹ Barrere, *l. c.*

¹⁰ Meckel, *Mém. de Berl.* 1753, 1757. The lice of the negroes are black, Long. II. p. 352.

the northern nations and other things of this kind seem to add weight to this opinion. But amongst all other causes of their blackness, climate, and the influence of the soil, and the temperature, together with the mode of life, have the greatest influence. This is the old opinion of Aristotle, Alexander, Strabo, and others¹, and one which we will try and confirm by instances and arguments brought forward separately.

In the first place, then, there is an almost insensible and indefinable transition from the pure white skin of the German lady through the yellow, the red, and the dark nations, to the Ethiopian of the very deepest black, and we may observe this, as we said just now in the case of stature, in the space of a few degrees of latitude. Spain offers some trite examples; it is well known that the Biscayan women are a shining white, the inhabitants of Granada on the contrary dark, to such an extent that in this region the pictures of the Blessed Virgin and other saints are painted of the same colour². Those who live upon the northern bank of the river Senegal are of ashy colour and small body; but those beyond are black, of tall stature and robust, as if in that part of the world one district was green, and the other burnt up³. And the same thing was observed by some learned Frenchmen on the Cordilleras, that those who live immediately under the mountains towards the west, and exposed to the Pacific Ocean, seem almost as white as Europeans, whereas on the contrary, the inhabitants of the opposite side, who are exposed to constant burning winds, are like the rest of the Americans, copper-coloured⁴.

It is an old observation of Vitruvius⁵ and Pliny⁶ that the northern nations are white, and this is clearly enough shown by many instances of other animals and plants. For partly the

¹ Cæl. Rhodig. *Lect. Ant.* IX. 15, p. 439, ed. Ald. Comp. Macrob. in *Sonn. Scip.* p. 128, ed. H. Steph. *αἰθρῶν ex αἰθρῶ et ὠψ.*

² Comp. a scale of colour in *Mém. de Trev.* l. c. p. 1190.

³ Hier. Cardanus, *De subtilit.* L. XI. T. III. *Oper.* p. 555.

⁴ Bouguer, *Voyage à Perou.* *Mém. de l'Acad. des Sc. de Paris*, 1744, p. 274.

⁵ In the north are to be found nations of white colour, p. 104, ed. De Laert.

⁶ On the opposite and icy side of the world are nations of white skin, T. I. p. 111, ed. Hard.

flowers¹ of plants, like the animals of the northern regions, are white, though they produce other colours in more southern latitudes; and partly in the more temperate zones animals only become white in winter, and in spring put on again their own natural colour. Of the former we have instances in the wolves², dogs³, hares⁴, cattle⁵, crows⁶, the chaffinch⁷, &c., of the latter in the ermines⁸, the squirrels⁹, hares¹⁰, the ptarmigan¹¹, the Corsican dog¹². All of us are born nearly red, and at last in progress of time the skin of the Ethiopian infants turns to black¹³, and ours to white, whereas in the American the primitive red colour remains, excepting so far as that by change of climate and the effects of their mode of life those colours sensibly change, and as it were degenerate.

It is scarce worth while to notice the well-known difference which occurs in the inhabitants of one and the same country, whose skin varies wonderfully in colour, according to the kind of life that they lead. The face of the working man or the artizan, exposed to the force of the sun and the weather, differs as much from the cheeks of a delicate female, as the man himself does from the dark American, and he again from the Ethiopian. Anatomists not unfrequently fall in with the corpses of the lowest sort of men, whose reticulum comes much nearer to the blackness of the Ethiopians than to the brilliancy of the higher class of European. Such an European, blacker than an Ethiop, was dissected by Chr. Gottl. Ludwig¹⁴; a very dark reticulum has been observed by Günz¹⁵, and very frequently by many others¹⁶;

¹ Comp. Murray, *Prodr. Stirp. Goett.* p. 18, who instances the *Campanula decurrens*, the common primrose, &c.

² Cranz, *Groenl.* p. 97.

³ *Ib.* p. 100.

⁴ *Ib.* p. 95.

⁵ Ehrenmalm, *l. c.* p. 342, "The further you go towards the north, the more frequently do animals of that kind occur."

⁶ Jo. Nich. Pechlin, *De habitu et colore Æthiopum.* Kilon. 1677, 8vo. p. 141.

⁷ Frisch, *Gesch. der Vogel.* Fasc. I.

⁸ Wagner, *Hist. nat. Helv.* p. 180. Linn. *Faun. Suec.* p. 7. I myself have seen specimens in our own neighbourhood.

⁹ Linn. *l. c.* p. 13. I have known too some caught near Jena.

¹⁰ *Ib.* p. 10. Jetze, *Monogr. Lüb.* 1749, 8vo.

¹¹ Cranz, *l. c.* p. 101.

¹² Linn. *Syst. Nat. Append.*

¹³ Albinus, *l. c.* p. 12. Comp. Camper, *Dem. Anat. Path.* i. p. 1.

¹⁴ *Ep. ad Haller. Script.* Vol. I. p. 393.

¹⁵ On Hippoc. *De humor.* p. 140.

¹⁶ Franc. de Riet, *De tact. org. in coll.* Haller, T. IV. p. 10. See Haller, *Physiol.* T. v. p. 18.

and I recollect that I myself dissected at Jena a man's corpse of this kind, whose whole skin was brown, and in some parts, as in the scrotum, almost black; for it is well known that some parts of the human body become more black than others, as, for example, the genitals of either sex, the tips of the breasts, and other parts which easily verge towards a dark colour. Haller observed in the groin of a woman the reticulum so black¹ that it did not seem to differ much from that of an Ethiopian; one as dark in the groin of a man was in the possession of B. S. Albinus; and it is so common an occurrence in a woman's breast, that I cannot be enough astonished that eminent men have been found to reckon the dark teats of the Samoyeds as prodigies², and therefore to consider that nation as a particular species of man³.

Such a diversity of the reticulum is seen in other animals also, and especially in the face of the *Papio mandril*, a part of which I have therefore had engraved, (Pl. II. fig. 3.) There is a region of the upper part of the eyelids, of the root of the nose, and of the eye-brows, in which you may observe almost every variety of reticulum; the nose is plainly black, and also the part where the eye-brows are inserted; but that part which is lower and more on the outside is sensibly brown, and at length towards the outer corners of the eyes becomes pale. Not indeed that I have found this blackness of the nose equally intense in all the specimens of this ape which I have seen, since in apes, as in man and in other animals, the greatest variety of colour occurs in the reticulum. In two specimens of the *Simia cynomolgus* the tint of the face was not very different from that of an Ethiopian or a dark European; and this difference is so well known and so common throughout the animal kingdom, especially in the domestic quadrupeds, but above all in the vegetable⁴

¹ *l. c.* Abr. Kaav. Boerh. *Perspir.* Hipp. p. 21; so dark in the pudenda, that you would not believe the skin to be that of an European.

² *Mém. sur les Samoïedes et les Lappons*, 1762, 8vo. p. 44.

³ Lord Kames, *l. c.*

⁴ Two hundred years ago it was only the yellow tulip which was known in Europe; but what a variety of different coloured ones horticulturists are now acquainted with! See Haller, on the subject of the varieties of man. *Bibl. raisonnée*, 1744.

kingdom, that I can scarcely take notice of it, but prefer to return at once to man.

We see white men in a lower class rendered brown by a hard life; and it is equally certain that men of southern regions become whiter when they are less exposed to the effects of the weather and the sun. We have the most copious accounts by travellers of the inhabitants of Guzerat¹, of the Malabar coast², of the Caffres³, of the Canadians⁴, and the Otaheitans⁵. But besides their mode of life, old age and the change of country have an influence in making the Ethiopians more white. For when the Ethiopians begin to approach their seventieth year, the reticulum sensibly loses its dark colour, so that at last the bulbs come out yellow⁶, and the hair and beard are grey like other nations; and if the young Ethiopian infants are brought into colder climates, it is certain that they lose a sensible quantity of their blackness⁷, and their colour begins to verge more and more towards brown.

On the other hand, it is apparent that when white men reside a considerable time in the torrid zones they become brown, and sensibly verge towards black with much greater facility.

¹ J. Schreyer, *Ostind. reis.* p. 121.

² *Tranquebar Miss. Ber.* 22. *Contin.* p. 896. The more they dwell towards the north, and the more agreeable the race is, the more their black colour changes into brown, red, and yellow. The people of Barar are for the most part very black, and for the whole day long they work and are burnt up in sweat and dust by the rays of the sun. The better class of people do not go so much into the sun, and consequently they are not so black, &c. *Comp.* 30. *Contin.* p. 660.

³ Müller. *Linn. Syst. Nat.* i. p. 95.

⁴ Sir Francis Roberval in Hakluyt, Vol. III. p. 242. "The savages of Canada are very white, but they are all naked, and if they were apparelled as the French are they would be white and as fayre. But they paint themselves for feare of heat and sunne burning." "Those who are painted and who wear clothes, become so delicate in colour that they would be more readily taken for Spaniards than for Indians." La Houtan, i. ep. 16.

⁵ Hawkesworth, II. p. 187.

⁶ Wilh. J. Müller, *Fetu*, p. 279. Mich. Hemmersam, *Westind. Reisen*, p. 38.

⁷ The Colchians in the time of Herodotus were still black and had curly hair, p. 125, ed. Gronov. *Leo Afric.* P. I. s. 3. L. M. A. a most competent judge, says in his *Instit. Physiolog.* Patav. 1773, 8vo. p. 194: "A cobbler of this nation is still living at Venice, whose blackness after a long lapse of years (for he came a boy to this country) has so sensibly diminished that he looks as if suffering slightly from jaundice." And I myself have seen a mulatto woman born from an Ethiopian father and a white mother near Gotha, who in her very earliest infancy was sufficiently dark; but in progress of time has so degenerated from her native colour, that she now only retains a sort of cherry or yellow tint of skin.

The Spaniards who dwell under the equator in the new world have so much degenerated towards the native colour of the soil, that it has seemed very probable to eminent men¹, that had they not taken care to preserve their paternal constitution by intermarrying with Europeans, but had chosen to follow the same kind of life as the American nations, in a short time they would have fallen into almost the same coloration, which we see in the natives of South America. An Englishman who had spent only three years with the Virginians, became exactly like them in colour, and Smith², his countryman, could only recognize him by his language. A colony of Portuguese, who were carried to Africa³ in the fifteenth century, can scarcely now be distinguished from the aborigines. The French, whether they emigrate to Africa or America, are invariably tinged with the brown colour of those countries⁴. I do not adduce here the numerous examples of Europeans who have become unnaturally black in their own country⁵, or have brought forth black children⁶, nor of Ethiopians who have been, at all events in some parts of their bodies, suddenly turned white⁷, since all these cases seem to include something diseased or morbid.

As by the climate so also by the mode of life the colours of the body are seen to be changed. And this appears most clearly in the unions of people of different tints, in which cases the most distinct and contrary colours so degenerate, that white men may sensibly pass and be changed into black, and the contrary. The hybrid offspring (if we may use that word) are distinguished by particular names; in using which, however, the authors of travels vary so much, that it seemed to me worth while to collect as many of these synonyms as I could, to reduce them into grades of descending affinity, and exhibit them in a synoptic form.

¹ Mitchell, *Philos. Transact.* n. 474.

³ *Rech. sur les Améric.* i. p. 186.

² *Hist. Virgin.* p. 116.

⁴ *Mém. de Trevoux,* l. c. p. 1169.

⁵ Many instances are collected by Le Cat, *Coul. de la peau*, p. 130.

⁶ *Cæli Rhodig.* l. c. p. 776. Froben, Le Cat, p. 109. A black princess was born to the queen of Louis XIV. *Mém. de Trevoux,* l. c. p. 1168. Abr. Kaav. Boerh. *impet. fac.* p. 354.

⁷ Le Cat, p. 100. Frank, *Philos. Tr.* Vol. LI. Part I. p. 176.

1. The offspring of a black man and a white woman, or the reverse, is called *Mulatto*¹, *Mollaka*², *Melatta*; by the Italians, *Bertin*, *Creole* and *Criole*³; by the inhabitants of Malabar, *Mestiço*⁴. The offspring of an American man and an European woman, *Mameluck*⁵, and *Metif*⁶.

2. The offspring of an European male with a Mulatto female is called *Terceron*⁷, *Castiço*⁸. The son of an European female from a *Metif* is called a *Quarteroon*⁹. The offspring of two Mulattoes is called *Casque*¹⁰; and of blacks and Mulattoes, *Griffs*¹¹.

3. A Terceron female and an European produce *quaterons*¹², *postiços*¹³. But the American quarteroon (who is of the same degree as the black Terceron) produces from an European *octavoons*¹⁴.

4. The offspring of a quarteroon male and a white female, a *quinteroon*¹⁵; the child of an European woman with an American octavoon is called by the Spaniards *Puchuela*¹⁶.

It is plain therefore that the traces of blackness are propagated to great-grandchildren; but they do not keep completely

¹ *Hist. of Jamaica*, II. p. 260. Aublet, *Plantes de la Guiane Française*, T. II. p. 122, App.

² Hemmersam, *l. c.* p. 36.

³ Thomas Hyde on Abr. Perizol. *Cosmograph.* p. 99, ed. Oxon. 1691, 4to.

⁴ Christ. Langhan's *Ostind. Reise.* p. 216. *Tranquebar Miss. Ber. Cont.* 33, p. 199. *Mestiço Lusitan.* that is, of mixed race.

⁵ *Hist. de l'Ac. des Sc. de Paris*, 1724, p. 18.

⁶ Labat, *Voy. aux Isles de l'Amér.* II. p. 132. *Recherch. sur les Amér.* I. p. 199. Newly-born metifs are distinguished by the colour of the genitals from true blacks, for it is well known that those parts are black even in the Ethiopian fœtus. Phil. Fermin, *Sur l'oeconomie animale*, Part I. p. 180. This author calls the offspring of the black male and the Indian female *Kahougle*, and the offspring of these and the whites *Mulattas*, p. 179.

⁷ *Hist. of Jamaica*, *l. c.*

⁸ Langhan's *Tranqu. Ber. l. c.* Castiço, *de boa casta*, of a good stock.

⁹ De Pauw, *l. c.*

¹⁰ *Comment. Paris. l. c.*

¹¹ *Ib.* p. 17. It is plain that the offspring of a Mestiço and a Malabar woman are black. *Relat. Tranqueb. l. c.* Those from a Mulatto are called *Sambo* in *Hist. of Jamaica*, *l. c.* p. 261, and the offspring of these and blacks become blacks again.

¹² *Hist. of Jam. l. c.* p. 260.

¹³ Langhan's *Rel. Tranq. l. c.* Postiço means *adopted*: thus *cabello postiço*, false hair.

¹⁴ De Pauw, *l. c.* p. 200.

¹⁵ *Hist. of Jam. l. c.* The children of Postiços and whites are clearly white. *Tranqu. Ber. l. c.* According to the author of the *Hist. of Jamaica* the children of a quinteroon and a white man become white.

¹⁶ De Pauw, *l. c.*

the degrees we have just noticed, for twins sometimes are born of different colours; such as Fermin¹ says came from an Ethiopian woman, of which the male was a mulatto, but the female, like the mother, an intense black. And from all these cases, this is clearly proved, which I have been endeavouring by what has been said to demonstrate, that colour, whatever be its cause, be it bile, or the influence of the sun, the air, or the climate, is, at all events, an adventitious and easily changeable thing, and can never constitute a diversity of species.

A great deal of weight has attached to this opinion in consequence of the well-known examples of those men, whose reticulum has been conspicuously variegated and spotted with different colours. Lamothe² has described very carefully a boy of this kind from the Antilles. Labat³ saw the wife of a Grifole like this, a native of Cayenne, and in other respects handsome. Chr. D. Schreber⁴ has collected many examples; and I myself had lately an opportunity of seeing an instance of this sort of variegated skin. One of my friends, a physician, has a reticulum of almost a purple colour, and distinctly marked with very white spots, of different sizes, but equal in other respects, and similar to the most shining skin. And on the back of his right hand there were five white spots of the same kind, of which each was almost equal to a thumb's breadth in diameter, interspersed with numerous smaller ones. This phenomenon very seldom occurs in men; but is very common in animals, especially in the reticulum of quadrupeds. The throats of rams, for example, are frequently so variegated, that you may observe in them the greatest similarity, both to the black skin of the Ethiop and the white skin of the European. I have examined many flocks of sheep in their pastures with this object, and I think I have observed, that the greater or smaller number of black spots in the jaws answer to the greater or smaller quantity of black wool on the animals themselves.

¹ *l. c.* p. 178.

³ *Voy. en Esp. et en Ital.* I. p. 176.

² *Hamb. Mag.* XIX. p. 400.

⁴ *Saeugthiere*, p. 15. I shall speak below about the spotting of the skin from disease, which must be clearly distinguished from the instances in the text.

I will say no more of colour; and now, having disposed of all the general varieties of the whole human body, I will go on to the diversity of the separate parts and members; and will make a beginning with the head and its conformation. In the same way that it is always the case that there is the greatest possible difference between the skeleton of the embryo and the adult, so above all, the bones of the skull differ to such an extent in both, that you would scarcely recognize them as parts of the same body. For the bones which, in the adult, constitute a very solid case, and the hardest possible receptacle of what is at once the softest and noblest entrail, in the embryo appear only as thin but broad scales, "which," to use the words of Coiter¹, "are just fastened together by soft, broad, loose and flaccid bonds, sutures and commissures." Now the skull of the infant is wet and soft clay, and fit to be moulded into many forms before it is perfectly solidified, so that if you consider the innumerable and simultaneous external and adventitious causes in operation, you will no longer be able to wonder that the forms of skulls in adults should be different. But since for a considerable period of time singular shapes of the head have belonged to particular nations, and peculiar skulls have been shaped out, in some of them certainly by artificial means, it will be our business to look at these things a little more carefully, and to consider how far they constitute different varieties of the human race. For, although I only intend to reckon up in a passing way those differences of the human body which are due to art alone, still I intend to treat now a little more at length upon that part of the argument which has to do with skulls, since things very nearly allied may be conveniently embraced and handled at the same time. Claudius Galen², besides the common and symmetrical skull³, had already described other skulls, which in some of their parts manifestly differed

¹ *De fact. hum. et inf. oss.* p. 59.

² *De usu part.* l. IX. p. m. 544 and *De oss.* v. i. Ph. Ingrassia in h. l. Comm. Panormi, 1603, fol. p. 68, fig. 1-4.

³ See the dimensions and definitions of these in Alb. Dürer, *von menschl. proport.* Fol. P. and Q. ed. 1528. Elsholz. l. c. p. 55. Petr. Lauremberg, *Pasicompse*, p. 62, ed. 1634.

from the common structure; and Andrew Vesalius¹ and Barth. Eustachius² endeavoured to draw figures of them. But the forms of these skulls seem to be so arbitrary and so monstrous, that they are of little or no use to us at present, and seem rather to belong to some morbid constitutions of the bones than to any natural varieties of heads. Let us follow nature herself, and we shall reckon up the various shapes of the head in the various nations, according to the four varieties of mankind which we constituted.

To begin with Germany itself, Vesalius³ says that its inhabitants are generally remarkable for having the occiput compressed and the head wide; and gives as a reason that infants in their cradles generally sleep on their backs, and besides being wrapped in swaddling-clothes, generally have their hands tied to their sides. This author also saw in the cemeteries of Styria and Carinthia wonderfully different skulls, which from their extraordinary shape seemed to be sports of nature⁴. Lauremberg⁵ says the female inhabitants of Hamburg of his day were long-headed, because they by ligaments and a foolish practice were accustomed to elongate the head from the birth. The Belgians are said to have their skulls more oblong⁶ than other nations, because the mothers permit their infants to sleep wrapped up in swaddling-clothes very much on the side and the temples⁷; but however the description of a Batavian skull by De Fischer does not answer to this⁸, who praises in it the bones of the skull for being but little depressed around the sides, and making there almost an equal arch. Albinus⁹ declares that the skulls of the

¹ *De corp. hum. fabr.* p. 21, ed. 1555.

² Tab. XLVI. f. 10, 15, 17, a little less monstrous than the figures of Vesalius and Ingrassias. The worst of all are in Matth. Meriani, *Viv. ic. part. corp. hum.* in C. Bauhin, *Th. Anat.* L. III. T. I. Comp. Bertini, *Osteolog.* at the end of Part II.

³ *l. c.* p. 23, and in *Put. Apol. exam.* (Gabr. Cuneus), p. 838, *Operum.* Insfeldt says the shape of the German skull is half-way between the oblong of the Belgians and the round skull of the Turks. *De lus. nat.* L. B. 1772, p. 20.

⁴ *Observ. Fallop. exam.* p. 768, ed. B. S. Albini.

⁵ *l. c.* p. 63.

⁶ Insfeldt, *l. c.*

⁷ Vesalius, *l. c.*

⁸ J. B. de Fischer, *De modo quo ossa se vicinis accommodant partibus.* L. B. 1743, 4to. Tab. III. A reversed copy is given by J. Casp. Lavater, *Physiognom. Frugm.* Vol. II. p. 159, Tab. B. fig. 1.

⁹ *Ind. leg. Rav.* p. 2.

English, the Spanish, and French, are without any peculiarity of structure at all; and he is in most respects a very accurate observer of varieties of that kind. Christopher Pflug informed Vesalius that the skulls of the inhabitants of the Styrian Alps were of a singular shape. The same Vesalius is of opinion that the heads of the Genoese, and still more of the Greeks and the Turks, are nearly of the shape of a sphere, and that it is done through the care of the midwives when they bring their assistance, and sometimes through the great solicitude of the mothers¹.

There is a passage in Hippocrates² about the skulls of the Scythians, which is most worthy of notice. He says that after they had applied artificial means for a very long period in shaping their heads, at last a kind of natural degeneration had taken place, so that in his day there was no more necessity for manual pressure to arrive at the end in view, but that the skulls grew up to be elongated of their own accord. And this kind of thing should be examined in other varieties of mankind, especially as to form and colour, and their various causes, climate, &c., which in the progress of time become hereditary and constant, although they may have owed their first origin to adventitious causes. The nations towards our north have generally flatter faces³. Eber. Rosen is, so far as I know, the only writer who says that the Lapps of Lulah can, for the most part by the face being broad above⁴, attenuated below, with the cheeks falling in, and terminated in a long chin, be distinguished from the other Scandinavians⁵. J. B. de Fischer⁶ has published a drawing of a Calmuck's skull, and it is ugly, and nearly ap-

¹ *l. c.* But I do not see how Winkelmann (*Gesch. der Kunst des Alterth.* T. I. p. 24) can use this passage of Vesalius to prove the influence of a more favourable climate and sky, when the Brussels anatomist attributes it to art alone. Moreover those skulls of the Turks which are preserved in the Royal Museum are much less oval, and of much less elegant shape than the common heads of our countrymen: and therefore a man so learned in his art ought to have said less about their beauty.

² *De aer. aqu. et loc.* 35.

³ Goldsmith, *l. c.* p. 214.

⁴ The jaws of the skull of a Malabar woman are also narrow. *Leg. Rav.* p. 3.

⁵ *De Medic. Lapon. Lulens.* Lond. Goth. 1751. Engraved in *Hall. Coll. disp. pract.* IV.

⁶ *l. c.* p. 24, Tab. I. Insfeldt, *l. c.* also calls the head of the Calmuck square.

proaches a square in shape, and in many ways testifies to barbarism. But this single example shows how unfair it is to draw conclusions as to the conformation of a whole race from one or two specimens. For Pallas¹ describes the Calmucks as men of a symmetrical, beautiful, and even round appearance, so that he says their girls would find admirers in cultivated Europe. Nor do the said skulls answer to the two very accurate representations of that Calmuck, a boy of eleven years old, who lately came from Russia with the court of Darmstadt, drawings of whom I received from Carlsruhe. They represent a young man of handsome shape, lofty forehead and eye-brows; and whose face agrees in this respect with the description of Pallas, and diverges from the skull in question, that the mouth makes nearly an equilateral triangle with the eyes furthest from it, which brings out the head round instead of square. Passing from the most north-easterly part of Asia by the Anadirski Archipelago into North America, we come to the tribes whose name is derived from the singular form of their heads². Either I am very much mistaken, or it is a skull of this sort which has been described by Winslow³, and engraved by him. With its very protracted occiput, its somewhat flat forehead, the shape of the orbits, and other aberrations of that sort from the common structure, it seems to present some similarity to the skull of a dog. We know at present too little of the history of that country and its inhabitants to be able to add the cause of that singular conformation: but whatever it be, it seems that it must rather be in the mode of life, since the same peculiarity is observed sometimes in the skulls of Europeans. I myself have in my possession a skull, very ancient, dug out last summer from the city cemetery, which is as like that American in the points I have mentioned⁴, and in every thing else, as one egg is to another.

¹ *Reis.* I. pp. 307, 311.

² *Têtes-plates, or plats côtes de chiens.* De Vaugondy, *l. c.* p. 27, lat. 65°, long. 275° Engel, *Tab. Am. Boreal.*

³ *Mem. de l'Ac. des Sc. de Paris, 1722, p. 323, Tab. 16.* It is said to have been found in Hond-Eyland, lat. 78°, long. 310°.

⁴ It measures six Paris inches and more from the apex of the nasal bone to the extreme bulging part of the occipital bone; but only four in diameter from the

Finally, as to the inhabitants of Greenland, and of Labrador, the former we are told by Cranz¹, and the latter by Henry Ellis², are longheaded and have flat faces. But I am afraid that the accounts of these most trustworthy men have been badly understood by many, who have thence come to the conclusion that these nations are badly formed and almost monstrous in shape³. Cranz himself says that a great many Greenlanders are to be found with faces so oblong that it is difficult to distinguish them from Europeans⁴; but as to the Esquimaux, I am led to a contrary opinion by some very accurate drawings of three inhabitants of Labrador, which have lately come into my possession, and are painted in colours with great care by that excellent artist J. Swertner, from copies sent by the Hernnhut Brothers, who have an establishment there. One is a male; and the two females, according to the custom of their nation, are clad with immense greaves, nearly reaching to their hips, and one of them carries a child in her right sandal⁵; all however are of a reasonably symmetrical and well-proportioned form. The face of the male is rather flat, and the nose but little prominent, though by no means turned up, the body square, and the head large, so as to be equal to the sixth part of his whole height; but the women are taller, and are seven of their own heads in length⁶; and if you except their colour⁷, which verges towards brown, are in other respects of good appearance.

Let us turn to Asia, and look at our second variety, which dwells beyond the Ganges, and on the Islands, &c. The first

condyloid apophyses of the foramen magnum to the top of the head: the foramen magnum is placed rather towards the front, and so the occiput is longer, and the bones of the head descend in a more acute angle towards the base of the skull than in Winslow's example; and so in that it resembles the skull of Cowper's skeleton. *Myot. reform.* fig. XVIII.

¹ *Hist. of Greenl.* p. 179.

² *Voy. to Hudson's Bay*, p. 132.

³ *Henr. Home, l. c.* Buffon, T. III. p. 485.

⁴ This is confirmed by the pictures of the Greenlanders made after the life by Adam Olearius, *Gottorf. Kunstk.* Tab. III. F. 1—3.

⁵ Cranz, *Fortsetz.* p. 310. Ellis, p. 136.

⁶ They are placed by Alb. Dürer in his tables between A1 and B1.

⁷ Which is caused by their mode of life. Cranz, *Fortsetz. l. c.* Comp. with *Hist.* p. 178.

thing we see are the Aracani on the Ganges, who flatten the foreheads of the newly-born with sheets of lead.

After these, going up to the Amur (Sahalien ula), the northern termination of this variety, come the Chinese, who, unless I am wrong, are less content than any other of the inhabitants of this world, with the natural conformation of their body, and therefore use so many artificial means to distort it, and squeeze it, that they differ from almost all other men in most parts of their bodies. Their heads are usually oval, their faces flat, their eyes narrow, drawn up towards the external corners, their noses small, and all their other peculiarities of this kind are well known from the numerous pictures of them, and from their china and pottery figures. Those Chinese whom Büttner saw at London were exactly of this kind, and so also was the great botanist Whang-at-tong (*the yellow man of the East*), whose acquaintance was made there by Lichtenberg. But these artificial ways of moulding the head seem to have more to do with the soft parts of the face than the bony structure, for Daubenton¹ reckons up many skulls of the Chinese and Tartars, and declares that they differ in no way from the ordinary skulls of Europeans. The other nations of this variety looked at as a whole answer to those characters which I laid down above as belonging to them.

The New Hollanders make such a transition to the third variety, that we perceive a sensible progress in going from the New Zealanders through the Otaheitans to the fourth. The inhabitants of the Island Mallicolo², whom I was just speaking of, differ from their neighbours by the strange form of head, in which late travellers assure us they approach nearest to the figure of apes³. I do not see anything remarkable in the skulls

¹ *Descr. du Cab. du roi*, Vol. XIV. n. M.CCC.XXXIX.

² It is situated with Tanna and New Caledonia in 15° S. L., and is nearly as many degrees from the east coast of New Holland.

³ I hope it will be agreeable to my readers if I append a short description of these men, taken from the account of the younger Forster, and communicated to me by Lichtenberg. "Contrary to all expectation, we found the inhabitants differing in everything from all the other people we had hitherto seen in the Southern Ocean. They were of small stature, rarely exceeding 5 ft. 4 in. Their limbs were slender, and ill-shaped; their colour blackish-brown, which was made more intense

of the remaining inhabitants of the Pacific Ocean; and so we will go on to the third variety of mankind, that is, the African nations, about whom we may be brief, since what there is to be said about their skulls is of small importance. Those skulls of mummies which I have seen are of round and spherical, but still of elegant and symmetrical form.

The head of an Ethiop from the southern part of Africa has been carefully described by J. Beni de Fischer, as I quoted above¹. Broader in the upper region, suddenly narrowed, sharpened from the front towards the middle of the frontal bone and over the eyes, and widely stretched out below these, and very globular behind, he says that in its whole periphery it comes to be nearly of a triangular shape. And yet this description is scarcely satisfactory when I compare it with the Ethiopians that I have seen myself and carefully examined, or with that skull of Peter Pauw²; for this latter, if you except the large occiput and the narrow orbits, has very little resemblance to the description and very accurate engraving of Fischer.

There remains the fourth variety of the human race belonging to America³, except that part we have just been speaking of. The same thing may be said of the inhabitants of this quarter, which I have just observed about the Chinese, that they take great pains, and employ artificial means, to distort the natural form of their bodies into some other. This is especially the case with the head; and the most numerous evidences of the wonderful ways in which they compress it are to be found in the stories of travellers; but still we are deficient in any accurate examina-

in the face, and the greater part of the body, by a black pigment. Their head was singularly formed, for it receded more from the root of the nose than other men's, and presented such a resemblance to that of the ape, that with one accord we all expressed our astonishment at it. Their noses and lips did not seem more misshapen than those of other nations of the Southern Ocean. The hair of their head was black, curly, and woolly; their beard thick and long, and less like wool. They gird the abdomen with a rope so tightly, that it seems nearly divided into two parts. So far as we saw they had no other covering, except in one place: but this had so little the effect of concealing what other nations try to hide, that it made it only still more conspicuous."

¹ *l. c.* Tab. III. pp. 24, 26. Is it the same in *Legat. Rav.* n. XIII. Insfeldt *l. c.* The head of the Ethiopians approaches the triangular shape.

² *Primit. Anat.* p. 29.

³ *Recherch. philos. sur les Amer.* I. p. 146.

tions of skulls of this kind, nor is it sufficiently clear in what parts of the head the greatest change takes place. J. Cardan¹ said that the heads of the inhabitants of the old Portus Provinciæ were square, and deficient in the occiput. Hunauld² has exhibited the skull of a Carib, but it has been either so carelessly engraved, or is so misshapen, that I should prefer to consider it as a monstrosity, than to believe such to be the osseous conformation of a whole nation. The enormous bones of the nose, the little holes which give an exit to the nerves and arteries of the same size as the external auditory canal, the angular and large-lobed zygoma, the upper jaw deeply incised for the matrices of the teeth, and other things of this sort, excite a suspicion that this drawing was done in a hurry³. Finally, as to North America, Charlevoix describes the heads of one of the Canadian nations as globular, and the other as flat⁴.

So much then about the shape of skulls. From what has been said I trust that it is more than sufficiently clear, that almost all the diversity of the form of the head in different nations is to be attributed to the mode of life and to art: although I should very willingly admit the position of Hippocrates, that with the progress of time art may degenerate into a second nature, since it has a very considerable influence in all the other variations of mankind.

The physiognomy and the peculiar lineaments of the whole countenance in different nations opens up a very vast and agreeable field. In many they are sufficiently settled, and are such faithful exponents of the climate and the mode of life, that even after many generations spent in a foreign climate they can still be recognized. But, besides other reasons, the want of sufficiently faithful and accurately delineated pictures forbids me to wander in that direction. I took a great deal of pains to compare pictures drawn from the life of more remote and, at present, little known nations; but I have been able to obtain very

¹ *De rer. variet.* l. VIII. c. XLIII. p. 162. T. III. *Oper.* Cap. Maragnon, Brasil.

² *Mem. de l'Ac. des Sc. de Paris*, 1740. p. 373. Tab. 16. fig. 1.

³ *Hist. de la nouvelle France*, III. pp. 187, 324. Algonquins. Têtes de Boule.

⁴ *Ib.* p. 323. Flat heads: each a work of art.

few; and there are not many authors of travels whose pictures, so far as regards the likenesses of nations, can be trusted. If you except the vast work of the brothers De Bry, the first editions of the travels of Cornelius Le Brun, the Tartary of Nic. Witsen, the diary of Sydney Parkinson, and the voyages of Cook himself, and except some genuine representations scattered about here and there in various books, especially in the work of S. R. Lavater on physiognomy, there are many nations of whom you can find no trustworthy pictures.

Meanwhile, it will be enough to bring forward a few examples, of which the Jewish race presents the most notorious and least deceptive, which can easily be recognized everywhere by their eyes alone, which breathe of the East. The Vallones, though they have lived among the Swedes for many years, still preserve the lineaments of the face, which are peculiar to them, and by which they can be distinguished at the first glance from the aborigines¹. The clear and open countenance of the Swiss, the cheerful one of the young Savoyards, the manly and serious Turks², the simple and guileless look of the nations of the extreme north³, can easily be distinguished, even by those least skilled in physiognomy.

The matter is a little more difficult in some nations of the south, especially in the west of Europe, who, it has been observed by some eminent men, from some reason or other, are cheerful and sanguine in youth, but, as manhood advances, become more morose, and inclined to be of a melancholy temperament⁴. In our other varieties the lineaments of the face are very much more persistent. To say nothing of the Chinese, who I have mentioned make their heads so much out of shape that it would be hazardous to say how much in them is to

¹ Clas Alströmer *Om den fin-ulliga fär-aveln.* Stock. 1770. 8vo. p. 76.

² Russel, *Aleppo.* Niebuhr, *Reis.* &c.

³ Samojed. Le Brun, *Voy.* Amst. 1718. f. n. 7, 8, and p. 9. The Tartars of Siberia, *ib.* p. 104. The Ostiaks, p. 112. The Greenlanders in Olear. *l. c.* The Esquimaux in our pictures approach very much to the Samojed. Le Brun, n. 7 and 8.

⁴ Boerhaave, *Præl. in propr. inst.* s. 879. "The Italians, Portuguese, and Spanish are vivacious and playful up to the eighteenth year: after the thirtieth year they all become sad, morose, melancholy, and subject to hæmorrhages."

be referred to nature and how much to art, the inhabitants of the Pacific Ocean retain evident examples of persistent physiognomy. Every one, for instance, will recognize the fierce and savage countenance of the New-Hollanders and New-Zealanders by looking at the magnificent plates of Parkinson¹, whereas the Otaheitans, on the contrary, looked at as a whole, seem to be of a milder disposition, as also the many pictures² of them by the same well-known author testify³.

Although almost all the nations of Africa are sufficiently distinguished by persistent and peculiar lineaments of face, still the ancient Egyptians, and the inhabitants of the south of Africa, differ very much by their singular physiognomy from the rest, both of the Africans and of mankind. All the monuments of the old art of the ancient Egyptians, from the statue of Memnon down to the pottery seals which are found with the mummies, show likenesses very similar, and all closely resembling each other. The face is somewhat long, but by no means emaciated, the nose prominent, broad towards the nostrils, and ending in a sharpish lobe, and finally the mouth small, girdled with swelling lips, all of which are most positive and unmistakable signs of the Egyptian head. The appearance of the Ethiopians is so well known that it would be superfluous to say much on that point. Their depressed nose, which has been attributed by some to art⁴, most recent authors, and those eye-witnesses, have shown to be due to nature⁵, and the two Ethiopian fœtuses preserved in the Royal Museum are exactly like the figures of Ruysch⁶ and Seba⁷, and answer to this description. For although the nose in almost all human embryos is depressed, still the Ethiopians

¹ Pl. XVII. XXIII. XXVIII. &c.

² Pl. VIII.

³ When their faces are seen in profile, they are very distinct from the smooth and equable countenance of the Chinese, through their distinctly prominent nose, lips, and chin, &c. This was often observed in the men of both nations by Lichtenberg, who knew the Chinese I was speaking of and the Otaheitan O-mai (which is commonly, but wrongly made a trisyllable O-mai-a) at London, and has often wondered at the diversity of their faces.

⁴ Hemmersam, p. 37.

⁵ Müller, *Fetus*, p. 31.

⁶ *Thes. Anat.* III. t. 2. The forehead is more narrow than in any other fœtus, as is shewn by one of the specimens in the Royal Museum.

⁷ *Thes.* T. I. Tab. CXI. f. 2.

of whom we are speaking have their noses, or interstices (to use the expression of Isidore) so expanded, that even setting aside the swelling lips, any one could tell the nation from them alone.

A few variations of the human body remain besides those which I think should be attributed to art alone, and which have to do with the peculiar formation of members and parts. The hair varies very much amongst most men, both in colour and form, but in some nations is of a constant character. And as it is said to be universal that white colours obtain more in the north, and brown in the south, so black hair and black eyes seem to be usual in the torrid zones, and light hair with blue eyes in the colder regions¹. But, beyond all, the hair of the Ethiopians is conspicuous for its intense black and its singular woolliness, which however is no more congenital with them than the colour of their skin, but both have been contracted, as we have seen, by the progress of time and the heat of the sun². For the Ethiopian fœtus, I mentioned, is covered with light brown straight hairs, which scarcely differ from the down of the European embryo; so that it is probable that the tint of the skin and the hair are changed sensibly at the same time. I have already observed that the Ethiopians get paler in old age, and that their hair also grows white; and it is a well-known thing, that in other men, in proportion as their skin is brown, so are the genitals covered with curly hair. We are also told in his last work, by D. Antonius de Ulloa³, that the Ethiopians of Darien have hair, though black, still straight. Others too have declared, and I myself have often observed, that the structure of the Ethiopian hair is the same as that of other men, and the bulb of it as white.

Many authors tell us that the feet of the Ethiopians are badly formed, in more than one way. The author of the

¹ Avicenna, *Canon*. L. I. *Fen.* I. v. Haller, *Elem. Physiol.* T. v. p. 36.

² Cæl. Rhodigin. *l. c.* p. 440, ed. Ald. For dried-up hair is turned black and bent.

³ *Noticias Americanas*. Madrid, 1722. 4to. *Entretenim.* XVII. p. 305.

Moretum (said to be Virgil) reckons up their many defects as follows¹:

With legs so thin, and feet so widely splayed,
The wrinkled heels perpetual slits betrayed.

And Hier. Mercurialis agrees with him, for he says that these slits in the feet are endemic to the Ethiopians². Another passage worthy of notice is to be found in Petronius³, which, as Heyne⁴ tells us, refers to the Ethiopian slaves, like those we call negroes. Cæ. Rhodiginus⁵ says that the Egyptians and Ethiopians have splay feet, &c., which, however, do not seem to be by any means common to entire nations; for Albert Durer⁶, after speaking of these deformities in the feet of the Ethiopians, adds that he has seen many well and symmetrically formed; nor was I able to observe anything of this kind in the Ethiopians I have seen myself.

That the breasts of the Ethiopian⁷ and other⁸ southern women are pendulous and contracted, from their mode of life and habits of lactation, wants scarcely any testimony adduced. To those mutations of the human body which are occasioned by the mode of life, we may also add those which owe their origin to the difference of languages, and which are sometimes to be found in the very organs of speech. To attribute this difference, with J. Senebier⁹, to the influence of heat or cold, is forbidden by a slight comparison of neighbouring languages. Who could possibly attribute to the climate the fact that the Ephraimites said *Sibolet* instead of *Schibolet*; that the Chinese cannot pronounce the letters *R* and *D*; or the Spaniards the final *M*, or the inhabitants of the Marquesas and the Greenlanders of Kamtschadale *Tsch* and *ks*. But the prodigious labours of

¹ v. 35.

² *De decorat.* p. 103.

³ c. 102. "Can we fill our lips with an ugly swelling? can we crisp our hair with an iron? and mark our forehead with scars? and distend our shanks into a curve? and draw our heels down to the earth? and change our beard into a foreign fashion?"

⁴ *Ad Moreti*, l. c.

⁵ l. c. ed. Ald.

⁶ l. c. Fol. T. III.

⁷ Fermin, *Econ. Anim.* p. 117.

⁸ Hottentots. Kolben, *Vorgeb. de g. H.* p. 474. The inhabitants of Horn Island in Le Maire, and Schouten in Dalrymple's *Collect.* T. II. p. 58.

⁹ *L'Art d'observer.* Genev. 1775, 8vo. T. II. p. 227.

Büttner on this point forbid me to be more prolix on the matter, for he has collected with incredible labour all that relates to the subject, and will very soon give it to the press.

I pass on to those things which, besides the shape of the head, are apt to be changed by the aid of art in the other parts of the body amongst various nations. And first of all I mean to speak of mutilations, where members and parts of the body are cut or torn out, &c. The Scriptures, and the stories of Herodotus¹ about the Colchians, the Egyptians and the Ethiopians, and the wide extent of the practice², all prove that circumcision is exceedingly ancient. Nor is it confined entirely to the stronger sex, for amongst many oriental people it is applied to the weaker sex, and that part of their pudenda which answers³ to the prepuce of the virile member is cut off; of which ceremony copious testimony both from ancient and modern writers has been collected by Mart. Schurigius⁴ and Theod. Tronchin⁵. It will be enough for us at present to give our readers a drawing (Pl. II. fig. 4) of the genitals of a circumcised girl of eighteen years old, which I owe to the kindness of Niebuhr, who has also allowed me to give it to the public. When that famous company went to travel in Asia, one of the questions proposed to them was about this circumcision of both sexes⁶; and this illustrious man⁷, who was the sole survivor of the expedition, settled this, as well as almost all the others; so much so as to bring back this drawing I am speaking of, which the great artist, G. W. Baurenfeind, had taken from the life. In it you can see the body itself of the clitoris, bare and deprived of its prepuce, hanging from the upper commissure of the labia,

¹ pp. 102. 125. ed. Gron.

² The negroes of Angola. Hughes, *Barbad.* p. 14. The Otaheitans. Reinhold Forster, *l. c.* p. 269.

³ So also P. Bellon, *Obs.* l. III. c. 28; although he adds obscurely, that the part which is in Greek called *hymeneæ* is in Latin *alæ*. Thevenot says they do not spare even these *alæ* or wings. *Voy.* l. II. c. 74. However the Greek words for these parts are often confounded: see their genuine explanations in H. Stephani *Diction. Med.* pp. 536, and 599, and Joach. Camerarius, *Comment. utriusq. lingue*, p. 359.

⁴ *Muliebr.* pp. 116, 142. *Parthenol.* p. 379.

⁵ *Diss. de Clitoride*, p. m. 75.

⁶ Michaelis, *Fragm.* p. 155.

⁷ *Beschr. v. Arab.* p. 77.

under the pubis, which is abraded, and below it lie the orifices of the urethra, and the vagina: if perchance some may think these things are not particularly well done, they must excuse the haste of the draughtsman¹.

Eunuchs have not so much to do with the matter in hand, as monorchides, one of whose testicles is extracted during infancy. First, this custom prevails amongst the Hottentots, who generally in the eighth, and sometimes, if we can trust Kolben², in the eighteenth year, are made monorchides. They suppose it makes them run quicker; but travellers remark that at the same time it affects their fertility³. The Swiss peasants not unfrequently undergo the like loss of a testicle, that being the way in which the neighbours used to cure ruptures⁴.

To mutilations I refer the custom of eradicating the hair in different parts of the body practised by some nations. Thus the Burats keep only the hair below the chin, and pluck out the rest⁵: the Turks destroy⁶ by various unguents the hair in every part of the body except on the head and the beard: the Otaheitans eradicate⁷ the hairs under the armpit; and almost all the people of America extirpate the beard, which gave rise to the old idea⁸, that the Americans were naturally beardless. But this story scarcely needs refutation. Lionel Wafer⁹ expressly says about the inhabitants of Darien, that they would have beards if they did not pluck them out: and there is still a little beard in our picture of the male Esquimaux, though the rest of his face is smooth¹⁰. I say nothing of the artificial sharpening of the teeth¹¹ amongst others, and other mutilations

¹ *Beschr. v. Arab.* p. 80. Baurenfeind designed it after nature, but with an unsteady hand.

² p. 147.

³ J. Schreyer, p. 34.

⁴ See Haller, *adv. Buff. Operum min.* T. III. p. 183.

⁵ Le Brun, *Voy.* p. 120. *Mémoire sur les Samoédes*, p. 39.

⁶ Leonh. Rauwolf, *Raiss.* p. 31. *Buff.* T. III. p. 438.

⁷ Hawkesworth, T. II. p. 188.

⁸ Repeated lately in *Recherch. sur les Américains*, T. I. p. 37. *Quest. sur l'Encycl.* T. VII. p. 98.

⁹ *Isthm. of Africa*, p. 106.

¹⁰ The bearded race of the Esquimaux. Charlevoix, III. p. 179. A bearded inhabitant of Tierra del Fuego. Parkinson, Vol. I. Thus from all parts of America.

¹¹ *Ethiopians.* Hemmersam, p. 37.

of equally little importance. First of all, I refer to deformities those enormous and pendulous ears, which from a very long time have been so much in favour among many nations, so as to give a foundation to the old story about the Scythian populations in Pontus, that they have such large ears that they can cover their whole bodies with them¹. We have certain information about the inhabitants of Malabar, of C. Comorin², Benares, the Moluccas³, and Mallicolo⁴, that they use various artifices to make their ears as large as possible, and truly monstrous. The picture of a man of the south in Corn. Le Brun represents them as disfigured in a wonderful way⁵. We are told by some English travellers in southern countries how the New Zealanders studiously prolong the prepuce of the penis⁶. The immense nails of the Chinese⁷ are well known. The custom of making women thin by a particular diet is very ancient, and has prevailed amongst the most refined nations⁸, so politeness and respect forbid us to class it, with Linnæus⁹ amongst deformities. Though the use of pigments and different kinds of paint does not change the shapes of the members themselves, yet it is so constant in some nations, that it would clearly be wrong to leave it untouched. Some merely smear their skin with pigments, whilst others first of all prick it with a needle, and then rub the colours in, which in this way adhere most tenaciously. Both customs have prevailed amongst the most remote and different nations. The Kanagystæ¹⁰, the Californians¹¹, the Turks¹², the inhabitants of the island of Santa Croce¹³, and Mallicolo, of New Holland¹⁴, and

¹ Plin. iv. 13, vii. 2. Pompon. Mela, l. iii. *de Hisp. et Sept. insulis*.

² Schreyer, p. 117.

³ Maximil. Transylv. in Zahn, *Spec. T. III. p. 69.*

⁴ They perforate them with reeds.

⁵ n. 197.

⁶ Hawkesworth, Vol. III. p. 50.

⁷ Ol. Toree, p. 69.

⁸ Chærea in Terence, *Eunuch. II. 3. 21.*

⁹ *Syst. Nat. XII. 1. p. 29.*

¹⁰ In the Kad-jak islands of the Olutorian archipelago. Staehlin, *l. c. p. 32.*

¹¹ Begert, p. 109.

¹² Rauwolf, Russel, Niebuhr, in either work.

¹³ Intensely black. Alvaro Mendana de Neyra in Dalrymple, Vol. i. p. 78.

¹⁴ Parkinson, Pl. xxvii. The abdomen and the legs distinguished by white bands.

Cape Verde¹, paint themselves². We know that the Tungus³, the Tschuktschi⁴, the Arabians⁵, the Esquimaux⁶, the New-Zealanders⁷, the Otaheitans⁸, and many nations over all America⁹ draw designs in the skin with a needle, or what we call tattoo themselves.

And this is pretty well all that I have to tell about the variations of the human body and its members, whether occasioned by climate, or mode of life, or diverse unions, or finally, by artificial means. Any one will easily see that our discussion has been about the varieties of whole nations, and that we have nothing to do with those peculiarities which happen accidentally to one or two individuals; and therefore I am quite justified in making no mention here of those unfortunate children, who have been now and then found amongst wild beasts; and all the more because everything which is known of those instances has been diligently collected and dealt with in a regular way by the industry of some famous men¹⁰. Their more important, and more noble part, that is reason, remains uncultivated; but hard necessity has so perverted their human nature, that I should be inclined to refer these anthropomorphous creatures, who are so like beasts, to the *homines monstrosi* of Linnæus.

¹ In blue. Gröben, p. 19.

² On the ancient Picts, see Martini on Buff. *Allg. Nat. Gesch.* vi. p. 258.

³ *La Russie ouverte*, Petersb. 1774, fol. Fasc. i. Tab. v. Coloured plates. Le Brun, p. 118. J. G. Gmelin, *Reis.* i. p. 77, ii. p. 647.

⁴ Krascheninikof, *Kantschatka*, Part II. p. 152.

⁵ Niebuhr, *Reis.* i. Tab. LIX. An Arabian woman of Tehâma.

⁶ The women in my plate are depicted with a double row of punctures on the frontal arch, and a single one under the lower lip.

⁷ Parkinson, Pl. XVI. XXI. XXIII.

⁸ Ib. Pl. VII.

⁹ At length, John de Laet. *adv. Hug. Grot. de Orig. Gent. Americ.* Amst. 1643, Svo. p. 204. Canadians in *Mus. Kirch.* ed. Battarrae. Rom. 1773, fol. Part I. Tab. i. II. col. plates. In *Tierra del Fuego*, Parkins. Pl. I. Instances of ancient tribes are collected by Ph. Cluver, *German. antiquæ*, p. 129.

¹⁰ For ancient instances see Ælian, v. h. l. XII. c. 42. Alex. ab Alex. *Genial. dier.* l. II. c. 31. Herodot. l. I. has doubts about Cyrus. Livy, l. I. c. 4, about Romulus and Remus. Pliny defends the story, VIII. 15, XV. 18, and Plutarch *Romul.* c. II. On the child of Gargoris by his daughter see Justin. l. XLIV. c. 4.

Among recent authors see for a well-written collection of histories, Henr. Conr. Kœnig, *Sched. de hom. inter feras educat. statu nat. solitario*, Hanover, 1730, 4to. Ph. Henr. Boecler, *de Statu Animar. Hom. fer.* Argent. 1756, 4to. Linn. *Anthropom.* T. VI. *Amœn. ac.* p. 65, and *Sys. Nat. l. c.* p. 28, at length Martini, l. c. p. 263.

The diseases to which the human body is subject would appear to be much less to our purpose than even the wild state of these children; and yet I am unwillingly compelled to intrude here upon pathology, because of the recent mistakes of some famous men, who have not hesitated to consider the afflicted persons about whom I am going to speak, not only as a peculiar *species* of the human race, but even as the same with the apes. There is a disorder affecting both the skin and the eyes at the same time¹, which sometimes occurs amongst men of the most different nations, and amongst some kinds of quadrupeds, and birds. As we saw above that the whiteness of organized bodies was due to cold, so now we have to consider another kind of diseased whiteness which does not depend upon cold. It seems to be found in plants² also, but is more frequently observed, and appears with stronger and more remarkable symptoms in animals, whose skin and hair, or whose feathers and quills, become of an unnaturally chalky, or milky hair, and their eyes grey, or reddish. In some few genera this singular condition seems to become a second nature, so that they produce offspring like themselves, and the same colour is preserved to all generations; in most however instances of this sort seem scattered and anomalous; they spring from parents of the usual colour, and very often have offspring like them again, or at all events the case is confined within the limits of a few families.

Of the first sort the best known examples are white rabbits, which are called, not inaptly, by Nic. le Cat³, the leucœthiops of their kind. Their fur is always a constant snowy white, whilst their eyes are rosy or red, but in other rabbits grey or black. They are deficient in that black pigment which lines internally

¹ I am surprised to see that some eminent men so far differ from me as to deny this leucœthiopia to be a disease, and go so far as to confound it with that natural whiteness which comes to animals in the winter; which I should scarcely have expected from men skilled in physiology, and who must be aware of the great importance of the black pigment which is drawn over the internal parts of the eye, and is entirely deficient in this disorder.

² Hyacinths, roses, &c. change anomalously their native colour into white.

³ *Coul. de la peau*, p. 55.

the eyes of all the mammalia, the birds, the amphibious animals, many of the fishes, and even insects, and whose seat is to be found in the cellular web which lines the choroidal membrane, and the uvea, &c. That this blackness is of the greatest consequence towards sound and good vision is proved, besides other ways, by the weak eye-sight of those animals in whom, as in the white rabbit, that pigment is entirely wanting, or even in some considerable proportion¹. For even those animals in whom the *tapetum* is blue or green are less able to bear a clear and noonday light, in proportion as they have that part larger or more conspicuous; as may be observed in the cat and other animals whose habits are nocturnal. But yet in them the external side of the choroid, and whatever internal part there is besides the tapetum, is covered with the usual blackness, of which however not a vestige appears in the rabbits we are speaking of. Hence an immense quantity of vessels, if they are turgid with blood, seem to be transparent with a sort of rosy or auburn colour through the pupil and in the iris; but this beautiful rosy hue perishes if the bulb of the eye is taken away from the orbit and the blood flows out; and it remains, if you first of all replenish the same vessels with dull-red suet. The pupil is, as in all the animals of which we shall speak, very large, even after death; the iris, if cut off from the vessels, white, and barely fibrous; which, if it is the case with the iris of other animals, clearly shows that the absence of circular fibres is connected with this deficiency of extraneous pigment: its vessels are beautifully curved; so also the folds of the ciliary processes, if the injection has been properly performed, &c. As this defect of the eyes is so common to this kind of rabbits, that their females, when embraced by black or grey males, produce offspring with white and red eyes, it is not to be wondered at if they become easily accustomed to the light, and able to endure the glare of day.

The nature of white mice is otherwise compounded, for although they preserve for many generations the snowy colour of their fur, and the red colour of their eyes, so far, like rabbits,

¹ The choroid grows pale in old men.

they still remain to an extreme degree avoiders of the light¹. There is here at Göttingen a bakehouse, in which white mice are not unfrequently caught, many of which I have seen alive; and, if a light was brought to the hole, they would instantly hide themselves in the cotton which was put for them, but in the twilight, or when the season was cloudy, they used to run freely about.

Besides rabbits and mice there are other animals in which this variety of hair and feathers and eyes is sometimes, though rarely, to be seen. Amongst horses² such sometimes occur; which however must not be confounded with the breed peculiar to Denmark; for although these have white hair, yet their hoofs and eyes are black, and, according to the observations of Kersting, they have also the *rete Malpighianum* brown.

I myself have seen white dogs with red eyes; a hamster of the same sort I owe to the liberality of Sulz; and such a squirrel was kept living by J. J. Wagner³.

Amongst birds, white varieties are known to occur in Canary-birds, parrots and cocks, and very seldom, but occasionally, in crows.

Finally, as to men who suffer from this defect, the accounts of them have been by some recent authors so deformed, and so mixed up with fables, that we may easily pardon those who have allowed themselves to be deceived, and have not hesitated to make out of them a particular species of mankind. It will therefore be our business to separate the stories from the truth, to show that the disease, so far from forming a species, does not even form a peculiar variety of mankind; to narrate its symptoms in detail; and to show that it was known to the ancients, and has spread over almost all the world.

The other immense merits of Linnæus, and my own respect for so great a man, forbid me to say much about his great mistake, repeated in so many editions⁴ of his magnificent work, and which other learned men declare was put forth in all good

¹ *Physical. belustig.* 14 st. p. 439.

² Edm. Chapman, *de Leucoth.* in fine.

³ *Hist. Nat. Helvet.* p. 185.

⁴ *S. N.* XII. p. 33.

faith, especially after the severe censures of Buffon¹ and Pauw². It will be sufficient to sum it up in a few words: that the attributes of apes are there mixed up with those of men—for a body less than ours by half, eyes deep in their orbit, joined to the *membrana nictitans*, and a lateral vision at the same time on both sides³, the fingers of the hand touching the knees when in an erect position, the wrinkled skin of the pubis⁴, and finally, the whispering tongue and those arrogant conceits, the hope of future dominion, &c. have nothing to do with the highest work of the Supreme Being, but must be relegated to the region of fable.

There is a disease of the human body, for the most part congenital, exactly like that which I have shown to attack certain animals; it is, however, different in this, that it plays with the symptoms, and now attacks man lightly, and now severely; in some countries it is rare, in others more frequent and endemic; here it is propagated in families, there it seizes people capriciously and individually. It affects the skin and the eyes at the same time, and therefore seems referable either to tetter or to *luscitio*⁵: that it is related to both, will be plain from an enumeration of the symptoms. As to the skin, or rather the cuticle, which is the principal seat of disease, in this disease it is affected in more than one way; it is indeed always of a diseased whiteness, and the hair⁶ or groin are coloured in the same way; but the nature of the epiderm itself undergoes all sorts of mutations, though it is not always entirely

¹ T. XIV.

² *Rech. sur les Am.* T. II. p. 69.

³ Dalin. *Am. Acad.* T. VI. p. 74.

⁴ *Ib.* p. 73.

⁵ *Luscitio*: a complaint of the eyes, when the sight is better in the evening than at mid-day. Festus. In the same sense Hippocrates uses the *νυκταλωπιας*. *Prorrh.* II. Galen, *Isag.* Plin. l. XXVIII. c. 11, and Theod. Priscian, l. I. c. 10. Varro, on the contrary, calls those *luscitiosi* who cannot see in the evening: and Ætius, Paveus, Actuarius, and Orirasius call those *νυκταλωπες* who see during the day, but not so well when the sun sets, and at night not at all. See more about this confusion of terms in H. Stephan. *Dict. Med.* p. 418. Ann. Foes, *Econ. Hippocr.* p. 263. Tr. Taurmann on Plaut. *Mil.* III. 52, and Jo. Harduin on Plin. l. c. p. 471. R. Aug. Vogel follows Hippocr. *de cogn. et cur. c. h. aff.* p. 475, where the *nuctalopia* of the ancients is said to be blindness by day (*Hemeralopia* of the moderns), and the *hemeralopia* of the ancients (*nuctalopia* of the moderns) is said to be the periodical blindness which comes on at twilight.

⁶ See Actuar. l. II., π. διαγν. πάθων, c. 23.

affected, but, in rare cases, the places are scattered over the surface of the body. Those, however, who are ill in this way must be carefully separated from those men who have the *rete parti-coloured*, and of whom I have spoken above¹. In the disease of which I am now speaking, it has been observed in the East Indies, by Rudolph², that the spots are rough and can be distinguished by the touch from the rest of the skin. Strahlenberg³ and John Bell⁴ report that parti-coloured persons of this kind are found amongst the Tartars; and the accounts of Hall⁵ describe the Malabars as marked by large spots of the same kind, of a yellowish white, and make the disorder something like leprosy. Closely allied to this sort of disease is that in which the skin of the body becomes white, with spots of another colour, as yellow⁶, scattered over it⁷, or where the colour is a mixture of red and white⁸, or where the face at least retains its natural redness⁹.

In most cases however, the whole skin, though not in the same way, becomes white. For in many, little or nothing at all in the epidermis is changed, except the colour, so that in other respects there is no symptom of any disease at all. Such are many of the inhabitants of the isthmus of Darien, most carefully described by Lionel Wafer¹⁰, who are said to be covered with a copious, though thin and snowy down. Like this also was a beautiful woman from the neighbouring island of Ternata, whom Le Brun¹¹ says was a concubine of the king of Bantam; and also a boy of five years old, shown to the Academy of Paris¹². The English poet¹³ speaks of another, lately shown in London,

¹ p. 5.

² Schreber, *Saeughth*. p. 15.

³ In Siberia, *Nordostl. Eur. u. Asia*, p. 121.

⁴ Zulims. See Bell's *Travels from Petersb. to diverse parts of Asia*, Glasg. 1763, 4to. T. I. p. 89. He attributes it to scurvy.

⁵ *Tranqueb. Miss. Ber. Contin.* XXI. p. 741. So also horses may be seen spotted black and white.

⁶ Like freckles.

⁷ *Tranqueb. Ber. Contin.* CVI. p. 1232.

⁸ *Ib. Contin.* XLVI. p. 1239.

⁹ Oliv. Goldsmith, *Hist. of the Earth*, T. II. p. 241. Whether the Otaheitan in Parkinson, p. 27, was of this kind I dare not decide.

¹⁰ p. 107.

¹¹ p. 353.

¹² *Hist. de l'Ac. des Sci.* 1744, n. V. p. 12. Voltaire, *Mélang.* T. III. p. 326. Maupertuis, *Venus physique*, p. 147.

¹³ Goldsmith, *l. c.*

with a skin like that of an European. In many, however, the epidermis too is scabby. I read the same about a Tamul schoolmaster, whose skin as it were came off in scales, and became almost of a red colour¹. The disease is called the white leprosy, in Malabar *Wonkuschtam* or *Wenkuschtam*². Allied to this also is the crusted leprosy of some inhabitants of Paraguay, recalling the scales of fish, painless, and in no ways affecting the general health³. The white Ethiopians too are made lepers by Ludolph⁴, and so are the inhabitants of Guinea by Isaac Voss⁵. I myself have been acquainted for many years with a Saxon youth, whose whole skin, not excepting even his face and the palms of the hands, was rough with white, and as it were calcareous scales, which appeared red through the numerous interstices, and as it were fissures, of the crust. Sometimes these scales peeled off, and then the limbs looked redder; but new ones instantly grew up. The groin was white; the hair and the eye-brows, if I recollect right, of a mouse colour. For those hairs do not, like that on the groin, keep the same colour in this disease, but vary in the most capricious way. Most have white⁶, soft hair, exactly like goats' wool⁷. Nor in these is the colour constant, but as they grow older is often changed into rosy⁸. Voss⁹ attributes red and yellow hair to his Leucæthiopians: the hair was yellow in the Malabar family¹⁰, golden in the Manilla girl of G. Jos. Camelli¹¹.

So much about one phase of our disorder, which occurs with tetter: the other phase, as I have said, affects the eyes, and belongs to *luscitio*, yet it is wonderful how the symptoms of it differ. In many the eyelids become turgid, winking¹²; the

¹ Gottl. Anast. Freylinghausen, *neuere Missions Geschichte*, 8 st. p. 1071.

² *Tranqueb. M. B. Cont.* CVI. p. 1233 not.

³ *Lettres edifiantes*, Rec. XXV. p. 122.

⁴ *Hist. Æthiopica*, l. c. 14 § 32.

⁵ *De Nili et alior. fluv. origine*, p. 68.

⁶ See de Groben, l. c. Wafer, p. 108. *Tranqueb. Miss. Ber. Contin.* XLII.

c. VI. &c.

⁷ *Ib.* Goldsmith, l. c. "The hair was white and woolly, and very unlike any thing I had seen before."

⁸ *Tranqueb. M. B. Cont.* CVI. p. 1283 not.

⁹ l. c.

¹⁰ *Miss. Ber. Cont.* CII. p. 637.

¹¹ *Philos. Trans.* n. 307, p. 2268.

¹² Le Brun, l. c.

eyes of the inhabitants of Darien open in a crescent shape¹; all blink during the day, which is also sometimes the case with people in good health, and even with the fœtus, according to the observation of Wrisperg², when the light is too strong. It was also observed in that youth whose epidermis I lately described, that this inconvenience was with him at its height during winter, when he could not endure the brightness of the snow, so that he stood in fear even of ice. In some the iris is in perpetual motion, and the pupils so unquiet that they can never distinguish minute objects, as letters³. The colours of the iris and choroid are various, but all rather pale, so that less light is absorbed, and the retina all the more affected.

In some the eyes are rosy, as in the animals we mentioned. I have myself known such, two sons and the daughter of a French peasant⁴. Maupertuis and Voltaire differ in their description of the eyes of 1744 Leucæthiopians who were seen at Paris; for one calls them rosy, the other sky-coloured. They may however be reconciled if we follow Fontenelle⁵, who says that the iris, &c. appears red in a certain position of the eyes only. The man that Goldsmith saw had red eyes. Sky-coloured eyes are not however uncommon in this disease. For as this colour always denotes weak vision, according to Avicenna and Averroes, as quoted by Hermann Conring⁶, so especially it often occurs in our *nuctalopes*. The young man I knew had sky-coloured eyes. And those Malabars who suffer from white leprosy combined with luscitio, have eyes of a similar colour⁷; and so also those who are said to exist in the kingdom of Loango⁸. Dapper says they have grey eyes. I am not quite sure whether this is the disease under which the family of Jerome Cardan

¹ Wafer, p. 108. "Their eyelids bend and open in an oblong figure, pointing downward at the corners, and forming an arch or figure of a crescent with the points downwards. From hence, and from their seeing so clear as they do in a moon-shiny night, we used to call them moon-eyed."

² *De vita fet. hum. dijudic.* in *Nor. Comm. Soc. R. Sc. Götting.* T. III. p. 179.

³ *Miss. Ber. Cont.* XLVI. p. 1240.

⁴ In the parish of Champniers, one-and-a-half leagues from Civray, 1763, were still alive.

⁵ *l. c. Hist. Ac. Par.*

⁶ *De hab. Germ.*

⁷ *Tranq. Miss. Ber. Cont.* CII. p. 637, and CVI. p. 1283.

⁸ *Voss. l. c.* p. 68.

laboured. For he says, in his own life¹, "my father was red, and had white eyes, and saw by night;" and again, "my eldest son had eyes exactly like him;" and again, about the same child², "like my father, with small, white eyes, which were never at rest;" and elsewhere about himself³: "In my early youth, immediately I awoke, though in extreme darkness, I saw everything exactly as if it had been bright day-light: but in a short time I lost this power. Even now I can see a little, but not so as to discern anything."

Let so much suffice about external condition of the skin and eyes in those suffering under this disorder. There is still a little to be said about the rest of the constitution of their body. In the first place, it does not follow that they all are either foul or dirty. We are told that many of them belong to the court of the king of Loango⁴. Certainly another was the mistress of the king of Bantam⁵, and such a woman of Malabar⁶ married an European soldier. She is described as of square body and round cheeks. And they seem at all events strong enough to do their business by night. In fact, it is said that they make hostile incursions into the neighbouring countries by night⁷, and that the Portuguese have carried off others from Guinea to Brazil, to make them work in the gold mines: this certainly would be a kind of life in which *nuctalopia* would be of some use.

Others seem to be of weak and feeble constitution. So Wafer speaks of the inhabitants of Darien⁸. The French of the parish of Champniers can scarcely stand being in the open air. The Malabars certainly cannot endure long journeys⁹, and are speedily fatigued¹⁰ with the wind and the heat¹¹. The brightness of the sun makes their eyes water¹², but they see pretty well in cloudy weather¹³.

¹ p. m. 7.

² p. 70.

³ *De rer. variet.* l. VIII. c. XLIII. p. 161, T. III. *Operum.*

⁴ Vossius, *l. c.*

⁵ Le Brun, *l. c.*

⁶ *Miss. Ber. Cont.* cvi. p. 1282.

⁷ De Gröben, *l. c.* Georg. Agricola, *de Anim. subterr.* They are driven away by burning funeral piles, because they cannot bear the lights.

⁸ "A weak people in comparison of the other."

⁹ Freylinghausen, *l. c.*

¹⁰ *Miss. Ber. Cont.* xxvi. p. 151.

¹¹ *Ib.* and Freylingh. *l. c.*

¹² Wafer.

¹³ Freylinghausen.

Examples prove that the mind and the intellectual faculties are in no respect affected by this disorder, but may remain perfectly sound. The young man I have so often spoken of, was well instructed in more than one of what they call the polite sciences. I have mentioned the schoolmaster of Malabar, who was clever at writing poetry. And if you like, you may consider Cardan a great luminary of art.

These then are the phenomena and symptoms of the disease. It still remains to be proved that it attacks nations at all times and in all places, and that it partly belongs to the endemic, and partly to the sporadic diseases. In both ways it was long since known to the ancients. A sporadic instance of it gave a handle to the Roman story which, under the title of Ethiopics, has been handed down to us by Heliodorus. King Hydaspes, it appears, hesitates to acknowledge his daughter Charicles as his own, when she suddenly laid claim to him, because he and his wife were *Ethiopians*, whilst her skin was white. But Sisimithres, the advocate of Charicles, who had brought her up from infancy, explains the whole matter to the father: "she too was white," says he, "whom I brought up; besides, the lapse of time agrees with the present age of the girl, since she is seventeen years old, which is just the time the child was exposed. Moreover, the appearance of the eyes bears me out; and I recognize that the whole aspect of the countenance, and the beautiful figure which I now see, agrees with that which I then saw¹." Perhaps also the story of the female child Aristotle² speaks of may be thus explained, which was born of the adulterous connexion of a Sicilian woman with an *Æthiop*, and did not have the colour of her father, but in process of time gave birth to a son, who was entirely black, like his grandfather. The ancients knew this disorder also as endemic, so that they gave names to whole nations and regions in consequence. It seems probable that Albania, on the confines of the Caucasian mountains and Armenia³, had

¹ L. x. p. 477, ed. Bourdelot, Paris, 1619, 8vo.

² *Hist. Anim.* l. vii. c. 6.

³ Plin. l. vi. c. 13, p. 311. Hard.

its name from this, about which Isigonus of Nice¹ speaks thus: "Some are born there with grey eyes, white from early childhood, who see better by night than by day². Another nation of this kind acquired the name of Leucœthiopes, hence transferred to all who suffer from this disease. They are mentioned by Pomponius Mela³, Pliny⁴, Ptolemy⁵, and Agathemerus⁶, but are not noticed by Strabo, Julius Honorius⁷, Ister Æthicus⁸, the anonymous writer of Ravenna, &c. They do not however agree as to the country which the Leucœthiopes are said to inhabit. Mela and Pliny place them with the Libyco-Egyptians, near the Libyan sea. Joh. Reinhold, in the plates to his edition of Mela, about long. 50° N. lat. 15°.⁹ But Ptolemy says the Leucœthiopes live under Mount Ryssa, which, according to D'Anville, is the name for Cape Verde. However that may be, it is enough for our purpose, that this disease was not unknown to the ancients.

We have seen that there are modern instances in the most different and widely separated parts of the earth; and it will be worth our while to add a few more, and in a few words to reckon them up in the order of our four varieties. I have carefully described a youth of our own Germany. Edm. Chapman relates that instances have been known in Spain and France. Nic. Le Cat saw some children born at Ratisbon. I have already noticed the case of those in the parish of Champniers, and what Cardan says of his Italian family. G. Agricola and Olaus Magnus found men of this kind in Scandinavia. The accounts from Tranquebar tell us of many Malabars. They are contemptuously called there *kakerlacken*¹⁰, from their resemblance to the eastern moth, which is a parti-coloured and nocturnal insect. And this disorder occurs in Labrador, if indeed

¹ Plin. l. VIII. c. 2, p. 371.

² Comp. Salmas. ad Solin. c. 15, and Gellius, *Noct. Att.* l. IX. c. 4.

³ L. I. c. 4, p. 12, ed. L. B. 1743. On which see John de Watt. Thus they call some Ethiopians, who in comparison with others may be said to be whitish, neither altogether white, nor altogether black, p. 155, ed. Bas. 1543.

⁴ L. v. c. 8, p. 252. Hard.

⁵ L. IV. c. 6, p. 77, ed. Mich. Serveti, Lugd. 1541.

⁶ *Geogr.* l. I. c. 5.

⁷ *Excerpt. cosmogr.*

⁸ As is thought.

⁹ Harduin on Plin. In the desert of Sahara.

¹⁰ Kalkalaken, *Miss. Ber. cont.* CVI. p. 1283. Kalkalatten, *cont.* CII. p. 637.

the Champagne girl, *Le Blanc*, belonged to the Esquimaux, as is most likely¹.

Leucæthiopians (if we may apply the old term to them also) of the second variety of mankind have been known in the islands of Java², Borneo³, Manila⁴, and others near Ternata, and in New Guinea⁵ and Otaheite⁶. Of the third variety, are found instances to the south beyond the fountains of the Nile⁷, and towards the river Senegal⁸, whose mouth lies under the Ryssadian promontory, and still further south in Guinea⁹, and its kingdom of Loango, and, finally, in the interior of Kaffraria¹⁰ and the island of Madagascar¹¹. The fourth variety can produce its *Blafards* on the isthmus of Darien, in the kingdom of Mexico¹², in Tucuman, and Paraguay.

But our digression from the subject of natural history and the varieties of mankind to pathology and diseases has been already too long. Those must bear the blame who have confounded men suffering under disease with the beasts, which the dignity of mankind demanded should be separated, and each referred to their own place.

It would be an immense and irrelevant labour, if I were to give an account of all the disorders which, according to the authors of medical observations, journals, &c., have occurred in the human body, in every quarter, contrary to nature. The transition from hence to monsters would be easy, and so on to general nosology; and thus the divine study of natural history would run up into a confused and formless mass. Let us leave therefore unnoticed, for physiologists and pathologists, the black and horny epidermis of the Italian boy¹³, or the Englishman¹⁴, and others, and similar peculiar aberrations from the natural condition. Nor have we anything to do with the dire disorder

¹ *Hist. d'une jeune fille sauvage*, &c. Par. 1761, 12mo. Her countrymen were nuctalopes, and did business by night, &c., and she had *luscitio*, p. 36, &c.

² Leguat. T. II. p. 136.

³ Voss.

⁴ Camelli, *l. c.*

⁵ Voss.

⁶ Hawkesworth, Vol. II. p. 188. Parkinson, p. 27.

⁷ Voss.

⁸ Chapman.

⁹ Gröben, *Dondos*. Portug. *Albinos*.

¹⁰ Sim. v. d. Stel in Tachart, *Stam*, p. 110.

¹¹ De Cossigny in *Hist. de l'Ac. des Sci. l. c.*

¹² *Ib.*

¹³ Stalf. v. d. Wiel, *Obs. cent. II. p. 376*, Tab. II. stab. 12, fig. 1, 2, 3.

¹⁴ The porcupine man. G. Edwards, *Gleanings of Natural History*, Vol. I. p. 212.

of cretinism, which is by no means peculiar to the inhabitants of the Vallais, but has been noticed elsewhere¹, though distorted here and there by wonderful stories².

It seems almost too much even to name in this place the centaurs, sirens, cynocephali, satyrs, pigmies³, giants, hermaproditites, and other idle creatures of that kind. Still, I consider it necessary to spend a little time upon the men with tails, since they have fallen in with some modern patrons. There is an old story about the islands of the Satyrs in Pliny⁴, Ptolemy⁵, and Pausanias⁶, and often repeated afterwards by Marco Polo, Munster and others, that men exist there with shaggy tails, like the pictures of the satyrs, who are of incredible swiftness, &c. When the passages in these writers have been compared, it seems most likely that these islands of the Satyrs answer to our Borneo, Celebes⁷, &c., and that the tailed apes have been taken for men. But a new story about men with tails to be found here and there has made much more to do. For partly, it is said, that men having tails are found about the city of Turkestan⁸, in the island of Formosa⁹, Borneo¹⁰, Nicobar¹¹, &c.; partly the very pictures of tailed men of this kind have been exhibited¹². But upon a full consideration of the matter, there is much which leads to the belief that the whole story is founded upon the fictions I have spoken of. For, as to the accounts about them, many of them manifestly depend upon the narrations of others; and they who say they have themselves seen tailed men of this kind bear no very good reputation.

¹ Haller, *de vento Rupensi*, Nor. Comm. Goett. T. I. p. 43.

² See in Guindant, *Variat. de la nat. dans l'espèce hum.* Paris, 1771, 8vo. in *Encycl. de Par.* altered in ed. De Felice, T. XII. p. 312.

³ Comp. the book of Tyson on these stories. Apes were generally palmed upon travellers, and this I suspect to have been the case with the Madagascar pigmies of Commerson, in De la Lande. See Rozier, *Obs.* Sept. 1775.

⁴ l. VI. VII. c. 2. p. m. 374.

⁵ l. VI. c. II.

⁶ In *Attica*.

⁷ See after Tyson, Jo. Caverhill, *On the knowledge of the ancients in the East Indies*. *Phil. Trans.* Vol. LVII. p. 172.

⁸ Pet. Rytschkov. *Orenburg. Topogr.* T. II. p. 34.

⁹ J. Ott. Helbig. *Eph. N. C.* Dec. L. ann. IX. p. 456. Hesse, *Ost. ind. diar.* p. 216.

¹⁰ Will. Harvey, *de Gen.* p. 194, ed. oper. Lond. 1766.

¹¹ Nils Matthsson Köping, *Resa*, ed. 4to. Wasteras, 1759, 8vo, p. 131.

¹² Martini on Buff. *allg. nat. Gesch.* T. VI. p. 44. Tab. II. *der geschwanzte Mensch*.

The figure I have alluded to is of considerable antiquity, and having been altered in the progress of time, first by one and then by another, has by slow degrees become more and more like the human figure. Martini took his figure from the *Amcenitates* of Linnæus, who took it from Aldrovandus, and he from Gesner, and, finally, this Swiss polyhistor says that he took his from some description of the Holy Land¹. Although he does not name the author of the description, yet I could easily see that it was Bernhard Von Breydenbach, and I have thought it worth while to have the genuine figure reproduced from the very rare first edition² of his work (Tab. II. fig. 5), which has passed with recent authors for a man with a tail. For on the reverse of the geographical chart on which Palestine is set out he has delineated the figures of six animals with the epigraph; "*These animals are faithfully represented as we saw them in the Holy Land.*" The figure which I have repeated is the last of all, as he adds, "of some nameless animal," but I think I should readily conclude it was of some tailed ape, a *Callitrichus*, for example (*silenus*, L.). Certainly the wide separation of the great toe from the others, &c. show it to be a true ape. This in progress of time, and through the carelessness of artists, has been at last transmuted into a figure sufficiently like that of a man, with human feet, &c. The very extraordinary instances of a prolonged coccygis, or of an appendage with a tail, in Trimethius³, Bauhin⁴, Blanchard⁵, König⁶, and Elsholz⁷, relate to monstrous productions, and are out of place here. It is well known to anatomists that variation often occurs in the os sacrum⁸ and the number of the coccygeal vertebræ⁹.

¹ *De quadrup.* p. m. 970.

² *Reyss in das gelobte land.* Mainz. 1486, fol. I do not find these figures in the Latin edition of the same year, nor in that which he brought out in low Dutch in 1488. But they occur in the French translation of 1489; and the library of the University possesses them all.

³ *Annal. Hirsaugiens.* T. II. p. 179, ad ann. 1335.

⁴ *Theatr. Anat.* p. 69.

⁵ *Coll. phys. med.* Part II. ann. 1681. p. 290.

⁶ *A. N. C.* Dec. II. ann. 9. obs. 129.

⁷ *De conceptione tubaria,* &c. Col. Brand. 1660, p. 7, Tab. II.

⁸ Fallopiæ speaks of four vertebræ. *Expos. de Oss.* p. 579. See Doeveren. *Obs. Acad.* p. 207. Generally there are five. See *sic* in Vesal. and his followers Bauhin

As to the cutaneous *ventrale* which has been asserted by old travellers to belong to the Hottentot women, the most recent testimonies¹ compel us to class it with the men's tails, and to consider it, like them, a fable.

and Paaw. See also Real. Columb. p. 106. Vesling, p. 10. Sal. Albert. *Hist. plerar. part. hum. corp.* Viterb. 1585, p. 112. Albinus, *Annot. Acad.* l. IV. Tab. VII. f. 4, 5, p. 53. See Doeveren. *l. c.* p. 206. B. S. Albinus, *Annot. Acad.* l. IV. c. 11. For more comp. P. Taberranni *Act. Senens.* T. III. p. 142; and I myself in my private anatomical collection have three genuine specimens of this kind, provided with five pairs of foramina. Paaw says that he has found seven vertebræ, *de Oss.* p. 102.

⁹ Bauhin and Vesling show instances with three vertebræ: generally there are four. Four to five, Winslow, *Exp. An.* T. I. p. 136. Five in the coccc. of a woman, Matth. Merian. in Tab. ad *Theat.* Bauhin, T. XLI. f. 9, and Sal. Albertus, *l. c.*, who improperly refers to this bone the first vertebra, which, as is often the case, belongs to the last bone of the os sacrum. Altogether however his specimen had more vertebræ, sacr. 6, coccc. 5 = 11.

Fallopia calls those who have a large and prolonged os sacrum, *tailed*, *l. c.*

¹ Hawkesworth, Vol. III. p. 792. The pendulosity of the labia seems to have imposed upon the older travellers.

As to the distance which has been traveled by the witnesses to being in the presence of the defendant...

and I saw the defendant's car... I saw the defendant's car... I saw the defendant's car... I saw the defendant's car...

[Faint, illegible text continues down the page]