

XXIII. *On the Brain of the Negro, compared with that of the European and the Orang-Outang.* By Dr. FREDERICK TIEDEMANN, Professor of Anatomy and Physiology in the University of Heidelberg, and Foreign Member of the Royal Society.

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I TAKE the liberty of presenting to the Royal Society a paper on a subject which appears to me to be of great importance in the natural history, anatomy, and physiology of Man; interesting also in a political and legislative point of view. Celebrated naturalists, CAMPER*, SOEMMERRING†, and CUVIER‡, look upon the Negroes as a race inferior to the European in organization and intellectual powers, having much resemblance with the Monkey. Naturalists of less authority§ have exaggerated this opinion. Were it proved to be correct, the Negro would occupy a different situa-

* Ueber den natürlichen Unterschied der Gesichtszüge im Menschen. Berlin, 1792. 4to.

† Ueber die körperliche Verschiedenheit des Mohren vom Europäer. Mainz, 1784. 8vo. SOEMMERRING says at the end of his paper (p. 32), "From all that has been said, it does not appear unfair to conclude that in general the African Negroes resemble the genus *Simia* more than the Europeans.

‡ *Le Règne Animal*, tom. i. p. 95. Paris, 1817. "La race nègre est confinée au midi de l'Atlas; son crâne comprimé, et son nez écrasé, son museau saillant et ses grosses lèvres, la rapprochent manifestement des singes; les peuplades qui la composent sont toujours restées barbares."

§ *An Account of the regular Gradation in Man, and in different Animals and Vegetables.* By CHARLES WHITE. London, 1799. 4to. He says in the conclusions deducible from the facts and observations stated in the second part of this essay, p. 83:

"Taking the European man as a standard of comparison on the one hand, and the tribe of *Simiæ* on the other, and comparing the classes of mankind with the standards and with each other, they may be so arranged as to form a pretty regular gradation in respect to the differences in the bodily structure and economy, the European standing at the head, as being furthest removed from the brute creation.

"That the African, more especially in those particulars in which he differs from the European, approaches to the Ape.

"That the characteristics which distinguish the African from the European are the same, differing only in degree, as those which distinguish the Ape from the European."

Histoire Naturelle du Genre Humain, par F. F. VIREY, tom. iii. p. 436. Paris, 1824. "De l'orang-outang il faudroit remonter au Hottentot, puis aux nègres, plus intelligents, et enfin à l'homme blanc. Les singes semblent être aussi la racine du genre humain."

Lectures on Physiology, Zoology, and the Natural History of Man, by W. LAWRENCE. London, 1819. Mr. LAWRENCE, after he has given the characters of the Ethiopian variety, as observed in the genuine Negro tribes, says, p. 363, "In all the particulars just enumerated, the Negro structure approximates unequivocally to that of the Monkey. It not only differs from the Caucasian model, but is distinguished from it in two respects; the intellectual characters are reduced, the animal features enlarged and exaggerated. This inferiority of organization is attended with corresponding inferiority of faculties; which may be proved, not so much by the unfortunate beings who are degraded by slavery, as by every fact in the past history and the present condition of Africa."

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tion in society from that which has so lately been given him by the noble British Government.

I propose in this treatise to examine more minutely the most important part of this doctrine, namely, the structure of the brain, the noblest part of the human body, in reference to its functions. A comparison between the brain of the Negro and that of the European and the Orang-Outang, hitherto much neglected, appeared to me most worthy of attention. I shall first of all try to answer the following two questions.

1st, Is there any important and essential difference between the structure of the brain of the Negro and that of the European? and

2ndly, Has the brain of the Negro more resemblance to that of the Orang-Outang than the brain of the European?

Should our researches induce us to answer these questions in the affirmative, we should then have reason to consider the opinion given above as true, and founded in nature. Should we be able to prove the falsity of this opinion, we should then be allowed to consider it as a mere literary fancy.

Comparison alone will enable us to answer these two questions. In order to do which we must first of all consider the size, weight, and dimensions of the objects to be compared. I have taken the materials for such a comparison from my researches on the brain and skull of Man and lower animals, for which purpose I have consulted the most celebrated anatomical museums, both on the Continent and in Great Britain.

We begin our researches with the comparison of the size of the brain of the European and that of the Negro, by answering the following question: Has the Negro the same quantity of brain as the European? We must first of all determine the weight and dimensions of the brain of the European, then that of the Negro, and compare them together.

Observations on the Weight of the Brain of Europeans.

The opinions of anatomists on the size and the weight of the human brain in general, and that of the European in particular, as to its absolute and relative weight and bulk compared with that of the body, are very uncertain. The old opinion of ARISTOTLE*, PLINY†, GALEN, and others, for many centuries regarded as correct, namely, that the human brain is absolutely and relatively larger than that of any other animal, is erroneous, and not founded on anatomical researches.

The brain of the Elephant‡ and Whale§ is absolutely much larger than the human

* Hist. Animal., lib. i. cap. 13. "Pro magnitudine sua homo habet maximum cerebrum."

† Hist. Animal., lib. ii. cap. 49. "Homo habet cerebrum portione maximum."

‡ The brain of an African Elephant seventeen years old, examined by PERRAULT (Descr. Anatom. d'un Eléphant, Mém. de l'Académie des Sciences de Paris, tom. iii. par. 3, p. 135), weighed 9 lbs.; was 8 inches long, 6 inches broad. The brain of an Asiatic Elephant weighed, according to ALLEN MOULINS (An Anatomical Account of an Elephant, p. 37. London, 1682. 4to.), 10 lbs.

According to my honoured friend Sir ASTLEY COOPER, the brain of an Elephant dissected by him weighed 8 lbs. 1 oz. 2 grs. (avoirdupois).

§ The brain of a Whale 75 feet long (*Balæna mysticetus*) weighed, according to RUDOLPHI, (Handbuch der

brain. Although the human brain is considerably larger than that of any other animal, except the Elephant and Whale, even than the brain of animals much larger than Man, such as the Horse, the Zebra, Stag, Camel, Lion, Tiger, Bear, &c.; nevertheless, relatively to the size of his body, he has not the largest brain. POZZI* has shown that many small birds (for instance, the Sparrow,) have, in comparison to the size of their body, a larger brain than Man. DAUBENTON, HALLER†, BLUMENBACH, and CUVIER found the brain of some of the smaller Apes, of the Rodentia, and singing-birds, relatively to the size of the body, larger than in Man. We must seek for the cause of his superiority therefore, not merely in the greater bulk of his brain in comparison to that of his body, but regard must also be had to the size of his brain with respect to the bulk and thickness of the cerebral nerves, and likewise to the degree of perfection in its structure. SOEMMERRING‡ was the first to show that the human brain, in comparison to the size and thickness of the nerves, is larger than that of any other animal, even the Elephant and Whale, both of which have an absolutely larger brain than Man. BLUMENBACH'S, EBEL'S, CUVIER'S, TREVIRANUS'S, and my own researches §, have sufficiently corroborated this. It is also satisfactorily shown that the organization of the human brain is far superior to that of any other animal, not even excepting those Apes which have the closest resemblance to Man.

Most anatomists, VESAL, REALDUS COLUMBUS, BAUHIN, HIGHMORE, COLLINS, and others, as well as those who have paid particular attention to the anatomy of the brain, WILLIS, RIDLEY, VIEUSSENS, TARIN, VICQ-D'AZYR, have taken no notice of the weight of the human brain, resting content with what ARISTOTLE has said upon that subject. What other celebrated anatomists, PICCOLHOMINI, SCHNEIDER, BARTHO-LIN, POZZI, ARLET, HALLER, MECKEL, SOEMMERRING, PORTAL, CUVIER, JOSEPH and CHARLES WENZEL, and MASCAGNI, have said on the weight of the brain is very unsatisfactory. They made use of different weights, without mentioning them; they neither take any notice of the size and weight, nor of the age and sex of the bodies, the brains of which they examined; and, lastly, they weighed far too few to draw any general conclusion. The note proves sufficiently the truth of this statement ||.

Physiologie, Band ii., Abth. 2, Seite 11.) 5 lbs. 10 $\frac{1}{4}$ oz., and measured 8'' 7 $\frac{1}{2}$ ''' in length; that of a Narwhal (*Monodon monoceros*), 17 to 18 feet long, only 2 lbs. 3 oz., and was 6'' 3''' long.

* *Observatio Anatomica de Cerebro, an sit in homine proportione majus, quam in aliis animalibus* (Comentar. Bononiens., tom. ii. p. 1.). "Felis, canis, gallus, et pleraque animantium cerebrum habent portione minus, quam homo; qui id tamen universe affirmant de omnibus, videant in passere, ne fallantur."

† *De Partium Corporis Humani præcipuarum Fabrica et Functionibus*, tom. viii. p. 6. "Simiæ quædam minores, ut mures et animalia minora, videntur cerebrum habere potius ad corpus universum majus."

‡ *De Basi Encephali*, p. 17. "Homo ratione habita nervorum omnia hucusque animalia nota magnitudine cerebri superat."

§ *Icones Cerebri Simiarum et quorundam Mammalium rariorum*. Heidelbergæ, 1821. fol.

|| PICCOLHOMINI mentions first the weight of the brain (*Anatomicæ Prælectiones*, lib. v. lect. 2. Romæ, 1586. fol.). "Cerebrum humanum, quatuor aut quinque libras æquans pondere, maximum est."

In order to determine the weight of the human brain, I have weighed a number of brains, male and female, of different ages. In most cases I have also noticed the height of the body, according to the old measure of the Parisian Academy, as well as the weight and state of the body. I divided the brain from the spinal marrow, where the corpora pyramidalia, after their crossing, begin, and ascend upon the medulla oblongata. I separated the nerves at their entrance through the foramina of the skull. The serous or tunica arachnoidea and pia mater were then carefully removed. I made use of the apothecary or troy weight*.

JOH. RIOLAN fil. (Anthropogr., lib. iv. p. 385. Parisiis, 1626.). "Cum in statera humanum cerebrum libram deprehendi trium librarum mercatoris pondus æquasse, quæ quatuor libris medicis respondent."

J. LOESEL (Scrutinium Renum. Regiomonti, 1642. 4to.). "Cerebrum exemptum hominis strangulati, et ad lancem examinatum exæquabat libras quatuor medicas et totidem uncias."

C. V. SCHNEIDER (De Catarhis, lib. iii. p. 592. Wittenbergæ, 1660. 4to.). "Ego etiam autor fui, ut cerebrum juvenis hominis, qui capite plexus erat, diligenti libraretur examini. Corpus erat sanissimum, validissimum; illud cerebrum pendebat tres libras medicas et octo uncias."

M. SENNERT (De Cerebro. Wittenbergæ, 1662. 4to.). "The brain of a man weighed four pounds."

TH. BARTHOLIN (Anatome, p. 468. Lugd. Batav., 1686.). "Cerebri humani magnitudo insignis est, nempe ad librarum quatuor vel quinque pondus."

POZZI. "The brain of a young man weighed 3 lbs. 8½ oz., and his body 112 lbs. 6 oz."

According to ARLET, (Mém. de Montpellier, p. 47. 1746,) the weight of the brain is equal to four pounds.

T. F. MECKEL found the weight of the human brain of an adult 3 lbs. ½ oz. ½ drachm.

SOEMMERRING (De Corporis Humani Fabrica, tom. iv. p. 38. Trajecti ad Mœnum, 1798,) says, "Cerebrum et cerebellum, resecta medulla spinali statim pone nervum lingualem medium pondo sunt librarum duarum ad tres libras, sunt enim alia cerebra pondere librarum duarum, et unciarum quinque cum dimidia, alia librarum trium, et unciarum trium cum tribus quartis."

PORTAL (Anatomie Médicale, tom. iv. p. 30. Paris.). "Le cerveau, le cervelet et la moëlle allongée bien lavés et leurs vaisseaux vides de sang, pèsent dans l'adulte trois livres."

JOSEPHUS et CAROLUS WENZEL (De Penitiori Structura Cerebri Hominis et Brutorum, p. 267. Tubingæ, 1812. fol.). "Pondus encephali humani, quale id de quinto vitæ anno ad summam usque hominis senectutem plerumque invenitur, pondus viginti quatuor millium granorum non superat (= 4lb 2¾). Totius cerebri pondus inter viginti et viginti duo millia (3lb 5¾ 5z 20 gr. et 3lb 9¾ 6z 40 gr.)."

MASCAGNI (Prodromo della Grande Anatomia, p. 78. Firenze, 1819. fol.). "Nell'uomo il cervello da libbre quattro ariva a libbre quattro e mezzo e anche piu."

ALEX. MONRO HAMILTON (The Anatomy of the Brain. Edinburgh, 1831. 8vo.) has undertaken some valuable investigations on the weight of the human brain. He found, nearly averaging, the adult male encephalus, in the Scot's head, 3 lbs. 8 oz. troy: about one brain of seven is found about 4 lbs. troy; the female encephalus is heavier, 3 lbs. 4 oz. One of a hundred female brains is found of 4 lbs.

* 1 pound = 12 ounces; 1 ounce = 8 drachms; 1 drachm = 60 grains.

I. Male Bodies.

| | Age. | Height of the body. | State of the body. | Weight of the body. | | | Weight of the brain. | | | The weight of the brain compared with that of the body. |
|-----|----------------------------------|---------------------|--------------------|---------------------|-------|---------|----------------------|-----|---------|---|
| | | | | lbs. | oz. | dr. gr. | lbs. | oz. | dr. gr. | |
| 1. | New-born child..... | 0 18 6 | Lean | 6 | 2 | 6 50 | 1 | 2 | 3 30 | as 1: 5.15 |
| 2. | The same | 0 20 2 | Well nourished | 7 | 3 | 2 8 | 1 | 1 | 1 10 | 1: 6.63 |
| 3. | Boy two years old..... | .... | The same | 28 | 5 | 0 0 | 1 | 11 | 3 0 | 1:14.58 |
| 4. | Boy two years and a half old.. | .... | The same .... | ..... | ..... | ..... | 2 | 2 | 1 0 | |
| 5. | Boy three years old ..... | .... | The same | 41 | 2 | 0 0 | 2 | 3 | 2 28 | 1:18.008 |
| 6. | Boy six years old ..... | .... | ..... | ..... | ..... | ..... | 2 | 11 | 5 0 | |
| 7. | Boy fifteen years old..... | 4 6 0 | Well nourished | 100 | 7 | 0 3 | 4 | 6 | 0 0 | 1:24.75 |
| 8. | Young man seventeen years old | .... | ..... | ..... | ..... | ..... | 4 | 2 | 1 0 | |
| 9. | Man twenty-two years old .. | .... | ..... | ..... | ..... | ..... | 4 | 2 | 1 0 | |
| 10. | Man twenty-eight years old.. | .... | Thin | 108 | 11 | 4 44 | 3 | 11 | 2 0 | 1:27.67 |
| 11. | Man thirty years old..... | .... | Very thin .... | ..... | ..... | ..... | 3 | 11 | 7 0 | |
| 12. | Man thirty-one years old.... | .... | Lean | 100 | 10 | 1 22 | 3 | 10 | 5 0 | 1:25.95 |
| 13. | The same ..... | .... | ..... | 136 | 7 | 0 0 | 3 | 10 | 1 0 | 1:35.53 |
| 14. | Man thirty-two years old.... | 5 1 6 | Muscular | 162 | 9 | 0 0 | 4 | 7 | 5 0 | 1:35.11 |
| 15. | The same | 5 2 0 | The same | 169 | 8 | 2 0 | 4 | 7 | 0 0 | 1:37.02 |
| 16. | Man thirty-two years old.... | .... | Well nourished | 148 | 0 | 0 0 | 3 | 2 | 0 20 | 1:46.68 |
| 17. | Man thirty-three years old .. | .... | Lean ..... | ..... | ..... | ..... | 3 | 9 | 4 0 | |
| 18. | Man thirty-five years old .... | .... | ..... | ..... | ..... | ..... | 3 | 2 | 7 0 | |
| 19. | Man thirty-six years old ..... | .... | Muscular | 166 | 2 | 7 19 | 4 | 0 | 5 30 | 1: 8.97 |
| 20. | Man thirty-eight years old .. | .... | The same | 160 | 7 | 6 50 | 4 | 4 | 0 6 | 1:36.54 |
| 21. | Man thirty-eight years old .. | .... | The same | 162 | 0 | 4 57 | 4 | 6 | 6 0 | 1:35.51 |
| 22. | Man thirty-nine years old.... | 5 1 6 | Very muscular | 173 | 1 | 4 0 | 4 | 4 | 3 0 | 1:39.66 |
| 23. | Man forty years old | 5 0 6 | Not muscular.. | 133 | 0 | 6 0 | 4 | 4 | 2 0 | 1:30.56 |
| 24. | Man about forty years old .. | .... | ..... | ..... | ..... | ..... | 3 | 11 | 2 0 | |
| 25. | The same ..... | .... | Very muscular | 185 | 9 | 0 0 | 4 | 1 | 2 40 | 1:45.18 |
| 26. | Man forty-six years old | 5 1 6 | Lean | 107 | 3 | 4 0 | 3 | 10 | 1 0 | 1:27.91 |
| 27. | Man forty-six to fifty years old | .... | Well nourished | 164 | 7 | 6 20 | 3 | 7 | 4 0 | 1:45.42 |
| 28. | Man fifty years old | 5 0 2 | Thin | 132 | 8 | 4 35 | 3 | 10 | 7 5 | 1:33.96 |
| 29. | Man about fifty years old.... | 5 0 2½ | Muscular | 181 | 8 | 2 0 | 4 | 1 | 0 10 | 1:44.47 |
| 30. | Man about fifty years old.... | .... | Well nourished | 141 | 1 | 0 0 | 3 | 8 | 1 40 | 1:37.76 |
| 31. | Man fifty-five years old | 5 5 6 | Very muscular | 182 | 1 | 7 37 | 4 | 5 | 1 30 | 1:41.09 |
| 32. | Man sixty-one years old .... | .... | Lean ..... | ..... | ..... | ..... | 3 | 7 | 4 0 | |
| 33. | Man sixty-four years old | 5 2 0 | Well nourished | 157 | 0 | 0 0 | 3 | 11 | 4 0 | 1:39.66 |
| 34. | Man sixty-four years old | 5 4 6 | Lean | 141 | 0 | 5 0 | 4 | 0 | 4 0 | 1:34.89 |
| 35. | Man eighty-two years old .. | .... | The same | 124 | 10 | 7 30 | 3 | 2 | 3 0 | 1:39.06 |

II. Female Bodies.

| | | | | | | | | | | |
|-----|--|--------|----------------|-------|-------|-------|---|----|------|------------|
| 36. | New-born child | 0 17 3 | Lean | 4 | 11 | 0 0 | 0 | 9 | 3 0 | as 1: 6.29 |
| 37. | The same..... | 0 18 5 | Well nourished | 7 | 2 | 0 0 | 1 | 0 | 4 40 | 1: 6.83 |
| 38. | Girl three years old ..... | .... | ..... | ..... | ..... | ..... | 2 | 2 | 3 0 | |
| 39. | Girl five years old ..... | .... | ..... | ..... | ..... | ..... | 2 | 4 | 1 50 | |
| 40. | { Girl eight years and eight } months old | 3 4 6 | Well nourished | 49 | 0 | 2 51 | 3 | 5 | 5 0 | 1:14.13 |
| 41. | Girl thirteen years old .... | .... | The same | 63 | 2 | 6 23 | 3 | 6 | 2 30 | 1:17.93 |
| 42. | Girl sixteen years old ..... | .... | The same .... | ..... | ..... | ..... | 3 | 10 | 2 0 | |
| 43. | Girl about twenty years old | .... | The same .... | ..... | ..... | ..... | 3 | 8 | 6 0 | |
| 44. | Woman twenty-five years old | .... | The same .... | ..... | ..... | ..... | 2 | 11 | 0 0 | |
| 45. | { Woman about thirty-four } years old | 4 10 6 | Well nourished | 133 | 7 | 0 0 | 3 | 7 | 2 0 | 1:37.06 |
| 46. | Woman about thirty years old | .... | Lean ..... | ..... | ..... | ..... | 3 | 11 | 0 0 | |
| 47. | Woman about thirty years old | .... | Well nourished | 123 | 4 | 2 25 | 3 | 7 | 0 0 | 1:34.42 |
| 48. | Woman thirty-eight years old | 4 11 6 | Muscular | 153 | 6 | 5 35 | 3 | 5 | 0 20 | 1:44.89 |
| 49. | Woman forty-eight years old | .... | ..... | ..... | ..... | ..... | 2 | 8 | 5 50 | |
| 50. | Woman about fifty years old | .... | Well nourished | 134 | 6 | 2 57 | 3 | 4 | 0 40 | 1:40.27 |
| 51. | Woman sixty years old ..... | .... | The same | 135 | 11 | 0 0 | 3 | 5 | 5 0 | 1:39.18 |
| 52. | Woman about eighty years old | .... | ..... | ..... | ..... | ..... | 2 | 9 | 1 0 | |

From these observations we may draw the following conclusions :

1. The weight of the brain of an adult male European varies between 3 lbs. 2 oz. and 4 lbs. 6 oz. The brain of men who have distinguished themselves by their great talents is often very large. The brain of the celebrated CUVIER weighed 3 lbs. 11 oz. 4 dr. 40 grs. avoirdupois, or 4 lbs. 11 oz. 4 dr. 30 grs. troy weight. The brain of the celebrated surgeon DUPUYTREN weighed 4 lbs. 10 oz. troy weight. The brain of men endowed with but feeble intellectual powers is, on the contrary, often very small, particularly in congenital idiotismus. The brain of an idiot fifty years old weighed only 1 lb. 8 oz. 4 dr., and that of another forty years of age weighed but 1 lb. 11 oz. 4 dr.

2. The female brain is lighter than that of the male. It varies between 2 lbs. 8 oz. and 3 lbs. 11 oz. I never found a female brain that weighed 4 lbs. The brain of a girl, an idiot, sixteen years old, weighed only 1 lb. 6 oz. 1 dr. The female brain weighs on an average from four to eight ounces less than that of the male ; and this difference is already perceptible in a new-born child.

3. The brain arrives, on an average, to its full size towards the seventh or eighth year. SOEMMERRING* says erroneously that the brain does not increase after the third year. GALL and SPURZHEIM, on the other hand, are of opinion that the brain continues to grow till the fourteenth year. The brothers WENZEL † have shown that the brain arrives at its full growth about the seventh year. This is confirmed by HAMILTON's researches.

4. DESMOULINS ‡ is of opinion that the brain decreases in size in old people. From this circumstance he explains the diminution of the functions of the nervous system and intellectual powers. The truth of this assertion has not as yet been determined. The brothers WENZEL § and HAMILTON || deny it.

It is remarkable, that the brain of a man eighty-two years old was very small, and weighed but 3 lbs. 2 oz. 3 dr. ; and the brain of a woman about eighty years old weighed but 2 lbs. 9 oz. 1 dr. (see preceding Tables). I have generally found the cavity of the skull smaller in old men than in middle-aged persons. It appears to me therefore probable, that the brain really decreases in old age, only more remarkably in some persons than in others.

5. There is undoubtedly a very close connexion between the absolute size of the brain and the intellectual powers and functions of the mind. This is evident from

* Tabula Baseos Encephali Pueri trium annorum, p. 13. Francoforti ad M., 1799. fol.

† De Penitiori Cerebri Structura, p. 266.

‡ De l'Etat du Système Nerveux sous ses Rapports de Volume et de Masse dans le Marasme non sénile ; Journal de Physique, par DUCROTAY DE BLAINVILLE, Juin 1820, t. lxx. p. 442. Suite des Recherches, ibid., Fevr. 1821, t. xcii., p. 165.

§ l. c. p. 267. "In senectute pondus cerebri non notabiliter minui videtur ; et cum hoc ipsum etiam in magnitudinis ratione locum habeat, diminutio efficaciz cerebri in senectute cum aliqua æqua notabili massæ voluminisque ipsius adtenuatione haud necessario conjuncta esse videtur."

|| l. c. p. 5. "It is extremely doubtful whether the cranial contents usually diminish in old age. The vulgar opinion that they do, rests on no adequate evidence, and my induction would rather prove the negative."

the remarkable smallness of the brain in cases of congenital idiotismus, few much exceeding in weight the brain of a new-born child. GALL, SPURZHEIM, HASLAM, ESQUIROL, and others have already observed this, which is also confirmed by my own researches. The brain of very talented men is remarkable, on the other hand, for its size.

Anatomists* differ very much as to the weight of the brain, compared with the bulk and weight of the body; for the weight of the body varies so much, that it is impossible to determine accurately the proportion between it and the brain. The weight of an adult varies from 100 to 800 lbs., and changes both in health and when under the influence of disease, depending in great measure on nutrition. The weight of the brain, although different in adults, remains generally the same, unaltered by the increase or diminution of the body. Thin persons have therefore, relative to the size of the body, a larger brain than stout people.

From my researches I have drawn the following conclusions.

1. The brain of a new-born child is relatively to the size of the body the largest; the proportion is 1 : 6.

2. The human brain is smaller in comparison to the body the nearer man approaches to his full growth. In the second year the proportion of the brain to the body is as 1 : 14; in the third, 1 : 18; in the fifteenth, 1 : 24. In a full-grown man between the age of twenty and seventy years, as 1 : 35 to 45. In lean persons the proportion is often as 1 : 22 to 27; in stout persons as 1 : 50 to 100, and more.

3. Although ARISTOTLE has remarked that the female brain is absolutely smaller than the male, it is nevertheless not relatively smaller compared with the body; for the female body is in general lighter than that of the male. The female brain is for the most part even larger than the male, compared with the size of the body.

The different degree of susceptibility and sensibility of the nervous system seems to depend on the relative size of the brain as compared with that of the body. Children and young people are more susceptible, irritable, and sensible than adults, and have a relatively larger brain. Thin persons are more susceptible than stout. In diseases which affect the nourishment of the body the susceptibility increases as the patients grow thinner. The susceptibility and sensibility decreases, on the other hand, with persons recovering from a long illness, gradually as they regain their strength. The degree of sensibility in animals is also in proportion to the size of the brain. Mammalia and birds have a larger brain and are more susceptible than amphibious animals and fishes. I propose to go into this subject on another occasion, as it would at present take me too far from my immediate object.

* HALLER (De Partium Corporis Humani præcipuarum Fabrica et Functionibus, t. viii. p. 16.) says, "Ego in puero sex annorum, pondus librarum 2, drachmarum 28 cum scr. reperi, quæ ratio, cum ægre 50 libr. ejusmodi puer æquat, fuerit fere $\frac{1}{37}$. In Pozziano exemplo fuit proxime $\frac{1}{36}$. In ARLETI altero fuit omnino $\frac{1}{25}$, in altero $\frac{1}{35}$, et si cerebri pondus rotundo numero 4 libras expresseris, hominis vero adulti libris 140, circa $\frac{1}{32}$ calculus fere subsistet."

CUVIER (Anat. Comparée, tom. ii.) says that the relative weight of brain is = 1 : 22 — 35.

Weight of the Brain of a Negro.

CAMPER'S assertion, that the facial angle is smaller in the Negro than in the European, has led many anatomists to the supposition that the Negro has a less quantity of brain than the European. There are but few observations on the weight of the brain of the Negro, and these do not agree with this supposition.

The brain of a Negro boy fourteen years old, weighed, according to SOEMMERRING*, 2 lbs. 10 oz. 3 dr. avoirdupois, or 3 lbs. 6 oz. 6 dr. troy weight. The brain of another handsome tall Negro, about twenty years of age, weighed 2 lbs. 13 oz. 4 dr. avoirdupois, or 3 lbs. 9 oz. 4 dr. troy weight†. My honoured friend Sir ASTLEY COOPER gave me the following account on the weight of the brain of a Negro.

“The weight of the brain of a large Negro was 3 lbs. 1 oz., or 49 oz. The general weight of the brain of man is from 37 to 52 oz.”

The Negro whose brain I have examined and drawn, was a short thin man, twenty-five years of age, hardly five feet high. He died at Liège of the smallpox, and was dissected there by my son-in-law, Professor FOHMANN, and my son HENRY. The brain and the spinal marrow were sent to me preserved in alcohol. The brain, separated from the spinal marrow below the medulla oblongata, weighed 2 lbs. 3 oz. 2 dr.

We can also prove, by measuring the cavity of the skull of Negroes and men of the Caucasian, Mongolian, American, and Malayan races, that the brain of the Negro is as large as that of the European and other nations.

Researches on the Size and Capacity of the Cavity of Skulls.

In order to determine the capacity of the cavity of the skull I pursued the following method.

1. I weighed the skull with or without the lower jawbone.
2. I then filled the cavity of the skull with dry millet-seed, through the foramen occipitale magnum. The skull was then weighed again, carefully filled.
3. I then deducted the weight of the empty skull from that of the filled one, and so obtained the capacity of the cavum cranii.

The following Tables record the results obtained from a number of Negro, European, Mongolian, American, and Malayan skulls, weighed in this manner.

I only weighed those skulls of whose authenticity I was convinced, and I have mentioned the collections and museums where they are to be found, so as to enable any one to convince himself of the truth and correctness of my researches.

* Ueber die Verschiedenheit des Negers vom Europäer, S. 19.

† SOEMMERRING himself allows that the brain is not always so large in Europeans.

I. Æthiopian Race.

| A. Male Skulls. | | | |
|-------------------|---|---|-------------------------------|
| | Names of the different Tribes. | Anatomical Collection. | Capacity of the cavum cranii. |
| | | | oz. dr. gr. |
| 1. | { Eboes, or Ibos, Negro of Congo. Died at Sierra Leone . . . } | Anatomical Museum of Dr. Knox at Edinburgh . . . | 54 2 33 |
| 2. | Old Caffre | Camper's Anatomical Museum at Groningen | 43 7 0 |
| 3. | Negro | St. Thomas's Hospital, London | 42 6 30 |
| 4. | Eboes. Negro | Collection of Dr. Knox | 42 2 37 |
| 5. | Negro | Guy's Hospital, London | 42 0 23 |
| 6. | Negro | St. Thomas's Hospital | 41 6 37 |
| 7. | Native of Madagascar | Phrenological Society, Edinburgh | 40 5 30 |
| 8. | Negro | Soemmerring's Anatomical Museum | 40 5 6 |
| 9. | Negro of Loango | Camper's Collection | 40 0 20 |
| 10. | Negro | St. Thomas's Hospital | 39 6 33 |
| 11. | Hottentot | Collection of Mr. South, London | 39 6 21 |
| 12. | Negro of Guinea | Camper's Anatomical Museum | 39 2 0 |
| 13. | Bosjes man | Mr. South's Collection | 38 7 5 |
| 14. | Negro of North America | Anatomical Museum at Groningen | 38 4 0 |
| 15. | Caffre | Mr. South's Collection | 37 5 59 |
| 16. | Negro eleven years old | Groningen Anatomical Collection | 37 5 0 |
| 17. | Negro | St. Bartholomew's Hospital, London | 37 3 35 |
| 18. | Negro of Surinam | Anatomical Museum at Heidelberg | 37 2 30 |
| 19. | Negro | St. Bartholomew's Hospital | 37 2 11 |
| 20. | Negro | The same | 37 1 22 |
| 21. | Negro | St. Thomas's Hospital | 37 0 1 |
| 22. | Ashantee Negro | Hunterian Museum, London | 36 5 32 |
| 23. | Bosjesman | Phrenological Society, Edinburgh | 36 3 56 |
| 24. | Negro of Angola | Camper's Collection | 36 4 20 |
| 25. | Negro | Guy's Hospital, London | 36 1 32 |
| 26. | Negro | Heidelberg Anatomical Museum | 35 7 0 |
| 27. | Negro | The same | 35 6 40 |
| 28. | Native of Mozambique | Camper's Museum | 35 4 0 |
| 29. | Negro of Guinea | The same | 35 3 0 |
| 30. | Negro | The same | 35 3 0 |
| 31. | Young Negro | The same | 35 0 0 |
| 32. | Negro of Mozambique | Mr. South's Collection | 34 6 0 |
| 33. | Negro of Curaçao | Groningen Anatomical Museum | 34 4 0 |
| 34. | Negro of Cheribon | The same | 33 3 0 |
| 35. | Bosjesman | Phrenological Society, Edinburgh | 32 6 48 |
| 36. | Young Negro | Camper's Collection | 32 0 0 |
| 37. | Young Negro of Madagascar | The same | 32 0 0 |
| 38. | Negro | St. Bartholomew's Hospital | 31 5 16 |
| B. Female Skulls. | | | |
| 39. | Negress | Camper's Museum | 31 4 0 |
| 40. | Old Hottentot woman | The same | 31 0 0 |
| 41. | Negress | Guy's Hospital, London | 24 7 39 |

By these Tables it is clear that the cavum cranii of Negro women is smaller than that of the men; consequently they have an absolutely smaller brain, like the European women.

II. Caucasian Race.

A. Male Skulls of European Nations.

| | Names of the different Nations. | Anatomical Collection. | Capacity of the cavum cranii. | | |
|-----|---------------------------------------|--|-------------------------------|-----|-----|
| | | | oz. | dr. | gr. |
| 1. | Cossack, from the Don | Soemmerring's Museum | 57 | 3 | 56 |
| 2. | Native of Piedmont | Mr. South's Collection, London | 49 | 2 | 4 |
| 3. | Turk | Camper's Museum at Groningen | 49 | 0 | 0 |
| 4. | Irishman | Presented to me by Mr. Hart of Dublin | 48 | 4 | 30 |
| 5. | Scotchman | Presented to me by Dr. Handyside of Edinburgh. ... | 47 | 7 | 52 |
| 6. | Swiss | Camper's Museum | 47 | 0 | 0 |
| 7. | Swede | Soemmerring's Museum | 46 | 7 | 45 |
| 8. | Dutchman | Camper's Museum | 46 | 0 | 0 |
| 9. | German | Heidelberg Museum | 45 | 6 | 45 |
| 10. | Englishman | Camper's Museum | 45 | 5 | 11 |
| 11. | Frenchman, formerly a grenadier | Heidelberg Museum | 45 | 0 | 0 |
| 12. | Dutchman, very talented | Camper's Museum | 45 | 0 | 0 |
| 13. | German | Heidelberg Museum | 44 | 7 | 34 |
| 14. | Russian | Camper's Collection | 44 | 5 | 0 |
| 15. | Englishman | Bartholomew's Hospital | 44 | 4 | 15 |
| 16. | Frenchman | Soemmerring's Museum | 44 | 2 | 42 |
| 17. | German | Heidelberg Museum | 44 | 0 | 33 |
| 18. | Hungarian | The same | 44 | 0 | 4 |
| 19. | German | The same | 43 | 7 | 0 |
| 20. | The same | The same | 43 | 6 | 58 |
| 21. | The same | The same | 43 | 3 | 11 |
| 22. | Turk | Soemmerring's Museum | 43 | 1 | 46 |
| 23. | German, native of Prussia | Camper's Museum | 43 | 2 | 0 |
| 24. | Native of Finland | Heidelberg Museum | 42 | 7 | 4 |
| 25. | Cossack, from the Don | Soemmerring's Museum | 42 | 6 | 45 |
| 26. | Dutchman | Camper's Museum | 42 | 5 | 0 |
| 27. | Norwegian | The same | 42 | 3 | 40 |
| 28. | German | Heidelberg Museum | 42 | 1 | 15 |
| 29. | Dutchman | Camper's Museum | 42 | 6 | 0 |
| 30. | The same | The same | 42 | 5 | 0 |
| 31. | Swede | The same | 42 | 0 | 0 |
| 32. | German, native of Holstein | The same | 41 | 7 | 0 |
| 33. | Pole | Camper's Museum | 41 | 7 | 0 |
| 34. | German | Heidelberg Museum | 41 | 6 | 6 |
| 35. | Frenchman, native of Paris | Camper's Museum | 41 | 6 | 0 |
| 36. | Frenchman | Soemmerring's Museum | 41 | 3 | 52 |
| 37. | Native of Estland | The same | 41 | 2 | 4 |
| 38. | Frenchman, from Angoumois | The same | 41 | 1 | 20 |
| 39. | Swede | Camper's Museum | 41 | 0 | 0 |
| 40. | The same | The same | 40 | 7 | 0 |
| 41. | Dutchman | The same | 40 | 7 | 0 |
| 42. | Jew, from Friesland | The same | 40 | 6 | 0 |
| 43. | Dutchman | The same | 40 | 4 | 0 |
| 44. | Hungarian | The same | 40 | 4 | 0 |
| 45. | Swiss | The same | 40 | 3 | 40 |
| 46. | German | Heidelberg Museum | 40 | 1 | 31 |
| 47. | Portuguese | Soemmerring's Museum | 40 | 0 | 36 |
| 48. | Native of Finland | Heidelberg Museum | 39 | 7 | 0 |
| 49. | Pole | Camper's Museum | 39 | 7 | 0 |
| 50. | Native of Estland | Soemmerring's Museum | 39 | 5 | 51 |
| 51. | Dutchman, from Scheveningen | Camper's Museum | 39 | 4 | 0 |
| 52. | German | Heidelberg Museum | 39 | 3 | 33 |
| 53. | Dutchman, talented man | Camper's Museum | 39 | 2 | 0 |
| 54. | Turk | Soemmerring's Museum | 39 | 3 | 5 |
| 55. | German | Heidelberg Museum | 39 | 1 | 55 |

| Names of the different Nations. | | Anatomical Collection. | Capacity of the cavum cranii. | | |
|---------------------------------|----------------------------------|----------------------------|-------------------------------|-----|-----|
| | | | oz. | dr. | gr. |
| 56. | Russian | Camper's Museum | 39 | 1 | 0 |
| 57. | German | Heidelberg Museum | 39 | 0 | 50 |
| 58. | Englishman | Camper's Museum | 38 | 6 | 0 |
| 59. | Dutchman | The same | 38 | 6 | 0 |
| 60. | Servier, from Cassava | Soemmerring's Museum | 38 | 5 | 3 |
| 61. | Frenchman, from Lyons | Camper's Museum | 38 | 4 | 0 |
| 62. | Russian, formerly a grenadier .. | Heidelberg Museum | 38 | 4 | 0 |
| 63. | Portuguese | Camper's Museum | 38 | 3 | 0 |
| 64. | Spaniard | The same | 38 | 0 | 0 |
| 65. | Dane | The same | 37 | 3 | 0 |
| 66. | Russian, from Petersburg | Soemmerring's Museum | 37 | 2 | 2 |
| 67. | Dutchman | Camper's Museum | 37 | 0 | 0 |
| 68. | Russian | Heidelberg Museum | 36 | 7 | 50 |
| 69. | Swede | Camper's Museum | 36 | 6 | 0 |
| 70. | German | Heidelberg Museum | 36 | 2 | 28 |
| 71. | Neapolitan | Camper's Museum | 36 | 0 | 0 |
| 72. | Cossack | The same | 35 | 2 | 0 |
| 73. | Dutchman | The same | 35 | 0 | 0 |
| 74. | Jew, from Amsterdam | The same | 34 | 6 | 0 |
| 75. | Frenchman, from Paris | The same | 34 | 2 | 0 |
| 76. | Dutchman | The same | 32 | 6 | 0 |
| 77. | Prussian | The same | 32 | 6 | 0 |

B. Male Skulls of Asiatic Nations.

| | | | | | |
|-----|---|---|----|---|----|
| 1. | Russian, from Orenburg | Soemmerring's Museum | 41 | 5 | 6 |
| 2. | { Werschandier, on the other side of the Taurian Mountains } | The same | 40 | 5 | 8 |
| 3. | Armenian | Royal College of Surgeons, Dublin | 40 | 2 | 0 |
| 4. | Arabian | Camper's Museum | 40 | 2 | 0 |
| 5. | Native of Ceylon | { Presented to the Edinburgh Phrenological Society by Mr. Lyon | 38 | 7 | 20 |
| 6. | Hindoo | { Presented to the Edinburgh Phrenological Society by Dr. Murray Patterson | 38 | 5 | 54 |
| 7. | Circassian | Camper's Museum | 38 | 3 | 0 |
| 8. | Native of Ceylon | { Presented to the Edinburgh Phrenological Society by Mr. Lyon | 38 | 2 | 0 |
| 9. | Georgian | Camper's Museum | 38 | 0 | 0 |
| 10. | Hindoo | The same | 37 | 0 | 0 |
| 11. | Parsee | Presented to me by Dr. Mackintosh of Edinburgh .. | 36 | 7 | 30 |
| 12. | Hindoo | Soemmerring's Museum | 36 | 3 | 0 |
| 13. | Hindoo | Edinburgh Phrenological Society | 36 | 2 | 32 |
| 14. | Birmanese soldier | Mr. South's Collection | 36 | 0 | 54 |
| 15. | Georgian | Camper's Museum | 36 | 0 | 0 |
| 16. | { Native of Ceylon, from the Vedah tribe | { Presented to the Phrenological Society at Edin- burgh by Mr. Lyon | 35 | 0 | 16 |
| 17. | Georgian | Camper's Museum | 34 | 6 | 0 |
| 18. | Parsee | Edinburgh Phrenological Society | 33 | 1 | 49 |
| 19. | Hindoo | The same | 32 | 2 | 24 |
| 20. | Circassian | Camper's Museum | 33 | 0 | 0 |
| 21. | Hindoo | The same | 32 | 6 | 0 |
| 22. | The same | Edinburgh Phrenological Society | 32 | 1 | 4 |
| 23. | Native of Ceylon | Camper's Museum | 31 | 0 | 0 |
| 24. | Hindoo Brahmin | { Presented to the Edinburgh Phrenological Society by Dr. George Mackenzie | 27 | 6 | 30 |

It is very remarkable that the capacity of the skull of the Hindoos is very small; which has been likewise observed by PATTERSON*.

* Monthly Review, December 1823, p. 286.

| C. Male Skulls of African Nations. | | | |
|------------------------------------|----------------------------------|---------------------------------------|-------------------------------|
| | Names of the different Nations. | Anatomical Collection. | Capacity of the cavum cranii. |
| 1. | Skull of an Egyptian mummy . . . | Hunterian Museum at London | oz. dr. gr. 44 6 11 |
| 2. | Native of Egypt | Soemmerring's Museum | 44 5 38 |
| 3. | Mameluke | The same | 37 2 58 |
| 4. | Native of Egypt | Camper's Museum | 35 5 0 |
| D. Female Skulls. | | | |
| 1. | Irish | Presented to me by Mr. Hart | 39 5 30 |
| 2. | German woman | Heidelberg Museum | 38 6 12 |
| 3. | Dutch woman | Camper's Museum | 38 0 0 |
| 4. | German woman | Heidelberg Museum | 37 7 35 |
| 5. | The same | The same | 37 3 30 |
| 6. | Dutch woman | Camper's Museum | 35 0 0 |
| 7. | The same | The same | 34 0 0 |
| 8. | German woman | Heidelberg Museum | 33 4 30 |
| 9. | The same | The same | 33 4 11 |
| 10. | The same | The same | 33 1 21 |
| 11. | Dutch woman | Camper's Museum | 31 4 0 |
| 12. | The same | The same | 30 4 0 |

By this Table is proved what I have stated on the weight of the brain of women.

III. Mongolian Race.

| A. Male Skulls. | | | |
|-------------------|---|---|-------------------------------|
| | Name of the Tribes. | Anatomical Collection. | Capacity of the cavum cranii. |
| 1. | Esquimaux | Phrenological Society, Edinburgh | oz. dr. gr. 49 1 22 |
| 2. | Lapponian | Anatomical Collection at Heidelberg | 48 2 25 |
| 3. | { Scull of Tyloolick, an Esqui- maux attached to one of Capt. Parry's Expeditions } | Guy's Hospital | 44 6 0 |
| 4. | Native of Hudson's Bay | St. Thomas's Hospital | 42 2 40 |
| 5. | Kalmuc | Anatomical Museum at Groningen | 42 0 0 |
| 6. | Native of Kamtschatka | The same | 42 0 0 |
| 7. | Kalmuck | Soemmerring's Anatomical Museum | 41 2 44 |
| 8. | Baskier | Anatomical Museum at Groningen | 40 7 0 |
| 9. | Chinese | The same | 40 2 2 |
| 10. | Native of Greenland | Camper's Anatomical Museum at Groningen | 39 4 0 |
| 11. | Chinese | Hunterian Museum | 38 3 3 |
| 12. | The same | Phrenological Society, Edinburgh | 37 1 57 |
| 13. | Native of Labrador | Camper's Museum | 37 0 0 |
| 14. | Chinese | St. Thomas's Hospital | 35 7 16 |
| 15. | Native of Greenland | Dublin Surgical College | 33 6 43 |
| 16. | Esquimaux | Groningen Anatomical Museum | 33 6 0 |
| 17. | Native of Labrador | St. Thomas's Hospital | 30 1 16 |
| 18. | Native of Nootka Sound | Christ College, Oxford | 25 0 18 |
| B. Female Skulls. | | | |
| 19. | Esquimaux | Phrenological Society, Edinburgh | 35 2 23 |
| 20. | Native of Greenland | Dublin College of Surgeons | 31 0 43 |

IV. American Race.

| A. Male Skulls. | | | |
|-------------------|--|--|-------------------------------|
| | Name of the Tribes. | Anatomical Collection. | Capacity of the cavum cranii. |
| 1. | Botocudo | Anatomical Collection at Frankfurt | oz. dr. gr. 59 0 0 |
| 2. | { North American Indian of the Algonquin tribe | Presented to Guy's Hospital by B. Harrison, Esq. | 48 4 0 |
| 3. | { Flat-headed Indian from the banks of the Columbia river } | | |
| 4. | Peruvian from Arica | Presented to the Phrenological Society by T. Steel | 45 5 35 |
| 5. | Red Indian from Newfoundland. | { Collection for Natural History of the University } { at Edinburgh | 42 3 35 |
| 6. | { Skull of Tooe-too, a chief of the Cherokees | College of Surgeons at Edinburgh | 41 3 47 |
| 7. | Auracanian Indian | Edinburgh Phrenological Society | 41 3 42 |
| 8. | { Flat-headed Indian from the Columbia river | Presented to Guy's Hospital by Mr. Harrison. | 40 7 30 |
| 9. | { Skull of a Shenockor Chinock Indian*, from the burying place at the mouth of the river Walamet | | |
| 10. | { Native of the country on the north-western shore of lake Superior, a Chipaway chief } | College of Surgeons, Edinburgh | 40 2 57 |
| 11. | { Chinock Indian | Edinburgh University | 40 2 10 |
| 12. | { Carib of St. Vincent. (This man was a good botanist.) } | St. Thomas's Hospital | 39 4 30 |
| 13. | { Peruvian of Huacha, an Indian town near Lima | Phrenological Society, Edinburgh | 38 2 32 |
| 14. | Inka of Illo in Peru | | |
| 15. | Flat-headed Indian | St. Thomas's Hospital | 37 6 45 |
| 16. | Indian from Chili | Guy's Hospital | 37 2 0 |
| 17. | { Peruvian from the neighbourhood of Arica | Phrenological Society, Edinburgh | 37 1 38 |
| 18. | Flat-headed Indian | The same | 36 7 39 |
| 19. | Native of Antigua | Guy's Hospital | 36 7 10 |
| 20. | Peruvian | Presented to Bartholomew's Hospital by Dr. Conquest | 35 3 57 |
| 21. | Mexican of Oaxaca | Phrenological Society, Edinburgh | 35 1 47 |
| 22. | Botocudo boy | Soemmerring's Museum | 34 3 0 |
| 23. | Native of South America | Anatomical Collection at Frankfurt | 32 4 55 |
| 24. | { Toway Indian, taken 400 miles above the mouth of the Missouri river | Hunterian Museum | 31 0 44 |
| 24. | { | Anatomical Collection at Frankfurt | 26 1 44 |
| B. Female Skulls. | | | |
| 25. | Shenock Indian | { Presented to the University of Edinburgh by } { Dr. M. Gairdner | 40 5 22 |
| 26. | Red Indian | Edinburgh University | 38 7 41 |
| 27. | Botocudo | Anatomical Museum at Frankfurt | 31 6 41 |

* The nation of Indians who inhabit the north side of the mouth of the Columbia river flatten the head immediately after birth by a compress fastened on the forehead.

V. Malayan Race.

| A. Male Skulls. | | | |
|-------------------|--|---|-------------------------------|
| | Name of the Tribes. | Anatomical Collection. | Capacity of the cavum cranii. |
| | | | oz. dr. gr. |
| 1. | Native of the island Huaheine . . | { Presented to Guy's Hospital by Mr. Samuel Stutchbury, the naturalist of the Pacific Pearl Company } | 49 1 45 |
| 2. | Native of Java, from Cheribon . . | Soemmerring's Museum | 48 5 42 |
| 3. | Native of the island Huaheine . . | Presented to Guy's Hospital by Mr. S. Stutchbury | 47 0 41 |
| 4. | Native of Java | Heidelberg Museum | 46 3 0 |
| 5. | Native of New Holland | { Presented to St. Bartholomew's Hospital by M. Langstaff } | 45 7 46 |
| 6. | Native of Java | Heidelberg Museum | 44 7 0 |
| 7. | { Native of the island Tahiti (named Otaheite by Capt. Cook) } | Presented to Guy's Hospital by Mr. S. Stutchbury | 43 6 39 |
| 8. | { Native of the island Raiatea (called Ullietea by Capt. Cook) } | | |
| 9. | Native of the island Amana | The same | 43 4 31 |
| 10. | Native of the island Madura | Heidelberg Museum | 43 2 0 |
| 11. | Native of New Zealand | St. Thomas's Hospital | 42 4 50 |
| 12. | Native of New South Wales | { Presented to St. Bartholomew's Hospital by Mr. Hodgson } | 41 7 31 |
| 13. | The same | The same | 41 4 56 |
| 14. | Native of New Zealand | Guy's Hospital | 41 2 53 |
| 15. | Native of Celebes, from Macassar | Heidelberg Museum | 41 2 0 |
| 16. | Native of Java | Camper's Museum | 41 0 40 |
| 17. | Native of the island Eimeo | { Presented to Guy's Hospital by the Pacific Pearl Company } | 40 4 46 |
| 18. | Native of Java | Camper's Museum | 40 1 0 |
| 19. | { Native of the island Rurutu (Oheitersa of Capt. Cook) } | { Presented to Guy's Hospital by the Pacific Pearl Company } | 39 7 16 |
| 20. | Native of the Sandwich Islands | Edinburgh Phrenological Society | 38 7 29 |
| 21. | Native of Amboyna | Soemmerring's Museum | 38 6 58 |
| 22. | Native of the Philippine Islands | Edinburgh Phrenological Society | 38 4 26 |
| 23. | Native of the island Madura | Camper's Museum | 38 3 0 |
| 24. | Native of Sumatra | The same | 38 0 0 |
| 25. | Native of New Holland | Edinburgh Phrenological Society | 37 4 23 |
| 26. | Native of Macassar | Soemmerring's Museum | 36 6 52 |
| 27. | Native of New Holland | Hunterian Museum | 36 6 40 |
| 28. | Native of Java | Camper's Museum | 36 4 40 |
| 29. | Native of Nubaschenka | Anatomical Museum at Frankfurt | 36 3 0 |
| 30. | Native of Madura | Camper's Museum | 36 2 0 |
| 31. | Skull of a Lascar | The same | 36 1 40 |
| 32. | Native of Van Diemen's Land | Christ College, Oxford | 35 1 21 |
| 33. | Native of New South Wales | The same | 35 0 30 |
| 34. | New Zealander | Dublin Royal College of Surgeons | 34 4 43 |
| 35. | Native of Botany Bay | St. Thomas's Hospital | 34 3 32 |
| 36. | Native of the island Nukahiva | { From the Expedition of Capt. Kotzebue, in Soemmerring's Museum } | 33 6 28 |
| 37. | Native of Java | Soemmerring's Museum | 31 4 52 |
| 38. | { Skull of a Dayak, a native of Borneo } | The same | 30 5 0 |
| B. Female Skulls. | | | |
| 39. | Native of the island Huaheine | { Presented to Guy's Hospital by the Pacific Pearl Company } | 37 5 0 |
| 40. | Native of the island Rajatea | The same | 34 0 2 |
| 41. | Native of New Holland | Edinburgh Phrenological Society | 32 4 31 |
| 42. | Native of Java | Heidelberg Anatomical Museum | 22 5 0 |
| 43. | A Lascar woman | Edinburgh College of Surgeons | 19 2 49 |

It is evident from the comparison of the capacity of the cavum cranii of the Negro with that of the European, Mongolian, American, and Malayan, that the cavity of the skull of the Negro, in general, is not smaller than that of the European and other human races. The result of HAMILTON'S * researches is the same. I hope this will convince others that the opinion of many naturalists, such as CAMPER, SOEMMERRING, CUVIER, LAWRENCE, and VIREY, that the Negro has a smaller skull and brain than the European, is ill founded, and entirely refuted by my researches. The mistaken notion of these naturalists arose from the application of CAMPER'S facial line and facial angle on a few skulls of negroes living on the coasts †; who, according to credible travellers, are the lowest and most demoralized of all the Negro tribes; the miserable remains of an enslaved people, bodily and spiritually lowered and degraded by slavery and ill treatment. I look upon CAMPER'S facial line and facial angle as very unsatisfactory in determining the capacity of the skull, the size of the brain, and the degree of intellectual powers.

The general characters and marks of the Ethiopian race, as given by naturalists, cannot be received as universal, nor are they strictly applicable to the greater number of the Negro tribes in the high lands of the interior of Africa. These characters are, the skin black; the hair black and woolly; the skull compressed laterally; the forehead low, depressed, slanting, and narrow; the cavity of the cranium smaller, and reduced both in its circumference and in its transverse diameters; the eyes prominent; great development of the face, and projection towards its lower part; the cheekbones prominent; the jaws narrow; the superior incisor teeth oblique; the chin retracted; the nose broad, thick, and flat; the lips, particularly the upper one, thick and projecting. This is the countenance of the Mozambique and Guinea Negroes, but it is not the feature of the natives of the high lands of Africa. The truth of this assertion is fully attested by the latest African travellers. WINTERBOTTOM ‡ says of the tribes of Timmanu and Soosoo Negroes, in the mountainous districts of

* l. c. p. 5. He says: "The common doctrine, that the African brain, and particularly that of the Negro, is greatly smaller than the European, is false. By a comparison of the capacity of two Caffre skulls, male and female, and of thirteen Negro crania, (six male, five female, and two of doubtful sex,) the encephalus of the African was found not inferior to the average size of the European."

† CAMPER has determined the facial angle of the Negro from the skull of a slave from Angola, and has given a plate of it, plate i. fig. 1.

LAWRENCE has given (plate viii.) a drawing of a Negro skull, of which he says (p. 363): "In such a skull as that represented in the eighth plate, which indeed has been particularly selected, because it is strongly characterized, no person, however little conversant with natural history or physiology, could fail to recognise a decided approach to the animal form. This inferiority of organization is attended with corresponding inferiority of faculties, which may be proved, not so much by the unfortunate beings who are degraded by slavery, as by every fact in the past history and present condition of Africa."

I must confess that I cannot call the figure a good one; and amongst some hundreds of Negro skulls I saw not one of so bad a form.

‡ Account of the Native Africans in the Neighbourhood of Sierra Leone, vol. i. pp. 184, 198. London, 1803.

Sierra Leone: "The sloping contracted forehead, small eyes, depressed nose, thick lips, and projecting jaws, with which the African is usually caricatured, are by no means constant traits; on the contrary, every gradation of countenance may be met with, from the disgusting picture too commonly drawn of them, to the finest set of European features."

TUCKEY* says the same of the Jalaffs or Oualafs; MEREDITH† of the Fantees; ADAMS‡ and BOWDICH§ of the Ashantees, the Dahomeys, and the Negroes of the banks of the river Chamba: they have good features, neither broad nor flat noses, nor thick lips. The Mandingos on the banks of the rivers Gambia, Joliba, the higher Senegal, and Niger, as also the Foulahs or Fullahs, and Fellatahs in the interior of Africa, in Bondu, Timboctoo, Housan, Sudan, Bornoo and Kaschna, vary but little, according to MUNGO PARK||, DENHAM, and CLAPPERTON¶, excepting in colour, from the Europeans. Their skin is not so black as that of the Negroes on the coast of Guinea, and their black hair is not so woolly, but long, soft, and silky. They have neither broad flat noses, thick lips, nor prominent cheekbones; sloping contracted forehead, nor a skull compressed from both sides, which most naturalists consider as the universal characteristics of a Negro. Most of them have well-formed skulls, long faces, handsome, even Roman or aquiline noses, thin lips, and agreeable features. The Negresses of these nations are as finely formed as the men, and are, with the exception of their colour, as handsome as European women.

SOMERVILLE, BARROW**, LICHTENSTEIN††, and BURCHELL‡‡, have shown that the Caffres and Bachapins, or Betchuanas, have the same form of skull, and the same high forehead and prominent nose as Europeans.

Credible travellers and accurate observers confirm also what the celebrated BLUMENBACH§§ said thirty years back, "that the exterior of Negroes gradually approaches to that of other races, and acquires by degrees their fine features."

Spinal Cord and Medulla Oblongata of the Negro.

The form and structure of the well preserved spinal cord of the Negro HONORE' accord in every way with that of the European. It is divided anteriorly and pos-

* Narrative of the Expedition to explore the River Zaire. London, 1818.

† An Account of the Gold Coast of Africa. London, 1812.

‡ Remarks on the Country extending from the Cape Palma to the River Congo. London, 1823.

§ Mission from Cape Coast Castle to Ashantee, with a Statistical Account of that Kingdom, and Geographical Notices of other parts of the Interior of Africa. London, 1819.

|| Travels in the Interior Districts of Africa. London, 1799.

¶ Travels in Interior Parts of Africa. London, 1820. CLAPPERTON'S Second Travels in the Interior of Africa, from Badagry to Soccatu. London, 1829.

** Southern Africa, vol. i. ch. 3.

†† Travels, ch. 18.

‡‡ Travels in the Interior Districts of South Africa. London, 1820.

§§ Beyträge zur Naturgeschichte. Th. 1. S. 73. Goettingen, 1806. Decas Craniorum, ii. p. 13. "Specimina

teriorly, by the longitudinal fissure, into two equal parts. On both sides are situated the lateral longitudinal fissures which divide the spinal marrow into a posterior and anterior part. From these cords the posterior and anterior roots of the spinal nerves take their origin.

On the fore part of the medulla oblongata are the two corpora pyramidalia, and on the outside of these the corpora olivaria. On the posterior surface are the corpora restiformia, entering the cerebellum. Between them is the fourth ventricle (ventriculus quartus, calamus scriptorius,) and the striæ medullares. The following are the dimensions according to the old measurement of the Parisian Academy.

The medulla oblongata and the spinal cord from the pons Varolii to the end of the latter, measure 14 inches 11 lines. The breadth of the medulla oblongata below the pons Varolii is 10 inches $\frac{1}{2}$ line; the breadth of the medulla oblongata at the part where the corpora pyramidalia cross each other, $5\frac{2}{3}$ lines. The breadth of the spinal cord on the vertebræ cervicales superiores was $5\frac{1}{3}$ lines; on the vertebræ cervicales inferiores $6\frac{2}{3}$ lines; on the middle pectoral vertebræ, $4\frac{1}{2}$ lines; on the inferior pectoral vertebræ $5\frac{1}{3}$ lines.

In order to compare the spinal cord of the Negro with that of the European, I measured it in a man 5 feet 8 inches high, and in a woman 5 feet high.

| | Man. | | Woman. | |
|---|------|----------------|--------|-----------------|
| | in. | lines. | in. | lines. |
| Length of the medulla oblongata and of the spinal cord | 17 | 3 | 14 | 10 |
| Breadth of the medulla oblongata below the pons Varolii | | 11 | | $10\frac{1}{3}$ |
| Breadth of the medulla oblongata at the part where the corpora pyramidalia cross each other | | $6\frac{1}{4}$ | | $5\frac{1}{2}$ |
| Breadth of the spinal cord on the vertebræ cervicales superiores | | $5\frac{1}{2}$ | | 5 |
| Breadth of the spinal cord on the vertebræ cervicales inferiores | | $6\frac{2}{3}$ | | $6\frac{1}{3}$ |
| Breadth of the spinal cord on the middle pectoral vertebræ | | 5 | | $4\frac{1}{3}$ |
| Breadth of the spinal cord on the inferior pectoral vertebræ | | $5\frac{2}{3}$ | | $5\frac{1}{4}$ |

Hence there is no remarkable difference between the medulla oblongata and spinal cord of the Negro and that of the European, except the difference arising from the different size of the body.

Cerebellum of the Negro.

The cerebellum of the Negro, in regard to its outward form, fissures and lobes, is exactly similar to that of the European, as is shown in Plate XXXII. *k. k.* and

tria craniorum præstantissimam exhibent seriem, maxime si cum tribus istis Æthiopum craniis comparantur, quæ priore Decade exhibui, utpote quæ luculenter demonstrant, genuinos Æthiopes, si craniorum formam spectes, non minus certe, imo vero magis passim inter se ipsos ab invicem differre, quam nonnulli eorum a multorum Europæorum capitis forma differunt."

Plate XXXIII. *b*: its internal structure and the arrangement of the substantia corticalis and medullaris are also the same. In order to show that there is no difference in size and dimensions, with the exception arising from the different size of the body, I give two Tables of the dimensions of the Negro and European cerebellum.

I measured the brains of the following individuals of the Ethiopian race :

1st. Of a Negro whose brain I received from Liège. Plates XXX. XXXI. XXXII. XXXIII.

2nd. Of a Negro preserved in the Museum of Comparative Anatomy, in the Jardin du Roi, at Paris.

3rd. Of a Bosjes woman, dissected by CUVIER*, which I found in the Museum of Comparative Anatomy. Plate XXXIV. This woman was only 4 feet 6 inches 7 lines in height, according to the measure of the Parisian Academy. I give also the dimensions of the brain of a Negro mentioned by the brothers WENZEL.

TABLE I.

Dimensions of the Cerebellum and Nodus Encephali of Negroes.

| | Negro HONORE'. | Brain of a Negro preserved in the Museum of Comparative Anatomy at Paris. | Brain of the Bosjes woman called HOTTENTOT VENUS. | Brain of a Negro measured by the brothers WENZEL. |
|---|----------------|---|---|---|
| | in. lin. | in. lin. | in. lin. | in. lin. |
| Breadth or transverse diameter of the cerebellum } | 3 4 | 3 3½ | 3 2½ | 4 1 |
| Longitudinal diameter of the cerebellum in the middle. } | 2 4 | 2 5 | 2 4½ | 2 6 |
| Breadth of the nodus encephali between the nervi quinti } | 1 1½ | | | |
| Longitudinal diameter of the nodus encephali in the middle. } | 0 10⅓ | | | |

TABLE II.

Dimensions of the Cerebellum and Nodus Encephali of Europeans.

| | Males. | | | | | | Females. | | |
|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | in. lin. | in. lin. | in. lin. | in. lin. | in. lin. | in. lin. | in. lin. | in. lin. | in. lin. |
| Greatest breadth of the cerebellum } | 4 3 | 3 11 | 3 10 | 3 8 | 3 7 | 3 6 | 3 6 | 3 5 | 3 3 |
| Longitudinal diameter of the cerebellum in the middle. } | 2 7 | 2 6 | 2 5½ | 2 5 | .... | .... | 2 5 | 2 4 | .... |
| Breadth of the nodus encephali between the nervi quinti } | 1 4 | 1 3 | 1 2 | 1 1½ | 1 1 | .... | 1 1½ | 1 1¼ | 1 0⅔ |
| Longitudinal diameter of the nodus encephali in the middle. } | 1 1 | 1 0⅓ | 1 0 | 1 0 | .... | .... | 0 11 | 0 10 | |

* CUVIER (Extrait d'Observations, faites sur le cadavre d'une femme connue sous le nom de VENUS HOTTENTOTTE; Mémoires du Muséum de l'Histoire Naturelle, tom. iii. p. 266.) has given a description of the individual publicly exhibited in London and Paris under the name of the HOTTENTOT VENUS.

The Brain (Cerebrum) of the Negro.

The Negro brain (Plates XXX. XXXI. XXXII. XXXIII.) which I dissected, as well as both the Negro brains which I had the opportunity of seeing in the Museum of Comparative Anatomy at Paris, have for the most part the same form as the European brain. The brain is divided by a deep fissure into two hemispheres. In this fissure appears the corpus callosum, or the commissura magna cerebri, which unites both hemispheres. The anterior portion of the hemispheres is something narrower than is usually the case in Europeans. This is particularly remarkable in the brain of the Bosjes woman (Plate XXXIV.). The length and height of the hemispheres do not visibly differ from that of the European; their breadth only is something less. This is evident from the comparison of the two Negro brains measured by me, of a Negro brain examined by the brothers WENZEL, of the brain of a Bosjes woman, and of the brains of seven European men and six women, the dimensions of which are given in the following Tables:

TABLE I.

Dimensions of the Cerebrum of Negroes.

| | Brain of the Negro HONORÉ. | Brain of a Negro in the Jardin du Roi à Paris. | Brain of the Bosjes woman, the HOTTENTOT VENUS. | Brain of a Negro measured by the brothers WENZEL. |
|---|----------------------------|--|---|---|
| | in. lin. | in. lin. | in. lin. | in. lin. |
| Length of the cerebrum. | 5 10 | 5 11 $\frac{2}{3}$ | 5 10 | 6 1 |
| Greatest breadth of the cerebrum. | 4 6 | 4 9 $\frac{3}{8}$ | 4 4 $\frac{1}{2}$ | 5 0 |
| Height of the cerebrum. | 2 11 | 3 | 2 11 | |

TABLE II.

Dimensions of the Cerebrum of European Males.

| | | | | | | | |
|---|----------|----------|----------|----------|-----------------|----------|----------|
| | in. lin. | in. lin. | in. lin. | in. lin. | in. lin. | in. lin. | in. lin. |
| Length of the cerebrum. | 7 2 | 6 2 | 6 1 | 6 1 | 6 $\frac{1}{2}$ | 6 0 | 5 9 |
| Greatest breadth of the cerebrum. | 5 6 | 5 5 | 5 3 | 5 2 | 5 2 | 4 9 | 4 8 |
| Height of the cerebrum. | 3 10 | 3 9 | 3 7 | 3 5 | 3 1 | 2 11 | 2 10 |

TABLE III.

Dimensions of the Cerebrum of European Females.

| | | | | | | |
|---|----------|--------------------|----------|----------|----------|----------|
| | in. lin. | in. lin. | in. lin. | in. lin. | in. lin. | in. lin. |
| Length of the cerebrum. | 6 4 | 6 3 | 6 1 | 5 10 | 5 8 | 5 3 |
| Greatest breadth of the cerebrum. | 5 6 | 5 4 | 5 3 | | | |
| Height of the cerebrum. | 2 11 | 2 10 $\frac{1}{2}$ | 2 9 | 2 7 | | |

Each hemisphere is subdivided into three lobes,—the anterior, middle, and posterior lobes,—similar to the European brain. The posterior lobes cover the cerebellum

entirely, and project considerably over it. The whole external surface of the hemispheres is covered by a great number of gyri, separated by deep sulci. The gyri are particularly large on the anterior part of the hemispheres of the brain of the Bosjes woman. It is remarkable that the gyri and sulci of the hemispheres show more symmetry than is usually found in European brains. This is particularly visible in the brain of the Bosjes woman. On the middle of the basis of the brain (Plate XXXII.) are the pons Varolii, nodus encephali, or tuber annulare, the crura or pedunculi of the cerebrum, the eminentiæ candicantes or corpora albicantia, the gray tuberculum, and the hypophysis cerebri, or the glandula pituitaria, which on the whole are very much the same, as in the European brain. The pedunculus of the hypophysis in the brain of the Negro HONORE' (e. Plate XXXIII.) was somewhat thicker and larger than in the European. The hypophysis cerebri (f. Plate XXXIII.) was somewhat smaller. I cannot say whether this is always the case in the brain of the Negro.

In reference to the internal structure of the brain of the Negro, it is composed, like the brain of the European, of two substances, the outer gray, or cortical substance, and the internal white fibrous or medullary substance, as has been observed by several anatomists; but they do not agree on this point.

J. F. MECKEL* says the gray substance is of a darker colour than in the European brain, and also the medullary substance is not so white, but yellowish gray or light brown.

J. G. WALTER † found the medullary substance in the Negro just as white as in the European: the cortical substance, on the other hand, darker, of a grayish brown colour, which he attributed to the darker colour of the blood in the Negro. CAMPER, BONN ‡, and SOEMMERRING § found likewise the medullary substance just as white in the Negro as in the European.

SOEMMERRING says that he examined three perfectly fresh Negro brains without finding any difference in the colour of the cortical substance from that of the European. FL. CALDANI ||, on the contrary, found the gray substance in the brains of two Negroes darker than in Europeans. RUDOLPH ¶ has remarked the same in the brain of a Mulatto. I can say nothing regarding the colour of the medullary and cortical

* De la Diversité de Couleur dans la Substance Médullaire de Nègres; Histoire de l'Académie de Berlin, 1753, p. 97. Du Cerveau des Nègres, *ibid.*, 1757, p. 69.

† Epistola Anatomica ad virum illustrem W. HUNTERUM de Venis Oculi, p. 20. Berolini, 1778. "In Æthiope meo dissecto color omnium partium medullarium cerebri, cerebelli et medullæ oblongatæ erat perfecte albus. Substantia vero corticalis cerebri, quæ in Europæis cineritii coloris est, in hoc Æthiope paulo obscurior, hoc est ex cineritio bruni coloris est. Hæc permutatio coloris mihi oriri videtur a sanguine, qui ad substantiam corticalem fertur."

‡ Descriptio Thesauri Ossium morbosorum Hoviani, p. 133. "Medulla cerebri, oblongata atque spinalis Æthiopissæ intus albissima erat."

§ Vom Körperlichen Unterschied des Negers, S. 18.

|| Congettura sopra Uso della glandola Timo, con alcuni altri Discorsi, p. 38. Venezia, 1808.

¶ Lehrbuch der Physiologie, B. ii. Abth. 1. S. 15.

substance, as the Negro brain which I dissected had been preserved some time in alcohol.

MECKEL and WALTER* found the texture of the medullary substance of a Negro brain firmer than usual, as tough and firm as it is sometimes found in the brain of insane persons. Neither SOEMMERRING, CAMPER, BONN, CALDANI, RUDOLPHI, nor I, found this.

In the internal structure of the brain of the Negro I did not observe any difference between it and that of the European; it seems to me therefore superfluous to give a minute description of it. Plate XXXIII. gives an exact representation of a vertical dissection of the brain of the Negro HONORÉ', and proves the accuracy of my statement. The corpora quadrigemina, the valve of VIEUSSENS, the aqueduct of SYLVIVS, the pineal gland or the conarium, the optic thalami, with the corpora geniculata, the corpora striata, the corpus callosum, or commissura maxima cerebri, and also the commissura anterior and posterior of the brain, resemble entirely the same parts in the brain of the European.

The glandula pinealis, of a light red colour, of a conical form, lying upon the corpora quadrigemina, was fixed to the posterior commissura by a medullary lamella, and was connected by two processes of medullary substance, the pedunculi conarii, with the inner side of the thalami optici. In the centre of the pineal gland was a fine sandy substance of a yellow colour, called the lapilli glandulæ pinealis, or the acervulus. SOEMMERRING likewise found this sandy substance in all the Negro brains which he dissected.

The fornix, with the crura anteriora, arising from the corpora albicantia, the medullary lamellæ of the septum lucidum, the crura fornicis posteriora, with the fimbria medullaris, the pedes hippocampi majores, with their round undulated and serrated extremity, and the hippocampi minores, occupying the interior of the floor of the posterior cornu of the lateral ventricle, showed no difference from that of the European brain. The lateral ventricles of the brain, two irregular-shaped cavities occupying the central parts of the three lobes of each hemisphere, consisted of three cornua, as in the European brain. The anterior cornu ran forwards and inwards in the substance of the anterior lobe of each hemisphere. The middle or inferior cornu descended to and terminated in the middle lobe. The posterior cornu ran backwards and inwards into the posterior lobe of the brain, and ended in a rounded extremity. Within each lateral ventricle was a plexus choroideus.

Are the Nerves of the Negro thicker and larger than those of the European?

SOEMMERRING was the first who compared the size of the brain with the thickness of the nerves. He says that the nerves on the basis of the brain are somewhat thicker

* "Deprehendi substantiam medullarem cerebri in hoc Æthiope duriorem, quam ordinariè in Europæis esse solet, et ferè tantæ tenacitatis, ut in nonnullis hominibus mente captis."

in the Negro than in the European. This difference seemed to him particularly remarkable in the olfactory and optic nerves, and in the *nervi quinti*. This difference is not visible in the nerves of the brain of the Negro HONORE' (Plate XXXII.) ; they are quite as small as the nerves in European brains : nor did I find any difference in the brain of the Bosjes woman, nor in the two Negro brains in the Museum of Comparative Anatomy at Paris. We cannot, therefore, allow that the Negro brain is *smaller than that of the European* compared with the size of the nerves, or that the nerves of the Negro are thicker than those of the European.

Has the Brain of the Negro more resemblance to the Brain of the Orang-Outang than that of the European ?

The Monkeys have in their outward form and inward structure the greatest resemblance to Man. GALEN* remarked their great similarity. TYSON† was the first who dissected the brains of an African Orang-Outang, and of a Jocko or Chimpanzee, and says he found no difference between them and the human brain. His own words are: "The brain is reputed the more immediate seat of the soul itself; one would be apt to think that since there is so great a disparity between the soul of a man and a brute, the organ likewise in which it is placed should be very different too ; though by comparing the brain of our Pygmie with that of a man, and examining with the greatest exactness each part in both, it was very surprising to me to find so great a resemblance of the one to the other, that nothing could be more."

BUFFON‡, relying on TYSON's researches, says, "Le cerveau de l'Orang-Outang est absolument de la même forme et de la même proportion, et il ne pense pas ; y a-t-il une preuve plus évidente, que la matière seule, quoique parfaitement organisée, ne peut produire ni la pensée ni la parole, qui en est le signe, à moins qu'elle ne soit animée par un principe supérieur ?"

I showed, several years back, by dissecting the brains of some species of the genus *Simia*§, as well as the brain of the Asiatic Orang-Outang||, that the opinion of TYSON and BUFFON is erroneous, and that the brain of Monkeys, and even of the Orang-Outang, differs very much from the human brain. The brain of the Monkey and the Orang-Outang differs as follows from the human brain.

1. The brain is absolutely and relatively smaller and lighter, shorter, narrower, and lower than the human brain.
2. The brain is smaller in comparison to the size of the nerves than in man.
3. The hemispheres of the brain are, relatively to the spinal marrow, medulla ob-

* De Administrationibus Anatomicis, lib. i. c. 2. "Simia inter universa animantium genera, tum visceribus, tum musculis, tum arteriis, tum nervis, simillima homini est, quod et ossium forma."

† The Anatomy of a Pygmy. London, 1699. 4^o.

‡ Histoire Naturelle, tom. xiv. p. 61.

§ Icones Cerebri Simiarum et quorundam Mammalium rariorum. Heidelbergæ, 1821. Fol.

|| The brain of the Orang-Outang compared with that of Man. Zeitschrift für Physiologie. 1827. B. 2. S. 17.

longata, the cerebellum, corpora quadrigemina, the thalami optici, and corpora striata, smaller than in Man.

4. The gyri and sulci of the brain are not so numerous as in Man.

Any one may convince himself of the truth of these assertions by examining my plates of the brain of Apes. I give here exact plates of the surface and basis of the brain of the Asiatic Orang-Outang (Plate XXXV. figg. 1, 2.), and of the African Orang-Outang, or Chimpanzee (Plate XXXV. figg. 3, 4.). This last plate represents the brains of those animals contained in the Hunterian Museum in London*. The hypophysis and the origin of several nerves are wanting. By comparing the Negro brain with those of the Orang-Outang, we shall find the same difference as between the brain of the European and the Orang-Outang. The only similarity between the brain of the Negro and that of the Orang-Outang is, that the gyri and sulci on both hemispheres are more symmetrical than in the brain of the European. It remains, however, to be proved whether this symmetry is to be found in all Negro brains, which I very much doubt. The size and quantity of the brain of the Negro varies as much as the European from that of the Orang-Outang. I measured the capacity of the cavum cranii of a full-grown Asiatic Pongo, and found that it only held 11 oz. 7 dr. The brain of this Pongo was therefore much smaller than is usual, even in congenital idiotism.

Conclusions drawn from these Anatomical Researches.

I. The brain of a Negro is upon the whole quite as large as that of the European and other human races. The weight of the brain, its dimensions, and the capacity of the cavum cranii prove this fact. Many anatomists have also incorrectly asserted that Europeans have a larger brain than Negroes.

II. The nerves of the Negro, relatively to the size of the brain, are not thicker than those of Europeans, as SOEMMERRING and his followers have said.

III. The outward form of the spinal cord, the medulla oblongata, the cerebellum, and cerebrum of the Negro, show no important difference from that of the European.

IV. Nor does the inward structure, the order of the cortical and medullary substance, nor the inward organization of the interior of the Negro brain show any difference from that of the European.

V. The Negro brain does not resemble that of the Orang-Outang more than the European brain, except in the more symmetrical distribution of the gyri and sulci. It is not even certain if this is always the case. We cannot therefore coincide with the opinion of many naturalists, who say that the Negro has more resemblance to Apes than Europeans, in reference to the brain and nervous system. It is true that many ugly and degenerate Negro tribes on the coast show some similarity in their outward form and inward structure to the Ape; for instance, in the greater size of the bones of the face, the projecting alveoli and teeth, the prominent cheek-bones, the

* The drawings were taken from these specimens by permission of the Board of Curators.

recession of the chin, the flat form of the nose-bones, the projecting and strong lower jaw, the position of the foramen occipitale magnum, the relative greater length of the ossa humeri and the bones of the foramen, the flat foot, and in the length, breadth, shape, and position of the os calcis.

Such are the similarities with the Ape mentioned by those authors who have paid more particular attention to the growth and anatomy of the Negro, as CAMPER, SOEMMERRING, CUVIER, WHITE, LAWRENCE, and VIREY. These points certainly distinguish many Negro tribes from the Europeans, but they are not common to all the Negroes of the interior of Africa; the greater number of which are well made, and have handsome features.

Some Remarks on the Intellectual Faculties of the Negro.

The brain is undoubtedly the organ of the mind. It is the part of our body which gives us the consciousness of our own existence, and through which we receive the impressions made upon the external senses, conducted to the brain by the nerves. Here the perceptions are compared and combined so as to produce ideas. In this organ we think, reason, desire, and will. In short, the brain is the instrument by which all the operations called intellectual are carried on. It is proved by facts and observations that animals partake of feelings, sensations, and intellectual faculties in a higher degree, and approach more nearly to mankind in proportion as their brain resembles more the human brain. An intimate connexion between the structure of the brain and the intellectual faculties in the animal kingdom cannot be doubted. As the facts which we have advanced plainly prove that there are no well-marked and essential differences between the brain of the Negro and European, we must conclude that no innate difference in the intellectual faculties can be admitted to exist between them. This has been denied by philosophers*, naturalists†, and travellers, who assert that the Ethiopian race is naturally inferior to the European in intellectual and moral powers. The data upon which such an opinion is based are either erroneous suppositions and false deductions from anatomy and physiology, or superficial observations on the intellectual and moral faculties of the Negroes, made by partial or prejudiced travellers. Very little value can be attached to these researches, when we consider that they have been made for the most part on poor and unfortunate Negroes in the Colonies, who have been torn from their native country and their families, and carried into the West Indies, and doomed there to a perpetual slavery and hard labour in the sugar plantations. Such is the nature

* HUME (Essays, vol. i. p. 21, Nat. M. p. 512.) and MEINERS.

† LAWRENCE (l. c. p. 493.) says, "I deem the moral and intellectual character of the Negro inferior, and decidedly so, to that of the European; and as this inferiority arises from a corresponding difference of organization, I must regard it as his natural destiny." Mr. LAWRENCE speculates only on the inferior character of the Negro; he has given us no proof of the lower organization of the Negro's brain.

of the researches of THUNBERG *, LONG †, JEFFERSON ‡, ESTWICK, CHATELUX, and others. Many of them deny that the Negro is a reasonable being, and they say that all Negroes are vicious, malignant, perverse, treacherous, and faithless. They observe, that the understanding of the Negro is not capable of improvement, that their temper and disposition are incorrigible, and that they are incapable of civilization. Some have even believed the falsely supposed natural inferiority of the intellectual and moral faculties of the Ethiopian race, to be an excuse for slavery.

The character of the Negroes, as described by such authors, is the result of slavery and inhuman treatment, to which they are exposed in the colonies, as RAMSAY §, BECKFORD ||, DICKSON ¶, HAWKER **, T. CLARKSON ††, F. NEWTON ‡‡, G. PINCHANT §§, and the official documents |||| laid before the House of Commons, have sufficiently proved. The behaviour of the Negroes in a state of slavery accords with the treatment they receive from their white masters. This is asserted on the authority of BEATTIE, IMLAY ¶¶, B. EDWARDS ***, and others. The disposition of the poor Negro slaves is in general distrustful and cowardly; for so degrading is the nature of slavery, that the fortitude of the mind is lost, and its free agency restrained. A very keen observer ††† says: "The feelings of the Negroes are extremely acute. According to the manner in which they are treated they are gay or melancholy, laborious or

* THUNBERG says, "It may indeed be alleged that the inhabitants of the warmer climates have a dull torpid brain, and are less keen and sharp than the Europeans. They have a power of thinking, but not profoundly, and consequently conversation among them is rather trifling. They are in general idle, sleepy, heavy, and lascivious. To these qualities the heat of the climate itself inclines them; and without insulting the dark brown inhabitants of the East Indies, one may truly say that there is a greater difference between them and the Europeans than between them and the Monkeys."

† The History of Jamaica, tom. ii. pp. 335, 374. London, 1774.

‡ Notes on the State of Virginia, p. 232. London, 1787. JEFFERSON, speaking of the Negroes, says, "Comparing them by their faculties of memory, reason, and imagination, it appears to me that in memory they are equal to the Whites, in reason much inferior, as I think one could scarcely be found capable of tracing and comprehending the investigation of Euclid; and that in imagination they are dull, tasteless, and anomalous. Indeed it may be reckoned unfair to compare the capacity of Africans with that of Europeans, who have been so long civilized; but it cannot be reckoned so in comparing them to the American Indians."

§ Essay on the Treatment and Conversion of African Slaves. London, 1784.

|| Remarks upon the Situation of the Negroes in Jamaica, p. 84. London, 1788.

¶ Letters on Slavery, p. 20. London, 1789.

** Sermon. London, 1789.

†† Essay on the Slavery and Commerce of the Human Species.

‡‡ Thoughts upon Slavery.

§§ Notes on the West Indies.

|||| The horrors of the Negro Slavery existing in our West Indian Islands, irrefragably demonstrated from official documents recently presented to the House of Commons. London, 1805. 8°.

¶¶ A Topographical Description of the Western Territory of North America. London, 1793. 8°.

*** The History, Civil and Commercial, of the British West Indies. London, 1819.

††† Histoire des Antilles, p. 483.

slothful, friends or enemies. When well fed and not maltreated, they are contented, joyous, ready for every enjoyment; and the satisfaction of their mind is painted in their countenance. But when oppressed and abused they grow peevish, and often die of melancholy. Of good and bad treatment they are extremely sensible, and against those who injure them they bear a mortal hatred. On the other hand, when they contract an affection to a master there is no office, however hazardous, which they will not boldly execute to demonstrate their zeal and attachment."

The original good character of the Negro tribes on the Western Coast of Africa has been corrupted and ruined by the horrors of the slave trade, since they have unfortunately become acquainted with Europeans *. The introduction of brandy and other spirits, and the immorality, dissipation, cruelty, rapacity and fraud of the slave traders, have made the Negroes indolent, cunning, dissolute, and thievish.

This has been satisfactorily proved by many travellers, more particularly by Captain PH. BEAVER †. The slave trade alone is the principal cause of the slothfulness of the Negroes on the coasts ‡, as the Committee for the African Institution allow, when they say, "How can it be expected that men should addict themselves to the arts of agriculture and commerce, whilst the labourers in both are themselves the greatest articles of trade, and form the chief exports of the country? What adequate motive can be found for toiling to improve their domestic comforts or their possessions, by men who are in constant danger of being hurried into perpetual exile? It is needless to take into account the many vices adverse to industry which are generated by this traffic; for it is enough to keep men indolent that no fruit of their labour can be secure to them for a moment."

It is proved, that since the slave trade has been greatly impeded by the acts of the Parliament for abolishing this infamous, dishonourable traffic, and since kidnapping on the Gold Coast has been much diminished, and personal security proportionately increased, the natives have become more diligent. This has manifested itself by increased industry. From those improvements may be inferred the unspeakable and innumerable benefits which must accrue to Africa from a total abolition of the traffic in slaves.

The Negro tribes of the interior parts of Africa are a far superior people to those

* Although the slave trade existed in the time of the Phœnicians, the old Egyptians, Carthaginians, Romans, and Saracens, it did not reach its full extent till the beginning of the sixteenth century, introduced on the western coast of Africa by the Portuguese ALONZO GONZALES. The Spaniards brought Negroes in the year 1502 to St. Domingo, and in the year 1510 to Peru. The slave trade was legal in the time of the Emperor CHARLES V., Pope LEO X., Queen ELIZABETH, and LOUIS XIII., under the pretence that the Negroes are not Christians.

† African Memoranda, relative to an attempt to establish a British Settlement in the Island of Boulan. London, 1805.

‡ Report read to the General Meeting on the 15th July 1807, p. 34.

on the coasts. They are active, diligent, and industrious. We learn from all those travellers who have lately explored the interior of Africa, as MUNGO PARK, GOLBERY, LUCAS, HORNEMANN, BURCHELL, DENHAM, CLAPPERTON and others, that there already exists in districts remote from the coast a considerable degree of industry, and that no small progress has been made in several of the useful arts. It is also remarkable, that though these gentlemen travelled in various directions, and from points of the continent widely remote from each other, they all found the same striking contrast between the interior and the coast.

“The Negroes in general,” says MUNGO PARK, “are considered by the whites of the coast as an indolent and inactive people: I think without reason. The nature of the climate is indeed unfavourable to great exertion; but surely a people cannot justly be denominated habitually indolent, whose wants are supplied, not by the spontaneous productions of nature, but by their own exertions. Few people work harder, when occasion requires, than the Mandingoes.”

LUCAS, DENHAM, and CLAPPERTON say the same of the Soosoos, Fulahs, Felletas, the inhabitants of Sudan, Fezzan, Born, Houssa, Kashna, and Beggharmi. The productions of these countries are, different kinds of grain, garden-fruits, tobacco, indigo, cotton, beeswax, honey, gums, and woods used in dyeing. But of all these productions, which can only be obtained by cultivation and labour, the natives only grow sufficient for their own immediate use, as they have but few opportunities of turning to advantage the superfluous produce of their labour. They have vast herds of cattle, and occupy themselves with breeding horses and camels. In their great towns there are many mechanics, smiths, weavers, dyers, tanners, ropemakers, potters, and even goldsmiths and silversmiths. MUNGO PARK says: “But perhaps their ingenuity is most conspicuously displayed in working their native gold; for not only are they well acquainted with the preparation and use of an alkaline salt to assist in liquefying the metal, but in ornaments which they make from it; such as bracelets, necklaces, and ear-drops, to adorn their females, in which they display a variety of taste and an elegance of fancy that might excite admiration even among the best artists of Europe.”

We may see by this that the Negroes in their native land are by no means indolent and inactive, or incapable of industry. They may be considered, on the contrary, as an industrious people.

The moral character and disposition of those Negroes who are not degenerated and ruined by slavery is in general very good. They are naturally affectionate, and ardently attached to their children, parents, friends, and countrymen. Their feelings of honesty, humanity, generosity, and gratitude are very acute. Their dispositions and manners are gentle, benevolent, and amiable. The Negro tribes are very hospitable towards each other as well as towards strangers. Travellers are heartily welcome to partake of whatever the family board affords. The little which they have they will

divide with the poor, without any other motive than that of pure compassion for the indigent. In short, many of the Negroes possess a natural goodness of heart, warmth of affection, nobleness of character, and mildness of disposition; and it cannot be denied that they excel many Europeans who are most violent against them. ADANSON*, PROYART†, WINTERBOTTOM‡, GOLBERY§, TROTTER, TUCKEY, DEMANET||, MUNGO PARK, LUCAS, DENHAM, and CLAPPERTON, have mentioned many anecdotes truly honourable to the moral character of the Negro; and CLARKSON, FALCONBRIDGE, GRANDVILLE, NISBET¶, PINKART, RAMSAY, SHARP, WILBERFORCE, and other philanthropists, have collected and distributed them amongst the people** in England, in order to give them a favourable opinion of the poor oppressed Negroes.

The intellectual faculties of the Negroes do not in general seem to be inferior to those of the European and other races. Such of them as are not bodily and morally degraded by slavery and oppression, have a pleasing and open expression of countenance, and are of a gay and cheerful turn. They exhibit proofs of good natural capacity, good sense, wit, and penetration. The truth of this statement is most fully confirmed by the accounts given by credible travellers. BARBAT†† says, "The blacks are, for the most part, men of sense and wit enough; of a sharp ready apprehension, and an excellent memory, beyond what is easy to imagine; for though they can neither read nor write, they are always regular in the greatest hurry of business and trade, and seldom in confusion."

But I will not lengthen this treatise with many extracts in proof of my opinion. I refer only to the works of two learned and respected men, my venerable friend BLUMENBACH‡‡, and Bishop GREGORY§§, both defenders of the intellectual powers of the Negroes. They have mentioned many instances of Negroes who made a certain progress in the liberal arts and sciences, and distinguished themselves as clergymen|||,

* Voyage en Senegal, pp. 31, 118.

† Histoire de Cango, pp. 59, 73. Paris, 1776.

‡ Account of the Native Africans in the Neighbourhood of Sierra Leone. London, 1789.

§ Fragment d'un Voyage en Afrique, tom. ii. p. 391. Paris, 1802.

|| Histoire de l'Afrique Française, tom. ii. p. 3.

¶¶ Capacity of Negroes for Religious and Moral Improvement. London, 1789.

** An Abstract of the Evidence delivered before a Select Committee of the House of Commons in the Years 1790 and 1791, p. 91. London, 1801.

†† Description of the Coasts of North and South Guinea, in CHURCHILL'S Collection, vol. v. p. 235.

‡‡ Beyträge zur Naturgeschichte, Th. i. S. 73. Göttingen, 1806.

§§ De la Littérature des Nègres; ou Recherches sur leurs Intellectuelles, leurs Qualités morales et leur Littérature; suivies des Notices sur la Vie et les Ouvrages des Nègres, qui se sont distingués dans les Sciences les Lettres et les Arts. Paris, 1808. 8°.

||| The preacher JAC. ELISA JOH. CAPITEIN, who studied at Leyden, and got his degree in the year 1742. Dissertatio Politico-theologica de Servitute Libertati Christianæ non contraria.

The Wesleyan Methodist preacher MADOCK.

philosophers*, mathematicians †, philologists ‡, historians §, advocates, medical men ||, poets ¶, and musicians. Many Negroes have distinguished themselves by their talents in military tactics and politics**.

Not all Negro tribes can be called barbarous, nor have they all remained in a wild and barbarous state, as many historians and naturalists have too hastily asserted. MUNGO PARK, DENHAM, and CLAPPERTON mention large towns, as Houssa, Kocka, Kaschne, Sego, and others, in which there are schools established for the education of youth: there is even a certain kind of literature amongst them, and men who study the Koran and some Arabian works. We must say with ROBINSON of all the tribes of the Ethiopian race, as well as of all other human races, "Whatever their tints may be, their souls are still the same."

The principal result of my researches on the brain of the Negro, is, that neither anatomy nor physiology can justify our placing them beneath the Europeans in a moral or intellectual point of view. How is it possible, then, to deny that the Ethiopian race is capable of civilization? This is just as false as it would have been in the time of JULIUS CÆSAR to have considered the Germans, Britons, Helvetians, and Batavians incapable of civilization. The slave trade was the proximate and remote

* ANT. WILH. AMO, who got the degree of Doctor of Philosophy at Wittenberg. Diss. Philosophica de Humanæ Mentis *απαθεια* s. *sensionis ac facultatis sentiendi in mente humana absentia et earum in corpore nostro organico ac vivo præsentia*, aut A. G. AMO, Guinea-Afro. Wittenbergæ, 1734.—Diss. Philosophica continens ideam distinctam eorum, quæ competunt vel menti vel corpori nostro vivo vel organico.

† HANNIBAL, Lieutenant-General and Director of the Engineers in the time of the Czar PETER I. and his son, who made the plan of the harbour and fortress Cherson in the time of POTEMKIN.

LISLET GEOFFROY, an officer in the Engineers in the Isle of France, was elected Corresponding Member of the Parisian Academy on account of his good meteorological observations.

THOM. FULLER, of Virginia, distinguished by his arithmetical talents.

BENJ. BANNACKER, Negro from Maryland. He edited at Philadelphia an Almanac for the year 1794, concerning the motions of the sun and moon, the true places and aspects of the planets.

‡ DON JUAN LATINO, Professor of the Latin language at the University of Sevilla.

§ IGNATIUS SANCHO, esteemed by GARRICK and STERNE. Letters of the late IGNATIUS SANCHO, an African. London, 1784. 3rd. edit.

GUSTAV. VASSA, who lived in London. He has given the interesting narrative of the Life of OLAUDAH EQUIANO, or GUSTAVUS VASSA, written by himself. London, 1791. 3rd edit.

OTHELLO, Negro from Baltimore, who has written a paper against Negro slavery.

|| JAMES DERHAM, physician in New Orleans, of whom the celebrated Dr. RUSH says: "I have conversed with him upon most of the acute and epidemic diseases of the country where he lives, and was pleased to find him perfectly acquainted with the modern simple mode of practice in those diseases. I expected to have suggested some new medicines to him, but he suggested many more to me."

¶ FRANCIS WILLIAMS, who wrote some good Latin poems.

PHILLIS WHEATLEY, Negro servant at Boston, wrote poems on various subjects, religious and moral. Walpole, 1803.

** The unfortunate TOUSSAINT LOUVERTURE, who imitated NAPOLEON in St. Domingo.

DENHAM and CLAPPERTON give interesting portraits of BELLO, the sultan of Kaschna, and of the sultans of Loggun, Kouka, and of the general BARCA GHANA in Bournos.

reason of the innumerable evils which retarded the civilization of the African tribes. Great Britain has achieved a noble and splendid act of national justice in abolishing the slave trade. The chain which bound Africa to the dust, and prevented the success of every effort that was made to raise her, is broken. Hayti and the colony of Sierra Leone can attest that free Negroes are capable of being governed by mild laws, and require neither whips nor chains to enforce submission to civil authority.

Explanation of the PLATES.

PLATE XXX.

Upper surface of the brain of a male Negro, æt. 25.

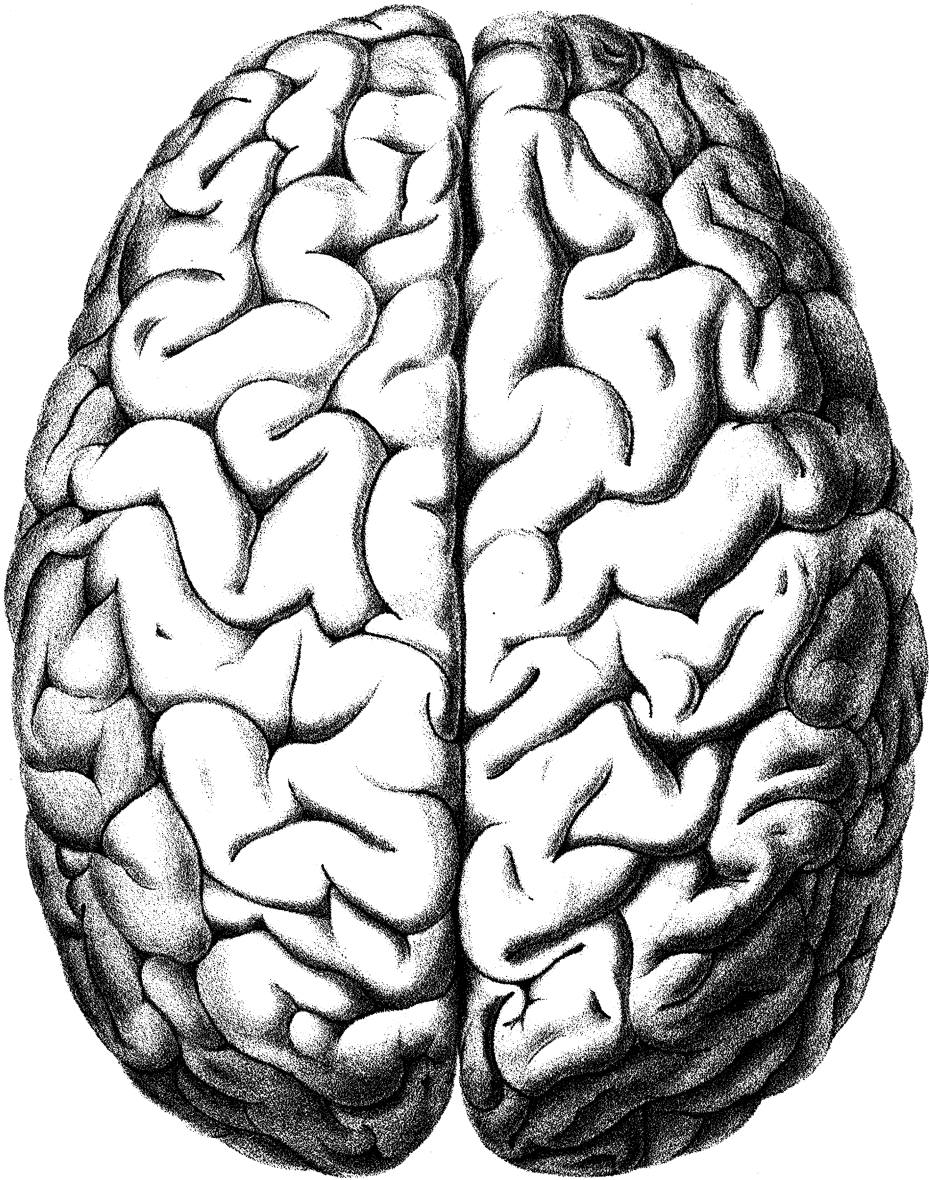
PLATE XXXI.

Side view of the same brain.

PLATE XXXII.

Base of the same brain.

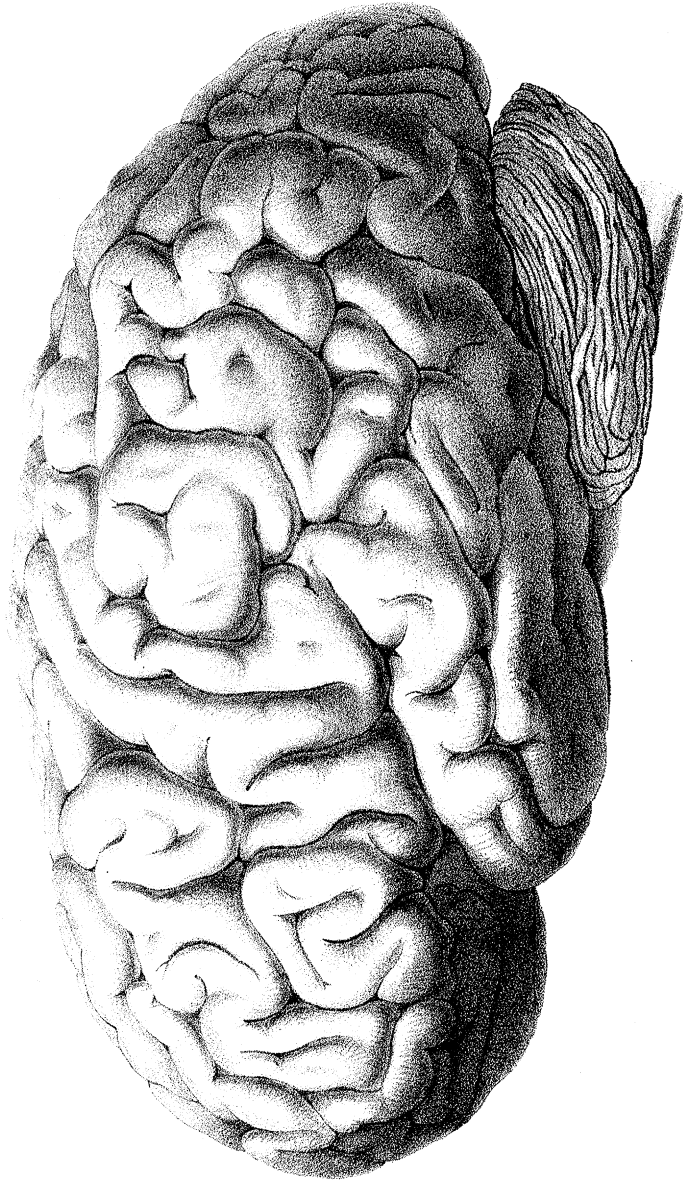
- a.* Anterior lobes of the cerebrum.
- b.* Middle lobes.
- c.* Posterior lobes.
- d.* Grey tubercle, or floor of third ventricle.
- e.* Infundibulum, or pedunculus of
- f.* The pituitary gland, or hypophysis cerebri.
- g.* Eminentiæ candicantes, or corpora albicantia.
- h.* Crura cerebri.
- i.* Pons Varolii.
- k.* Cerebellum.
- l.* Floccus cerebelli.
- m.* Corpora pyramidalia.
- n.* Corpora olivaria.
- o.* Section made at the termination of the medulla oblongata.
 - 1. Olfactory nerves.
 - 2. Optic nerves.
 - 3. Motores oculorum.
 - 4. Pathetici.
 - 5. Trigeminal nerves.
 - 6. Abducentes.
 - 7. Facial nerves.
 - 8. Auditory nerves.



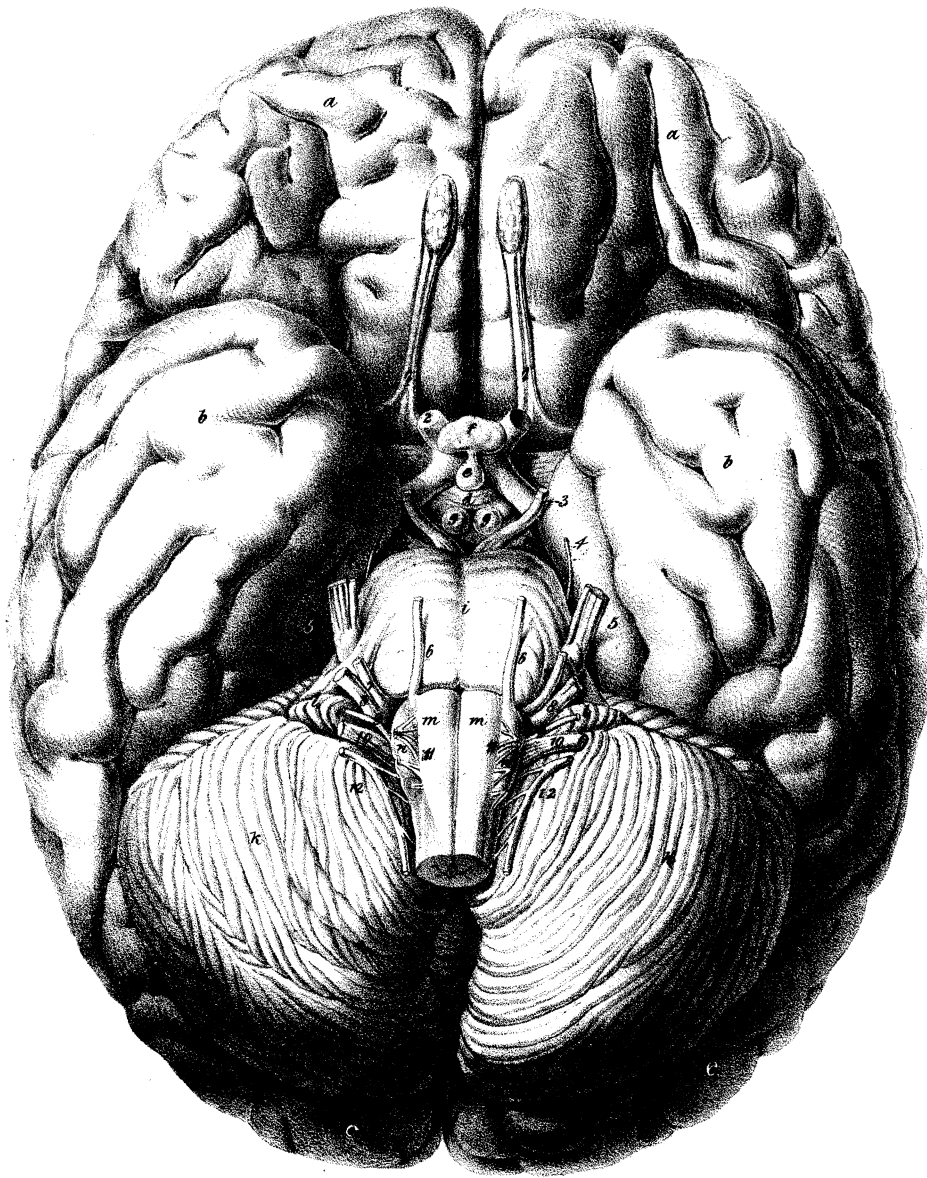
Male Negro.

H. Lindemann, an. nat. del.

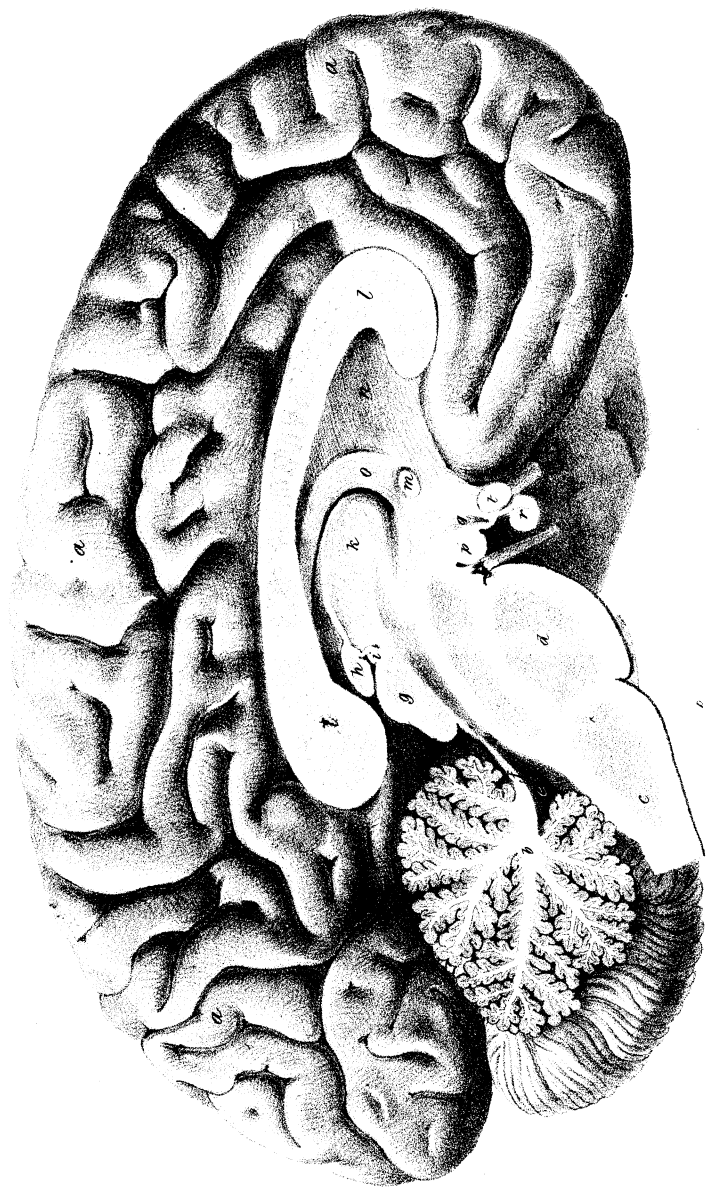
J. Basire, lithog.



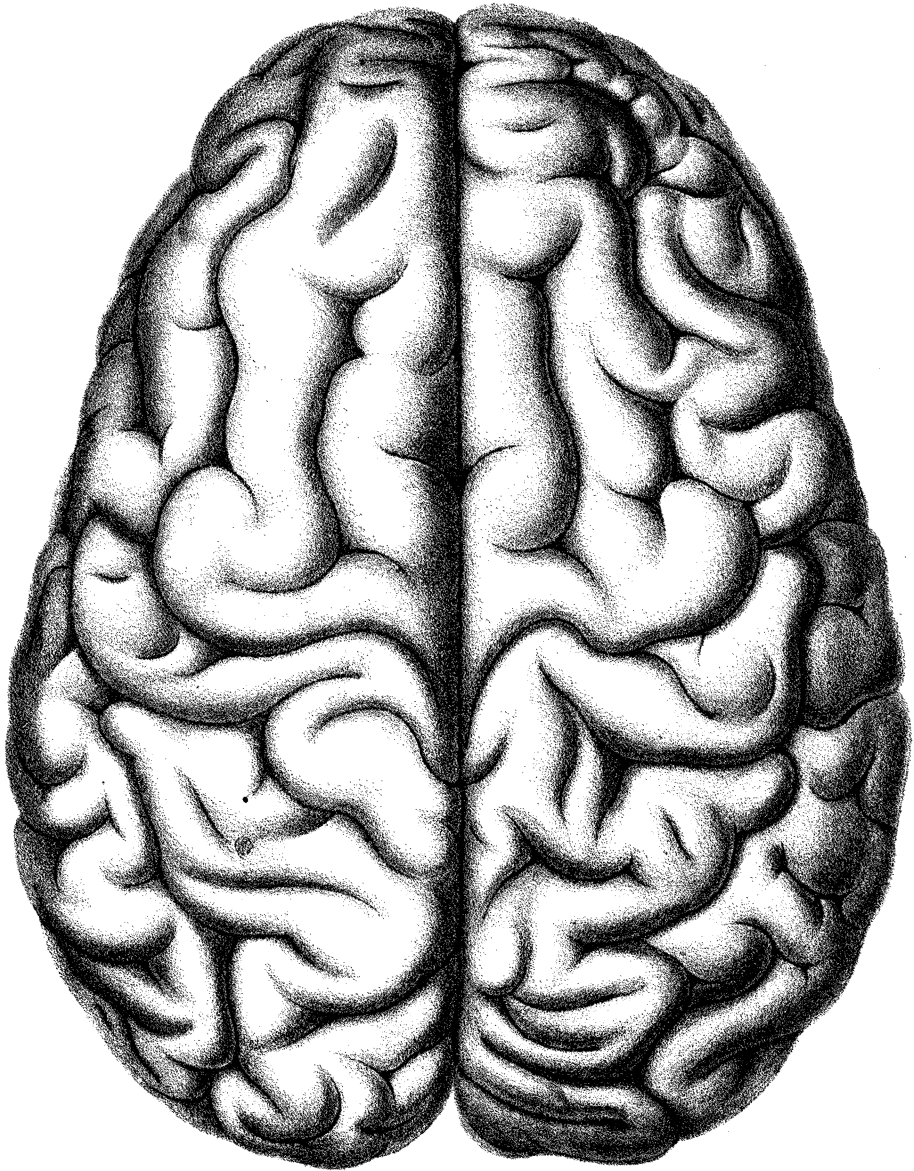
Male Negro.



Male Negro.



Male Negro.



Bosjes Woman.

Fig. 1.

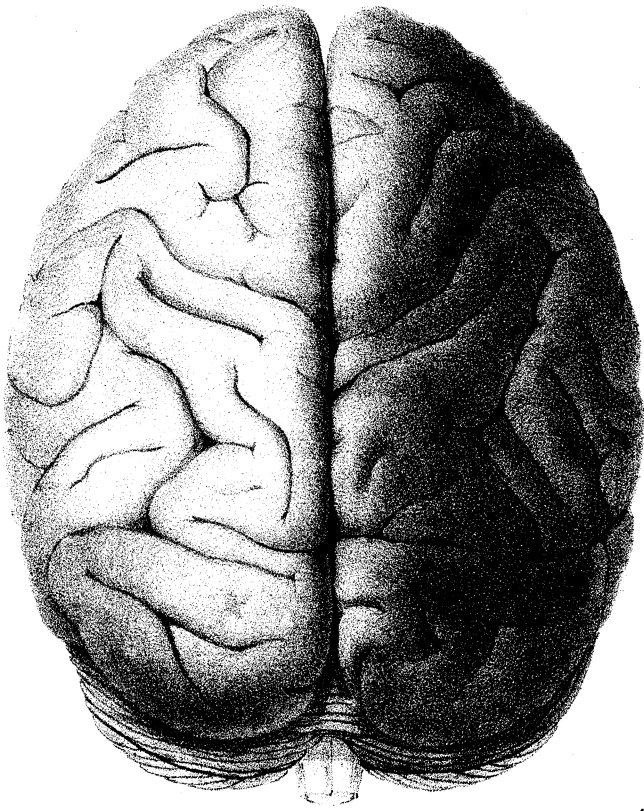
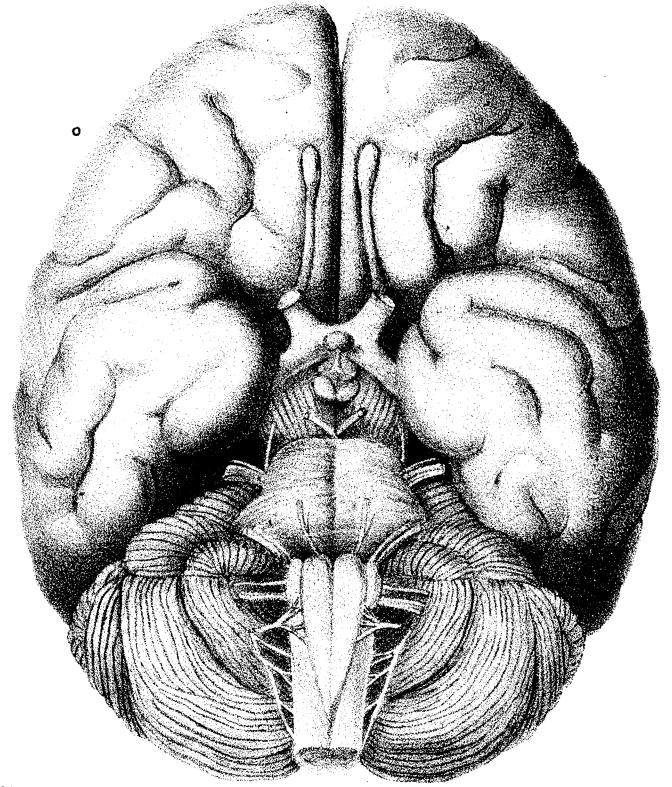


Fig. 2.



Simia Satyrus.

Fig. 3.

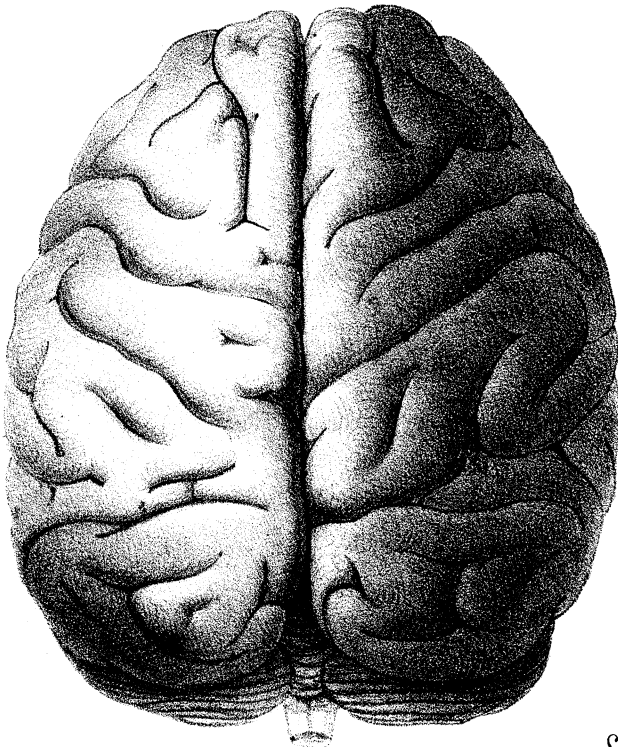
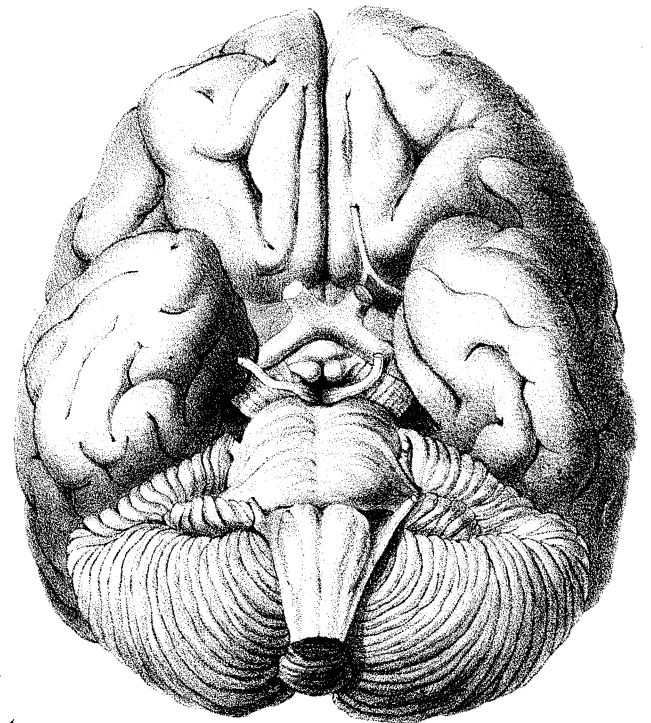


Fig. 4.



Simia Troglodytes

9. Glosso-pharyngeal nerves.
10. Par vagum.
11. Lingual.
12. Accessory nerves.

PLATE XXXIII.

Mesial surface of a vertical longitudinal section of the brain of the male Negro.

- a.* Mesial convolutions.
- b.* Cut surface of cerebellum.
- c.* Cut surface of grey substance in the medulla oblongata.
- d.* Pons Varolii.
- e.* Fourth ventricle.
- f.* Valve of VIEUSSENS.
- g.* Corpora quadrigemina.
- h.* Pineal gland.
- i.* Posterior commissure.
- k.* Soft commissure.
- l.* Great commissure.
- m.* Anterior commissure.
- n.* Septum lucidum.
- o.* Fornix.
- p.* Eminentia candicans.
- q.* Infundibulum.
- r.* Pituitary gland.
- s.* Origin of motor oculi nerve.
- t.* Decussation of optic nerve.

PLATE XXXIV.

Brain of a Bosjes woman.

PLATE XXXV.

Brains of the Orang-Utan and Chimpanzee.

- Fig. 1. Upper surface of the brain of a young Orang (*Simia Satyrus*, ERXL).
2. Base of the same.
 3. Upper surface of the brain of a young Chimpanzee (*Simia Troglodytes*, BLUM.).
 4. Base of the same.