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ART. I.—*Rational Psychology; or the Subjective Idea and Objective Law of All Intelligence.* By LAURENS P. HICKOK, D. D., Union College. A new and revised edition. New York: Ivison, Phinney & Co. 1861.

A System of Moral Science. By the same. Third edition. Same publishers.

Empirical Psychology; or the Human Mind as given in Consciousness. By the same. Third edition. Same publishers.

Rational Cosmology; or the Eternal Principles and the Necessary Laws of the Universe. By the same. A new edition, with revisions and Notes. New York: D. Appleton & Co. 1859.

[The object of the following article is to present a brief outline of Dr. Hickok's philosophy. It has been prepared by one of his personal friends, who is a decided advocate of his system. To this its value, to the readers of this journal, is largely due. They must be glad to receive, from an able and accomplished writer, a view of this philosophy which is not liable to the charge either of misapprehension or perversion. The article, therefore, is not to be regarded as presenting the estimate of the *Princeton Review* of Dr. Hickok's system, but the light in which it is viewed by its adherents.]

Art. IV.—*Examination of some Reasonings against the Unity of Mankind.*

In 1839 Dr. Morton published his "Crania Americana," a description of the skulls of American Indians. These skulls belonged to individuals of "more than forty Indian nations," extending from the Atlantic to the Pacific, and from the southern extremity of the continent to the northern polar circle. The most important ethnological conclusion which the author deduced from his comparisons was, that except the Esquimaux, all the aborigines of America, including the northern tribes, with the Mexicans, Brazilians, Peruvians, and others of the south, belonged to one race, or had been derived from one common stock. It is well to bear in mind this broad and momentous conclusion.

In 1844 appeared the "Crania Ægyptica," by the same author. In this work, from an examination of ancient and modern skulls of the eastern continent, he undertook to determine other races, totally distinct from the American, as also from each other.

The catalogue of skulls examined and compared in these works, amounting to 643 in number, was published in 1849; in it was given also an exhibition of their maximum, minimum, and mean capacity, in cubic inches, ascertained with great care.

A little earlier, Dr. Morton had published his "Distinctive Characteristics of the Aboriginal race of America."

These several works attracted great attention, and awakened a deep interest. For this there were two reasons, first, because they involved a vast amount of labour and study; secondly, because they contained a positive denial of the unity of the human race, and particularly of its having originated from one human pair. Dr. Morton's views upon this subject were fully exhibited in an "Essay on the Varieties of the Human Species," prefixed to the "Crania Americana," which fills ninety-

five pages of that great folio. The startling points of this "Essay" are reiterated in his other works, and maintained in his since published correspondence. Its title, viz., "Varieties of the Human Species," refers to Blumenbach's division of the human family into five groups, viz: 1, Caucasian; 2, Mongolian; 3, Malayan; 4, American; 5, Ethiopian; which was adopted by Dr. Morton, but in a different sense from that of the author. For whilst Blumenbach held all these groups to be *only varieties* of one race or species, Dr. Morton is careful to say: "I do not use it [race] to imply that all its divisions are derived from a single pair; on the contrary, I believe that they [the divisions] have originated from several, perhaps, even from many pairs; which were adapted, from the beginning, to the varied localities which they were designed to occupy." Also, he took special pains to repeat this statement; and to refer* to the pages of his works in which he had advocated it. Just before his death, May 1851, he wrote: "The doctrine of *the original diversity of mankind* unfolds itself to me more and more, with the distinctness of revelation." It is due, however, to the memory of Dr. Morton to state that he did not understand this view to be opposed to Scripture. For he says: "I find no difficulty with the text of Genesis;" and adds: "It (his conclusion) can be far more readily reconciled to the Mosaic annals, than some other points—astronomy, &c., for example." He also expressed his fears lest the hostility of clergymen "would lead to some controversy;" and says, that he "avoided coming into collision" with them. Add to this, that he died, as we are assured by one of his near relatives, without ever having avowed himself as having rejected the inspiration of the Bible, and we have satisfactory evidence that he would never have countenanced that use of his name and authority which has been made by some of his students and admirers, who have held up his works as a powerful attack upon the credibility of Divine revelation. For this reason, perhaps, it was that little alarm seemed to be awakened at the time; and, also, because the difficulty and abstruseness of Dr. Morton's investigations rendered them inaccessible and impracticable to all, except professed

* See Am. Jour. of Science, vol. iii. p. 40; 1847.

ethnologists, and a few students of wealth and leisure. But his conclusions have since come to be maintained by others, and on entirely different grounds. It would seem, therefore, that the time has come when there is required at least a brief examination of the reasonings through which they were reached by him, and have since been advocated by his followers: and, especially, on account of the bearing of the subject upon that great question which lies at the bottom of our present civil commotions. For it is quite certain that the new doctrines which would hold the black people in perpetual slavery to the whites, do rest at bottom upon a diversity of origin and species in the human race, however sincerely they may be advocated on other grounds, and by those who would be the last to admit any such diversity. The question of African slavery must ultimately resolve itself into one of natural history and ethnology.

There is, moreover, something very imposing in these works of Dr. Morton, which we propose now to examine. The nature of his investigations; the means he employed; the novelty and extent of his examinations and comparisons of the skulls of the dead; the testimony elicited from the "dry bones" of those whose memory had perished; and from whose living powers and activities no such indications had began to transpire—all is wonderful!

In order that this examination should be satisfactory, or even intelligible, the following table of results, derived from Dr. Morton's measurements and comparisons, must here be given. It exhibits under the five groups of Blumenbach—which Dr. Morton held to include as many, or more, original and independent races or species—sixteen families, and twenty-five varieties, of mankind; as, also, it exhibits the capacity in cubic inches, of the skulls of six hundred and twenty-three individuals, belonging to all these varieties. The table was first published in 1849, in the "Crania Americana;" but as here given, with very slight changes in the language only, to render it more perspicuous, it was corrected by himself from the results of ten years of his subsequent studies. Thus are accounted for, those differences between the numbers as now printed, and

those of the original table, which will be obvious to all who are acquainted only with his first work.

TABLE, showing the size of the brain in cubic inches, as obtained from the measurement of 623 crania of various races and families of man.

Groups.	Families.	Varieties.	Number of Skulls	Largest cub. in.	Smallest cub. in.	Mean cub. in.	Mean cub. in.
I. CAUCASIAN.							
MODERN.	1. Teutonic.	A. Germans,	18	114	70	90	92
		B. English,	5	105	91	96	
		C. Anglo-Amer.	7	97	82	90	
	2. Pelasgic.	A. Persians, B. Arminians, C. Circassians,	10	94	75	84	
	3. Celtic.	Native Irish,	6	97	78	87	
	4. Hindostani.	Bengalee,	32	91	67	80	
	5. Semitic.	Arabs,	3	98	84	89	
	6. Nilotic.	Fellahs,	17	96	66	80	
Ancient, from Catacombs.	7. Pelasgic.	Græco-Egyptians,	18	97	74	88	
	8. Nilotic.	Egyptians,	55	96	68	80	
II. MONGOLIAN.							
	9. Chinese.	Chinese,	6	91	70	82	
III. MALAY.							
	10. Malayan.	Malays,	20	97	68	86	85
	11. Polynesian.	Polynesians,	3	84	82	83	
IV. AMERICAN.							
	12. Toltecan.	A. Peruvians,	155	101	58	75	79
		B. Mexicans,	22	92	67	79	
	13. Barbarous Tribes.	C. Iroquois, D. Sinapè, E. Cherokees, F. Shoshones, &c.	161	104	70	84	
V. NEGRO.							
	14. African.	A. African born,	62	99	65	83	83
		B. Amer. born,	12	89	73	82	
	15. Hottentot.	Hottentot, &c.	3	83	68	75	
	16. Alforian.	Australians,	8	83	63	75	
5 Groups.	16 Families.	25 Varieties.	623	95.4	71.9	83.2	82.8

The classification of the preceding table may be illustrated by comparison with the determinations of other writers upon this subject. Thus, Linnæus and Buffon made five races or species; Malte-Brun, fifteen; Blumenbach, five varieties; Jaquinot, three species, derived from the three sons of Noah; St. Vincent, fifteen species; Luke Burke, twenty-eight intellectually distinct, and thirty-five physically distinct races; Desmoulins, sixteen species; Cuvier, three varieties; Agassiz, eight races, originating independently of each other in as many different centres, yet but one species; Lawrence, Pritchard, Bachman and Guyot, one species; Hunter, seven; Pickering, eleven varieties; Kant, four varieties, white, black, copper and olive;

other writers, three races, white, black, and red; Nott and Gliddon, "an indefinite number" of races having originated separately, of which, they think it probable, none has the primeval type, or form; and still another writer, quoted by Dr. Morton, has undertaken to establish at least two *sub-genera*. From these numerous and different divisions it is plain that no broad line of distinction between any of them can be drawn. For precisely in so far as they are different, they invalidate each other. The greater their number and differences, the less probable they are; and the less weight they have as arguments to shake the doctrine that there is but one species or stock of mankind. If science shall ever be capable of ascertaining more than one, it is evident from its present disagreement, that it has not yet effected it.

It may now be in place to attempt some appreciation of craniology, as a basis of classification of the varieties of the human race.

And, first, the uncertainty of the evidence it affords, is apparent from such considerations as the following. There is great variation in the forms of the heads in each division or variety of each family, as for example in those of the Germans, or English, or Anglo-Americans. There are but few dimensions which can be used as characters of the skull; whilst, in the varying forms, only the greater or less development of some of these can be considered; nor is there any fixed specimen for a standard of comparison. The *extremes* may be far apart, while the numerous *means* may have but a remote approximation, and may carry the subject to another division. We often see those from whose heads or skulls alone it cannot be ascertained whether they are English, or German, or Anglo-American. So also, it is admitted, that the Mongol and Malay groups are scarcely separable by any differences in their heads. Even practiced observers are at a loss to determine, from the differences in the skulls, to which of the five groups individuals may have belonged. The professed phrenologists afford frequent examples of the same uncertainty, when, from inspection of the slight differences in the so-called *organs*, they are so frequently led to assign very different characteristics to the same person. The high and prominent cheek bones of the American Indian

are often seen on the Anglo-American, of a dark complexion, though a pure Caucasian, while the two heads differ very little in their general form. And we often hear the remark with respect to an individual, that the form of his head would place him in another variety, if it were not for his colour, or hair, or known descent.

It was natural, therefore, for Cuvier to include the whole human race under three varieties, Caucasian, Mongolian, (embracing the Malayan and American,) and Ethiopian,—corresponding to the three prominent varieties of colour in man, white, red, and black. It should be noticed, however, that colour, though the most obvious distinction, is the least important characteristic. For we find in the Caucasian variety, all colours from white, through all shades of brown, to the black Jews of India. The American tribes have all colours less than white, to copper and dark brown. The shades of the Mongolians in Asia, and of the Ethiopians in Africa, are equally numerous and variable. Whence it is evident that the so-called arguments for the separate origin of the black variety, which have been adduced from its colour, will not bear examination.

Another element of uncertainty in Craniology, as left by Dr. Morton, and as it now stands, is the insufficiency of the number of skulls to sustain the vast generalizations which he draws from their comparison. It is true that for our own, and indeed for almost any country, his collection was enormous, and it received the highest commendations; but the actual value of its teachings is a very different thing; and it would naturally be over-estimated, as it must be conceded that it has been. The whole population of the globe classified in five groups, sixteen families, and twenty-five varieties, and these distinctly characterized from the outward form and capacity of the skulls of six hundred and twenty-three individuals—skulls, moreover, whose variations are confined within very narrow limits, and often approximating closely to each other! It is true, indeed, that the nationality of the skulls in Dr. Morton's collection, was chiefly known from other sources; and his divisions were not formed from the skulls, but were simply intended to be sustained and verified by his Craniology. But the weakness of the support is too obvious. The study must be pursued to a

far greater extent, and a far greater amount of knowledge from this source must be attained, and with more caution in generalizing, as will be evident presently, before anything more than a possible value can be ascribed to the results of Craniology.

Still another element of its uncertainty lies in the "proposition," which Dr. Morton lays down in his Correspondence in 1850—"That our species had its origin, not in one, but in several, or in many creations; and that these diverging from their primitive centres, met and amalgamated in the progress of time, and have thus given rise to those intermediate links of organization, which now connect the extremes together." What, and where are these "extremes"? what, and where are these "intermediate links"? Is the Caucasian group one extreme? Where is the proof that it has not been greatly modified by diverging from its "primitive centre," and by "amalgamation," and that it has not thus lost its "primordial form"? If so, which is certainly possible, then Craniology must give us an entirely false result. Who shall answer from Craniology, that the Semitic family of Israelites, Arabs, and others, is not the result of amalgamations, almost illimitable in extent, which have entirely transformed the primordial into a very different form? The ultimate triumph of Craniology may be anticipated with entire complacency from this point of view, to which Dr. Morton himself conducts us. For, if this process of amalgamation between groups of separate origin be a fact, then the forces are in active operation which, in time, must reduce all skulls to one form; so that, ultimately, they will prove that there is but one race. Now, whilst as yet the amalgamation is imperfect, this science goes to sustain the conclusion, that there were originally many races of independent origin; but when the amalgamation shall be perfected, it will prove that there never was but one! And this latter conclusion will then be quite as legitimate and certain as the former is now. This fact of amalgamation is also inconsistent with another notion of Dr. Morton's, which has since been sustained by the authority of great names, viz., that there is "an original adaptation of the several races to those varied circumstances of climate and locality, which, while congenial to the one, are destructive

to the other."* If this had ever been true, Craniology, after sufficient amalgamation has taken place, will show it to be true no longer, and will prove that there never was any necessity for such "original adaptations." Even now, man is a real cosmopolite, adapting himself, in the course of a few generations, to any new habitat, as is proved abundantly by the historical migrations of nations and races; nor will he be more cosmopolite then than he is now.

Yet another element of this uncertainty is the change which takes place in the form and capacity of the skull, under the influence of change of habitat, advancing civilization, and other causes. This is exhibited in the case of the negro imported into this country. The observation is not new, having been made by Dr. Bachman† of the descendants of those Africans who were originally imported into South Carolina, that "whilst we perceive no change, either in colour or hair, we are fully satisfied that even in the maritime country of Carolina, there is in form, in feature, and especially in skull, a very striking departure from the original type." Inasmuch as hundreds of these imported Africans, some of whom were *tattooed* in Africa, were accessible to Dr. Bachman, and his attainments in natural history, according to Dr. Morton himself, eminently qualified him for correct observations, we may feel assured that the native Africans present, as he says, "striking peculiarities when compared with the American-born negroes of unmixed blood, even when these are but three or four generations removed from their African forefathers." He adds also, with respect to at least one African skull in Dr. Morton's collection, labelled, "Negro, of whose history nothing is known," and which was before him while writing, that if it "is the true African type, then our negro race in the South unquestionably presents a most remarkable improvement in the skull." When compared with "more than fifty skulls of American-born negroes," the great improvement was palpable

* Amer. Jour. of Science, Vol. iii., p. 40. 1847.

† The Doctrine of the Unity of the Human Race, examined on the Principles of Science. By John Bachman, D. D., Prof. of Natural History in the College of Charleston, &c. 8vo. 1850. The second edition of this work is a great desideratum, and is earnestly expected.

in all but one. Dr. Morton's table, however, gives a different result, showing the mean capacity of the skulls of American-born negroes to be one cubic inch less than that of the native Africans—a result to be explained, no doubt, by the fact, that of the former, but twelve skulls were compared, and of the latter, sixty-two.

It should be observed here, that many authors affirm from their own more accurate knowledge of African tribes, that naturalists often give the general characteristics of the Ethiopian group as very different from what is the fact in many parts of Africa. Among these is Tiedeman, on the Natives of the High Lands of Africa, who says, "The figure of the African as commonly given, must find its prototype in the Mozambique and Guinea Negro." Hamilton, also, as adduced by Tiedeman, bears the same testimony; and Winterbottom, on the Negroes of the mountainous districts of Sierra Leone, represents them as very different in form from the usual caricatures of the African; and as approaching the "purest set of European features." Many other writers are quoted by Dr. Bachman to the same effect; and indeed any person may observe that many of the free blacks of the Northern States could hardly be recognised from these caricatures of their race which we find in books of Natural History. The same observation might be made also of the inhabitants of large districts at some distance from the equatorial regions of Africa.

In confirmation of these statements we adduce here the testimony of careful observers who have lived in Africa; one of them* being an intelligent and highly educated missionary, who has spent twenty-five years in the vicinity of Port Natal, about south latitude 29°, in the south-eastern part of the continent. He states that though the natives are an uncivilized, heathen, and degraded people, yet the heads and forms of the men, in general, compare favourably with those of the better and improved blacks of this country, and even with some of the white race. They are erect, their lower limbs well formed, colour varying from nearly black to the Indian brown, or brownish-red; their moral sense and feelings of right and wrong are

*The Rev. Daniel Lindley, D.D., of South Carolina.

full and active; and they are easily instructed in the common business of life. The women, being made the labourers for the men, and regarded as chattels or things, are early worn out, and become ugly, but yet are much beloved by their children. The common negro characterization and descriptions and figures of these people, he pronounces to be caricatures, wholly inapplicable to the millions of them. Such was his declaration after an examination of the figures (caricatures) in "The Types of Mankind," by Messrs. Nott and Gliddon. Too often ethnologists give the extreme of the form as characteristic of the higher or lower race, instead of the medium, which only can be typical, and accurately express that of the great body of the people.

Other and still more important elements of uncertainty in Dr. Morton's Craniology, will appear in a closer examination of his table from the capacities of the skulls being taken as an indication of the amount of mental power. The principle which he assumes is that of phrenology, of which in his views of mental science he was a strenuous advocate, viz., that intellectual power depends, when other things, as health, constitution, cultivation, age, size, &c., are equal, upon the volume of the brain. This part of his table is the result of great labour, and it honours the industry and perseverance of its author. He saw, too, and admitted its imperfections, in the very unequal number of skulls belonging to the different varieties; the wholly inadequate number in some, and especially in the most important divisions. The table at best can present only loose approximations, not reliable conclusions. Upon closer scrutiny it shows:

1. That the *greatest* capacity of the skulls ranges from 114 to 83 cubic inches; the *least*, from 91 to 63; and the *mean*, from 96 to 75—making a difference between the extremes greatest of 31, of the extremes least, 28, and of the means, 21. Now constant observation has long fixed upon the great difference in the size of heads, which is apparent in those of the same family and neighbourhood: and hence the proportional variations in the table may be, and probably are in most cases, due to such differences, and to the small number of skulls measured and compared.

2. The greatest capacity of skull in the native Africans, 99, is less than in only four of the twenty-five varieties, viz: Germans, English, Peruvians, and American Indians; and it is one greater than the greatest in the Semitic (Arabs); two greater than the greatest in the Anglo-Americans, Celts (Irish) and Malays; three greater than in the Nilotic races, both ancient and modern; and five greater than in the Persians, Arminians and Circassians. A still stronger result, however, is given by the measures of Tiedeman, as expressed in his own words, "that the cavity of the skull of the negro in general, is not smaller than that of the European and other human races."

3. Dr. Bachman has remarked on this table, that "the largest African skull is 99, and the largest Irish only 97. This proves, indeed, that a negro skull contained more brains than the largest Irish skull measured; but it does not prove that the negro possessed more sense. Probably he had a larger frame than the Irishman." Other things than size must have a great influence, though they cannot be estimated.

4. But the most significant result of this scrutiny is, that the numbers determine nothing as to the mental power, or for any other end of classification, of the different races, because *they overlap each other*, so as to present no definite limit. The higher numbers of the lower groups exceed the lower numbers of the higher groups. Of the German variety, *e. g.*, the greatest is 114, and the least 70. Now, of all the other varieties of all the five groups, the greatest measures exceed 70; and indeed more than half of the least measures either equal or exceed it. If, now, from the measures of the brain, the lower half of the Germans are held to be Germans, then the higher half of each of the other varieties, together with the lower half of most of them, must also be ranked as Germans, if their position is to be determined by the size of the brain. It is not possible to avoid this conclusion; the table itself is decisive. For the mean of the Germans is 90; their least measure is 70; and the least measures of ten of the other varieties range from 70 above 90, to 91; while the highest measures of the remaining varieties range above 70, *i. e.*, from 83 to 101; and of all but the Germans, from 83 to 105. Surely, the capacity of the skulls in the table shows a singular equality of brain.

It would seem that this must convince every one, as Dr. Bachman says, "of the utter futility of any attempt to divide the races of men into different species from the size of the brain."

There is still another source of uncertainty in the *material* employed in Dr. Morton's table. For the skull of the male is admitted to be larger than that of the female.* This difference is not considered in the table. It leaves us in utter ignorance of the proportion of males to females. If this had been given, it would have made a material difference in the estimate of the numbers and means. For, although it is taught by some craniologists that the upper part of the skull of the female is more round than that of the male, yet the general opinion is, that the one cannot be ascertained, or certainly distinguished from the other. This fact greatly diminishes the value of Dr. Morton's results. The smallest skull given by him is 63; and this is asserted to be the skull of a female Australian. It is obvious, moreover, that the skulls for such comparisons should be selected from those of mature age; although some come to maturity earlier than others.

It is also certain that the proportions of the table are not consistent with other facts. For example, in the Teutonic family, if we admit the correctness of the German extremes, 114 and 70, then in the English, the greatest, 105, is too small; or the least, 91, is much too large. The same is true, also, of the Anglo-Americans; for we know from the head of Daniel Webster, 122 cubic inches, and from others, that 97 is much too small for the greatest, and 82 is too large for the smallest extreme.

But if the table exhibited only reliable results in this respect, yet every observer must have seen numbers of men, with relatively small heads, yet with reasoning and business powers far

* The following table is derived from Tiedeman, by changing weight into numbers:

CAUCASIAN.—Male,	Greatest,	774.	Female,	Greatest,	397.
" "	Least,	327.	"	Least,	305.
Mean of 77 skulls,	. .	413.	Mean of 12 skulls,		353.
ETHIOPIAN.—Male,	Greatest,	543.	Female,	Greatest,	315.
"	Least,	316.	"	Least,	249.
Mean of 38 skulls,	. .	378.	Mean of 3 skulls,		292.

greater than many with larger heads. A smaller brain, with good health, good temperament, and adequate training, is more desirable than a larger, or much larger one, with the reverse of these advantages.

Nor should it escape our notice, that the Nilotic family of modern, and the Nilotic family of ancient Caucasians, exhibit in the table the same measures, and the same means, 80; and yet the ancient Egyptians wrought out those wonders which the more astonish both the learned and the unlearned, the more they become known, and which place their authors at a vast distance in mental power from the Fellahs, who are their modern representatives. Also, the greatest measure of these Nilotics is below that of the Celt, Arab, Malay, Peruvian, American (Indian,) and even of the native African.

It is not strange, therefore, that this craniological table of Dr. Morton should have proved unsatisfactory to other inquirers into the same subject, and even to his best friends. Thus Dr. J. C. Nott, one of his warmest admirers, as well as a vehement advocate of his principal conclusion with respect to the diversity of origin and species of the different groups, has expressed himself quite strongly upon this point. In his "Comparative Anatomy of Races," printed in the "Types of Mankind"*—a work published four years after Dr. Bachman had overthrown Dr. Morton's arguments, and designed by its authors to sustain the conclusions of their deceased friend—Dr. Nott, seeing the inevitable inferences from the table, which have been pointed out, says: "It (the table) is calculated to lead to grave error." (This error, no doubt, was, that the results were palpably opposed to the notion of diverse species in man.) He adds: "Like Tiedeman, he (Morton) has grouped together races which, between themselves, possess no affinity whatever; that present the most opposite cranial characters, and which are, doubtless, specifically distinct."

The pressure of this celebrated table upon Dr. Nott, especially in opposition to the conclusion which both he and its author wished to draw from it, was such, that he felt the necessity of trying to invalidate it. He thus criticizes the numbers

* Types of Mankind, or Ethnological Researches, based upon the Ancient Monuments, &c., &c., by J. C. Nott, M. D., and Geo. R. Gliddon: Phila., 1854.

in the Teutonic family: "The average, 90, is based on the measurement of but thirty skulls; whereas three hundred might not suffice to evolve a fair average of Germanic [but one of the three Teutonic varieties] cranial developments." Now if 300 skulls would not give a fair average of German heads, it follows that at least 3000 would be requisite for a fair average of all the modern Caucasian varieties; for the Chinese, including the whole Mongolian group, 100,000; for the Malays and American Indians, 30,000; and for the Africans as many more. Craniology then demands a labour which can hardly be said to have begun; and which will require many generations to finish it. And even if it were thus accomplished, it would determine little or nothing as to the mental power of the races, because it supplies only one of a great number of important elements, all of which are indispensable to the solution of the problems which it proposes. Thus the vast deductions from this ethnological table are blown away by its own friends as chaff before the tempest.

In another statement in the "Types of Mankind," Dr. Nott says: "With all his acuteness in craniology, it is clear that Dr. Morton felt himself to be much embarrassed in making this classification (in the table). He has several times modified it in his different published papers." He then proceeds to state that discoveries made in the five years following Dr. Morton's death would have led him to very different results. What these different results might have been is not stated. But whether the truth be on the side of the master or his disciple, and it cannot sustain both, their difference leaves us no ground of confidence in the conclusions of craniology for the determination of races, or of their intellectual powers.

Evidently enough there is nothing in all this to invalidate the conclusion of Humboldt (*Cosmos*) at the close of his argument, where he says: "In maintaining the unity of the human species, we reject, by necessary consequence, the depressing (cheerless) distinction (diversity) of superior and inferior races." Yet stronger is the testimony of Müller, the distinguished physiologist of Berlin, authority of the highest character. His words are: "Man is a species, created once, and divided into none of its varieties by specific differences. In fact, the origin

of the negro, and of his group, admits not of a rational doubt."

From the results of this examination thus far, we cannot but feel surprise at the persistency of Dr. Nott, in his repeated assertion of the original and untransitional character of numerous types, races, or species of mankind—for all these he holds to be the same thing—and especially, at least, of the four distinct types, white, red, yellow, and black, which appear, as he states,* upon the Egyptian monuments, at least fourteen centuries before the Christian era. Many of these monumental figures are presented by him; but they have little bearing upon the subject, even admitting their correctness, and the accuracy of the dates assigned to them. They show, indeed, the general phenomena of varieties in man—a point not doubted by naturalists—but they do not affect the subject of the unity of the race, so long as we are obliged to admit, on fixed evidence such numerous and great changes as we know to have occurred in the course of a few generations. Even if the monuments of Egypt do reach back to 3800 B. C., according to Lepsius, we have not yet reached the origin of the race; nor do these monuments certify to the separate origin of three or four species; so far as their testimony goes, we can be certain only of one primitive stock. Dr. Nott himself has virtually admitted this, and thus has annihilated himself, in the following definite statement of the uncertainty of Dr. Morton's Caucasian family itself. "It should also be borne in mind," he says, "that what we term Caucasian races, are not of one origin; they are, on the contrary, an amalgamation of an indefinite number of primitive stocks, of different instincts, temperaments, and mental and physical characters. Egyptians, Jews, Arabs, Teutons, Celts, Sclavonians, Pelasgians, Romans, Iberians, &c., &c., are all mingled in blood; and it is impossible to go back and unravel this heterogeneous mixture, and to say precisely what each type was." This "commingling of blood, through migrations, wars, captivities, and amalgamations," has, indeed, wrought wonders, according to this statement! External causes have then produced immense changes; and the characters of

* Types of Mankind, pp. 84—87.

the original types cannot be "*precisely*" stated, nor even be surmised. The whole Caucasian group ceases to belong to the "primordial," or to any original type. Indeed, Dr. Nott actually abandons the doctrine of Morton, with respect to the amalgamation of one species with another. For he says: "We hold that a variety which is permanent, and which resists, without change, all known external causes, must be regarded as a primitive species."* True, but where is there such a variety among men? And on this principle, how could it ever be ascertained? Who can prove that any given type now existing is not the result of amalgamation, or of some other, or all of the external causes mentioned by Dr. Nott? How can it be shown that these causes, together with climatic influences of every sort, have not produced even greater variations in one species than any differences that can be shown to exist?

Besides, if, according to Dr. Nott, the Caucasian group be a result of amalgamations of different species, this is doubtless true of the American group, the Esquimaux only excepted. Now, Dr. Nott holds, with Dr. Morton and most others, that all the aborigines of South and North America are of one stock. Yet their differences are as marked as those in the varieties of the Caucasian group; whence neither can they constitute one primordial form, but must have been derived from many original types, by amalgamation. Among the Indian tribes are found as great differences in the skulls, and in other characteristics (as Dr. Morton has shown, and Mr. Catlin, the painter of the Indians, has confirmed) as in those of the Caucasian group, or in any other. How then has it been ascertained so clearly that they are all of one stock? Dr. Nott, moreover, maintains that they are so peculiar that they cannot be changed and civilized, yet the Peruvians and Mexicans (of one and the same stock with all the rest, according to these gentlemen) were long ago, and undeniably half-civilized; and the Cherokees, in their settlement west of the Mississippi, have become an agricultural people in a single generation; all of which goes far to prove that the stock, in all its varieties, needed only the proper moulding influences, applied in the

* Types of Mankind, p. 75.

right and regular manner, to change it into the form of civilized life.

Dr. Nott also has committed a strange abuse of testimony in respect to the evidence of the early permanence of the tpyes found on the Egyptian monuments, which deserves special consideration here, and which we commend to his attention, and to that of all others who receive his unqualified assertions. We give it in the words of Dr. Gabell:* "It is, moreover," he says, "a significant fact, that, while the oldest monumental records extend back, according to Birch and Lepsius, to about 3800 B. C., *no negro delineation*, as admitted by the authors of the 'Types of mankind,' *is found earlier than the twenty-fourth century B. C.*" Just here, we are constrained to call attention to the apparently disingenuous way of recording this fact. So far from adverting to the interval of more than a thousand years between the date of the oldest negro delineation, and that of the earlier records, they speak of the former as "contemporary with the earliest Egyptians;" whereas it is seen that the monumental inscriptions, so far from demonstrating the contemporaneous origin of the black and white races, furnish a strong presumption against this doctrine. Accordingly, Bunsen and Lepsius, whom the authors of the "Types of Mankind" were constrained to accredit as the most eminent and reliable of living Egyptologists, are both earnest advocates of the specific unity, and of the common origin of the human races; and yet, in the teeth of this fact, Nott and Gliddon complacently ascribe the same opinions as expressed by Professor Owen, Count Gobineau, and others, to their ignorance of the "monumental history of man."

It is admitted, then, by the "Types of Mankind," in the "invaluable paper," as Dr. Nott styles it, of Mr. Birch to him, that "at the early period of the fourth and sixth Egyptian dynasties, no traces occur of Ethiopian (negro) relations" with Egypt; and that "there are no monuments to show that the

* The Testimony of Modern Science to the Unity of Mankind, &c. By J. L. Gabell, M. D., Professor of Comparative Anatomy and Physiology, in the University of Virginia. New York, 1859. This is a candid and powerful treatise on the subject, especially commended to all for its clear and conclusive argumentation. Nothing like it has been printed since Bachman's Unity of the Human Race.

Egyptians were then even acquainted with the black races." But in the twelfth dynasty, about 2400 B. C., some twelve or fourteen hundred years afterwards, distinct evidence exists of the black or negro race. Now, with respect to these admitted facts, Dr. Nott says: "We may hence infer that these Nigritian types were contemporary with the earliest Egyptians." This illustrates the logic of the "Types of Mankind," and its utter untrustworthiness in other respects—an admitted difference in time of 1200 or 1400 years makes facts contemporaneous!

Nor have we any reason to think that the Negroes would not have been represented on the monuments, if they had been known to the Egyptians. In that long interval, great changes may have taken place in the races of Ethiopia, such as are indicated by the change which has manifested itself in the black race in the United States, in the comparatively short space of three hundred years. Although Dr. Nott denies this, both in the blacks of this country and of Africa, yet it has often been remarked, and is beyond all doubt. Sir Charles Lyell speaks of it in his Tour through the United States, for geological purposes; as many other intelligent men have done.

Similar unfairness, and even misrepresentation, is found in the "Types of Mankind," where the authors, by strong commendations of Dr. Pickering,* seem to indicate that his views do not differ fundamentally, at least, from theirs—whereas the contrary is true. Dr. Pickering thinks it most probable that the American group was introduced into North America by the Mongols of Asia, at the northwest, and by the Malays, through the Polynesian Islands, on the southwest; also, that California might have been peopled from Japan—in direct opposition to the views of Morton, Nott, and Gliddon. Also, he makes *eleven* varieties of the human family, and holds them to be varieties of one species. He explicitly decides in favour of but one species, and of the unity of the race. Thus, to such names as Cuvier, Smith, Lawrence, Bunsen, Lepsius, Müller, Owen, Gobineau, Humboldt, Bachman, Pritchard, Guyot, and Gabell—

* The Races of Man, and their Geographical Distribution, by Charles Pickering, M. D., &c. New Edition. London, 1851.—Another admirable work, and its figures not caricatures.

all strenuous advocates of the specific unity of the race—is to be added that of Pickering, even though the "Types" has asserted that this doctrine is no longer believed by its former supporters.

We come now to examine the views of a man whose position in science is a very different one from that of either Dr. J. C. Nott or Mr. Gliddon. Greatly to the surprise of intelligent persons, Professor Agassiz appeared in the "Types of Mankind" as a coadjutor of its authors, in support of Dr. Morton's doctrine of the diverse origin of different races of men; but yet on very different grounds. Of course his aid was highly gratifying. His article in the "Types" is short and clear, however unsatisfactory. His well-known view is, that plants and animals—flora and fauna—have their own peculiar districts or provinces, where they originated; and that man, by his constitution and nature, is governed by the same law of origin and distribution. This doctrine was first advanced by him, as he states, in the "Revue Suisse," in 1845. He designates eight varieties of mankind, as having originated independently of each other, in eight distinct "natural provinces," or localities; of course from different pairs, or rather, as he supposes, in communities—each community in its peculiar fauna and flora. Yet he holds that all these different peoples, in and from these eight original centres, constitute only one species, because they all possess the same characteristics and endowments, or have the same physical structure and mental faculties. This statement is fundamental, and implies that the differences of these different peoples are only in degree, not in kind; consequently, that they all do truly belong to one species in natural history—in which fact lies the principle of the unity of mankind. Yet, strange to say, Professor Agassiz maintains, in the same paper, an amount of difference between some of them, that must, as will be made to appear, separate them into different species. This proposition was further illustrated by its author, three years later, in another work by the authors of the "Types of Mankind," in which, to set aside the evidences derived from unity of language, he is constrained to resort to an assumed analogy between articulate speech in man, and the inarticulate cries of birds; and at least to intimate that unity of speech is

no more proof of unity of race, than the fact that birds of the same species have the same inarticulate cries, is proof that they all descended from the same pair!

Now, in respect to the fauna and flora of different sections of the earth, the general views of Agassiz may be admitted, as that there are Arctic, Temperate, and Tropical faunas, somewhat different, too, in the same zones of different continents. No doubt, certain animals are limited to certain localities, and may be called the peculiar fauna of those localities. But it is also true, that other animals have a much wider range, and are found living and roaming through several of these limited faunas, as if they were not subject to any such law. Take, *e. g.*, the faunas of America, as designated by Agassiz; in each of which we find some animals which are unknown in the others; and, indeed, their subdivisions on either side of the equator have a few animals peculiar and confined to them. But if some of the animals have a range through many faunas, then man, endowed to make provision for himself far beyond the wants and capacities of mere instinct, *may possibly be qualified to live in and range through all the zoölogical provinces and different faunas*, and may be a real cosmopolite, as he is designated by Agassiz himself. If so, the argument for the separate origin and location of his eight varieties of man, fails. Dr. Bachman and others have urged this objection as irrefutable. Let us then consider the range of some well-known animals, as presented by standard authors.

The common wolf (*Canis lupus*) is found from Panama, through the United States, on both sides of the Rocky Mountains, over British and Russian America, to the Arctic Sea; and in Europe, over the countries north of the Mediterranean, to the Polar Sea; and in Asia, from the same northern limit, through China, Japan, Kamtschatka, Tartary, and Siberia; whence it passes over Behring's Straits into America. The ermine (*Mustela erminea*) inhabits America, Europe, and Asia, with the wolf; and Richardson extends it "to the most remote Arctic districts." The beaver (*Castor fiber*) is found from the most southern part of the United States, east and west of the Rocky Mountains, to the far North, and over all Northern Europe; though in France, Spain, Greece, &c., it is rare; and

in England and Wales, said to have become extinct. The otter has even a more extended range, south and north of the equator. The cougar (*Felis concolor*), panther, or catamount, "was once spread over the whole wide extent of the New World, from Canada to Patagonia;"* though now it is rare in the Northern States. The wolverine (*Gulo arcticus*) inhabits North America and Europe, from the Temperate to the Arctic fauna; and the authority in the note gives the opossum (*Didelphys Virginiana*) the range of Brazil, Guiana, Mexico, Florida, Virginia, and of the more northern temperate states. The skunk, (*Mephitis Americana*, Desm.) together with the muskrat and mink, has the wide range of all North America, and much of South America. The brown rat (*Mus decumanus*) is said to have come from Asia into Europe, and by commerce to have been introduced into America—the same pest in all climates.

Among fishes, the right whale, (*Balæna mysticetus*,) having its specific name from its *mustached* upper lip, abounds in the Arctic and Antarctic oceans, and ranges over much of the Atlantic and Pacific, even to tropical waters.

Many birds cannot be located in any one or two faunas of the Northern hemisphere, but, as the horned owl, (*Bubo Virginiana*,) have a home alike in North and South America, viz., in very different and widely separated "zoological provinces."

The lichen, (*Cenomyce rangiferina*,) or reindeer moss, because it is the food of that animal, which is one confined to the Arctic fauna, is spread over the north of both continents, is common on the mountains of the Northern States, and has been gathered on those of Virginia and North Carolina.

Further specification is unnecessary. But, if all the animals assigned to the Arctic and Temperate faunas in Europe and America, were enumerated, how few would be found confined to only one fauna of any very definite limits! If now the mere animals have so wide a range, that of man may be much more extensive. And what is there to prove that any particular group of men must have originated in one fauna, rather than in another, when, for aught that appears, they have the free range of them all? As Professor Agassiz had all these facts before him, and admitted them, the wonder is that he should

* A. A. Gould.

have maintained, on the ground of his distinct faunas and floras, a separate and corresponding origin for his several varieties of man.

Still more wonderful does this become, when we apply the doctrine to this continent, and to the American (Indian) group. For, according to Dr. Morton—and Professor Agassiz adopts his conclusion—this one group, derived from one stock, is spread over America, extending from the mean annual temperature of 32° Fah., or from N. lat. 66°, southwards through the Northern Temperate fauna, to the mean annual temperature of 74°, and thence through the tropical climate and fauna, into and through the Southern Temperate fauna, even to Cape Horn. This race or stock, therefore, has its home in the three great faunas of our continent, and occupies their whole ground, both in North and South America. This marvellous inconsistency of Professor Agassiz completely repudiates, for this continent, at least, his hypothesis of distinct races of men, as autochthons, in the distinct faunas of mere animal autochthons.

The wonder of all this is still further increased by Professor Agassiz's subdivision for mere animals of his principal faunas on each side of the equator, into twelve others, the limits of which it is not necessary to mention here. But if these twelve sub-faunas are what they are maintained to be, there should be *twelve races of men, autochthons, each in its particular fauna; but it is admitted, and even strenuously asserted, that there is but one over the whole continent.* Surely the hypothesis is run into the ground, by the author himself, too deep ever to be disinterred.

Professor Agassiz indeed remarks, that "this race is divided into an infinite number of small tribes, presenting more or less difference, one from another." But this does not even evade the difficulty. For if these "small tribes" are inconsistently regarded here and for the moment, as of separate origin, then there ought to have been an *infinite number* of faunas for the infinite number of tribes: but if, consistently with Dr. Morton's view, fully endorsed by Professor Agassiz in other connexions, they all belong to one stock or one creation, then there should have been but one fauna.

Further, the Esquimaux and Laplander are classed by

Agassiz separately from the American race, as derived from one stock, or, at least, from one creation, and as autochthons in the Arctic climate and fauna where they now live. But if it were admitted that the mere animals of this fauna are autochthons in it, and that the white bear, the polar fox, the reindeer, and others, were created with their adequate covering, surrounded with their ordinary food, and endowed with instincts for living as they now live, it would not follow that the human beings of those regions must follow the same law. On the contrary, judging from what we know of nature, if the man of that fauna was produced there, he must have been at first without the necessary clothing, dependent for it, and for his daily food, upon the animals of rivers and seas, without instruments for capturing them, or for making his garments, and destitute of those wonderful instincts by which the animals provide for their subsistence. Coming into life in such a state of helplessness, in such a climate, he must have perished; unless we suppose an amount of direct interposition, on the part of his Creator, such a series of miracles for his support and comfort through the first day, and certainly for the first months, even in the most favourable half of the year, as these gentlemen naturalists would be the last to admit. For, according to them, divine interposition into the immutable order of nature is inadmissible: and certainly the fixed law of destitution would, upon their hypothesis, have ensured the destruction of the human autochthons of the Arctic fauna.

The necessity for such interpositions passes away with the groundless notion that the Esquimaux originated in Arctic America. They, together with the whole American group, are regarded by Cuvier as offshoots of the Mongolian variety. In the present state of our knowledge, this is altogether the most probable view, not only of the Esquimaux, but also of the Laplanders, Samoyedes, and Kamschatkadales, all which belong to the Northern Arctic fauna of Agassiz. From Kamschatka, with no great difficulty, they might have crossed Behring's Straits, or they might have passed from the north-west of Europe to Greenland, and thence into Arctic America. Thus they would have found a home like that they left behind in Arctic Europe or Asia. But it seems best to comport with

the wisdom and goodness of the Creator, that man should have been originally placed in a warm, temperate climate, surrounded with ample means for his support; whence, as from a centre, his various families and races, as indicated by their affiliated languages have radiated over the whole earth. Hence, Dr. Pickering says: "Man, then, does not belong to the cold and variable climates; his original birth-place was in a region of perpetual summer, where the unprotected skin bears, without suffering, the slight fluctuations of temperature." This makes easy and natural the present location of all the peoples of the globe.

But before concluding our examination, it is necessary to advert to the relation of the monkey tribe to this subject, for the reason that our authors have endeavoured to show that the differences between the several species of the higher quadrumana, as also between these and man, are no greater, perhaps less, than the differences between the several groups or races of men; and this, not for the purpose of establishing any affinity between man and the ape, but in order to make it appear that the reasons for a specific distinction between them are no stronger, perhaps weaker, than those for a specific distinction between, and a separate origin for, the various races of men. In other words, if we decline to adopt their notion of distinct species in mankind, we shall not be allowed to insist upon any specific difference between man and the brute.

This interesting class of brutes, the anthropoid monkeys, evidently have a special attraction for the authors of the "Types of Mankind," and of the "Indigenous Races."* In

* Indigenous Races of the Earth, &c. By Nott & Gliddon. 1857. That portion of this work which the authors claim for themselves, is as illogical and unscientific as are their writings in the "Types of Mankind." The *Westminster Review*, which would have been favourable, if it had been possible, has examined and reported on it in strong terms of censure, because it denies, or does not recognise, what has been fully established by others. The *Review* rejects Dr. Nott's argument, in which he "tries to make it appear that 'each type of mankind,' like a species of plants or animals, has its appropriate climate or station." . . . "The latter portion of the work (Mr. Gliddon's) exhibits a total ignorance of what has been done in recent years, to disprove those notions of limitation of the area of species, which were current among a generation of naturalists now passing away." This is too hard on Agassiz!

the former work, Dr. Nott shows himself kindly disposed towards them, from the "fact of their near approach to the human family." He seems even to claim a closer affinity to them than is at all common. In the latter work is introduced an extended comparison between several species of the ape, and several varieties of man, accompanied by numerous figures of both, side by side; among which figures, those of man are, as usual, mere caricatures. The authors cannot conceal the strange pleasure which they experience in tracing and verifying resemblances between themselves and the orang-outang, chimpanzee, and gorilla. These, indeed, from their structure and organization, are placed by zoologists at the head of the brute creation. Their anatomy has been ascertained and published by Professor Owen, of England, Professor Wyman, of Cambridge, Mass., and by others; and their differences from man have been fully exhibited. Their nearest approach to humanity, according to Dr. Owen, is in the gorilla; in the chimpanzee, according to Dr. Wyman. Both authors agree in the great differences between them and man, and also that they are truly brute, and not human. It is not necessary to specify the points given by these distinguished comparative anatomists; but it is important to compare their general views with the remarkable assertions both of Professor Agassiz and Dr. Nott, in the "Types of Mankind." Thus, Agassiz asserts: "The chimpanzee and gorilla do not differ more, one from the other, than the Mandingo from the Guinea negro; they together do not differ more from the orang, than the Malay or white man differs from the negro."* Is not this to assert, in the strongest manner, distinct species in mankind? Now man, of all varieties, has the same kinds of bones, and the same number of each kind, in his skeleton; but, according to Drs. Owen and Wyman, these anthropoid monkeys differ in this particular of bones from each other, as well as from man; and accordingly, Professor Agassiz frankly exonerates those gentlemen from holding the opinion which he deduces from their analysis and dissection. Dr. Nott makes a similar statement to that above, as follows: "Nor can it be rationally affirmed, that the

* Types of Mankind, p. lxxv.

orang-outang and chimpanzee are more widely separated from certain African, or Oceanic negroes, than are the latter from the Teutonic and Pelasgic types."* Also he refers in the same place to Dr. Wyman, as having "placed this question in its true light." Yes, truly, Dr. Wyman has poured upon it a flood of light, as in the following passage: "The organization of the anthropoid quadrumana justifies the naturalist in placing them at the head of the brute creation; and in placing them in a position in which they, of all the animal series, shall be nearest to man. Any anatomist, however, who will take the trouble to compare the skeletons of the negro and orang, cannot fail to be struck, at the sight, with the wide gap which separates them. The difference in the cranium, the pelvis, and in the conformation of the upper extremities, between the negro and the Caucasian, sinks into insignificance when compared with the vast difference which exists in the conformation of the same parts, between the negro and the orang." Such is the language of the "very accomplished anatomist of Harvard University," as Dr. Nott correctly styles him, in which he is sustained by Dr. Owen himself. Now, it is almost too obvious for remark, that if Dr. Wyman has "placed this question in its true light," the above assertion by Dr. Nott is false, and that of Professor Agassiz is entirely incorrect. For the number and general structure of the bones in the anthropoid monkeys do undeniably differ from those of man; the former are not fitted for an upright position, as is the latter; and though their upper extremities are far longer in proportion, yet they go on all fours; and the arms of the gorilla are much shorter than those of the chimpanzee—differences between the animals themselves, and between them and man, which fully justify the strong statements of Dr. Wyman; and such as no one has ever offered to point out between any two races, or groups of men.

Dr. Owen concludes his examination with the following decisive propositions: "The unity of the human species is demonstrated by the constancy of those osteological and dental characters to which the attention is more particularly directed

* Types of Mankind, p. 457.

in the investigation of the corresponding characters of the higher quadrumana." . . . "Man is the sole species of his genus, the sole representative of his order, and subclass." . . . "Thus, I trust, has been furnished the confutation of the notion of the transformation of the ape into man."* †

These broad physiological differences between humanity and the brute, become absolutely impassable walls of separation, when we add to them the articulate language, and the moral and spiritual faculties of man. These endowments exalt him infinitely above the highest species of mere animals, and should

* On the Classification of the Mammalia, &c. Appendix B. On the Orang, Chimpanzee, and Gorilla. By Richard Owen, F. R. S. London, 1859.

† As we have seen, it was no part of the design of the authors of the "Types" to advocate the same origin, or unity of species, for man and the monkey. This belongs to the opposite pole of sceptical speculation in natural history; of which the latest form appears in a remarkable book, from a very high authority: "On the Origin of Species, &c.; by Charles Darwin, M. A., Fellow of the Royal, Geological, Linnæan, &c., Societies. 1860." The object of this interesting work is to prove that there is no such thing as permanence in the species of natural history; that all existing forms of animal life have been derived through natural generation, from one, or at most, a very few original creations. It carries, however, its own refutation in itself, in the author's frank admission of the difficulties of his theory, and in the stupendous absurdity of his conclusion. This is expressed as follows: "I believe that animals (*i. e.*, all animals) have descended from at most only four or five progenitors, and plants (all) from an equal or lesser number." . . . "I should infer, from analogy, that probably all the organic beings which have ever lived on this earth, have descended from some one primordial form, into which life was first breathed." Cuvier has characterized, for all time, this whole branch of speculation, in the brief words: "There is no proof that all the differences which now distinguish organized beings are such as may have been produced by circumstances; all that has been advanced upon this subject is hypothetical." Since his day, however, these speculations, even of the greatest authorities within the legitimate sphere of the science, have become mutually self-destructive, to a degree which Cuvier never could have anticipated. Thus Morton and Agassiz find such differences between man and man, that the different races or groups never could have descended from a single pair; while Darwin finds so little difference between man and the animals, that he believes them all to be "descended from at most only four or five progenitors," and infers, "from analogy," that they are all "descended from some one primordial form." It is quite certain that such conflicting conclusions cannot endanger the received doctrines of the immutable permanency of species, and of the specific unity of the human race.

always place him in a division of zoology of which man would constitute the sole order, genus, and species. This classification has been adopted by two most distinguished zoologists, Ehrenburg, of Berlin, and Geoffroy St. Hilaire, of Paris. But it has not yet come to be generally received. The name of Cuvier, (whose classification is wholly dependent on the physical constitution, and wholly excludes the spiritual—treating man as a mere animal,) like the name of Linnæus in the previous age, seems to have held even Christian naturalists spell-bound. So long as he is followed in this particular, true progress in the descriptions and arrangement of the objects of natural history must be frustrated; because man must be classed in a rank far below that to which his creation and endowments would assign him; the image and likeness of God in him must be ignored by science; whilst it is evident that the right classification of man, must be vastly more essential to a sound zoology, than that of all the mere animals taken together. Man is the head of all the species of animals in virtue of his lower nature alone, which is one with theirs; but the head of the animal creation is MAN, in virtue only of his being endowed with a moral and spiritual nature, which is made in the image of God.

The due consideration of this moral and physical nature of man, might easily be made to refute all the speculation that has ever been advanced, from the analogy of the brute creation, in favour of a separate and independent origin for his several races or varieties. For the brute, from its nature and form, is, in a certain sense, attached to the soil; it is incapable of an upright position; it cannot vary or change its food; it has no power to adapt itself to new circumstances; it has no knowledge of distant countries; it is of one nature, and that is, "of the earth, earthy," destitute of reason, freedom, and morality. Hence there is a fitness that the mere animal should be, as it is, subject to laws that are merely physical; that it should be the slave of nature; and that each department of nature, distinguished in its climate and vegetable productions by peculiar adaptations, should have adapted aud at least partially confined to it peculiar forms of animal life. But man is the lord of nature, not its slave; and he finds his highest development in

asserting this control. His form is upright; he is endowed with a superior nature—with reason, freedom, morality, and immortality. Hence he is subject to other than physical laws; he can protect himself from the heat of the equator, and from the cold of the polar circles; he can vary his food according to the productions of each locality; the geometrical ratio of his natural increase makes it necessary that he should spread his tribes away from their native locality; and whilst any portion of the earth's surface remains unsubdued, he feels that his work is unfinished. Hence man justly claims a wider latitude and freer range over the earth than the brute can enjoy; and refuses to be confined within the faunas and floras of science, which are transcended by many species of the animals themselves.

If now, in conclusion, we look at the first chapter of Genesis merely as a philosophical theory of the beginning of things, the result merely of a wise man's reflections, after a wide examination of the phenomena of nature and of man, it is wonderful to see how free it is from all those difficulties which modern speculation have raised. There we behold the Creator preparing the world, its dry land and seas—covering the earth with vegetation for the future nourishment of man and beast. Then he causes the water to bring forth abundantly all its living things, both great and small, every fish of every fin, and "every fowl of every wing." After this he produces the beasts and all cattle, and all creeping things. The abundant creation of vegetable and animal life, not in single pairs, but in multitudes, seems to be implied in this account; and we know not what objection can lie against such an understanding of the words, which seems to be necessary, in order that there should be food both for the herbivorous and carnivorous species. The time might have been near the autumnal equinox. In all this the wise and learned author has given a theory of the creation of plants and mere animals, which, if derived from the study of nature, is at least such as modern natural history, even with its discoveries in geology, has only illustrated—which it has in no respect improved nor essentially modified. According to our present views, vegetable abundance must have preceded the creation of the animals, in order that these should be supplied

with food; and the order of succession in the animal creation, is the most natural. To the eye of science now, it is "all very good."

When this vast and perfect preparation had been made for man, the head and glory of the creation appears in the image of his Maker. Upon the animal nature in him is superinduced a free, rational, moral, and spiritual nature, to which there is no likeness in any other creature. With these unparalleled endowments, crowned with articulate speech, he is not made subject to nature, but "all things are put under him." He is placed above the limitations and local restraints of mere animal life, in virtue of his superior nature and lordship over the earth and all its creatures. Now Moses, observing further the obvious fact, that all known individuals of mankind were endowed with the same distinguishing qualities and faculties, and were all capable of inter-procreation in a geometrical ratio of increase, would naturally infer that they all originated from a single pair, and constituted one family and one brotherhood. What so natural, simple, rational. What so free from difficulty?

Far be it from us to endorse any such view of this oldest page of written knowledge. But if it were nothing more than this, we should not hesitate to accept it as by far the most probable account that has ever been given of the beginnings of things.

ART. V.—*The General Assembly.*

THE General Assembly of the Presbyterian Church met, according to appointment, in the First Presbyterian Church, Columbus, Ohio, May 15, 1862, and was opened with a sermon by John C. Backus, D. D., Moderator of the last Assembly, from Hebrews xii. 28. After the organization of the house, Charles C. Beatty, D. D., was elected Moderator, and the Rev. A. A. Hogue, of Kentucky, Temporary Clerk. Dr. Leyburn, of New Orleans, having resigned his office as Stated Clerk of the Assembly, A. T. McGill, D. D., of Princeton, N. J., was elected