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ARTICLE I.—*The Service of the House of God, according to the practice of the Church of Scotland.* By the Rev. WILLIAM LISTON, Minister of Redgorton. Edinburgh: 1858. Pp. 411. 12mo.

Presbyterian Liturgies, with specimens of Forms of Prayer for Worship, as used in the Continental Reformed and American Churches: with the Directory for the Public Worship of God, agreed upon by the Assembly of Divines at Westminster: and Forms of Prayer for Ordinary and Communion Sabbaths, and for other Services of the Church. By a Minister of the Church of Scotland. Edinburgh: 1858. Pp. 120. 8vo.

IN taking a survey of existing churches, it is curious to observe how far their maturity and strength are from bearing any uniform proportion to their age. While the largest division of the Christian world professes to have come down, almost in its actual condition, from the time of the Apostles, and the "Orthodox Oriental Church" lays claim, with equal justice, to a like antiquity; while the Vaudois place themselves as high upon the scale, and are never placed by others lower than the close of the twelfth century; while all the reformed national churches of Europe—German, Swiss, Dutch, Danish, Swedish, Scotch, and English—owe their birth to the great moral revolution of the sixteenth century, and the *Unitas Fratrum* to the

Charles Hodge

ART. V.—*The Testimony of Modern Science to the Unity of Mankind*; being a Summary of the Conclusions announced by the Highest Authorities, in the several departments of Physiology, Zoology, and Comparative Philology, in favour of the Specific Unity and Common Origin of all the varieties of Man. By J. L. CABELL, M. D., Professor of Comparative Anatomy and Physiology in the University of Virginia. With an Introductory Notice, By James W. Alexander, D. D. New York: Robert Carter & Brothers, No. 530 Broadway. 1859. Pp. 344.

WE have seldom read a book which better answers to its title. It is precisely what it purports to be, a summary of the conclusions at which the highest scientific authorities have arrived as to the unity of mankind. This summary is drawn up with a comprehensive knowledge of the whole field, especially so far as the departments of Zoology and Physiology are concerned. It is not a mere retailing of the opinions of other men, but the intelligent exposition by a scientific man of the teachings of science, authenticated and confirmed by the testimony of the most competent witnesses. It is conducted throughout in a truly philosophic spirit, discussing scientific questions on scientific principles. There is no attempt to prove physiological facts by moral arguments, nor to refute anatomy by tradition. The unity of mankind is presented as a problem of natural history, and is discussed as such, just as the question of the specific unity of any of the varieties of the lower animals would be discussed, in which no interests but those of science were involved. In this point of view, the book must satisfy even those who deny that anything but science has a right to be heard on the subject. It is, however, higher praise to say, that Dr. Cabell, while considering the question to which his book is devoted, as a matter of science, is neither ignorant nor indifferent as to its moral and religious bearings. He does not pretend to regard it as a small matter whether all mankind are brethren of the same family, or members of races specifically distinct in nature and origin. In other words, he is not one-sided. His mind and heart are

large enough to take in the spiritual as well as the physical aspects of the subject. He can see in man a soul as well as a body, and, therefore, understands that the unity of the race involves the question of the relation in which men as spiritual and immortal beings stand to each other. We would only remark further, so far as concerns the general character of this work, that it bears everywhere the impress of the Christian and the gentleman. The author is mild and courteous, even when dealing with shallow pretence and gratuitous irreverence.

We have said that the unity of the race is here discussed as a matter of science. It is, however, a matter of deep religious interest. The departments of theology and science in many points overlap each other. Science takes cognizance of man; his origin, nature, prerogatives, and powers. So does theology. The philosopher has no right to warn the theologian off of this ground as a trespasser; and the theologian has no right to put the philosopher under an interdict. Both have their rights. The field is common to both. They differ not as to the subject to be investigated, but as to the mode of investigation. Science seeks to learn what man is, by induction and analogy; theology by revelation. Let each pursue its course independently yet harmoniously. Neither should ignore the other. <It is not only unwise but unphilosophical for the man of science to conduct his investigations on the assumption that nothing more than scientific facts can legitimately be taken into view.> The horse is found in a wild state all over the American continent. What would be thought of the naturalist who should insist on determining the question of its origin, and the relation of its varieties, as a mere question of zoology? What would any man of sense care for his conclusions, if in contradiction to the known historical fact of its introduction by the Spaniards? or what would be said of the man who should undertake on the zoological principles alone, to determine the origin and relation of the different tribes of Europe, ignoring all the lights of history?

Much has been said of the narrow-mindedness of theologians, and of their disposition to determine questions of science by the exclusive authority of the Bible. And there is no doubt ground

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for complaint on this score. But we think that theologians (or rather Christians) have much more reason to complain of men of science; who are often disposed to ignore all facts which do not fall within their own department. They often form their theories without any regard to moral and religious truths, which, to say the least, are just as certain, and infinitely more important, than the truths of science. There is not unfrequently a recklessness manifested by scientific men in this matter, which betrays great disregard to the highest interests of man, and which is not only lamentable but revolting. In many cases their conclusions are a balance of probabilities. A straw would turn the scale either way; yet too often they throw the whole weight of their influence on the side of infidelity, when the slightest appreciation of the moral and religious bearings of the question at issue would lead to an opposite conclusion.

It is perfectly conceivable that a scientific sceptic may be led in his principles by a strictly logical process to decide a scientific question one way, when a scientific Christian, by an equally logical process, would decide it another way. The reason is that the latter takes into view legitimate facts and considerations which the former ignores. Which is the higher man? Which is the truer philosopher? Can any man believe that Agassiz with his splendid intellect would have given the sanction of his illustrious name to the theory, (a mere theory,) that the different races of men are indigenous to the zones which they inhabit, each having a separate origin, if he had appreciated the immense *a priori* probability against that theory arising from the teachings of the Bible, and the moral and religious relations of men? Is it wise or philosophical to adopt a theory, on the mere balance of probabilities, which supposes the Bible to be false, sin and redemption to be fictions, in despite of all the evidence which sustains the authority of the Scriptures and the truth of its teachings? Is it wise or philosophical to treat of man as though he were a brute—or draw conclusions from the physical, to the exclusion of the spiritual phenomena of his nature? Is there anything in this mode of proceeding which authorizes this distinguished philosopher, or those who follow him as the dust follows a chariot, to regard

himself as standing on a higher platform than the man who takes all the facts into view?

The church is willing to meet men of science on equal terms. ✓ She has her convictions founded on evidence which satisfies the reason and constrains the conscience. These she cannot give up, no matter how she may be puzzled or confounded by opposing arguments. No man can give up his conviction of his own liberty, however overwhelming to his understanding may be arguments for necessity. He knows there must be some mode of reconciling the apparently conflicting testimony of consciousness and speculation, and he is content to wait the solution. So the church will stand by her convictions founded on something surer than consciousness, even the power of God, (1 Cor. ii. 5,) and let science prove what facts it can; assured that God in nature can never contradict God in the Bible and in the hearts of his people. The church, however, is willing that the Bible should be interpreted under the guidance of the facts of science. Science once taught that the earth was a plain and the sun its satellite, and the church understood the Scriptures in accordance with that theory. At last it was discovered that the earth is a globe and moves round the sun. The church accepted the fact, and reads the Bible under its guidance.

It was long assumed that our globe is but a few thousand years old; men of science are now convinced that however recent the origin of the human race, the earth has existed for countless ages. Very well, let them once prove the fact, and the Bible will be found not only to agree with it, but to have anticipated it. Men of the highest rank in science now find in Genesis all that science can teach of cosmogony, and bow with wonder before the prescience of Moses. But while the church, in the consciousness of her fallibility in the interpretation of the infallible word of God, is willing to bow her judgment as to its meaning before the well-ascertained revelations of God in nature, she has a right to demand of men of science, first, that they shall be cautious in announcing facts even apparently hostile to the generally received sense of Scripture. Instead of pouncing on such facts, and parading them as if in triumph, (as in the case of the assumed fossil human skeleton of Guadalupe,) they should be slow to admit them and withhold their

sanction until the evidence admits of no contradiction or doubt. The interests at stake demand this of every right-minded man. He should be far more reluctant to admit any such fact than to acknowledge a flaw in his title to an estate. There is in every community a large class of men eager after an excuse for unbelief. Men of science should not become panders to this depraved appetite. There is another demand on them which may reasonably be made. There is of course a vast difference between facts and theories. The former, and not the latter, are authoritative. It is the fact that the earth is a spheroid, and moves round the sun, and not the theory devised to account for that fact, which has constrained the church to alter her interpretation of the Bible. It is the fact that the magnetic needle points to the pole, and not any theory of magnetism which challenges the faith of all men. What Christians have the right to demand of men of science, nay, what sound philosophy itself demands of them is, that they should not propound theories framed in view of scientific facts alone, while they overlook the facts of religion. For example, it is a fact that there are many varieties of the human race, or many races of men, existing on the earth, and that these races differ very much in conformation, in colour, in stature, in mental endowments, &c. It is also a fact that these different races have different habitations; some dwelling in the torrid, some in the temperate, and some in the arctic zone. It is a short and easy way to account for these facts to say that the several races originated where they are now found, with conformations and constitutions adapted to their circumstances. A plausible argument may be framed in support of this theory. It may even be admitted, (what is not, however, true,) that the arguments for and against this solution of the problem, considered as a mere question in natural history, are pretty nearly balanced. Now as this theory is against the explicit declarations of the Bible, as it subverts the great doctrines of the common apostasy and redemption of the race, and is opposed to the universal faith of the church, for any man to give it the sanction of his authority shows a heartless disregard for the highest interests of men. The chances, to speak after the manner of men, are a thousand to one against the truth of the theory in

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question. There are many other ways of accounting for the facts above mentioned, and however probable, considered as a mere question in zoology, the theory of separate origin may be, it is in the highest degree improbable, when considered in the light of all the facts in the case. If there were no other possible solution of this problem; if it were demonstrated to the satisfaction of all competent men, then the principle *fiat justitia, ruat cælum* would justify its annunciation. But to put it forth as a mere plausible guess, to clothe it with the imposing robes of science, and dignify it by the sanction of an illustrious name, is one of the greatest injuries which can be committed against society. All therefore that believers in the Bible ask of men of science is, that they should reverence truth, and not be disposed on slight grounds to assume facts hostile to Christianity; and that in forming and announcing their theories they should have regard not simply to scientific or physical facts, but also to the facts of history, and to the phenomena of man's moral and religious nature, as well as to those of his external organization.

As to the question of the unity of mankind, which is so intimately connected with the whole system of revealed truth, and with the moral and social relations of men, we find the following opinions among scientific men: First, that all mankind are of one species, and have had a common origin. Second, that they are of one species, but have not had a common origin. Third, that they are different in species, as well as diverse in origin. It is obvious, therefore, that the unity of mankind involves two distinct questions, which cannot be confounded; viz. unity of species, and unity of origin. For although the latter implies the former, the former does not necessarily imply the latter. It is conceivable that mankind may all belong to the same species, have a common nature, and in that sense, constitute a common brotherhood, and yet have been created at different times, and in different places. Oaks of Europe may be specifically identical with the oaks of America, without assuming that the one were derived from the other. The fish of the rivers of England may be of the same species with those found in the rivers of France, without supposing that they were transported from the one country to the

other. So the men of New Holland may be one in nature with those of Africa and Europe, and yet be of different origin. A hundred years ago Voltaire said, if you find flies everywhere, it is a stupidity to be surprised that you everywhere find men.* Plants and animals, brutes and men, spring up wherever the circumstances are favourable, either identical or diverse in species, and when of the same species in many cases modified to suit their peculiar location. This is the old pagan theory as to the origin of man. The earth is our common mother; men are everywhere *autochthones*; Africans are the product of Africa, the Asiatics of Asia, the Esquimaux of the arctic zone. As this old doctrine has, in a modified form, been revived, and received the sanction of at least one illustrious name in science, it of course imposes a double task on the advocates of the unity of mankind. They must not only prove that men are of the same species, but also that they have had a common origin.

The first question then is, Are all men of one and the same species? There can be no intelligent answer to this question without a previous definition of terms. We must first know what is meant by species, and then what are its characteristics; i. e. the criteria by which we are to distinguish between species and varieties. Are the mastiff and the lap-dog of different species, or are they only varieties of the same species? How is this question to be decided? It must be by some general principle applying not to that particular case only, but to all analogous cases. Here after all is the great difficulty. Scientific men are not agreed on these points. Some use the word species in one sense, some in another; and many give it no definite sense at all. Some designate as varieties what others regard as distinct species. We cannot stir a step until this fog is cleared up. What is the use of debating whether men are of the same species, when you do not know what species is?

The general classification of animals has its foundation in nature. This is clear as to the division of all animals into four departments. 1. The Vertebrates, including all animals having a skeleton with a backbone as its axis. 2. The Artic-

* *Etudes des Races Humaines*, par M. Hyacinthe Deschamps, p. 12.

lates, or animals whose bodies are composed of rings or joints. 3. The Mollusks, or animals with soft bodies without an internal skeleton. 4. The Radiates, or animals whose organs radiate from a centre. Each of these departments is divided into classes. Thus the Vertebrates include, 1. Mammals, or animals which nurse their young. 2. Birds. 3. Reptiles. 4. Fishes. These classes are divided into orders. Thus the Mammals include—1. Beasts of prey. 2. Those which feed on vegetables. 3. Animals of the whale kind. These orders are separated into families; families into genera; genera into species; species into varieties. All this up to a certain point is clear. There is a real foundation in nature for this classification. It proceeds on the assumption that there is a plan and design in creation; that the different classes, orders and genera of animals are constructed on a different plan, and for a different purpose, or that the peculiar form and arrangement of the organs have a relation to each other, and to a definite end. We do not find the teeth of a herbivorous animal combined with the claws of the carnivorous class. It is only when we come to the lower divisions that difficulty and obscurity occur. "The genus," says Agassiz, "is founded on some of the minor peculiarities of anatomical structure, such as the number, disposition, or proportion of the teeth, claws, fins, &c., and usually includes several kinds. Thus, the lion, tiger, leopard, cat, &c., agree in the structure of their feet, claws and teeth, and they belong to the genus *Felis*; while the dog, fox, jackal, wolf, &c., have another and a different peculiarity of the feet, claws, and teeth, and are arranged in the genus *Canis*. The *species* is founded on less important distinctions, such as colour, size, proportions, structure, &c. Thus we have different kinds or species of ducks, different species of squirrel, different species of monkey, &c., varying from each other in some trivial circumstance, while those of each group agree in all their general structure. The specific name is the lowest term to which we descend, if we except certain peculiarities, generally induced by some modification of native habits, such as are seen in domestic animals. These are called *varieties*, and seldom endure beyond the causes which occasion them."* According

* Principles of Zoology, p. xiv.

to this view species are distinguished by "slight peculiarities" of colour, size and structure; and the only distinction between specific differences and the differences between varieties of the same species, is that the former are permanent, and the latter transient, i. e., such as are induced by change of habits or circumstances, and lasting only so long as these transient causes operate. The only criterion of species, therefore, is slight permanent peculiarities of colour, size and structure. On this definition we would remark, 1. That if this is all that is meant by the term, then it is, and must always remain in many cases, a matter of uncertainty to what species a particular animal is to be referred. Because varieties of the same species differ from each other by permanent peculiarities of size, colour and structure. The characteristic difference, therefore, between species and variety is obliterated. Take, for example, the case of the dog. It belongs to the genus *Canis* which includes the wolf, fox, jackal, &c., but all dogs belong to one and the same species, according to all naturalists of any name or authority. Within this species, however, there are an indefinite number of kinds distinguished by permanent peculiarities. Some of these kinds extend back as far as any historical record goes, being depicted on the ancient monuments of Egypt. The difference, therefore, has existed for thousands of years. The peculiarities, moreover, cannot be obliterated by any change of habit, external circumstances, food, &c. You may vary the surrounding of a terrier *ad libitum*, and to the end of time, and you can never change him into a mastiff or a greyhound. Here then are permanent peculiarities beyond the control of circumstances, distinguishing different varieties of the same species.

This proves two things, first, that the above definition or description of species amounts to nothing; and, secondly, that it is impossible for any man to pretend, on scientific principles, that the varieties of men constitute distinct species, because distinguished from each other by permanent peculiarities of colour, size, and structure, which are independent of circumstances, while all the varieties of dogs which differ by still more marked peculiarities, no less permanent and indomitable, are referred to one and the same species. It is argued that the

Negro must be a distinct species from the Caucasian, because he is depicted in the ancient monuments (not the most ancient, however,) of Egypt. But there we find the mastiff and the hound. If this antiquity in the varieties of dogs be consistent with identity of species, why may not a like antiquity in the varieties of men be consistent with their specific identity? This of course is too palpable a dilemma to escape the attention of naturalists of the modern school, in which, however, we do not include Professor Agassiz, who belongs to a different class, and who has lent his name as a jewel to be worn as on a stage and for a night. The modern school of naturalists to which we refer, are those American writers who have made themselves so prominent in endeavouring to introduce new principles into science, for the purpose of establishing the original and specific diversity of the different races of men; some, no doubt, from a sincere conviction of its truth; others apparently for the purpose of furnishing a satisfactory foundation for the perpetuity of African slaveholding; and some, as they endeavour to make conspicuous, for the sake of overthrowing the authority of the Bible. These naturalists, discovering that the same arguments which prove the identity of species of all varieties of dogs, would unavoidably prove that all the varieties of men are of the same species, have been driven to deny that dogs are all of the same species. Dr. Nott and his associate maintain that there are races of dogs specifically distinct. Dr. Morton is quoted, who thinks that our domestic dogs had a threefold origin.* But what are these among so many? Suppose we admit that there were three original sources of dogs. This does not meet the difficulty. There are more than three varieties of dogs distinguished from each other by permanent peculiarities. We must therefore either admit that new species can be originated, which is a new idea in science, or we must acknowledge that permanent peculiarities may exist within the limits of the same species. The definition remains a failure. Permanent peculiarities are not a criterion of species. Such peculiarities may be induced by the gradual operation of difference of climate, food, and modes of

* *Types of Mankind*, by J. C. Nott and Geo. Gliddon, p. 381.

life; by accident, i. e. by the operation of causes which elude our notice; by a careful process of breeding; by the mixture of different varieties of the same species. These are facts which cannot be denied, and which are, so far as we know, universally admitted. No one pretends that all the permanent varieties of dog are distinct species. They are never found in a wild state. There are no wild mastiffs, greyhounds, or spaniels. All, or at least many of these varieties, have originated or been produced subsequent to the origin of the species. The horse is widely diffused over the earth, and differs in its varieties as to colour, size, and proportions, as much as the various races of men differ. The domestic hog is no less extensively distributed in numberless varieties, all descended from the wild boar, which differs from the domestic animal in colour, covering of the skin, and formation of the skull, as Blumenbach himself admits, as much as the negro differs from the white man.

Naturalists report a breed of cattle originating in South America, beyond the La Plata, with permanent, transmissible peculiarities, far more marked than those usually relied upon as proofs of difference of species. "Their forehead is very short and broad, with the nasal end turned up, and the upper lip drawn back; their lower jaws project forward; when they walk they carry their head low, on a short neck, and their hind legs are rather longer compared with the front ones, than is usual." *Cabell*, p. 24. The works of naturalists are filled with examples of this kind.

It is not our object to write a zoological treatise. We are simply testing the correctness of a definition. We wish to show that permanent peculiarities of size, colour, hair, proportion, and structure, are no proof of diversity of species. All such peculiarities occur in varieties known from history to have had a common origin. The inevitable conclusion from this fact is, that the mere existence of such differences among men is no proof of diversity of species, and no evidence against their common descent from the same parents. If all the horses in the world *may* have descended from the same stock; if all the varieties of swine *may* have descended from the wild-boar; and if all the varieties of dogs, or any considerable portion of

those varieties, *may* have had a common origin, then all the varieties of men *may* have had a common parentage.

The uncertainty of the criteria of species is a matter generally acknowledged. On this subject Dr. Carpenter says, "The uncertainty of the limits of species is daily becoming more and more evident, and every naturalist is aware that a very large number of races are usually considered as having a distinct origin, when they are nothing more than permanent varieties of a common stock."* On the following page he says, that "Mr. J. E. Gray has shown, among other instances, that what have been regarded as *six* distinct species of *Murex*, are in reality but different forms of *one*." In the same connection he remarks, that the naturalist is disposed to adopt "easily recognized external characters as the basis of his classification," instead of relying on peculiarities of internal structure, "which are less subject to variation." It is too obvious to need remark, that when scientific men are not agreed among themselves on the criteria of species, and find it so difficult to decide between species and varieties, it would be absurd to expect Christians to give up faith in the Bible, or to renounce important doctrines of their religion, out of deference to a principle of classification so utterly uncertain. Even among the advocates of the doctrine of the specific difference between the various races of men, there are scarcely any two who agree as to the number of species into which mankind are to be divided. Some make two, the white and black; others three, the Caucasian, the Mongolian, and the African; others make five, others eight. Dr. Pickering says there is no choice except between eleven and one. Bory de Saint Vincent makes fifteen, and Desmoulin sixteen.† What is this but a blatant confession of utter uncertainty, an acknowledgment that the criteria of species, as laid down by naturalists, do not command even their own confidence.

2. The second remark which we have to make on Professor Agassiz's definition of species, is that by obliterating the distinction between species and variety, it destroys all importance

* Carpenter's General and Comparative Physiology, p. 981.

† Deschamps, Etudes, p. 21.

of the question as to the specific unity of mankind. If every permanent variety is a species, then it matters not whether we say there are three or twenty species of men. It is a mere dispute about words. All admit there are numerous varieties of mankind, permanent and to a great degree immutable, and if the definition of a species answers to that of a variety, you may make as many species as you please. Agassiz himself, after for years teaching that all men are of one and the same species, now says they are of as many distinct species as there are permanent varieties of the race. To cite another illustration on this point, the author of the introduction to the American edition of Colonel Hamilton Smith's book on the Natural History of the Human Species, expresses his "own opinion from a careful study of the phenomena, and from personal observation," in favour of the specific diversity of mankind. Yet on the same p. 83, we find this passage: "The most commonly used argument in this connection [i. e. for the unity of mankind,] is furnished by the varieties of the dog, which are considered as belonging to one species. To say nothing, however, of the *petitio principii* here, in assuming the point wished to be proved, many eminent naturalists believe that there are several species of dogs. The objection of F. Cuvier, that 'if we begin to make species, we cannot stop short at five or six, but must go on indefinitely,' is of no weight; the most it can do is to show us the exceedingly vague meaning of the word species, and that we have not yet arrived at the true distinction of species and variety. The 'permanent variety' of Dr. Pritchard, from his own definition, is to all intents and purposes 'a species.'" This is certainly a very frank confession. This gentleman tells us that after a "careful study of the phenomena" he has arrived at the conclusion that men are of different species, and on the same page confesses that he does not know what a species is, and that he cannot distinguish between a species and a variety. This is a specimen of a class of birds which rub their bills against the vast cathedral of Christianity, and think they are overturning its foundations. If this gentleman does not know the difference between species and variety, we can tell him thus much at least, that species is something not only permanent but original, whereas a variety, though it may be

permanent, is not original. His saying that Dr. Prichard's permanent variety is to all intents and purposes a species, shows, as he confesses, that his ideas on the subject are exceedingly vague. The difficulty is not to tell the distinction between species and variety, but to ascertain the criteria by which we can discriminate them in the concrete, and say with confidence, these animals belong to different species, and these are varieties of the same species. We of course do not attribute to such a man as Agassiz the confusion of thought to which we have just referred. Every page of his writings is luminous with intellectual light, and glows with kind and genial feeling, so that all his readers become not only his admirers, but his friends. Our objection to his definition is, in the first place, that it does not afford the criteria necessary for practical discrimination; and, in the second place, that if adopted and carried out, it reduces species and variety to the same category of permanent peculiarity, and thus makes the dispute about the specific unity of mankind a dispute about words. This is far from being harmless, because the idea of original diversity is so indelibly impressed on the word species, that if that word be made synonymous with variety, arguments which prove only permanent diversity will be regarded as proving primordial distinction. It is of vast importance to the cause of truth that words should be preserved in their integrity. In the true meaning of the terms, permanent peculiarity (variety) is consistent with community of origin, specific difference is not.

3. A still more serious objection to the definition in question is, that it leaves out of view the immaterial element from nature. It is founded exclusively on what is material and outward. We do not mean that this element is denied, but it is ignored. This is like leaving out of view the soul in the definition of a man. This difficulty arises in part from the assumed necessity of fixing on a definition of species, which can be applied to plants as well as to animals, and even to man. In the plant the external organization is everything. In the lower animals there is besides the external organization, the *φύσις* and *ψυχή*, and in man still further the *πνεῦμα*. The body of the plant is the plant, but the body of a man is not the man. It is the interior higher being which determines his

nature, and decides the order of creatures to which he belongs. This is too plain and too high a truth to be denied. Professor Agassiz in his *Zoology*, page 9, says: "Besides the distinction to be derived from the varied structure of organs, there are others less subject to rigid analysis, but no less decisive, to be drawn from the immaterial principles, with which every animal is endowed. It is this which determines the constancy of species from generation to generation, and which is the source of all the varied exhibitions of instinct and intelligence which we see displayed, from the simple impulse to receive the food which is brought within their reach, as observed in the polyps, through the higher manifestations, in the cunning fox, the sagacious elephant, the faithful dog, and the exalted intellect of man, which is capable of indefinite expansion." Again, page 43: "The constancy of species is a phenomenon dependent on the immaterial nature." This all important truth, so clearly recognized in these and other passages of the writings of this distinguished naturalist, is overlooked in his definition, or rather in his criteria of species. When he makes species to depend on minute peculiarities of size, colour, proportion, and sculpture, everything immaterial is left out of view. Now it seems very plain, according to his own principle, if species is determined by the immaterial nature, *that nothing in the organic structure can be assumed as proof of difference of species, which is not indicative of difference in the immaterial principle.* That principle in every species is, according to Agassiz, the same; and in that sameness, as he teaches us, depends its identity and perpetuity. "All animals may be traced back," he says, "in the embryo, to a mere point upon the yolk of the egg, bearing no resemblance whatever to the future animal. But even here, an immaterial principle which no external influence can prevent or modify, is present, and determines its future form; so that the egg of a hen can produce nothing but a chicken, and the egg of the codfish produces only the cod. It may therefore be said with truth, that the chicken and the cod existed in the egg before their formation." To determine the species therefore, we must determine the immaterial principle. How is this to be done? Obviously in three ways. First, by the external organization. The

immaterial principle of each species of animals has impressed upon it, or imparted to it a specific nature, in virtue of which it develops itself in one particular form, or moulds for itself organs adapted to its nature and destiny. We determine, therefore, the immaterial principle by the organization which it develops for itself, which cannot change any more than the principle itself can change. If the animal be destined to move through the air, through water, or on the land, this is a law of its nature which determines its organization. If it is to feed on flesh, it has the organs requisite to seize and devour its prey; if to live on herbs, its organs are adapted to that end. The important point is, that no peculiarity of the external organism which is not an adaptation to some specific end, can be taken as an indication of the nature of the immaterial principle of the animal. It is obvious, for example, that difference in the size, colour, or proportions of the horse does not indicate any difference in the interior nature of the animal. Whether he is small or large, white or black; whether his forehead is broad or narrow, whether his shoulder-blade is straight or oblique, is perfectly indifferent. The organism is the same. All that belongs to the idea of the animal, all that reveals the law of its nature, remains the same in despite of these peculiarities, and therefore the species is the same.

So also the feathers on the legs of some domestic fowls are not significant. They indicate no peculiarity in the interior nature of the animal. But a skin connecting the toes, although involving a less expenditure of material, is seen at once to be there with design. It adapts the bird for a different mode of life; and everything else in its external organization and internal nature will be found to correspond with that peculiarity. It therefore is a proper criterion of kind. There may be difficulty in carrying out this obviously correct principle in its application to lower animals. We are too little acquainted with their nature to determine what is, and what is not indicative of design. Hence a spot upon an insect's wing, a little difference in the length of its antennæ, or a slight corrugation in a shell, is held to be a sufficient proof of diversity of species. In such cases the word species loses its meaning and its importance. It becomes synonymous with difference. To

make like trivial peculiarities evidence of a distinction in species among the higher animals, would introduce endless confusion, and make all classification a matter of caprice.

There is, therefore, an important distinction to be made between those diversities which arise out of the nature of the animal, and those which depend on circumstances. While the interior life of every species of animal has its own law of development, from which it cannot depart, so that like always produces like, and so that permanency is one of the laws of its nature, yet, within the limits of its original idea, its external organism may be indefinitely modified. This susceptibility of variation differs greatly in different classes of animals, according to their destiny. If designed to live within narrow limits and under no great variety of external conditions, the capacity for variation is small. The lion and tiger confined to the torrid zone are everywhere the same; whereas the wolf intended to roam over most of the face of the earth, varies within wide limits. This is especially true of the domestic animals. The horse, the ox, the dog, swine and sheep, intended for the service of man, adapt themselves to almost all the regions of the earth. In man, to whom the whole globe is given as a possession and a dwelling, this capability of variation appears in the highest perfection. An amount of difference, therefore, between two lions, which would justify the naturalist in referring them to different species, when found to exist between two dogs or two sheep, is justly regarded as insignificant. The same remark obviously applies with still greater force to the varieties of men. We might admit that the man of the arctic zone differs more in his external peculiarities from the man of the torrid zone, than many species confined to one or the other of those regions differ from each other; and yet science would pronounce the man dwelling in a snow house, and living on oil, as of the same species with man who dwells in a burning desert. The external characteristics of animals are influenced by a thousand causes known and unknown, fortuitous and constant. They change with the season of the year, with the climate in which the animal lives. They are modified by the food it eats, by the vigour or feebleness of its constitution. The historical and

admitted fact, illustrated every day and in every part of the world, is that animals acknowledged to be of the same species, vary indefinitely in size, colour, covering of the skin, proportion and sculpture. As the crab-apple and the pippin are the same species, so the noble war-horse and the miserable hack are the same animal; the domestic hog is the same in species as the wild-boar; the athletic mountaineer is even of the same variety of the human family with the sallow, feeble white inhabitants of a malarious southern coast. These and a thousand similar modifications no one can deny. But in no one of these cases is there any departure from the original type. There is no change of structure indicating a difference in the interior principle. That remains the same, and therefore in all these cases the skeleton is the same—the number and arrangement of the bones are the same; the muscles, blood-vessels and nerves are all the same, because the functions to be performed are the same. It is the neglect of the simple principle that no peculiarity of an external kind should be taken as evidence of specific difference, which is not indicative of the nature of the immaterial principle, that has led to the undue multiplication of species of which naturalists complain, and to much of the confusion which overhangs this subject. As we have just seen in the quotation from Dr. Carpenter, a slight corrugation in a shell, which had nothing to do with the nature of its inhabitant, being assumed as a criterion, led to the multiplication of one species into six. The same writer says that an erroneous multiplication of species of birds has been occasioned by the change of plumage at different seasons. The discrimination of species must ever remain uncertain and arbitrary, so long as peculiarities which are not significant, and therefore make no revelation of the nature of the animal, are assumed as criteria.

In the second place, if it be the immaterial principle which determines the species, and secures its constancy from generation to generation, then it follows that physiology is a surer guide in the discrimination of species than peculiarities of external form. The latter are far more subject to the modifying influences of subordinate causes, than the interior nature of the animal. In other words, the φύσις is a more immediate and

reliable revelation of the immaterial principle than external peculiarities. It is more certain that the germinating spot in a hen's egg will develop itself into an animal of the same nature with the parent bird, than that the new animal will exhibit all the peculiarities of size, colour, proportion, and sculpture of its parent. These latter may be modified by accidental circumstances; the former is everywhere the same. The domestic fowl is recognized as the same animal in all its varieties, in all parts of the world, because it has the same senses; the same laws govern its respiration, its digestion, the circulation of its blood, its mode of reproduction, its periods of incubation, of progress, and decline. It has the same cravings, and the same food. In short it has the same nature, therefore the species is the same. In like manner the wolf widely diffused over the earth, varying in size, colour, and proportion, has everywhere the same nature. What physiology reveals of the laws of the interior life of the wolf of America, it teaches of the wolves of Europe and Asia. So of the horse, the dog, the lion, the tiger. Identity of nature is proof of identity of species. If the *φύσις* be the same, the immaterial principle is the same; and if the immaterial principle be the same, Agassiz being judge, the species is the same.

In the third place, the immaterial principle, or species, is manifested through the *ψυχή*. Every animal has its psychology, as well as its physiology. The same species has everywhere the same habits, propensities, and instincts. The bee everywhere builds a hexagonal cell; the beaver everywhere builds a dam; the rabbit everywhere burrows in the earth; birds build their nests after the same fashion, each according to its kind. These instincts remain unchanged from age to age. The elephant has the docility and sagacity, the dog the fidelity to man, the fox the cunning, they had thousands of years ago. These instincts, although thus permanent in their essential character, may be modified by training and change of circumstances, within certain limits. As one man has an eye for painting, another an ear for music, another a genius for mechanics or mathematics, so some dogs have a peculiar keenness of scent; some have a mild, and others a ferocious temper. But all these modifications leave the original physical basis un-

changed. They are not greater than are found among men confessedly belonging to the same division of the human race, and even between the children of the same parents. Besides the infinite diversity of individual character, there are family and national peculiarities distinctly marked, and transmissible from one generation to another. It is impossible to give a Frenchman the character of an Irishman, or an Irishman that of a Frenchman. Yet everything that pertains to human nature belongs as much to the one as to the other. Psychology is not one thing in France, and another thing in Ireland—nor one thing in Europe, and another thing in Asia. The wolf is a wolf, and a lion a lion, and a man is a man, the world over, in every thing which relates to the characteristic propensities of their nature. Here again the argument is, if the $\psi\upsilon\chi\eta$ be the same, the immaterial principle is the same; and if the immaterial principle be the same, the species is the same.

Under Agassiz's guidance we have thus arrived at the conclusion that the criteria of species, as consisting in peculiarities of size, colour, proportion and sculpture, even when these peculiarities are permanent, or extend beyond the limits of actual observation, are altogether inadequate. He has taught us that the species is determined by what lies back of the material development, and determines its character; that this immaterial principle is to be identified and its species decided by those varieties of external form which indicate design; by the physiological and psychological characteristics of the animal whose nature it constitutes.

Most of the popular definitions of species are more or less open to similar objections. Cuvier says: "We are under the necessity of admitting the existence of certain forms which have perpetuated themselves from the beginning of the world, without exceeding the limits first prescribed; all the individuals belonging to one of these forms constitute what is termed a species." De Candolle says: "We write under the designation of species all those individuals who mutually bear to each other so close a resemblance as admits of our supposing that they may have arisen from a single pair."* The objections to

* Introduction to the English edition of Pickering's *Races of Men*, p. xxxii.

these definitions are, 1. That they do not tell us what species is, but what groups are to be referred to one species and what to another. 2. That they refer to similarity of form as the only criterion; and 3. That they give us no means of distinguishing between species and permanent varieties.

Instead of relying on constancy of peculiarities, others make community of descent the criterion of species. Thus Dr. Prichard says, that under the term species are included all those animals which are supposed to have arisen in the first instance from a single pair. And Dr. Carpenter says: "When it can be *shown* that two races have had a separate origin, they are regarded as of different species; and, in the absence of proof, this is *inferred*, when we see some peculiarity of organization characteristic of each, so constantly transmitted from parent to offspring, that the one cannot be supposed to have lost, or the other to have acquired it, through any known operation of physical causes." The two obvious objections to this are, 1. That community of origin in the vast majority of cases cannot be proved; or it is the very thing to be proved, and therefore cannot be assumed. 2. That diversity of origin is no proof of diversity of species. If God had created one pair of lions in Asia, and another in Africa, they would still be identical in species; for identity of species is only sameness of kind.

Agassiz in his later writings has adopted Dr. Morton's definition, which makes different species to be different "primordial forms." But this is the same thing over again. How are we to tell what forms are primordial? We have seen twenty times over that a peculiarity of form having existed at the earliest period of observation is not regarded by naturalists as proof that it has existed from the beginning. Besides, in the sense in which the word is here used, species is not form. It is not external configuration. This is only one, and as we have seen, beyond certain limits, the most unreliable of its manifestations. To say, therefore, that species are primordial forms, leaves us exactly where we were. If dogs with their acquired peculiarities of form can remain of the same species, had they been created with those peculiarities they would still have been of the same species. If one horse were created a Shetland pony

and another a barb, both would be as much identical in nature as they are now. In another sense of the word *form*, it is synonymous with species. This any dictionary teaches us: "Genus et species, quam eandem *formam* Cicero vocat," *Quinctil. Inst.* 5, 10, 62. It of course does not amount to much to define a word by its synonyme. In the scholastic or philosophical meaning of the term, the form of a thing is its *esse*, that which makes it what it is. It is the essence with its determination. But this sense is foreign from common usage, and would not suggest itself to any reader; neither is it the one intended by the author or advocates of the definition in question. If they would allow us to take the word in that sense we should be satisfied, so far as the meaning is concerned, but should still object to the definition as certain to be constantly misunderstood, and therefore to be a prolific source of error.

Professor Dana of Yale College, so far as our reading extends, is the only naturalist who has presented this subject in its true light. "Species," he says, "are the units of nature."* His formal definition is, "A species is a specific amount or condition of concentrated force, defined in the act or laws of creation," p. 860. We do like this language. We do not approve of the disposition among naturalists to merge substances into forces. Matter, however incapable of definition or conception in itself considered, is not mere force. Force is the revelation of being, and that being is other than the being or essence of God. The same is true of immaterial beings. Thought is not a definition of mind, nor is vital power a definition of a living substance. It is not the form of expression, therefore, that commends itself to our mind, but the idea intended to be conveyed. What Agassiz defines as the immaterial principle or "nature," (*φύσις* or *οὐσία*), on which the permanence of species depends, are, as we understand Professor Dana, the units of nature. "The units of the inorganic world," he says, "are the weighed elements and their definite compounds or their molecules. The units of the organic are *species*, which exhibit themselves in their simplest condition in

* See his instructive paper in the *Bibliotheca Sacra* for October, 1857.

the germ-cell state. The kingdoms of life in all their magnificent proportions are made from these units," p. 863. On a previous page he says, "When individuals multiply from generation to generation, it is but the repetition of the primordial type-idea; and the true notion of species is not in the resulting group, but in the idea or potential element which is at the basis of every individual of the group."* We therefore understand Professor Dana to agree with Professor Agassiz in regarding the immaterial principle as that which determines the species, so that where that is the same, the species is the same. The question, therefore, whether any two or more animals belong to the same or to different species, is a question whether the immaterial principle belonging to them be the same or different. We have already seen that, apart from revelation and history, the only possible way of determining this point is, the external organization, the physiology, and the psychology of the animals in question. If these are the same in everything which is indicative and revealing, then by all the laws of logic the species is the same.

It follows from all that has been said, that the great characteristics of species are originality, universality, and immutability. 1. By originality is meant that species are underived, owing their existence and character to the immediate creating power of God. As to this point all naturalists, or at least naturalists of all classes, are agreed. This is taught by Cuvier, who says we are forced to admit that species have perpetuated themselves from the beginning of the world. This also is the doctrine of Agassiz, of Dr. Morton, and of all who define species to be primordial forms. This, too, is the view of those who are so desirous to prove that varieties of the human race are different species. They mean by this, that they have differed from the beginning, each having its own origin. It is included in the originality of species that no new species can be produced by external causes, or by the intermixture of dif-

* Professor Dana says, p. 862, that "Dr. Morton presented nearly the same idea when he described a species as a *primordial organic form*." If this be so, then the word *form* must be taken in its scholastic sense. In its ordinary meaning, *form* is not "force," or "law," or "idea," or "potential element," all which terms Professor Dana uses to express his notion of species.

ferent races. Diversity of species supposes diversity of origin. This fact, although naturalists often forget it, is their own almost universally admitted doctrine. "It is a law of nature," says Agassiz, "that animals as well as plants are preceded only by individuals of the same species; and *vice versa*, that none of them can produce a species different from themselves." Each, therefore, must have had its own distinct origin.

2. Universality. By this is meant, that everything essential and characteristic belonging to any individual of a given species, belongs to every other individual included in it. What constitutes the species lies at the basis of every individual embraced in the whole group. This of course is not disputed. It is only another way of saying that things which are equal to the same are equal to one another. Whatever belongs to the nature of a lion is common to all lions.

3. Immutability or permanence. By this is meant, that the only way that a species can be destroyed is by destroying all the individuals which belong to it. It is by the law of God permanent. Like begets like; and one species does not mingle with another so as to produce a third; nor is one ever merged into another so as to be thereby lost or confounded. This is a general principle which until of late has been universally admitted. In proof of this point, we may refer, in the first place, to the great outstanding fact, that the different species of animals which inhabit our earth, have existed distinct as far back as our knowledge extends. The horse, the dog, the lion, the tiger, the wolf, the elephant, the camel, the sheep, are now what they were in the days of Abraham. Cuvier says that Aristotle describes the elephant better than Buffon does. There has been no confusion from the intermixture of distinct species. The fact that animals of nearly allied species, as the horse and ass, may produce a hybrid, (as a mule, for example,) does not conflict with this statement. Because the product of such discordant unions either remain unprolific, or they die out in a few generations, or by union with individuals of the pure blood the foreign element is eliminated, and the original type is restored.

The two greatest authorities on the subject of hybridity are the Rev. Dr. Bachman of this country, and M. Flourens of

Europe. Both have paid special attention to the subject, and instituted numerous and long-continued experiments to determine the question. The latter, from his official position at the *Jardin des Plantes*, has had the fullest opportunities for the investigation. Both have arrived at the settled conviction that species are immutable; that hybrids are sterile, or die out in a few generations. M. Flourens thus states the conclusion to which his long-continued experiments have led him: "Either hybrids, born of the union of two distinct species, unite and soon become sterile, or they unite with one of the parent stocks, and soon return to this type—they in no case give what may be called a new species, that is to say, an intermediate durable species." "Les espèces ne s'altèrent point, ne changent point, ne passent point de l'une à l'autre; les espèces sont FIXES."* This fact stares us constantly in the face. The oaks and pines of our day are the oaks and pines of our fathers, and of our fathers' fathers, from the very beginning. No one denies this. No one expects the different races or species of plants and animals to change, any more than they expect other laws of nature to change.

It seems strange that naturalists in search of truth, should apparently for the sake of establishing a foregone conclusion, appeal to isolated cases of coerced connection of individuals of different species; gathering their examples from the ends of the earth, and from reports of questionable authority. How can such examples invalidate a law? Where are these mongrel races? Where are the hybrid descendants of the lion and tiger, of the wolf and fox, of the ass and zebra, of the leopard and panther? Has not the experiment been tried long enough during thousands of years? Has not the whole earth been a theatre wide enough on which to make the trial? The experience of ages and the observation of nations have established it as a law, that "beings of a distinct species, or descendants from stocks originally different, cannot produce a mixed race which shall possess the capability of perpetuating itself."†

* *De la Longevité Humaine, &c.*, par P. Flourens, Paris, 1855. We quote from Dr. Nott's Appendix to the translation of Count de Gobineau's work on the Moral and Intellectual Diversity of Races, p. 495.

† Dr. Carpenter, p. 984.

In the second place, permanence is involved in the very idea of species. Indeed this among naturalists is its great criterion. "The ground upon which," says Agassiz, "animals are considered as distinct species, is simply the fact, that, since they have been known to man, they have always preserved the same characteristics."* Dr. Nott, seeing the insufficiency of any other means of proving the varieties of man to be distinct species, renounces all other criteria, and argues, that as living species of animals are distinguished as different species, "simply upon their permanency of type, as derived from history," therefore, "the races of men depicted on the monuments of Egypt, five thousand years ago, and which have maintained their types through all time and all climates since, are distinct species.† He adduces Professor Leidy's authority, who says, "A species of plant or animal may be defined to be an immutable organic form, whose characteristic distinctions may always be recognized by a *study of its history*," p. 479. The favourite definition of species among naturalists, as we have seen, is, "primordial organic forms." Agassiz's whole theory is founded on the belief of the immutability of species. He maintains that the different varieties of men are not to be referred to the influence of secondary cause, or to intermixture, but that they were created as they are and where they are. How is all this to be reconciled with the doctrine of hybridity? If the idea of species is that of an original and permanent organic form, how can distinct species mingle and produce other and mongrel races *ad libitum*? If species are original, they cannot be produced; and if they cannot be produced, they cannot intermix; for the result of such intermixture, according to the doctrine of hybridity, is the production of new species, i. e. of new, permanent organic forms. It is therefore at the expense of all consistency, of all uniformity in the use of terms, and of all certainty in science, to teach that distinct species can be united so as to give rise to new self-perpetuating races.

It is a palpable contradiction to say that species are original and permanent, and yet that they can be produced and obliterated; and to say that hybrids can be permanently prolific,

* Types of Mankind, p. LXXIV.

† Appendix to Gobineau, p. 478.

is to say that specific differences are neither original nor permanent. If, therefore, species are what these naturalists pronounce them to be, the fact that two races or varieties of animals produce permanently prolific offspring is proof positive that they belong to the same species, naturalists must either alter their definition, and overthrow the very foundations of their science, or they must admit that permanently prolific hybrids are impossible. If they choose to confound the words species and variety, and make every permanent diversity of form proof of diversity of species, very good. It is a mere question of words. But they cannot teach that species are original and permanent—that the varieties of men must have had different origins because their distinctive characteristics have existed for ages—and at the same time maintain that hybrids may be permanently prolific. If this conclusion flows *ex necessitate*, even from the idea of species which makes the external organism everything, much more does it flow from the juster and more profound view of the nature of species which Professor Dana has presented, and which, as we have seen, Agassiz himself frequently propounds. If species are the units of nature, if it is the immaterial principle, as Agassiz says, that gives them character and permanence, then they are raised above the sphere of mutation. They are, so to speak, the thoughts of God; the ideas which from the beginning he determined to express by means of these organic forms and the internal nature therewith connected. If these can be mixed and confounded, then the book of nature becomes unintelligible. You might as well take the letters of a printed page and throw them together pell-mell, and expect them still to spell words significant of thoughts of truth and beauty.

In the third place, this doctrine of the mingling of distinct species is not only contrary to the experience of ages on the wide theatre of the earth's surface, and to the fundamental idea of species as given even by the advocates of the doctrine—it would not only, if true, lead to utter confusion in the vegetable and animal kingdoms, but it is in entire contradiction to the whole analogy of nature.

The permanence of the laws of nature, and the certainty of their operation, are the basis of all science, and the indispensa-

ble condition even of the existence of living creatures. If the law of gravitation could cease to be what it is; if heat could cease to be heat, and light to be light, what would become of the world and its inhabitants. If caloric could combine with magnetism, and become a hybrid, something neither the one nor the other—if the elementary principles of nature could be thus confounded, it is obvious that chaos would prevail. "The units of the inorganic world," says Professor Dana, in a passage already quoted in part, "are the weighed elements and their definite compounds, or their molecules. The units of the organic are species, which exhibit themselves in their simplest condition in their germ-cell state. The kingdoms of life in all their magnificent proportions are made up of these units. Were these units capable of blending with one another indefinitely, they would be no longer units, and species could not be recognized. The system of life would be a maze of complexities; and whatever its grandeur to a being that could comprehend the infinite, it would be unintelligible chaos to man. . . . It would be to man the temple of nature fused over its whole surface, and through its structure, without a line the mind could measure or comprehend."* As therefore the universe in all its parts is constructed on a definite plan, as the laws of nature are uniform, as the constituent elements of the material world are permanent, it would be in strange contradiction with this universal analogy, if in the very highest department of nature, in the organic and living world, everything should be unstable, that species could mingle with species, and confusion take the place of order and uniformity. So far as our limited reading extends, this doctrine of hybridity is maintained only by those who deny the specific unity of mankind. As the different races of men freely unite and produce offspring permanently prolific, it becomes absolutely necessary for this class of naturalists to maintain that distinct species may give rise to permanent races. They therefore hunt the world over for examples of such prolific unions, and what does it all amount to? No such thing exists on the face of the earth as a race of animals known to have sprung from parents belonging to different species. This fact is itself enough.

* *Bibliotheca Sacra*, October 1857, p. 863.

If we have succeeded in convincing our readers that species in animals depends on the immaterial principle, which manifests itself in the external organization, in the *φύσις* and the *ψυχή*, then the question whether mankind are of one or of different species can, in their minds, admit of no debate. No one denies that the external organization of all men, amid all their diversity of size, colour, proportion, and sculpture, is the same in everything which indicates design, or which serves to reveal the interior being. The skeleton is the same as to the number and arrangement of the bones; the limbs are the same; the muscles, the blood vessels, and their distribution are the same in all. The physiology and psychology of all men are precisely the same. This no one denies. But this is all that is meant by identity of species. It is the sameness of nature. Let it not be supposed that we have Agassiz against us on this point. Agassiz is a genius, but he is no logician. He does not discriminate in the use of words. He says and unsays the same thing, sometimes on the same page. He tells us the species is determined by the immaterial nature, and he further tells us that all men have the same immaterial nature, and yet they are of different species. This contradiction arises from using the same word in different senses. Taken in its true, legitimate, and established sense, as expressing identity of nature, mankind are of one species; taken in the sense of a primordial organic form, Agassiz says, they are of different species; that is, they have had different origins, and have differed from the beginning. This is not now the point before us. We are anxious to show the unity of mankind, the doctrine that they are identical in nature, as truly as the varieties of the horse, or of any other widely diffused terrestrial animal. This we think we have fairly done on the principle laid down by Agassiz himself. No definition of species can be authenticated and established on a scientific basis, which will not include in it all the varieties of the human. Even admitting they had different origins, yet if their interior nature is the same, their external organization, their physiology and psychology, then are they the same in every sense in which the inhabitants of France or England are the same. In addition to the identity of the *σῶμα*, *φύσις* and *ψυχή*, which are the

constituent elements of irrational animals, there is a higher bond of union among men in the identity of the $\piνεῦμα$. The rational and immortal soul belongs to all, and is the same in all. This puts them in a class by themselves, and identifies them as a class. The rational soul of the Caucasian, of the Mongolian, and of the African, do not differ the one from the other, more than the soul of one Englishman differs from that of another. There may of course be a great difference in the mental endowments of different races of men, as there are among the different members of the same family. But this does not affect the question of identity. The essential faculties are the same in all. All have the powers of understanding, will, and conscience. These are the elements of our higher nature. Where these are in any inhabitant of our earth, there a man is. Where these are not, there human nature is not. No man whose whole life has not been devoted to material pursuits, whose mind is not so trained to the observation and examination of physical laws, and the phenomena of matter, as to be incapable of appreciating the immaterial and spiritual, could ever doubt the unity of mankind. Unfortunately with many naturalists, the only infallible rule of faith and practice is the scalpel and the microscope. There are, however, truths which neither scalpel nor microscope can reveal, and which, therefore, such naturalists cannot be expected to believe. With them the body is everything. If that be the same, the animal is the same; if it differs, the animals differ. With others, happily, the case is reversed. If the immaterial principle be the same, the animal is the same, and if different, different. Put the $\psiυχῆ$ of a fly into the body of a bee, and it would cease to be a bee. An angel clothed in a human body would be angel, and not a man. The devil when he took upon him the form of a serpent was the devil still. We adhere to Agassiz's saving doctrine, that the immaterial principle determines the species, in spite of unimportant external differences. And as, beyond all controversy, the immaterial, the rational and immortal principle in the Caucasian, the Mongolian, and the African, is the same, so beyond all righteous contradiction they are the same in species. As the immaterial principle cannot be produced by secondary causes, any man

who has ever looked an intelligent, moral, pious African in the face, has had a divine attestation to the unity of mankind, and to the universal brotherhood of man. In this view of the subject, how small a business it is for one naturalist to be measuring the facial angle, another the base of the skull, another to subject a hair to the microscope, in order thus to prove that men are of different species! How can the nature of a human being be determined by such a process? Naturalists may say what they please, a man is man in virtue of his interior nature, their technicalities of classification to the contrary notwithstanding.

It is of course a strong confirmation of the specific identity of all the varieties of the human family, that they are capable of intermixture. The Caucasian and African, the Mongolian and Australian, may intermarry, and their offspring perpetuate their race. In South America they have sixteen distinct names for the various combinations of the European, the Negro, and the Indian. There are over four hundred thousand mulattoes in the United States; and they are just as able to perpetuate their race as either the whites or blacks. That in many instances they are less robust, and more liable to disease than the pure races, may be easily accounted for from their peculiar circumstances, or on the same general principle that the children of near relations are apt to degenerate. The physical peculiarities of the two races may not suit each other, just as it often occurs among families belonging to the same nation, or even village. The great fact, however, of the capability of the different races of men to produce by intermarriage a permanently prolific offspring, is not affected by such considerations. The significancy of that fact has already been noticed. If species are "the units of nature;" if the analogy of the whole animal kingdom, and the analogy of universal nature, is not violated in the single instance of man, the above fact is proof positive that all men are of one and the same species. And this, as Dr. Cabell has abundantly shown, is the conviction of the first men in all departments of science.

We have left ourselves little space for remark on the question of the common origin of our race. As before admitted, this is not a necessary conclusion from identity of species. It

is conceivable that plants and animals of the same kind may have been created at different times and places. In reference to the origin of men, we find the following opinions: 1. The scriptural view of the subject, that all mankind are descended from one man and one woman. 2. That each of the distinct varieties of our race, whether few or many, had a distinct origin, each from a single pair. 3. That men were created in nations, adapted to their several locations. The second and third of these views do not essentially differ. Those who hold the second are willing enough to accept the third. The only important question is, whether men have had a common parentage, or are derived from sources originally distinct.

Until recently there was no dispute on this subject among those naturalists who acknowledge either the specific or generic unity of man. Unity of species, at least, was universally considered as involving unity of origin. All the great authorities in science, from Cuvier down, as well as those of the earlier schools, included in their definition of species the idea of community of origin. This is still the doctrine of the highest class of scientific men. Dr. Cabell quotes from the contributions of Professor Forbes to the "Memoirs of the Geological Survey of Great Britain," in which the author adduces the strongest arguments to prove that even among plants, identity of species is evidence of a common origin, (p. 184.) Agassiz himself seems to admit this in his later writings. For, whereas he formerly strenuously maintained the specific unity of men, while asserting the diversity of their origin, he now, seeing that these two things cannot hang together, admits that since they have had different origins, they must be different species. We have a right therefore to claim even his authority for saying that if men are all of the same species, they are all descended from the same parents. We shall see directly, that this admission works utter confusion and ruin to Agassiz's whole theory. But that is not now the point. All we wish at present is to show that we have the highest scientific authority for saying that all the arguments which prove the specific unity of men prove also their common parentage. This goes a great way towards settling the question. - Until recently, Agassiz himself admitted the proof that men are "everywhere one identical

species" to be perfectly conclusive; and he only avoids this conclusion now by altering his definition of the term. He still admits that men are of the same "nature," while he denies that they are of the same species. This, in our view, and according to Agassiz's own higher doctrine, is admitting and denying the same thing.

But conceding that plants and animals of the same species may have been in fact created at different times and places, this much must be on all hands admitted, viz. that if men are of the same species they *may* have had a common origin. In other words, no diversities of race consistent with unity of species can be inconsistent with the unity of origin. If, therefore, the Caucasian, the Mongolian, and the African do not differ more from each other more than is consistent with identity of species, there is no reason to be founded upon these differences in favour of their being of distinct origins. We have already referred to the inconsistency of naturalists on this subject. They admit all the aborigines of this continent to be the same race, and yet the finest and most degraded specimens of humanity are to be found among them. No two varieties of man can well be more widely separated than some of our northern Indians and the miserable inhabitants of Terra del Fuego. It is, however, unwise to judge by extremes. If you place the mastiff and lapdog side by side, you might doubt the possibility of a common descent; but when all the intermediate steps are taken into view, the case is altered. So if a beautiful Caucasian be contrasted directly with a Hottentot, the disparity may appear to forbid a common parentage, however remote. But when all the numerous intervening gradations in colour, countenance and structure are contemplated, all improbability of a common origin disappears. Besides, it would not be difficult to select from the palaces and hovels of any great city contrasts scarcely less striking. Nay, what contrast can be greater than that between a blooming girl of sixteen, and the same person at eighty, worn down, it may be, by vice, exposure and starvation. Any one who can identify such a girl with such a woman, need stagger at nothing in the varieties of men. All, however, we are concerned about at present is to show that mankind being admitted (as by Agassiz until

recently,) or proved to be of the same species, they are thereby admitted to be capable of a common descent, notwithstanding their distinguishing peculiarities.

The great argument against the common parentage of men is the permanence of the varieties existing among them. As Agassiz, as we have seen, says that the only reason for regarding lions and tigers as distinct species, and as having had different origins, is that as long as known they have been distinguished by their present characteristics. The same principle, he urges, should lead us to assign different origins to the different races of men. Dr. Nott, speaking of Dr. Prichard says, that "he perceived in the distance a glimmer of light from the time-worn monuments of old Egypt destined eventually to dispel the obfuscations with which he had enshrouded the history of Man; and to destroy that darling unitary fabric on which his energies had been expended."* Had he lived, he adds, until the mighty discoveries of Lepsius had been given to the world, he would have found he had wasted his life. The idea is that the Egyptian monuments prove the existence of the present diversities of men thousands of years before Christ, and thereby prove that they must have had different origins. It would have been candid in Dr. Nott to inform his readers that Lepsius is a firm believer in the unity of mankind, which his splendid discoveries are said to disprove. The fact however that negroes are depicted in the Egyptian monuments is no evidence against the common parentage of mankind, 1. Because the most learned Egyptologists are by no means agreed or certain as to the dates of those monuments. 2. Because varieties of other animals are there depicted which naturalists admit to have had a common origin. 3. Because a thousand years is acknowledged to have intervened between the earliest representations of the negro face and the date of those monuments on which only Caucasian features are represented. Birch and Lepsius assign the most ancient monuments to 3890 B. C. Dr. Nott claims for the earliest negro delineation the 24th century B. C. *Dr. Cabell*, p. 61. 4. Because changes of types are known to have occurred within comparative short periods.

* *Types of Mankind*, p. 56.

Reference has already been made to the rise of a marked variety of cattle in South America, within the memory of man. Two hundred years of exposure, ignorance, and hunger, have sufficed to transform a people, in the mountains of Iceland, "oncé well-grown, able-bodied, and comely," into a race distinguished by projecting mouths, prominent teeth, exposed gums, pot-bellied, bow-legged, and abortively featured," *Cabell*, p. 98. Within the limits of modern history, the Magyars of Hungary, while preserving the purity of their blood, have laid aside their Mongolian features and structure, and acquired the characteristics of the Caucasian race. "Thus," says Dr. Carpenter, "we have the Lapps, Finns, and Magyars, three nations or tribes, of whose descent from a common stock no reasonable doubt can be entertained, and which yet exhibit the most marked differences in cranial characters, and also in general conformation; the Magyars being tall and well-made, as the Lapps are short and uncouth. The inky Hindu, black for centuries, and the fair Saxon, as their language proves, have had a common origin. It is vain, in view of such facts as these, and hundreds of others of like import, to assert that the existence of diversities of race from even the earliest records of profane history, necessitates the assumption of diversity of origin.

There is still less force in the argument against the common parentage of men derived from the fact of the distribution of the race over the whole earth. Man is able to adapt himself to all climates. Europe, Asia, and Africa form one continuous continent. America approaches Asia so nearly to the north-west, that Dr. Pickering says, it is hard to tell where America ends and Asia begins;* and the islands of the Pacific, and of the Indian ocean, are placed as stepping stones for the progress of the race. Trade winds and currents carry the canoes of savage tribes over large tracts of water, so that the diffusion of men over the earth is not a matter of difficult explanation.

Agassiz's great argument is founded on the geographical distribution of animals, which he regards as affording decisive evidence that they originated in their respective districts; affording also a strong proof that the several varieties of

* *Races of Men*, (London edition) p. 296.

men originated where they now live. Certain animals are found exclusively in certain zones; others are common to two or more zones, and others again are more or less distributed universally, as the bat and the rat, which are found everywhere, except within the arctic regions. Those animals which are peculiar to a particular region are generally so organized, that they cannot live elsewhere than within their own prescribed limits. The white bear would perish in the torrid zone, and the monkey could not live within the arctic circle. These animals also are fitted to live on the productions of the district for which they were intended, and could find their appropriate food no where else. In his *Zoology*, p. 177, Agassiz says, "neither the distribution of animals, therefore, any more than their organization, can be the effect of external influences. We must, on the contrary, see in it a realization of a plan wisely designed, the work of a Supreme Intelligence, who created at the beginning, each species of animal at the place, and for the place, which it inhabits." In the *Christian Examiner*, p. 190, he says, "Evidence could be accumulated to show, we will not say the improbability only, but even the impossibility, of supposing that animals and plants were created in single pairs, and assumed afterwards their present distribution. . . . We have been gradually led to the conclusion that most animals and plants must have originated primitively over the whole extent of their natural distribution. We mean to say that, for instance, lions, which occur over almost the whole of Africa, over extensive parts of Southern Asia, and were formerly found even over Asia Minor and Greece, must have originated over the whole range of these limits of their distribution. We are led to these conclusions by the very fact that the lions of the East Indies differ somewhat from those of Northern Africa; these again from those of Senegal. It seems more natural to suppose that they were thus distributed over such wide districts, and endowed with particular characteristics in each, than to assume that they constituted as many species; or to believe that, created anywhere in this circle of distribution, they have gradually been modified to their present differences in consequence of their migration." His contribution to the "Types of Mankind" is designed "to show

that the boundaries, within which the natural combinations of animals are known to be circumscribed upon the surface of our earth, coincide with the natural range of distinct types of man." He divides the earth into eight realms, each of which is subdivided, some into three, some into eight provinces, distinguished by their characteristic faunæ. "The conclusion at which he arrives is, "that the diversity among animals is a fact determined by the will of the Creator, and their geographical distribution part of the general plan which unites all organized being into one great organic conception: whence it follows, that what are called human races, down to their specialization as nations, are distinct primordial forms of the type of man." p. lxxvi. The extent to which he is disposed to carry out his theory may be inferred from a passage on p. lxxviii. "We have the Semitic nations covering the north African and south-west Asiatic faunæ, while the south European peninsulas, including Asia Minor, are inhabited by Græco-Roman nations, and the cold, temperate zone, by Celto-Germanic nations; the eastern range of Europe being peopled by Slaves. This coincidence may justify the inference of an independent origin for these different tribes, as soon as it can be admitted that the races of men were primitively created in nations; the more so, since all of them claim to have been *autochthones* of the countries which they inhabit."

From these extracts it appears that Agassiz denies, 1. That the varieties of animals even when of the same species, (as the lion,) had the same origin; 2. That even those which belong to the same province and are in all respects alike, are descendants of one pair. His theory is that plants and animals arise all over the territory in which they live, or to which they naturally belong. The same he says is true of mankind. The different varieties of men have not only had different origins, but the several varieties instead of being descended each from a single pair, were created in nations. It is important to eliminate from this theory those elements which may be true, or which as concerns religion are unimportant, so as to leave the question of the origin of mankind to stand by itself and on its own merits. First, it may be admitted that animals peculiar to any zone and so constituted that they cannot live outside of its

present limits, were created where they are found. There is nothing in the Bible contrary to this assumption. We have no desire to maintain that the white bear was created in the temperate zone and wandered into the Arctic regions to find a congenial home; nor that monkeys were called into existence in the high table-land of Asia, and then migrated to South America and Africa. 2. It may also be admitted, if naturalists so desire, that many animals were produced in shoals, or flocks, or herds. There is no scriptural reason for teaching that all bees, contrary to their nature, come from a pair of bees, or that all the flies, or all the herrings in the world are the descendants of two parent flies or herrings. The general doctrine among naturalists no doubt is, and in all probability the general truth is, that plants and animals of the same species have had a common origin; but this is not a point in which we are specially interested. When God said, "Let the earth bring forth grass, and the herb yielding seed," &c., there is nothing to intimate that only one plant of each kind was produced. And when he said, "Let the waters bring forth abundantly the moving creatures," &c., or, "Let the earth bring forth the living creatures after his kind," we are not told that only two of each kind were created. Let naturalists adopt what theory they please as to the origin and distribution of plants and inferior animals, so long as they do not apply their theory to man. As however, Agassiz maintains that men are subject to the same law which regulates the distribution of other animals, it is well to know that his whole theory on this subject is regarded by competent authorities as a flight of the imagination. "The learned and talented naturalist, Professor Forbes," says Dr. Cabell, "has conclusively shown that the analogy of inferior animals and plants is altogether adverse to the hypothesis of a plural origin of identical species." p. 192. "The divisions of the earth's surface into eight great zoological realms, each subdivided into a number of subordinate faunæ, as set forth in the 'Sketch,' is purely arbitrary, so far at least as the precise limits of most of the realms are concerned." This is illustrated by his including the whole of the American continent, south of the isothermal line of 32° Fahrenheit, in one province. Why should this be done? The plants and ani-

mals of North and South America differ as much as those of districts which he assigns to different realms. Why is this? It is because the American Indians are regarded as belonging to one type, and therefore the continent they inhabit must be regarded as one zoological realm. Thus, as Dr. Cabell argues, in order to prove that the boundaries which circumscribe natural combinations of animals, coincide with the natural range of distinct types of men, he arranges his realms to suit those types. Again, Dr. Bachman, the first American zoologist in his peculiar department, shows that Agassiz's doctrine that the types of men were created where they are found, involves, in some cases, an impossibility, and therefore it breaks down entirely as a theory. "Life," he says, "can only be maintained in an Esquimaux winter by stores provided in summer." If therefore the Arctic man had been created where he is now found, he could not have survived a single winter, or even a single month. Dr. Pickering also says that plants and animals indigenous to a district exposed to extremes of heat and cold, moisture and aridity, are by nature furnished with the means of protection. He therefore concludes that "man does not belong to cold and variable climates; his original birthplace has been in a region of perpetual summer, where the unprotected skin bears without suffering the slight fluctuations of temperature. He is, in fact, especially a production of the tropics, and there has been a time when the human family had not strayed beyond these geographical limits."* The doctrine therefore that the races of men originated where they are found, is not likely to meet with favour even with naturalists, who look on the subject as a mere question of zoology. This is an aspect of the matter we must leave to them to discuss. Until they are agreed among themselves, Christians, as such, need not be much disquieted.

There are however facts, not connected with zoology, which show that Agassiz's theory cannot possibly be correct. It contradicts history; it contradicts the known affinities of different races, as determined by their language; and it contradicts some of the best authenticated moral and religious truths, which are

* See Dr. Cabell, p. 202.

facts of the highest order. There are two preliminary remarks which it may be well to make before going further. The first is, that the theory, even in the mind of its author, is founded on mere probabilities. It is an inference from a narrow range of facts, all of the same class. He says it is "more natural" to suppose that animals originated over the whole region of their distribution, than that they are descended from a single pair, or were derived from a single centre. It is, in his own view, therefore, of two possible assumptions only the more natural. This is a slight foundation on which to overthrow some of the best authenticated facts in the history and nature of man. And suppose it were the more natural hypothesis in regard to animals adapted to only one region, does that prove anything with regard to man, a cosmopolite, designed to live everywhere, and with a nature capable of adapting itself to all diversities of climate and modes of life? The European can live in the arctic or in the torrid zone; so can the Asiatic or the African. The analogy, therefore, even conceding the facts on which it is founded, is of the feeblest kind. The other remark is this: Agassiz, when he formed his theory of the origin and distribution of animals, held a certain view of the nature of species; since then he has adopted a definition of that term which is inconsistent with his theory. He formerly held that the immaterial principle determined the nature and constancy of species; and consequently where that principle is the same, the species is the same. From this it follows that diversity of origin does not of necessity imply diversity of species. The varieties of the lion, of the horse, or of man, may have been created at different times and places, and yet constitute "one identical species;" because the immaterial principle or nature remains the same in each class of these several varieties. Recently, however, he has adopted the idea that species, "are primordial organic forms." Hence it follows that every variety of the lion becomes a distinct species. So of all other animals. So of man. These varieties, although differing as little as the lion of North Africa from the lion of Senegal, are assumed to be original. They therefore fall under the category of "primordial organic forms." This will necessitate a sweeping change in the classifications of naturalists. Animals univer-

sally regarded as of the same species, must now be considered as distinct. Mankind, instead of consisting of one, three, five, or eight species of the *genus homo*, must consist of hundreds, if not of thousands of primordial organic forms, "even down to their specialization as nations." The Semitic race is one species; the Græco-Roman another; the Celto-German another; the Slaves another. Our American Indians must add some thirty or fifty to the list; for many tribes differ from each other far more than the Celts and Germans, or than the lion of Asia from the lion of Africa. This surely is running the whole thing into the ground. It is a *reductio ad absurdum*. This theory not only overthrows the basis of all zoological classification, by multiplying species without limit, but it utterly confounds and destroys the very idea. A distinction of species is not an arbitrary affair. It is a distinction of nature. To say that two animals are of different species, is to say they are of different natures. This is universally admitted. This is Agassiz's own formally professed and laboriously inculcated doctrine. But what is the difference of nature between the lion of North Africa and the lion of Senegal? or between the Celt and the Slave? When Kossuth was in this country, who ever thought that he was an animal of a different species from the rest of us? Besides, Agassiz and all other naturalists teach us that species are permanent. They do not die out unless they are extirpated, or unless from change in the condition of the earth it is no longer suited for their support. Accordingly, the horse, the ass, the dog, the lion, are now as they were when the pyramids were built. But where are the ancient Egyptians, the old Romans, or the Aztecs, and other strongly marked races of men? They were not extirpated, nor has the earth changed since their day, yet they have disappeared. If they were distinct species, and if species are permanent, why do they not continue, and keep themselves as distinct as the lion and the tiger? It is plain that Agassiz must give up either his theory or his definition. The one is death to the other. It need hardly be added that according to this new doctrine all the recognized criteria of species disappear. Although the Germans and Slaves have their peculiarities, yet they do not differ more than Jews and

Arabs, Irish and Scotch, nor half as much as a Mandan Indian differs from a Californian. Why should the former be regarded as distinct primordial forms, and not the latter? Besides, you may select a hundred Germans and as many Slavonians whom no mortal can distinguish. They will have the same facial angle, the same base of the skull, the same colour, the same hair. How can you tell to which species they severally belong? Only by consulting their baptismal registers. We can easily and in every case tell a horse from an ass, a cat from a tiger, but in thousands of cases no man can tell a German from a Slavonian. Why is all consistency thus given to the winds, and such illogical confusion introduced into books of science? Is it for the sake of establishing what the illustrious Humboldt calls, "la distinction désolante de races supérieures et de races inférieures"? Is it to break the bond of brotherhood among men, and to excommunicate a portion of our race from the church universal of humanity? We gladly acquit Agassiz of any such object. As he sacrifices his logic to his imagination, he is willing enough to sacrifice it to his moral sentiments. He still says that he holds to the unity of nature among men. This, if it means anything, means unity of species. For, according to his own showing, it is the immaterial nature which determines the species. The lion and the tiger, although both belong to the cat tribe, are not of the same nature. The immaterial principle in the one is not what it is in the other. Else, why are they so different? and why do they remain distinct without intermixture, through all generations?

We have endeavoured to show that Agassiz's theory is in conflict with his recent definition of species, and that by enlarging the meaning of the term so as to make the Germans and Selaves, Romans and Celts distinct species of men, he must introduce the utmost inconsistency and confusion into every department of zoology. Our readers we hope will not accuse us of the presumption of even sitting at the feet of Agassiz as a naturalist. It is only with the logic and metaphysics of his speculations we venture to intermeddle.

We must bring this long article as rapidly as possible to a close. What is historically false cannot be zoologically true. Agassiz says, "it is more natural" to suppose that the lions of

North Africa and those of Senegal were created where we find them, rather than they were modified by circumstances. So it would be more natural to suppose that the horse of Canada and those of South America were created within the limits which they occupy, did we not happen to know that they are not indigenous. It is in vain to set up conjectures against facts. The theory of Agassiz contradicts all history. It makes nations known to have had a common origin to be of distinct species. The scriptural ethnography which divides the human family into three great families, the Semitic, Japhetan, and Hamite, is confirmed from so many sources, from tradition, from monuments, from names of tribes and places, from affinities of language, from profane history, that its correctness, apart from all reference to the Divine authority of the Bible, cannot, at least as to its leading features, be reasonably questioned. Agassiz, however, ignoring everything pertaining to history and language, proceeds as a mere zoologist to pronounce affiliated nations to be of entirely distinct origins. The Japhetan race he breaks up into an indefinite number of specifically different nations. The historical connection of all the inhabitants of Europe and Asia, from Ceylon to Iceland, has hardly been doubted, and yet, according to the new theory, they constitute a dozen or twenty "distinct primordial forms of the type of man." This is a sheer impossibility, without even a semblance of probability, if anything beyond zoological facts be taken into view.

Still more flagrant is the opposition of this theory to the facts connected with the affinities of language. If language consisted only of natural sounds, if it depended for its peculiarities on some modification of the vocal organs, or of the instincts of particular races of men, then there might be some propriety in comparing it to the cries and songs of lower animals. But between articulate speech and the natural cries and calls of brutes, there is an impassable gulf. The latter are the product of instinct, and remain the same from age to age. The other is the product of reason, and is in perpetual change. Language is conventional. The selection of certain sounds to express ~~certain things~~ or thoughts is arbitrary. That two nations unconnected and independent should select even eight

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Language

words of the same sound for the same things would be improbable, mathematicians say, in the proportion of a hundred thousand to one. Besides this, there are all the complexities of affixes and suffixes, of conjugation and declension, of syntax and construction, so that if two or more languages exhibit a common character, not only in their vocabularies, but in their grammar and internal structure, the evidence that they had a common origin amounts to demonstration. Comparative philology, therefore, is regarded as a surer guide in tracing the relationship of nations even than history, and is far more trustworthy than external peculiarities of form or colour. The way in which Agassiz deals with this subject, is a surprising illustration of the effect of devotion to one pursuit, to incapacitate the mind to apprehend and appreciate subjects foreign to their vocation. "The evidence adduced," he says, "from the affinities of the languages of different nations in favour of a community of origin is of no value, when we know, that, among vociferous animals, every species has its peculiar intonations, and that the different species of the same family produce sounds as closely allied, and forming as natural combinations, as the so called Indo-Germanic languages compared with one another. Nobody, for instance, would suppose that because the notes of the different species of thrushes, inhabiting different parts of the world, bear the closest affinity to one another, those birds must all have a common origin; and yet, with reference to man, philologists still look upon the affinities of languages as affording direct evidence of such a community of origin, among the races, even though they have already discovered the most essential differences in the very structure of these languages."* Again, in the *Christian Examiner* for 1850, he says, "as for languages, their common structure, and even the analogy in the sounds of different languages, far from indicating a derivation of one from another, seem rather the necessary result of that similarity in the organs of speech, which causes them naturally to produce the same sound." Then why did the Hebrews say *sus*, the Greeks *hippos*, the Latins *equus*, the French *cheval*, the Germans *pferd*, the English *horse*, when they all mean the same thing? "Who

* Types of Men, p. lxxii.

would now deny," he adds, "that it is as natural for men to speak as it is for dogs to bark, for an ass to bray, for a lion to roar, for a wolf to howl, when we see that no nations are so barbarous, so deprived of all human character, as to be unable to express in language their desires, their fears, their hopes? The cry of birds of prey is alike unpleasant and rough in all; the song of all the thrushes is equally sweet and harmonious, and modulated upon similar rythms, and combined in similar melodies; the chit of all titmice is loquacious and hard; the quack of the duck is alike nasal in all. But who ever thought that the robin learned his melody from the mocking-bird, or the mocking-bird from any other species of thrush? It were giving up all induction, all power of arguing from sound premises, if the force of such evidence were denied." Hear that, ye Humboldts and Grimms, ye Bopps and Bunsens! *forces u* To the first naturalist in the world, saying Quack, and speaking Greek are, at bottom, the same thing! The one is as natural as the other. Then all young Greeks without instruction, even if brought up in China, should speak Greek, as all ducks wherever hatched emit the same nasal quack. There cannot be a clearer proof that exclusive devotion to the contemplation of material forms incapacitates the mind to understand mental operations, than that furnished by the above extract. How different is the judgment of competent scholars on this subject! Alexander von Humboldt says, "The comparative study of languages shows us that races now separated by vast tracts of land, are allied together, and have migrated from one common primitive seat. . . . The largest field for such investigations into the ancient condition of languages, and consequently into the period when the whole family of mankind was, in the strict sense of the word, to be regarded as one living whole, presents itself in the long chain of Indo-Germanic languages, extending from the Ganges to the Iberian extremity of Europe, and from Sicily to the North Cape." D. Max Muller says, "The evidence of language is irrefragable, and it is the only evidence worth listening to, with regard to ante-historical periods. . . . There is not an English jury now a days which, after examining the hoary documents of language, would reject the claim of a common descent, and a legitimate relationship between Hindu,

Greek, and Teuton." The Chevalier Bunsen says, "The Egyptian language attests an unity of blood with the great Aramaic tribes of Asia, whose languages have been comprised under the general expression of Semitic, or the languages of the family of Shem. It is equally connected by identity of origin with those still more numerous and illustrious tribes which occupy the greater part of Europe, and may, perhaps, alone or with other families, have a right to be called the family of Japhet." This family, he says, includes the German nations, the Greeks and Romans, the Indians and Persians. Two-thirds of the human race are thus identified by these two classes of languages, which have had a common origin. By the same infallible test Bunsen shows that the Asiatic origin of all the North American Indians "is as fully proved as the unity of family among themselves."* Every day is adding some new language to this affiliated list, and furnishing additional evidence of the unity of mankind. Had we time and space we could exhibit the nature of the evidence derived from this source, and show that it has the force of ocular demonstration, to which the counter evidence of variation in the facial angle and colour of the skin appears as mere trifling. Suffice it to say, that if the affinity between English and Saxon, between French and Latin, prove the blood relationship between the English and Saxon people, and between the French and Romans, then the common origin of the vast body of languages above referred to, proves the common origin of the nations who speak them.

The grand objection after all to any theory of diversity of species or of origin among men, is that all such theories are opposed to the authority of the Bible, and to the facts of our mental, moral, and spiritual nature. The church, as we have said, bows to the facts of nature, because they are the voice of God. Theories are the stammering utterances of men before which she holds her head erect. The Bible says that all men are children of a common Father. Accordingly, wherever we meet a man, no matter of what name or nation, we find he has the same nature with ourselves. He has the same organs, the

* See Dr. Cabell, pp. 213-239.

same senses, the same instincts, the same faculties, the same understanding, will and conscience, the same capacity for religious culture. He may be ignorant and degraded; he may be little above the idiot brother who sits with us at our father's table, but we cannot but recognize him as a fellow-man. The Bible tells us that all men fell in Adam's first transgression. Accordingly, we search the earth around, and we find the evidences of an apostate nature wherever we find the human form. Our adorable Redeemer says that he died for all men, and bids us preach his gospel to every creature under heaven. We go, and nowhere, from Greenland to Caffraria, do we find any class of men to whom the gospel is not the grace of life; none who do not need it, or who are not capable of being partakers of the salvation which it offers. Would that men of science could but enlarge their views. Would that they could lift their eyes above the dissecting table, and believe that there is more in man than the knife can reveal. Then would they feel that the spiritual relationship of men, their common apostasy, and their common interest in the redemption that is in Christ Jesus, demonstrate their common nature and their common origin beyond the possibility of reasonable doubt.

SHORT NOTICES.

The Limits of Religious Thought. Examined in Eight Lectures, preached before the University of Oxford, in the year MDCCCLVIII, on the Foundation of the late Rev. John Bampton, M. A., Canon of Salisbury. By Henry Longueville Mansel, B. D., Reader in Moral and Metaphysical Philosophy at Magdalen College; Tutor and late Fellow of St. John's College. Oxford and London, MDCCCLVIII.

IN our notice, in this Journal for October, 1855, of Sir William Hamilton and his Philosophy, we made special mention of the relation which that philosophy bore to Christianity. When speaking of its great metaphysical canon relative to our knowledge of the unconditioned, we said:—"There is no philosophy which in its spirit, its scope, and its doctrines, both positive and negative, so conciliates and upholds revealed religion