

MENTAL CONSTITUTION OF ANIMALS.

It has been one of the most agreeable tasks of modern science to trace the wonderfully exact adaptations of the organization of animals to the physical circumstances amidst which they are destined to live. From the mandibles of insects to the hand of man, all is seen to be in the most harmonious relation to the things of the outward world, thus clearly proving that *design* presided in the creation of the whole—design again implying a designer, another word for a CREATOR.

It would be tiresome to present in this place even a selection of the proofs which have been adduced on this point. The Natural Theology of Paley, and the Bridgewater Treatises, place the subject in so clear a light, that the general postulate may be taken for granted. The physical

constitution of animals is, then, to be regarded as in the nicest congruity and adaptation to the external world.

Less clear ideas have hitherto been entertained on the mental constitution of animals. The very nature of this constitution is not as yet generally known or held as ascertained. There is, indeed, a notion of old standing, that the mind is in some way connected with the brain; but the metaphysicians insist that it is, in reality, known only by its acts or effects, and they accordingly present the subject in a form which is unlike any other kind of science, for it does not so much as pretend to have nature for its basis. There is a general disinclination to regard mind in connexion with organization, from a fear that this must needs interfere with the cherished religious doctrine of the spirit of man, and lower him to the level of the brutes. A distinction is therefore drawn between our mental manifestations and those of the lower animals, the latter being comprehended under the term instinct, while ours are collectively described as mind, mind being again a received synonyme with soul, the immortal part of man. There is here a strange system of confusion and error, which it is most imprudent to regard as

essential to religion, since candid investigations of nature tend to shew its untenableness. There is, in reality, nothing to prevent our regarding man as specially endowed with an immortal spirit, at the same time that his ordinary mental manifestations are looked upon as simple phenomena resulting from organization, those of the lower animals being phenomena absolutely the same in character, though developed within much narrower limits.*

* "Is not God the first cause of matter as well as of mind? Do not the first attributes of matter lie as inscrutable in the bosom of God—of its first author—as those of mind? Has not even matter confessedly received from God the power of experiencing, in consequence of impressions from the earlier modifications of matter, certain consciousnesses called sensations of the same? Is not, therefore, the wonder of matter also receiving the consciousnesses of other matter called ideas of the mind a wonder more flowing out of and in analogy with all former wonders, than would be, on the contrary, the wonder of this faculty of the mind not flowing out of any faculties of matter? Is it not a wonder which, so far from destroying our hopes of immortality, can establish that doctrine on a train of inferences and inductions more firmly established and more connected with each other than the former belief can be, as soon as we have proved that matter is not perishable, but is only liable to successive combinations and decombinations.

"Can we look farther back one way into the first origin of matter than we can look forward the other way into the last developments of mind? Can we say that God has not in matter itself laid the seeds of every faculty of mind, rather than that he

What has chiefly tended to take mind, in the eyes of learned and unlearned, out of the range of nature, is its apparently irregular and wayward character. How different the manifestations in different beings! how unstable in all!—at one time so calm, at another so wild and impulsive! It seemed impossible that anything so subtle and aberrant could be part of a system, the main features of which are regularity and precision. But

has made the first principle of mind entirely distinct from that of matter? Cannot the first cause of all we see and know have *fraught matter itself, from its very beginning, with all the attributes necessary to develop into mind*, as well as he can have from the first made the attributes of mind wholly different from those of matter, only in order afterwards, by an imperceptible and incomprehensible link, to join the two together?

“ * * [The decomposition of the matter on which mind rests] is this a reason why mind must be annihilated? Is the temporary reverting of the mind, and of the sense out of which that mind develops, to their original component elements, a reason for thinking that they cannot again at another later period, and in another higher globe, be again recombined, and with more splendour than before? * * The New Testament does not after death here promise us a soul hereafter unconnected with matter, and which has no connexion with our present mind—a soul independent of time and space. That is a fanciful idea, not founded on its expressions, when taken in their just and real meaning. On the contrary, it promises us a mind like the present, founded on time and space; since it is, like the present, to hold a certain situation in time, and a certain locality in space. But

the irregularity of mental phenomena is only in appearance. When we give up the individual, and take the mass, we find as much uniformity of result as in any other class of natural phenomena. The irregularity is exactly of the same kind as that of the weather. No man can say what may be the weather of to-morrow ; but the quantity of rain which falls in any particular place in any five years, is precisely the same as the quantity which falls in any other five years at the same place. Thus, while it is absolutely impossible to predict of any one Frenchman that during next year he will commit a crime, it is quite certain that about one in every six hundred and fifty of the French

it promises a mind situated in portions of time and of space different from the present; a mind composed of elements of matter more extended, more perfect, and more glorious: a mind which, formed of materials supplied by different globes, is consequently able to see farther into the past, and to think farther into the future, than any mind here existing: a mind which, freed from the partial and uneven combination incidental to it on this globe, will be exempt from the changes for evil to which, on the present globe, mind as well as matter is liable, and will only thenceforth experience the changes for the better which matter, more justly poised, will alone continue to experience: a mind which, no longer fearing the death, the total decomposition, to which it is subject on this globe, will thenceforth continue last and immortal." —HOPE, *on the Origin and Prospects of Man*, 1831.

people will do so, because in past years the proportion has generally been about that amount, the tendencies to crime in relation to the temptations being everywhere invariable over a sufficiently wide range of time. So also, the number of persons taken in charge by the police in London for being drunk and disorderly on the streets, is, week by week, a nearly uniform quantity, shewing that the inclination to drink to excess is always in the mass about the same, regard being had to the existing temptations or stimulations to this vice. Even mistakes and oversights are of regular recurrence, for it is found in the post-offices of large cities, that the number of letters put in without addresses is year by year the same. Statistics has made out an equally distinct regularity in a wide range, with regard to many other things concerning the mind, and the doctrine founded upon it has lately produced a scheme which may well strike the ignorant with surprise. It was proposed to establish in London a society for ensuring the integrity of clerks, secretaries, collectors, and all such functionaries as are usually obliged to find security for money passing through their hands in the course of business. A gentleman of the highest character as an actuary spoke of the plan in the

following terms :—“ If a thousand bankers' clerks were to club together to indemnify their securities, by the payment of one pound a year each, and if each had given security for 500*l.*, it is obvious that two in each year might become defaulters to that amount, four to half the amount, and so on, without rendering the guarantee fund insolvent. If it be tolerably well ascertained that the instances of dishonesty (yearly) among such persons amount to one in five hundred, this club would continue to exist, subject to being in debt in a bad year, to an amount which it would be able to discharge in good ones. The only question necessary to be asked previous to the formation of such a club would be,—may it not be feared that the motive to resist dishonesty would be lessened by the existence of the club, or that ready-made rogues, by belonging to it, might find the means of obtaining situations which they would otherwise have been kept out of by the impossibility of obtaining security among those who know them? Suppose this be sufficiently answered by saying, that none but those who could bring satisfactory testimony to their previous good character should be allowed to join the club ; that persons who may now hope that a deficiency on their parts will be made up and

hushed up by the relative or friend who is security, will know very well that the club will have no motive to decline a prosecution, or to keep the secret, and so on. It then only remains to ask, whether the sum demanded for the guarantee is sufficient?"* The philosophical principle on which the scheme proceeds, seems to be simply this, that, amongst a given (large) number of persons of good character, there will be, within a year or other considerable space of time, a determinate number of instances in which moral principle and the terror of the consequences of guilt will be overcome by temptations of a determinate kind and amount, and thus occasion a certain periodical amount of loss which the association must make up.

This statistical regularity in moral affairs fully establishes their being under the presidency of law. Man is now seen to be an enigma only as an individual; in the mass he is a mathematical problem. It is hardly necessary to say, much less to argue, that mental action, being proved to be under law, passes at once into the category of natural things. Its old metaphysical character vanishes in a

* Dublin Review, Aug. 1840. The Guarantee Society has since been established, and is likely to become a useful and prosperous institution.

off those tricks in which we see the comicality and mischief-making of our character so curiously exaggerated.

The unity and simplicity which characterize nature give great antecedent probability to what observation seems about to establish, that, as the brain of the vertebrata generally is just an advanced condition of a particular ganglion in the mollusca and crustacea, so are the brains of the higher and more intelligent mammalia only farther developments of the brains of the inferior orders of the same class. Or, to the same purpose, it may be said, that each species has certain superior developments, according to its needs, while others are in a rudimental or repressed state. This will more clearly appear after some inquiry has been made into the various powers comprehended under the term mind.

One of the first and simplest functions of mind is to give *consciousness*—consciousness of our identity and of our existence. This, apparently, is independent of the *senses*, which are simply media, and, as Locke has shewn, the only media, through which ideas respecting the external world reach the brain. The access of such ideas to the brain is the act to which the metaphysicians have

for its organic apparatus—is variously developed in different classes and species, and also in different individuals, the volume or mass bearing a general relation to the amount of power. In the mollusca and crustacea we see simply a ganglionic cord pervading the extent of the body, and sending out lateral filaments. In the vertebrata, we find a brain with a spinal cord, and branching lines of nervous tissue.* But here, as in the general structure of animals, the great principle of unity is observed. The brain of the vertebrata is merely an expansion of one of the ganglions of the nervous cord of the mollusca and crustacea. Or the corresponding ganglion of the mollusca and crustacea may be regarded as the rudiment of a brain; the superior organ thus appearing as only a farther development of the inferior. There are many facts which tend to prove that the action of this apparatus is of an electric nature, a modification of that surprising agent, which takes magnetism, heat, and light, as other subordinate forms, and of whose general scope in this great system of things

* The ray, which is considered the lowest in the scale of fishes, or next to the crustaceans, gives the first faint representation of a brain in certain scanty and medullary masses, which appear as merely composed of enlarged origins of the nerves.

we are only beginning to have a right conception. It has been found that simple electricity, artificially produced, and sent along the nerves of a dead body, excites muscular action. The brain of a newly-killed animal being taken out, and replaced by a substance which produces electric action, the operation of digestion, which had been interrupted by the death of the animal, was resumed, shewing the absolute identity of the brain with a galvanic battery. Nor is this a very startling idea, when we reflect that electricity is almost as metaphysical as ever mind was supposed to be. It is a thing perfectly intangible, weightless. Metal may be magnetized, or heated to seven hundred of Fahrenheit, without becoming the hundredth part of a grain heavier. And yet electricity is a real thing, an actual existence in nature, as witness the effects of heat and light in vegetation—the power of the galvanic current to re-assemble the particles of copper from a solution, and make them again into a solid plate—the rending force of the thunderbolt as it strikes the oak; see also how both heat and light observe the angle of incidence in reflection, as exactly as does the grossest stone thrown obliquely against a wall. So mental action may

be imponderable, intangible, and yet a real existence, and ruled by the Eternal through his laws.*

Common observation shews a great general superiority of the human mind over that of the inferior animals. Man's mind is almost infinite in device; it ranges over all the world; it forms the most wonderful combinations; it seeks back into the past, and stretches forward into the future; while the animals generally appear to have a narrow range of thought and action. But so also has an infant but a limited range, and yet it is mind which works there, as well as in the most accomplished adults. The difference between mind in the lower animals and in man is a difference in degree

* If mental action is electric, the proverbial quickness of thought—that is, the quickness of the transmission of sensation and will—may be presumed to have been brought to an exact measurement. The speed of light has long been known to be about 192,000 miles per second, and the experiments of Wheatstone have shewn that the electric agent travels (if I may so speak) at the same rate, thus shewing a likelihood that one law rules the movements of all the “imponderable bodies.” Mental action may accordingly be presumed to have a rapidity equal to one hundred and ninety-two thousand miles in the second—a rate evidently far beyond what is necessary to make the design and execution of any of our ordinary muscular movements apparently identical in point of time, which they are.

only ; it is not a specific difference. All who have studied animals by actual observation, and even those who have given a candid attention to the subject in books, must attain more or less clear convictions of this truth, notwithstanding all the obscurity which prejudice may have engendered. We see animals capable of affection, jealousy, envy ; we see them quarrel, and conduct quarrels, in the very manner pursued by the more impulsive of our own race. We see them liable to flattery, inflated with pride, and dejected by shame. We see them as tender to their young as human parents are, and as faithful to a trust as the most conscientious of human servants. The horse is startled by marvellous objects, as a man is. The dog and many others shew tenacious memory. The dog also proves himself possessed of imagination, by the act of dreaming. Horses, finding themselves in want of a shoe, have of their own accord gone to a farrier's shop where they were shod before. Cats, closed up in rooms, will endeavour to obtain their liberation by pulling a latch or ringing a bell. It has several times been observed that in a field of cattle, when one or two were mischievous, and persisted long in annoying or tyrannizing over the rest, the herd, to all appearance, consulted, and

then, making a united effort, drove the troublers off the ground. The members of a rookery have also been observed to take turns in supplying the needs of a family reduced to orphanhood. All of these are acts of reason, in no respect different from similar acts of men. Moreover, although there is no heritage of accumulated knowledge amongst the lower animals, as there is amongst us, they are in some degree susceptible of those modifications of natural character, and capable of those accomplishments, which we call education. The taming and domestication of animals, and the changes thus produced upon their nature in the course of generations, are results identical with civilization amongst ourselves; and the quiet, servile steer is probably as unlike the original wild cattle of this country, as the English gentleman of the present day is unlike the rude baron of the age of King John. Between a young, unbroken horse, and a trained one, there is, again, all the difference which exists between a wild youth reared at his own discretion in the country, and the same person when he has been toned down by long exposure to the influences of refined society. On the accomplishments acquired by animals it were superfluous to enter at any length; but I may advert to the

dogs of M. Leonard, as remarkable examples of what the animal intellect may be trained to. When four pieces of card are laid down before them, each having a number pronounced *once* in connexion with it, they will, after a re-arrangement of the pieces, select any one named by its number. They also play at dominoes, and with so much skill as to triumph over biped opponents, whining if the adversary place a wrong piece, or if they themselves be deficient in a right one. Of extensive combinations of thought we have no reason to believe that any animal is capable—and yet most of us must feel the force of Walter Scott's remark, that there was scarcely anything which he would not believe of a dog. There is a curious result of education in certain animals, namely, that habits to which they have been trained in some instances become hereditary. For example, the accomplishment of pointing at game, although a pure result of education, appears in the young pups brought up apart from their parents and kind. The peculiar leap of the Irish horse, acquired in the course of traversing a boggy country, is continued in the progeny brought up in England. This hereditaryness of specific habits suggests a relation to that form of psychological demonstration usually called

instinct; but instinct is only another term for mind, or is mind in a peculiar stage of development; and though the fact were otherwise, it could not affect the postulate, that demonstrations such as have been enumerated are mainly intellectual demonstrations, not to be distinguished as such from those of human beings.

More than this, the lower animals manifested mental phenomena long before man existed. While as yet there was no brain capable of working out a mathematical problem, the economy of the six-sided figure was exemplified by the instinct of the bee. Ere human musician had whistled or piped, the owl hooted in B flat, the cuckoo had her song of a falling third, and the chirp of the cricket was in B. The dog and the elephant prefigured the sagacity of the human mind. The love of a human mother for her babe was anticipated by nearly every humbler mammal, the carnaria not excepted. The peacock strutted, the turkey blustered, and the cock fought for victory, just as human beings afterwards did, and still do. Our faculty of imitation, on which so much of our amusement depends, was exercised by the mocking-bird; and the whole tribe of monkeys must have walked about the pre-human world, playing

off those tricks in which we see the comicality and mischief-making of our character so curiously exaggerated.

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given the name of perception. Gall, however, has shewn, by induction from a vast number of actual cases, that there is a part of the brain devoted to perception, and that even this is subdivided into portions which are respectively dedicated to the reception of different sets of ideas, as those of *form, size, colour, weight, objects in their totality, events in their progress or occurrence, time, musical sounds, &c.* The system of mind invented by this philosopher—the only one founded upon nature, or which even pretends to or admits of that necessary basis—shews a portion of the brain acting as a faculty of comic ideas, another of imitation, another of wonder, one for discriminating or observing differences, and another in which resides the power of tracing effects to causes. There are also parts of the brain for the sentimental part of our nature, or the affections, at the head of which stand the moral feelings of benevolence, conscientiousness, and veneration. Through these, man stands in relation to himself, his fellow-men, the external world, and his God; and through these comes most of the happiness of man's life, as well as that which he derives from the contemplation of the world to come, and the *cultivation of his relation to it, (pure religion.)*

The other sentiments may be briefly enumerated, their names being sufficient in general to denote their functions—firmness, hope, cautiousness, self-esteem, love of approbation, secretiveness, marvellousness, constructiveness, imitation, combativeness, destructiveness, concentrativeness, adhesiveness, love of the opposite sex, love of offspring, alimentiveness, and love of life. Through these faculties, man is connected with the external world, and supplied with active impulses to maintain his place in it as an individual and as a species. There is also a faculty, (language) for expressing, by whatever means, (signs, gestures, looks, conventional terms in speech,) the ideas which arise in the mind. There is a particular state of each of these faculties, when the ideas of objects once formed by it are revived or reproduced, a process which seems to be intimately allied with some of the phenomena of the new science of photography, when images impressed by reflection of the sun's rays upon sensitive paper are, after a temporary obliteration, resuscitated on the sheet being exposed to the fumes of mercury. Such are the phenomena of memory, that handmaid of intellect, without which there could be no accumulation of mental capital, but an universal and continual

infancy. Conception and imagination appear to be only intensities, so to speak, of the state of brain in which memory is produced. On their promptness and power depend most of the exertions which distinguish the man of arts and letters, and even in no small measure the cultivator of science.

The faculties above described—the actual elements of the mental constitution—are seen in mature man in an indefinite potentiality and range of action. It is different with the lower animals. They are there comparatively definite in their power and restricted in their application. The reader is familiar with what are called instincts in some of the humbler species, that is, an uniform and unprompted tendency towards certain particular acts, as the building of cells by the bee, the storing of provisions by that insect and several others, and the construction of nests for a coming progeny by birds. This quality is nothing more than a mode of operation peculiar to the faculties in a humble state of endowment, or early stage of development. The cell formation of the bee, the house-building of ants and beavers, the web-spinning of spiders, are but primitive exercises of constructiveness, the faculty which, indefinite with

us, leads to the arts of the weaver, upholsterer, architect, and mechanist, and makes us often work delightedly where our labours are in vain, or nearly so. The storing of provisions by the ants is an exercise of acquisitiveness,—the faculty which with us makes rich men and misers. A vast number of curious devices, by which insects provide for the protection and subsistence of their young, whom they are perhaps never to see, are most probably a peculiar restricted effort of philo-progenitiveness. The common source of this class of acts, and of common mental operations, is shewn very convincingly by the melting of the one set into the other. Thus, for example, the bee and bird will make modifications in the ordinary form of their cells and nests when necessity compels them. Thus, the alimentiveness of such animals as the dog, usually definite with regard to quantity and quality, can be pampered or educated up to a kind of epicurism, that is, an indefiniteness of object and action. The same faculty acts limitedly in ourselves at first, dictating the special act of sucking; afterwards it acquires indefiniteness. Such is the real nature of the distinction between what are called instincts and reason, upon which so many volumes have been written without profit to

the world. All faculties are instinctive, that is, dependent on internal and inherent impulses. This term is therefore not specially applicable to either of the recognised modes of the operation of the faculties. We only, in the one case, see the *faculty in an immature and slightly developed state*; in the other, in its most advanced condition. In the one case it is *definite*, in the other *indefinite*, in its range of action. These terms would perhaps be the most suitable for expressing the distinction.

In the humblest forms of being we can trace scarcely anything besides a definite action in a few of the faculties. Generally speaking, as we ascend in the scale, we see more and more of the faculties in exercise, and these tending more to the indefinite mode of manifestation. And for this there is the obvious reason in providence, that the lowest animals have all of them a very limited sphere of existence, born only to perform a few functions, and enjoy a brief term of life, and then give way to another generation, so that they do not need much mental guidance. At higher points in the scale, the sphere of existence is considerably extended, and the mental operations are less definite accordingly. The horse, dog, and a few other rasorial types, noted for their service-

ableness to our race, have the indefinite powers in no small endowment. Man, again, shews very little of the definite mode of operation, and that little chiefly in childhood, or in barbarism or idiocy. Destined for a wide field of action, and to be applicable to infinitely varied contingencies, he has all the faculties developed to a high pitch of indefiniteness, that he may be ready to act well in all imaginable cases. His commission, it may be said, gives large discretionary powers, while that of the inferior animals is limited to a few precise directions. But when the human brain is congenitally imperfect or diseased, or when it is in the state of infancy, we see in it an approach towards the character of the brains of some of the inferior animals. Dr. G. J. Davey states that he has frequently witnessed, among his patients at the Hanwell Lunatic Asylum, indications of a particular abnormal cerebation which forcibly reminded him of the specific healthy characteristics of animals lower in the scale of organization;* and every one must have observed how often the actions of children, especially in their moments of play, and where their selfish feelings are concerned, bear a

* Phrenological Journal, xv. 338.

resemblance to those of certain familiar animals.* Behold, then, the wonderful unity of the whole system. The grades of mind, like the forms of being, are mere stages of development. In the humbler forms, but a few of the mental faculties are traceable, just as we see in them but a few of the lineaments of universal structure. In man the system has arrived at its highest condition. The few gleams of reason, then, which we see in the lower animals, are precisely analogous to such a development of the fore-arm as we find in the paddle of the whale. Causality, comparison, and other of the nobler faculties, are in them *rudimental*.

Bound up as we thus are by an identity in the character of our mental organization with the lower animals, we are yet, it will be observed, strikingly distinguished from them by this great advance in development. We have faculties in full force and activity which the animals either possess not at all, or in so low and obscure a form as to be equivalent to non-existence. Now these

* A pampered lap-dog, living where there is another of its own species, will hide any nice morsel which it cannot eat, under a rug, or in some other by-place, designing to enjoy it afterwards. I have seen children do the same thing.

parts of mind are those which connect us with the things that are not of this world. We have veneration, prompting us to the worship of the Deity, which the animals lack. We have hope, to carry us on in thought beyond the bounds of time. We have reason, to enable us to inquire into the character of the Great Father, and the relation of us, his humble creatures, towards him. We have conscientiousness and benevolence, by which we can in a faint and humble measure imitate, in our conduct, that which he exemplifies in the whole of his wondrous doings. Beyond this, mental science does not carry us in support of religion: the rest depends on evidence of a different kind. But it is surely much that we thus discover in nature a provision for things so important. The existence of faculties having a regard to such things is a good evidence that such things exist. The face of God is reflected in the organization of man, as a little pool reflects the glorious sun.

The affective or sentimental faculties are all of them liable to operate whenever appropriate objects or stimuli are presented, and this they do as irresistibly and unerringly as the tree sucks up moisture which it requires, with only this exception, that one faculty often interferes with the action of

another, and operates instead by force of superior inherent strength or temporary activity. For example, alimentiveness may be in powerful operation with regard to its appropriate object, producing a keen appetite, and yet it may not act, in consequence of the more powerful operation of cautiousness, warning against evil consequences likely to ensue from the desired indulgence. This liability to flit from under the control of one feeling to the control of another, constitutes what is recognised as free will in man, being nothing more than a vicissitude in the supremacy of the faculties over each other.

It is a common mistake to suppose that the individuals of our own species are all of them formed with similar faculties—similar in power and tendency—and that education and the influence of circumstances produce all the differences which we observe. There is not, in the old systems of mental philosophy, any doctrine more opposite to the truth than this. It is refuted at once by the great differences of intellectual tendency and moral disposition to be observed amongst a group of young children who have been all brought up in circumstances perfectly identical—even in twins, who have never been but in one place, under the charge

of one nurse, attended to alike in all respects. The mental characters of individuals are inherently various, as the forms of their persons and the features of their faces are; and education and circumstances, though their influence is not to be despised, are incapable of entirely altering these characters, where they are strongly developed. That the original characters of mind are dependent on the volume of particular parts of the brain and the general quality of that viscus, is proved by induction from an extensive range of observations, the force of which must have been long since universally acknowledged but for the unpreparedness of mankind to admit a functional connexion between mind and body. The different mental characters of individuals may be presumed from analogy to depend on the same law of development which we have seen determining forms of being and the mental characters of particular species. This we may conceive as carrying forward the intellectual powers and moral dispositions of some to a high pitch, repressing those of others at a moderate amount, and thus producing all the varieties which we see in our fellow-creatures. Thus a Cuvier and a Newton are but expansions of a clown, and the person emphatically called the

wicked man, is one whose highest moral feelings are rudimental. Such differences are not confined to our species; they are only less strongly marked in many of the inferior animals. There are clever dogs and wicked horses, as well as clever men and wicked men, and education sharpens the talents, and in some degree regulates the dispositions of animals, as it does our own. Here I may advert to a very interesting analogy between the mental characters of the types in the quinary system of zoology and the characters of individual men. We have seen that the pre-eminent type is usually endowed with an harmonious assemblage of the mental qualities belonging to the whole group, while the sub-typical inclines to ferocity, the rasorial to gentleness, and so on. Now, amongst individuals, some appear to be almost exclusively of the sub-typical, and others of the rasorial characters, while to a limited number is given the finely assorted assemblage of qualities which places them on a parallel with the typical. To this may be attributed the universality which marks all the very highest brains, such as those of Shakespeare and Scott, men of whom it has been remarked that they must have possessed within themselves *not only the poet, but the warrior, the statesman,*

and the philosopher ; and who, moreover, appear to have had the mild and manly, the moral and the forcible parts of our nature, in the most perfect balance.

There is, nevertheless, a general adaptation of the mental constitution of man to the circumstances in which he lives, as there is between all the parts of nature to each other. The goods of the physical world are only to be realized by ingenuity and industrious exertion ; behold, accordingly, an intellect full of device, and a fabric of the faculties which would go to pieces or destroy itself if it were not kept in constant occupation. Nature presents to us much that is sublime and beautiful : behold faculties which delight in contemplating these properties of hers, and in rising upon them, as upon wings, to the presence of the Eternal. It is also a world of difficulties and perils, and see how a large portion of our species are endowed with vigorous powers which take a pleasure in meeting and overcoming difficulty and danger. Even that principle on which our faculties are constituted—a wide range of freedom in which to act for all various occasions—necessitates a resentful faculty, by which individuals may protect themselves from the undue and capricious exercise of

each other's faculties, and thus preserve their individual rights. So also there is cautiousness, to give us a tendency to provide against the evils by which we may be assailed; and secretiveness, to enable us to conceal whatever, being divulged, would be offensive to others or injurious to ourselves,—a function which obviously has a certain legitimate range of action, however liable to be abused. The constitution of the mind generally points to a state of intimate relation of individuals towards society, towards the external world, and towards things above this world. No individual being is integral or independent; he is only part of an extensive piece of social mechanism. The inferior mind, full of rude energy and unregulated impulse, does not more require a superior nature to act as its master and its mentor, than does the superior nature require to be surrounded by such rough elements on which to exercise its high endowments as a ruling and tutelary power. This relation of each to each produces a vast portion of the active business of life. It is easy to see that, if we were all alike in our moral tendencies, and all placed on a medium of perfect moderation in this respect, the world would be a scene of everlasting dulness and apathy. It requires the

variety of individual constitution to give moral life to the scene.

The indefiniteness of the potentiality of the human faculties, and the complexity which thus attends their relations, lead unavoidably to occasional error. If we consider for a moment that there are not less than thirty such faculties, that they are each given in different proportions to different persons, that each is at the same time endowed with a wide discretion as to the force and frequency of its action, and that our neighbours, the world, and our connexions with something beyond it, are all exercising an ever-varying influence over us, we cannot be surprised at the irregularities attending human conduct. It is simply the penalty paid for the superior endowment. It is here that the imperfection of our nature resides. Causality and conscientiousness are, it is true, guides over all; but even these are only faculties of the same indeterminate constitution as the rest, and partake accordingly of the same inequality of action. Man is therefore a piece of mechanism, which never can act so as to satisfy his own ideas of what he might be—for he can imagine a state of moral perfection, (as he can imagine a globe formed of diamonds, pearls, and rubies,) though

his constitution forbids him to realize it. There ever will, in the best disposed and most disciplined minds, be occasional discrepancies between the amount of temptation and the power summoned for regulation or resistance, or between the stimulus and the mobility of the faculty; and hence those errors, and shortcomings, and excesses, without end, with which the good are constantly finding cause to charge themselves. There is at the same time even here a possibility of improvement. In infancy, the impulses are all of them irregular; a child is cruel, cunning, and false, under the slightest temptation, but in time learns to control these inclinations, and to be habitually humane, frank, and truthful. So is human society, in its earliest stages, sanguinary, aggressive, and deceitful, but in time becomes just, faithful, and benevolent. To such improvements there is a natural tendency which will operate in all fair circumstances, though it is not to be expected that irregular and undue impulses will ever be altogether banished from the system.

It may still be a puzzle to many, how beings should be born into the world whose organization is such that they unavoidably, even in a civilized country, become malefactors. Does God, it may

be asked, make criminals? Does he fashion certain beings with a predestination to evil? He does not do so; and yet the criminal type of brain, as it is called, comes into existence in accordance with laws which the Deity has established. It is not, however, as the result of the first or general intention of those laws, but as an exception from their ordinary and proper action. The production of those evilly disposed beings is in this manner. The moral character of the progeny depends in a general way, (as does the physical character also,) upon conditions of the parents,—both general conditions, and conditions at the particular time of the commencement of the existence of the new being, and likewise external conditions affecting the foetus through the mother. Now the amount of these conditions is indefinite. The faculties of the parents, as far as these are concerned, may have oscillated for the time towards the extreme of tensibility in one direction. The influences upon the foetus may have also been of an extreme and unusual kind. Let us suppose that the conditions upon the whole have been favourable for the development, not of the higher, but of the lower sentiments, and of the propensities of the new being, the result will necessarily be a mean type of

brain. Here, it will be observed, God no more decreed an immoral being, than he decreed an immoral paroxysm of the sentiments. Our perplexity is in considering the ill-disposed being by himself. He is only a part of a series of phenomena, traceable to a principle good in the main, but which admits of evil as an exception. We have seen that it is for wise ends that God leaves our moral faculties to an indefinite range of action; the general good results of this arrangement are obvious; but exceptions of evil are inseparable from such a system, and this is one of them. To come to particular illustration—when a people are oppressed, or kept in a state of slavery, they invariably contract habits of lying, for the purpose of deceiving and outwitting their superiors, falsehood being a refuge of the weak under difficulties. What is a habit in parents becomes an inherent quality in children. We are not, therefore, to be surprised when a traveller tells us that black children in the West Indies appear to lie by instinct, and never answer a white person truly even in the simplest matter. Here we have secretiveness roused in a people to a state of constant and exalted exercise; an over tendency of the nervous energy in that direction is the conse-

quence, and a new organic condition is established. This tells upon the progeny, which comes into the world with secretiveness excessive in volume and activity. All other evil characteristics may be readily conceived as being implanted in a new generation in the same way. And sometimes not one, but several generations, may be concerned in bringing up the result to a pitch which produces crime. It is, however, to be observed, that the general tendency of things is to a limitation, not the extension of such abnormally constituted beings. The criminal brain finds itself in a social scene where all is against it. It may struggle on for a time, but the medium and superior natures are never long at a loss in getting the better of it. The disposal of such beings will always depend much on the moral state of a community, the degree in which just views prevail with regard to human nature, and the feelings which accident may have caused to predominate at a particular time. Where the mass was little enlightened or refined, and terrors for life or property were highly excited, malefactors have ever been treated severely. But when order is generally triumphant, and reason allowed sway, men begin to see the true case of criminals—namely, that while one large

department are victims of erroneous social conditions, another are brought to error by tendencies which they are only unfortunate in having inherited from nature. Criminal jurisprudence then addresses itself less to the direct punishment than to the reformation and care-taking of those liable to its attention. And such a treatment of criminals, it may be farther remarked, so that it stop short of affording any encouragement to crime, (a point which experience will determine,) is evidently no more than justice, seeing how accidentally all forms of the moral constitution are distributed, and how thoroughly mutual obligation shines throughout the whole frame of society—the strong to help the weak, the good to redeem and restrain the bad.

The sum of all we have seen of the psychical constitution of man is, that its Almighty Author has destined it, like everything else, to be developed from inherent qualities, and to have a mode of action depending solely on its own organization. Thus the whole is complete on one principle. The masses of space are formed by law; law makes them in due time theatres of existence for plants and animals; sensation, disposition, intellect, are all in like manner developed and sustained in

action by law. It is most interesting to observe into how small a field the whole of the mysteries of nature thus ultimately resolve themselves. The inorganic has one final comprehensive law, GRAVITATION. The organic, the other great department of mundane things, rests in like manner on one law, and that is,—DEVELOPMENT. Nor may even these be after all twain, but only branches of one still more comprehensive law, the expression of that unity which man's wit can scarcely separate from Deity itself.