IV.

MR. DARWIN'S RECENT INDUCTIONS.*

MR. DARWIN'S just published bulky work neither advances him nor the students of his theory one step towards the realisation of his cherished dream concerning the Origin of Species. When he published his work bearing that title, it was given as an abstract of a larger work, for which we were told we must wait two or three years. We have waited with some degree of impatience, while grieved to hear of the continued ill-health of the distinguished naturalist, but we, who have "waited long, are wait-"ing still;" this is not the work, it is only an instalment, and the question, it seems, is yet to be fully discussed in future volumes. We hope we are incapable of speaking with disrespect of an eminent and accomplished man, whose calm, chaste style of narration and composition, and graceful treatment of antagonists, may well be a model to some of us who profess to be more religiously disposed. Still we cannot refrain from saying that Mr. Darwin seems to us like a man who has dreamed a dream, which, upon waking, he spends years in attempting to prove to be true. We receive, with great deference and respect, all the facts and observations his observant and richly-furnished mind is able to impart to us, but we are unable to find a single fact bearing upon the *origin* of species, for it is plain that the *Variation under Domestication* is one thing, and the *Origin* is quite another. If Sir Isaac Newton appeared to us, and asserted the earth to be square, the reverence even for that illustrious person would not prevent us, we fear, from saying, "But, Sir Isaac, what are the facts, and where are the facts?" And even so we have still to say to Mr. Darwin, with reference to his dream of the ori-

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* 1. *The Variation of Animals and Plants under Domestication.* By Charles Darwin, M.A., F.R.S., &c. In two volumes, with illustrations. John Murray.

2. *The Darwinian Theory of the Transmutation of Species examined.* By a Graduate of the University of Cambridge. James Nisbet.

3. *The Three Barriers: Notes on Mr Darwin's "Origin of Species."* Blackwood and Sons.

gin of species, Where and what are the facts? The reader will find a great deal of interesting information in these volumes, though we, who are not pigeon-fanciers, begin to be almost tired of these pigeons; they occupy a large space, and prove nothing to the argument. The fact remains where it was at the beginning—man can modify many orders of creatures in themselves, but he cannot make one creature into another creature, he cannot force any being across certain fixed barriers of being; far less are there any proofs of Mr. Darwin's famous and favourite theory of the polar bear becoming the whale, and still less have we any, even the remotest, hints of evidence, as to how the spore of a sea-weed might become, even in the course of ages, transformed into a man. One might almost suppose that Mr. Darwin was impelled to these most curious dreams by the pride of ancestry, and the desire to retain upon his literary escutcheon the right to the literary crest of his celebrated grandfather. Seldom has a grandson been more faithful to his literary lineage; and Charles Darwin seems to have spent a large portion of his life in an attempt to illustrate, by scientific observation, what Erasmus Darwin, better than half a century since, illustrated in rich, imaginative, and sonorous, but, we suppose, in not very readable poetry. If Mr. Darwin, after the fashion of certain writers, desired to find couplets or verses to place at the head of his scientific chapters, he might find a verse for every thesis, and sanctify every wildest dream by some of the flowing metres of his grandfather; we almost think filial reverence ought to move him to do this. The universal warfare of nature, the assertion that through all her domains "nature weeds out the weak," the painful impression upon the intelligence, of the incalculable periods of time—three hundred millions of years, we believe, for the doing of all Mr. Darwin says has been done. The mysterious potentiality of nature, by which everything seems to be in everything else, these were the inspiring thoughts which rolled forth in the words of the poet. Time and warfare, the two great factors of our whole universe, the everlasting self-involving, self-disintegrating powers, these sum up the forces by which things are; before such powers as these we are able to dispense with the will of a creator, or the epochs which we understand and speak of as creation. It may not be uninteresting to some of our readers to notice these points of analogy in the earlier and later writer. A very fair representation of the infinity of Darwinism may be seen in such lines as the following:—

> So late descried by Herschel's piercing sight,
> Hang the bright squadrons of the twinkling night;

Ten thousand marshall'd stars, a silver zone,
Effuse their blended lustres round her throne;
Suns call to suns, in lucid clouds conspire,
And light exterior skies with golden fire;
Resistless rolls the illimitable sphere,
And one great circle forms the unmeasur'd year.
Roll on, ye stars! exult in youthful prime,
Mark with bright curves the printless steps of time!
Near and more near your beamy cars approach,
And lessening orbs on lessening orbs encroach.
Flowers of the sky! ye too to age must yield,
Frail as yon silken sisters of the field!
Star after star from heaven's high arch shall rush,
Suns sink on suns, and systems systems crush,
Headlong, extinct, to one dark centre fall,
And death and night and chaos mingle all!
Till o'er the wreck, emerging from the storm,
Immortal nature lifts her changeful form,
Mounts from her funeral pyre on wings of flame,
And soars and shines, another and the same.

So Mr. Darwin's "Struggle for Life" meets us in such verses as the following—the universal warfare of all creatures throughout nature :—

The wolf, escorted by his milk-drawn dam,
Unknown to mercy, tears the guileless lamb;
The towering eagle, darting from above,
Unfeeling rends the inoffensive dove;
The lamb and dove on living nature feed,
Crop the young herb, or crush the embryon seed.
Nor spares the loud owl in her dusky flight,
Smit with sweet notes, the minstrel of the night;
Nor spares, enamour'd of his radiant form,
The hungry nightingale the glowing worm,
Who with bright lamp alarms the midnight hour,
Climbs the green stem, and slays the sleeping flower.

Or to take two other brief illustrative passages :—

Air, earth, and ocean to astonished day,
One scene of blood, one mighty tomb display!
From hunger's arm the shafts of death are hurl'd,
And one great slaughter-house the warring world!
* * * * *
While nature sinks in Time's destructive storms,
The wrecks of death are but a change of forms;
Emerging matter from the grave returns,
Feels new desires, with new sensations burns.

So much for the ancestor of the naturalist, his curious dreams, and rarely referred-to volumes; they express in rhyme what his descendant seeks to express in far better and more patiently elaborated prose. The dreariness of the outlook may create a preju-

dice against the theory; it is most likely in most minds to do so, for man has a longing after immortality, and is not content that his identity should be lost and swallowed up as an iguanodon is lost in the alligator of a later age, or a mastodon in a mammoth. With every disposition to be truth-loving and honest in the inquiry, we think men may be forgiven if they refuse to accept the theory without a very distinct endorsement of facts, and Mr. Darwin does not leave it to be conjectured what are his ideas. With reference to the preception of his views, he says, indeed, his system will introduce an entirely new era of psychology. "In "the distant future I see open fields for far more important re- "searches. Psychology will be based on a new foundation—that "of the necessary requirements of each mental power and capacity; "by gradation, light will be thrown on the origin of man and his "history." We are very glad, therefore, that almost simultaneously with the appearance of the two new volumes from his pen, in which he retracts nothing from his previous volume, but refers us to it for a more ample statement of his doctrine, we have the complete, vigorous, thoroughly searching, and we think overwhelming, confutation of his doctrines in the work of the Graduate of the university of Cambridge. Mr. Darwin well says that the consequences of his theory look towards an entirely reconstructed psychology—we may say also towards an entire reconstruction of theology. In some matters he seems, indeed, to contradict himself; for while he tells us that "one Hand has surely worked "throughout the universe," he yet argues, throughout, apparently, that natural selection is the hand, the very Deity from whose plastic touch has emanated all the marvellous fitnesses we behold in the scheme of things; no selection, in the ordinary usage of that word, has ever presided over the mould of any creature. Some of Mr. Darwin's continental admirers, especially Dr. Karl Vogt—that most abusive atheist—define their impression of his place in theology very distinctly. Vogt says, "There can be no doubt that Mr. Darwin's theory ignores a per- "sonal creator, and his direct interference in the transformation "and creation of species. There being no sphere of action for "such a being giving first starting-point, the first organism, all "existing organisms, are subsequently, by natural selection, de- "veloped from it in a continuous manner through all geological "periods by the simple laws of transmission." Vogt expounds the doctrines of natural selection in a most astonishing manner. We have already characterised his lectures on man some time since; it is enough to remark here that he boldly says, referring to the theological aspects of the theory, "We have no other fear "than that of seeing our human dignity violated, a dignity we

"value the more since it has been conquered with the greatest "labours by us and by *our ancestors, down to the ape.*" And he then goes on, at great length, to glorify the skeleton of the ape, and shows how entirely it is in our own, and how human the delightful creature is. Again, we say, these are not pleasant things; we only refer to them here for the purpose of noting how the doctrine drifts, and who they are who receive it; we admit at once that this is apart from its truth or falsehood. First of all, however, the reader has to believe, by what Mr. Darwin thinks are clear processes of induction, that all the beings of our world are without a mind. God is only the "God of sea-weeds." Infinite ages since, He created the spore of a sea-weed; since then He has never troubled himself or the world with any interference; the functions of natural selection have done all. If the reader refers to the *Origin of Species*, or if he would have a very able and ample analysis of the argument fairly and honestly stated, he may refer to the chapter on the "Functions of Natural Selection in the Darwinian Theory exa-"mined;" it is all natural selection. This is the deity; and very remarkably Mr. Darwin seems to maintain the doctrine of the universality of this deity, because he sees so complete and exquisite a fitness in what we should call certain adaptations, that he can only regard them as emanating from such a result; they are so admirable in their harmony that no design could produce them. The argument seems to be, that perfect ignorance and perfect helplessness produce the wisest, the most complete, and most wonderful objects in nature; give inability, ignorance, and nothingness time enough, and they will be able to accomplish anything. This is wisdom, to believe in universally prevalent mind; God extending through all extent is an old-world folly and fable; to believe in the principle of natural selection, herein is wisdom. This is philosophy, as Dr. Johnson says, "weary of the old-fashioned practice of milking "the cow, they have taken to the bull." In order to make a perfect and beautiful machine, it is not necessary to know how to make it, design is denied; and yet in the description of the composition of the skeleton, the proper mixture of cartilage, of compact with cancellated tissue, of rounded with angular forms, of uniformly contiguous segments with numerous elevations, depressions, enlargements, and processes—all this results in making the pieces of the skeleton hard levers, bases of support, and protective textures, such as the artifice of man could never imitate; and yet in all this absolute ignorance, absolute blind unconsciousness everywhere, the whole complex fabric of nature, with all these wonderful relations, is given over to the operation of laws which never had the imprint of the finger of God upon them, but which have been taking their own way from the moment of the creation

of the sea-weed until now. If nature is assuredly a great and inexplicable mystery, is the veil of the mystery lifted or its darkness lightened by such a theory as this?

We have often remarked that, as Mr. Darwin pursues his way, he cannot fail to give to us a rare delight by glimpses into many departments of natural history. It is this, indeed, which has perhaps given to his peculiar theories so extensive a fame, the association of the theory with observations of such unquestioned interest. His account of the great slave-making ants, is one of these remarkably curious illustrations. In England, we believe, he was the first who published any account of these singular tribes; nor does natural-history furnish us with any instances much more singular, even in insect life, which is the marvellous pantechnicon of nature. The slave-making ant is dependent altogether on its slaves. Without their aid the species would certainly become extinct in a single year; they are incapable of making their own nest, or of feeding their own larvæ. When the old nest is found inconvenient, and they have to migrate, it is the slaves which determine the migration, and actually carry their masters in their jaws. So utterly helpless are the masters, that when Huber shut up thirty of them without a slave, but with plenty of the food which they liked best, and with their larvæ and pupæ to stimulate them to work, they did nothing, they could not even feed themselves, and many even perished with hunger. Huber then introduced a single slave, and she instantly set to work, fed and saved the survivors, made some cells, tended the larvæ, and put all to rights. Through several pages the writer carries forward his singular observations and descriptions. The slaves too are generally black, and not above half the size of their red masters. Mr. Darwin seems to have observed many communities with large stocks of slaves, has observed some on the march to a distance of twenty-five yards; while Huber noticed how, in Switzerland, the slaves habitually worked with the masters in making the nest, and they alone open and close the doors in the morning and evening. There is a difference, it seems, between these singular creatures in Switzerland and England. Slaves, it seems, are captured more readily in Switzerland than in our anti-slavery regions. This is one of those instances rather frightful to contemplate; this marvellous instinct for rearing slaves, how came this about? Well has it been said, these tribes look like communities of degenerate men, and suggest the idea of a fearful potentiality, even among some of the most insignificant things in nature. The bee is another marvel, with its mysterious, but perfect cell. As we contemplate these things, we quite enter into the sentiment, well expressed by

Mr. Darwin, when he says, it deserves a special notice, that the more important objections relate to questions in which we are confessedly ignorant, nor do we know how ignorant we are; but we find him saying too, "We shall probably never dis-"entangle the inextricable web of affinities; but when we "have a distinct object in view, and do not look to some unknown "plan of creation, we may hope to make slow but sure progress." These passages do not seem to harmonise very well together, but the last does imply that a belief in the plan of creation has hitherto been the chief hindrance to the advance of science. Planless then, altogether unrelated to intention, arrangement, or design, how have things come to be? Some conception may be formed, from Mr. Darwin's idea of the structure of the cell, of the architecture of the hive of the bee. Dr. Reid, we know, has said, "When a bee makes its nest geometrically, the geometry is "not in the bee, but in that Great Geometrician who made all "things, in number, weight, and measure." Mr. Darwin speaks of the comb of the hive-bee almost with enthusiasm:—"Beyond "this stage of perfection in architecture natural selection could "not lead; for the comb of the hive-bee, as far as we can see, "is absolutely perfect in economising wax." So our writer industriously sets to work to get rid of the difficulty. Mr. Darwin's account of the way in which he conceives the bee at last to have arrived at its marvellous geometric architecture is quite an illustration of the manner in which, according to his theory, natural selection does the work of God. The honey-bee he believes to be the Mexican *Mellipona*, developed by natural selection. Here is the passage which, perhaps, with its succession of hypotheses and suppositions, may have struck our readers before:—

Hence we may safely conclude, if we could SLIGHTLY MODIFY THE INSTINCTS already possessed by the Mellipona, *and in themselves not very wonderful*, the bees would make a structure as wonderfully perfect as that of the hive-bee. *We must suppose* the Mellipona to make her cells truly spherical, and of equal sizes (two assumptions), and this would not be very surprising, seeing that she does so already to a certain extent, and seeing what perfectly cylindrical burrows in wood many insects can make, apparently by turning round on a fixed point. *We must suppose* the Mellipona to arrange her cells in level layers (another assumption), as she already does her cylindrical cells; *and we must further suppose* (fourth assumption) that she CAN SOMEHOW ACCURATELY JUDGE at what distance to stand from her fellow-labourers when several are making their spheres,—*we have further to suppose* (fifth assumption)—but this is no difficulty—that after hexagonal prisms have been formed by the intersection of adjoining spheres in the same layer,

she can prolong the hexagon to any length requisite to hold the stock of honey. By *such modifications of instinct*, in themselves not very wonderful, hardly more wonderful than those which guide a bird to make its nest, I believe that the hive-bee has acquired, through Natural Selection, her inimitable architectural powers.

Thus widely different is the measure of admiration we bestow upon the naturalist and the philosopher. We wish not to speak disrespectfully; yet innumerable items, like that which we have quoted, strike us as ludicrous, when conceived as parts of an animal, without any intervention or arrangement which can be called presiding mind. "So the tail of a horse may have "been antecedently the caudal instrument of a shark; a cow "may have derived her tail from the skate, and the giraffe owe "his fly-flapper to a remote progenitor, the sturgeon." A world of curiosities, to which we listen with interest, if not amazement, spreads out before us, as we sit with Mr. Darwin's volumes in our hands. As when he tells us, that in the "common ass we "see signs of its original desert life, in its strong dislike to "cross the smallest stream of water, and in its pleasure in rolling "in the dust;" and that the same strong dislike to cross a stream is common to the camel, which has been domesticated from a very early period. But we are more amazed when we read of the means by which the intelligence of apes was evoked, preparatory to their assuming the human form, or when Mr. Darwin tells us that he sees nothing particularly wonderful in the way in which the eye came to be the marvellous instrument it is,—

With these facts, and bearing in mind how small the number of living animals is in proportion to those which have become extinct, *I can see no very great difficulty in believing* that Natural Selection has converted the simple apparatus of an optic nerve, merely coated with pigment, and invested by transparent membrane, into an optical instrument as perfect as possessed by any member of the Articulate Class (Insects).

Scripture says, on the converse of all this, "He that made the "eye, shall He not see;" we think so when we speak of microscopes and telescopes, which are but poor imitations and helps to the human eye. But according to Darwinism, human mind presided over the manufacture of the prospect-glass, but over the structure of the eye no mind presided. How different to all this reads the sublime and comprehensive statement: "It is "He that hath made us, and not we ourselves." We repeat it; as we read Mr. Darwin's sketches in Natural History, we are instructed, we are delighted, but when he begins anywhere the game of hypothesis, or argument from metaphor, we cannot but

be amused, as he says:—"A well-developed tail having been "formed in an aquatic animal, it might come to be worked in "for all sorts of purposes—as a fly-flapper, or organ of pre- "hension, or as an aid in turning; as with the dog, though the "aid must be slight, for the hare, with hardly any tail, can "double quickly enough." Swimming bladders and lungs come about in the same way. Is it not astonishing and amusing that it is easier to Mr. Darwin to believe in the transmutation of terrestrial into aquatic animals, and of fish into beasts, than to believe that an animal was created with both lungs and a tail; but everywhere, in all pages and places, Topsy's incessant exclamation is the motto for Darwinism, and "specks I grow'd" is the hypothesis of every creature, and every part of every creature. These marvellous potentialities of incipient being in embryo salute us in every study and at every turn.

But, as we said above, to the argument and the illustrations in the notable volume on the *Origin of Species* Mr. Darwin adds nothing, he simply promises another book. We may presume the same objection to personal creative power and wisdom, the same deification of the old law of natural selection—evidently the same belief that domestications illustrate varieties, while varieties merge into species. The reader will not, we believe, find in these volumes, what we hope we shall be pardoned for calling anything like the same audacity of assertion, or even of speculation; and to ordinary readers the volumes—save, perhaps, in the last chapters especially, that in which the new theory (what is called the provisional hypothesis of Pan-Genesis) is unfolded—will not seem very full of interest. As a work, they are an amazing monument of patient observation, of acquaintance with every recondite and out-of-the-way store-house of knowledge, of inquisitive mingling with men, pigeon-fanciers and ignorant breeders, who, perhaps, with scarce an idea about anything in heaven, or earth, or sea, were yet able to minister one little fact or observation to Mr. Darwin's omnivorous stores. It has been remarked that the book has a truly German-like character about it, in its range of accurate detail, and the largeness of the field it covers. It is a curious book; we know not what we can say beyond this. It is a treatise, not upon what Mr. Darwin would call, and would have us to believe in, Natural Selection. It is a treatise upon Artificial Selection, which is at any rate as old as the patriarchs, and has a history from the day when Jacob produced varieties in Laban's flock, down to our transcendent boviculturist, of whom Lord Somerville says:—"It would seem as if breeders had chalked out "on a wall the most perfect form of a sheep, and then given it

"existence." But it must be very obvious that there is an amazing difference between this and Mr. Darwin's doctrine, even this phase of it; that which the mind of man, presiding over the arrangements of nature can effect, can Nature effect for herself? Nature through all her domains weeds out the weak. This is the doctrine, the survival of the fittest, the battle to the strong, the race to the swift—this is the cheerful theory which Mr. Darwin finds proved to his satisfaction, through all the interminable ages he calls to his aid. Now, there is nothing in the history of nature that seems to endorse this. The theory of the transmutation of species has met with singular favour from many naturalists, from the desire to dispense, as far as possible, with the intervention of a First Cause, the ever-operating God. A number of notes are taken of instances in which man has been able to modify the structure of the plant or the animal, by consenting and co-operating activities of nature; but in all this there is not a hint of the transmutation of species; nay, nature, it would seem, rears her impassible barriers, so that one cannot pass to the other. Each creature has an orbit assigned to it, and the attempted transgression would not be the improvement of the species. The author of the *Three Barriers* finds a grouping of three distinct values in the Backbone, the Breast, and the Brain; these form still a kind of abiding type. Constancy of species, persistence of type, is the answer brought back to the surface, however deeply we may descend among the ancient records of creation. The story of nature does not seem to be the story of a number of converging lines, but lines strictly parallel and perpendicular, based upon the mystery of the thing. Men have in all ages attempted to show that successive acts of creation were beneath the possible condescension of an infinite and almighty mind; but before we can think this, we must be certain that we are clear in our conception of the being we call God. We remember Mrs. Jameson remarks, in her commonplace book, "I quoted to A, the saying of a sceptical philosopher, 'the world is but one enormous will constantly rushing into life.' 'Is that,' she responded quickly, 'another new name for God?'" Mr. Darwin's principle of the theory of natural selection seems worthy of a similar reply, Is that another new name for God? In his last sentence in the last work, Mr. Darwin remarks, apparently tentatively and hypothetically, an "omnipotent and omniscient Creator ordains everything, and foresees everything. Thus we are "brought," he continues, "face to face with a difficulty as insoluble "as that of free-will and predestination." Why, of course the difficulty is insoluble; it is as true now as ever. "Who can by "searching find out God?" Mr. Darwin's exactest researches

are, after all, "only parts of His ways;" "the greatness of His "power who can understand?" But this theory of natural selection, like the infinite will, in the quotation from Mrs. Jameson, seems to imply the very intelligence of God, that combination and congress of parts in every creature which, in dealing with comparative anatomy, makes a Cuvier or an Owen a prophet, when a single bone is presented to the eye, so that unerring science, from two or three remnants of a skeleton, is able to construct a plan of the architecture of the whole creature;—all this giving no proof or illustration of intelligence presiding over the original structure of the fabric, only a Divine power placed in nature, containing in itself the causes of generation, increase, or diminution, but itself wholly devoid of sense. What is this nature, this unreasoning, unconscious, undirected power of preference, this selecting, retaining, preferring, rejecting? It meets the observer everywhere; there are cunning contrivances apparent in all things, but mind is to be detected nowhere. Magical transformations take place; the structure of a bee-hive, the labours of an ant-hill, the parts and powers of a human hand, the infinite adaptations of the eye in man and in creatures, the bones of a snake, the coil of rings in a sightless worm—these all emanated from natural selection; the mind of God is in none of them; all came about from certain potential capabilities, which existed, and have manifested themselves so and so. God—a god of sea-weeds apparently—had to be conceived, in the language of logic, postulated, in the birthday of species, or in the first beginning. So far Mr. Darwin seems to cling to the old superstitions: all things were immanent in that first moment, in that first created thing. From thence all forms and manifestations and contrivances have emanated since, by natural selection. What is this wonderful, this infinite power which presides over natural selection? What is this principle of natural selection? Why, surely if a God was necessary in the morning of creation, in the birthday of all the races, there are abundant evidences that the same infinite power and wisdom has illustrated itself—say rather *him*self—since. What is this infinitely ranging, mighty tide of contriving and adapting life? No thought, no conception, no word of Mr. Darwin lifts the veil from the infinite and awful mystery of life. We walk through a city, its streets, palaces, mansions, its arrangements of lamps and roads—if we could not meet a being in the streets, if it were as deserted as a Petræa, Etruria, or Pompeii, if we saw only the collection of rude monuments, like those which greet us in the depths of American forests, we should know that mind had been there, the bricks, the marbles, the galleries of building, the unsolvable inscrip-

dice against the theory; it is most likely in most minds to do so, for man has a longing after immortality, and is not content that his identity should be lost and swallowed up as an iguanodon is lost in the alligator of a later age, or a mastodon in a mammoth. With every disposition to be truth-loving and honest in the inquiry, we think men may be forgiven if they refuse to accept the theory without a very distinct endorsement of facts, and Mr. Darwin does not leave it to be conjectured what are his ideas. With reference to the preception of his views, he says, indeed, his system will introduce an entirely new era of psychology. "In "the distant future I see open fields for far more important re- "searches. Psychology will be based on a new foundation—that "of the necessary requirements of each mental power and capacity; "by gradation, light will be thrown on the origin of man and his "history." We are very glad, therefore, that almost simultaneously with the appearance of the two new volumes from his pen, in which he retracts nothing from his previous volume, but refers us to it for a more ample statement of his doctrine, we have the complete, vigorous, thoroughly searching, and we think overwhelming, confutation of his doctrines in the work of the Graduate of the university of Cambridge. Mr. Darwin well says that the consequences of his theory look towards an entirely reconstructed psychology—we may say also towards an entire reconstruction of theology. In some matters he seems, indeed, to contradict himself; for while he tells us that "one Hand has surely worked "throughout the universe," he yet argues, throughout, apparently, that natural selection is the hand, the very Deity from whose plastic touch has emanated all the marvellous fitnesses we behold in the scheme of things; no selection, in the ordinary usage of that word, has ever presided over the mould of any creature. Some of Mr. Darwin's continental admirers, especially Dr. Karl Vogt—that most abusive atheist—define their impression of his place in theology very distinctly. Vogt says, "There can be no doubt that Mr. Darwin's theory ignores a per- "sonal creator, and his direct interference in the transformation "and creation of species. There being no sphere of action for "such a being giving first starting-point, the first organism, all "existing organisms, are subsequently, by natural selection, de- "veloped from it in a continuous manner through all geological "periods [illegible] simple laws of transmission." Vogt expounds [illegible]atural selection in a most astonishing manner. [illegible]characterised his lectures on man some time [illegible]mark here that he boldly says, referring to [illegible]the theory, "We have no other fear [illegible]uman dignity violated, a dignity we

"value the more since it has been conquered with the greatest "labours by us and by *our ancestors, down to the ape.*" And he then goes on, at great length, to glorify the skeleton of the ape, and shows how entirely it is in our own, and how human the delightful creature is. Again, we say, these are not pleasant things; we only refer to them here for the purpose of noting how the doctrine drifts, and who they are who receive it; we admit at once that this is apart from its truth or falsehood. First of all, however, the reader has to believe, by what Mr. Darwin thinks are clear processes of induction, that all the beings of our world are without a mind. God is only the "God of sea-weeds." Infinite ages since, He created the spore of a sea-weed; since then He has never troubled himself or the world with any interference; the functions of natural selection have done all. If the reader refers to the *Origin of Species*, or if he would have a very able and ample analysis of the argument fairly and honestly stated, he may refer to the chapter on the "Functions of Natural Selection in the Darwinian Theory exa-"mined;" it is all natural selection. This is the deity; and very remarkably Mr. Darwin seems to maintain the doctrine of the universality of this deity, because he sees so complete and exquisite a fitness in what we should call certain adaptations, that he can only regard them as emanating from such a result; they are so admirable in their harmony that no design could produce them. The argument seems to be, that perfect ignorance and perfect helplessness produce the wisest, the most complete, and most wonderful objects in nature; give inability, ignorance, and nothingness time enough, and they will be able to accomplish anything. This is wisdom, to believe in universally prevalent mind; God extending through all extent is an old-world folly and fable; to believe in the principle of natural selection, herein is wisdom. This is philosophy, as Dr. Johnson says, "weary of the old-fashioned practice of milking "the cow, they have taken to the bull." In order to make a perfect and beautiful machine, it is not necessary to know how to make it, design is denied; and yet in the description of the composition of the skeleton, the proper mixture of cartilage, of compact with cancellated tissue, of rounded with angular forms, of uniformly contiguous segments with numerous elevations, depressions, enlargements, and processes—all this results in making the pieces of the skeleton hard levers, bases of support, and protective textures, such as the artifice of man could never imitate; and yet in all this absolute ignorance, absolute blind unconsciousness everywhere, the whole complex fabric of nature, with all these wonderful relations, is given over to the operation of laws which never had the imprint of the finger of God upon them, but which have been taking their own way from the moment of the creation

tions did not happen by any principle of natural selection in the things themselves. "I had rather believe," says Lord Bacon, a mind certainly not less perceptive, acute, cultivated, or bold than Mr. Darwin's in the departments of science, "I had rather "believe all the fables in the *Legend* and the *Talmud* and the "*Koran*, than that this universal frame is without a mind. It "it is true that a little philosophy inclineth man's mind to "atheism; but depth in philosophy bringeth men's minds about "to religion, for while the mind of man looketh upon second "causes, scattered, it may sometimes rest in them, and go no "farther; but when it beholdeth the chain of them, confederate "and linked together, it must needs fly to Providence and Deity." "Very truly," says the Graduate, in his criticism of the theory, "the whole question is, whether mind has invented and organ- "ised all things, or whether the autoplastic actions of irrational "matter have elaborated the universe and its contents?" No solution is attained by leaving the task of creation to the functions immanent in creatures themselves; the tax such a doctrine levies upon credulity is astounding and immense, while the mind, elevated to the sense of the universally disseminated mystery of life and God—the infinite architect living over and diffused wherever life is moulding its forms *ad infinitum*, but it is most true incomprehensible wisdom, giving fitness to its multitudinous adaptations—is a conception which elicits our reverence, does honour to our judgment, and assuredly, while it is more in harmony with our common sense, levies less upon our sense even of mystery and credulity. We might therefore accept very much that Mr. Darwin presents to us; while, as we have said, in his natural selection we should only see his disposition to push God remotely away from His universe of creatures; our minds would rather receive it as the illustration of the ever-pervading mind in the life, ever spending itself unspent. But for the doctrines of transmutations, we have already remarked that barriers appear to be erected between certain orders of creatures. Scripture, in its accounts of the first acts of creation, seems to imply this very distinctly; we can quite feel that this would not weigh much with Mr. Darwin, or with many other readers. Meantime it is to be remembered that Mr. Darwin and his *colaborateurs* do not give, and never have given, any more than their great ancestors in this dream-land, any instances—there are no instances given of any creatures that have ever stepped across, or were stepping across, the bridges erected between certain orders of creatures. It ought never to be forgotten that with Lamarck, or Darwin, or Huxley, it is hypothesis all, dreams and fancies, and nothing

but dreams and fancies. They quite remind us of Shakespeare's Touchstone, "When the parties were met themselves, one of them thought but of an *if*, as *if* you said "so, I said so, and they shook hands and swore brothers. Your "*if* is the only peacemaker; much virtue is in *if*." As Touchstone says, "you avoid all difficulties in an *if*." We have often been amused at the immense capacity certain sceptical natures have for digesting the tough pabulum of infinite IFS, while they sneer at the credulity of simpler believers, whose largest faith is that God has made His universe, and knows and cares for the creatures He has made. And in all simple truthfulness, what is this view of the universe which emerges from such theories as those, whatever they be? Whether, like Subtle in the *Alchemist*, they preach that—

> Nature doth first beget the imperfect, then
> Proceeds she to the perfect;

or, like Oken, behold all the universe of things rising from the Oz—nothing, passing into the primary sea-mucus, out of which everything organic has been created. "Light," says Oken, "shines upon the water, and it is salted; light shines "upon the sea, and it lives." Why, this is only going a little further back then Mr. Darwin's sea-weed, then in the course of ages. As says the same great dreamer, "man is God wholly "manifested. God has become man, and Zero has become some"thing. God is a rotating globe; the world is God rotat"ing." Why, what sheer nonsense all this is, even as dreams and speculations—nonsense. Perhaps this would be regarded, as in truth, a very high compliment—*nonsense*. Such writers, however, if there is no reverence to spare for a God, have yet some objects on which to spend their devotions, and mucus itself becomes Divine. As Oken says, "Gazing upon a snail, one "believes that he sees the prophesying goddess sitting upon a "tripod. What majesty is in a creeping snail, what reflection, "what earnestness, what timidity, and yet at the same time "what firm confidence. Surely a snail is an exalted symbol of "mind, slumbering deeply within itself." So strange are the objects which inspire the reverence of these prophets, who, in the language of Ezekiel, "follow their own spirit and see—"nothing," like Göethe, who, in his conversations with Eckerman, when he received from a young artist a model of Miron's cow with a sucking calf: "Here," said he, "we have a subject "of the highest thought; the nourishing principle which upholds "the world and pervades all nature, is brought before our eyes "by this beautiful symbol. This, and others of a like nature, "I esteem the true symbols of the omnipresence of God." Truly

we have not far to go, even in modern times, for those who, "confessing themselves to be wise, become fools." It is such dreams as these which Robert Browning has lashed with the scorn of a grand satire, in *Caliban upon Setebos; or, Natural Theology on the Island.* Such speculations scarcely range above the maunderings of Caliban, and the god of such conceptions does not rise above the deity of Sycorax in the *Tempest.*

> Setebos! setebos! and setebos!
> Thinketh he dwelleth i' the cold o' the moon;
> Thinketh he made it, with the sun to match,
> But not the stars; the stars came otherwise;
> Only made clouds, winds, meteors, such as that:
> Also this isle, what lives and grows thereon,
> And snaky sea, which rounds and ends the same.
> Thinketh it came of being ill at ease:
> He hated that he cannot change his cold,
> Nor cure its ache. Hath spied an icy fish
> That longed to 'scape the rock-stream where she lived,
> And thaw herself within the lukewarm brine
> O' the lazy sea, her stream thrusts far amid,
> A crystal spike 'twixt two warm walls of wave;
> Only she ever sickened, found repulse
> At the other kind of water, not her life
> (Green, dense, and dim delicious bred o' the sun),
> Flounced back from bliss she was not born to breathe,
> And in her old bounds buried her despair,
> Hating and loving warmth alike: so he.

Such is creation and such is God, according to the science of Oken, we must add also, we think, of Darwin.

We have reminded our readers that Mr. Darwin plainly tells us that he expects in the course of time his ideas will rectify our psychology. We may therefore well be careful and watchful as we notice the character and consequences of his hypothesis; there is no essential difference between creatures, no fixed place, no absolute orb is assigned to them, it is all a scheme of potentialities. We know how especially Mr. Huxley looks with affectionate and tender regard towards "our poor relations," the great family of monkeys, apes, baboons, chimpanzees, and gorillas. Ah! the gorilla has been found to be a finer and closer approximation to man; and curious, but still disputed discoveries have affirmed, that in the ape race there is a slighter difference than was supposed between the brain and the human brain. Anatomists still sigh for the missing link. It is supposed that somewhere buried among the rocks, or in some hitherto unexplored wood or forest, the missing link yet remains undiscovered. When we are somewhat cynically disposed, we per-

haps fancy we even discover some traces of it in our social circle. We believe, however, we do no injustice to modern science when we affirm, that these large-minded and catholic spirits still wait for the missing link; meantime this beautiful theory beholds all law and language, art and science, the palace and the minster, the galleries of the sculptor and the artist, the volumes of Shakespeare and the prism of Newton, all latent in the Chimpanzee, all to be by-and-by restored from the baboon. Nature is wonderful; and our simple remark upon this is, that it is all hypothetical. Meantime it is remarkable, too, that while much is hoped for from time, and, as Paley says, "such theorists having eternity to dispose of are never sparing "in the use of time;" time, so far as we know it, says nothing in favour of the hypothesis; time, which makes every difference to man, makes none to the brute. Mankind has a history; some think that it is the story of progress; at any rate it is a history —incessant movement and incessant change, development of ideas, strife for ideas, battles for freedoms, laws for that wonderful and ineffable thing called Conscience. Such are the marks upon that wonderful fact and race, mankind; by the side of it, it is the merest idleness, it is only the refinement of morbid dreaming, in the chamber of a sick soul, to attempt to bring a bit of sea-weed, or a monkey, into the herald's office of human nature, and to seek to quarter their arms or to turn their effigies into a crest with ours, beneath the idea that descent, with variation, modification, and domestication, gives a clue to the whole of the mystery. In the volumes which have immediately led to these recapitulatory remarks, Mr. Darwin furnishes us with some beautiful wood engravings, especially of his favourites—the pigeons. We have some striking difference represented in the porcine breeds; but the wild boar and the pig are sufficiently one, and pigeons, through all their variations, are pigeons still, leaving, for the time, out of consideration the fact that all these changes are artificial, wrought by man upon these creatures for them, not by them. No proofs of that amazing sweep which, as it has been said, "makes the angler "one with the trout for which he is fishing, and the dairymaid "one with the cow she is milking, may establish a cousinship "between the angler and the tobacco he smokes, and the cow and "the cowslip she crops." It is quite impossible, in a brief paper of a few pages, to do thorough justice to an analysis of thoughts to which a man—and a man of many parts and powers—has devoted the labour of a life. We believe we have done no injustice in seizing upon two or three of the chief points of a theory

which we really believe some are disposed to regard not unfavourably, but which surely, but for that sense of wonder in man which leads him to look at everything which strikes the imagination as bold and new, and especially for that environment of the theory in the happy style, in the large knowledge of natural history possessed by its propounder, would not detain any mind long. It was a fine remark of Sir Thomas Browne: "Since," he says, "I was understanding to know that we know "nothing, my mind has been pliable to the will of faith." We are quite certain that the obedient faith, which receives implicitly the evidence of an infinite creating and sustaining mind, and accepts, too, the sense every man has of individuality, responsibility, and destiny, disentangles itself from the very mysteries which would be thrust upon us by the idea that a mere unguided principle of natural affinity with all creatures, and a natural selection, in which weakness is dashed against the wall of circumstance, would make plain. Seldom has so acute an observer as Mr. Darwin been the propounder of such bold and transcendental hypotheses. He argues, indeed, that "provisional hypotheses" are even necessary to the service of science; and, quoting his text from Dr. Whewell, says that they may be of service even when they involve a certain portion of incompleteness, and even of error. Such a doctrine leaves the promulgator a very large margin. We ourselves are not disposed to question that it may often be so; meantime it is a duty to be upon the guard and on the watch tower, lest the incompleteness should be erected into the pattern of perfect wisdom, and the error should be made the gauge and standard of truth. The remark we have quoted is made in introducing the last chapter, or rather that before the last, in which he summarises his conclusions. That chapter is entitled the "Provisional Hypothesis "of Pan-Genesis." With his usual admirable neatness and conciseness of statement, Mr. Darwin says:—

It is almost universally admitted that cells, or the units of the body, propagate themselves by self-division or proliferation, retaining the same nature, and ultimately becoming converted into the various tissues and substances of the body. But besides this means of increase I assume that cells, before their conversion into completely passive or "formed material," throw off minute gemmules or atoms, which circulate freely throughout the system, and when supplied with proper nutriment multiply by self-division, subsequently becoming developed into cells like those from which they were derived. These gemmules, for the sake of distinctness, may be called cell-gemmules, or, as the cellular theory is not fully established, simply gemmules. They are supposed to be transmitted from the parents to the offspring, and are generally

developed in the generation which immediately succeeds, but are often transmitted in a dormant state during many generations, and are then developed. Their development is supposed to depend on their union with other partially developed cells or gemmules which precede them in the regular course of growth. Why I use the term union will be seen when we discuss the direct action of pollen on the tissues of the mother-plant. Gemmules are supposed to be thrown off by every cell or unit, not only during the adult stage, but during all the stages of development. Lastly, I assume that the gemmules in their dormant state have a mutual affinity for each other, leading to their aggregation either into buds or into the sexual elements. Hence, speaking strictly, it is not the reproductive elements, nor the buds, which generate new organisms, but the cells themselves throughout the body. These assumptions constitute the provisional hypothesis which I have called Pan-Genesis.

We are very much mistaken if this does not turn out to be hypothesis armed against hypothesis, and think we can trace some indications which may prove fatal to the previous theory of the principle of natural selection. The doctrine itself, we believe, is not new, but will be found anticipated substantially in Swedenborg's *Animal Kingdom*. To many readers, to all who are interested most in what may be called the metaphysical or transcendental views delineated by Mr. Darwin, we believe these will seem the most interesting chapters of the volumes. To us it is more immediately pertinent to remark, that as in previous pages, and especially in the earlier work, they show how an active mind behind a quick eye is incessantly engaged in running up its observations into abstractions, in framing metaphors which serve for arguments, in constructing an infinite round of being from a finite cell. All this is very interesting, and frequently even very beautiful; but we must not permit such speculations so to dominate the judgment and the mind as to disturb the most cherished treasures of the household of faith. We trust, among all the criticism Mr. Darwin's theory has called forth, this brief notice of some of its more striking features, at a time when his new work, which we must regard—although it does not express any such statement verbally—as something like a sound of retreat from the very high ground of his early work, will not be regarded as untimely. The *Origin of Species* still receives the suffrages of so many thinkers, that its natural theology and natural history cannot be too distinctly discriminated; nor can we close the paper without giving our heartiest thanks to the Graduate of Cambridge, for what we must regard as a thoroughly able, profound, searching, and scholarly exposition and demolition of Mr. Darwin's doctrines; regarded as a discussion of the *Origin*

of Species, as essays on the variations of domestication, and man's power in producing them, they are interesting as the observations of a naturalist above any need or power of ours to praise.

THE PRICE OF TWO MISDEMEANOURS.

THE old sarcasm on the unequal administration of English justice, viz., that there is one law for the rich and another for the poor, is amply verified every week. It is impossible to cast a glance over any newspaper, without the eye being arrested by some notorious instance of the flagrant maladministration of law. We wish that some idle but able hands would employ themselves to gather from the files of newspapers the illustrations. Our attention has been particularly attracted to the two following instances of gross injustice which have been recently perpetrated at Brighton :—

CAUTION TO "JOLLY DOGS."—*William Watson Forbes*, 20, a visitor staying at the Grand Hotel, was convicted of wrenching off certain knockers and bell-pulls at an early hour this morning, and was mulcted in a penalty of £21 2s. and costs. The money was paid.

Henry Goldsmith, 12, charged with sleeping in a shutter-box in George-street, and being in a destitute state, was sentenced to 14 days' hard labour.

Even a somewhat thoughtless reader, as he reads the above account, cannot fail in being startled by the glaring violation not only of the spirit, but likewise of the very letter, of English law. We blush with indignation when we consider that the poorer classes of our land are liable to be subjected to the penalties inflicted by magistrates whose only idea of justice seems to be to screen and gloss over the crimes of the rich and to punish the destitute. The above two instances are palpable proofs of the truth of our statement; in the first case a man is charged and *found guilty* of wrenching off door knockers and bell handles, thus damaging and destroying property, for doing which (being wealthy) a mere fine is inflicted, and he is able to lay down his cheque and end the matter; while in the second case, a poor, half-starved, and destitute lad, only twelve years of age, is charged and found guilty of the heinous offences of being *destitute*, and sheltering his poor body from the cold winds in a *shutter-box*, has not even the option of a fine, but on the contrary, is condemned to fourteen days' imprisonment with hard labour. We wonder the poor cherish no fine sentiments concerning the *impartiality* of English justice. Surely there is no crime so great as that of *being poor*.