

course, as to which of the two medicines are administered, and it is wonderful to see how the symptoms approved are the same.

To those of our American experimentalists, who are giving chloral a trial, I would take the liberty of suggesting, to be guarded against early conclusions, for they will find that the dose at first administered afterward ceases to give equal results. Whether this difference of action is due to "tolerance" I do not mean to explain, I simply note the fact.

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REVIEWS AND BIBLIOGRAPHICAL NOTICES.

"Judex Damnatur cum nocens Absolvitur."

ART. I.—DARWINIANISM: "On the Origin of Species by Means of Natural Selection. By CHARLES DARWIN, M.A., F.R.S., etc." "Principles of Geology. By Sir CHARLES LYELL, etc. Tenth and entirely revised edition. London. 1868." "London Quarterly Review. No. 252. April, 1869." "North British Review. No. 100. July, 1869."

The Divine Word and all human history concur in bearing witness to the tendency of the sin-disturbed soul to hide itself from God, to shut God out from its knowledge and conception. This can be done as effectually by the substitution of false gods for the true, as by the atheistic denial of any God. It is a melancholy testimony to the universality of this tendency that so many of the distinguished votaries of modern science should put forth in rapid succession wild and contradictory theories impugning the truth of God's revealed Word. No sooner is such a theory proposed than it is immediately invested with the name of science, and the timid Christian be-

liever who ventures to deny or doubt is forthwith stigmatized as the bigoted enemy of science. Any fancy that has a run with a certain portion of the scientific public, is at once elevated to the rank of science, and must not be called in question, at least by the Christian part of the community, under penalty of this denunciation. A little while ago we had a large section of the men of science exclaiming against the Mosaic record, because it seemed to teach the unity of the human race. There are as many distinct centres of creation as of races of men, said the fashionable science of twenty-five or thirty years ago. Now we have a still larger section yet more indignant or contemptuous, because that Scriptural record is inconsistent with the unity—the blood-relationship—of all living creatures, and does not teach that all organic life is derived by direct genealogy from “one, or at most four or five, primordial forms.” This latest form or freak of science, “falsely so called,” by dint of persistence and assertion, is obtaining a very general popular recognition. The mere literary men, who are not scientific, suppose that they must admit the dogma, and familiarly use its language, or lose caste in their own profession. Even the “London Quarterly Review” and the “North British Review” have, within the year just closed, given in their adhesion to the Darwinian account of the origin of living forms.

Any real antagonism between science and Christianity is simply impossible. There may be and often has been antagonism between science and the unlearned professors of Christianity, of which the constantly cited case of Galileo and the Inquisition is an illustrious instance. There may be and often has been antagonism between the crude theories of scientific men and Christianity. Again, on account of the imperfection of our vision, there is sometimes a *seeming* antagonism between equally

incontestable truths. The harmony of the universe is made up of such apparent antagonisms. But between science properly so called and Christianity there can be no opposition, *for all truth is one harmonious whole*. Whenever a fact really discovered by science seems to be in opposition to some Christian truth, the fault may be in our apprehension of the fact, or in our apprehension of the revealed truth supposed to be impugned; and in advance of science on the one hand, or of the critical faculty and apparatus on the other, may at any time remove the supposed contradiction.

The great antagonisms in this world are between truth and falsehood. Real science, therefore, may become the opponent and the destroyer of superstition, of such religion as was set forth a few years ago in the syllabus of the reigning Pope, but not the opponent of the Christianity of the Bible and the Creeds. But crude theories, seized upon by the enemies of truth as weapons against Christianity, and usurping the name of science, must be exposed.

The marvelous discoveries of physical science in our day have given to that department of human learning a sort of monopoly of public estimation. By a very common law of the human mind, the more adventurous leaders in the domain of these sciences have essayed to embrace within the limits of their own favorite pursuits all human knowledge. This attempt is not itself a novelty; for it has ever been a characteristic of mankind. It comes from the combination of two other universal characteristics, the essential narrowness and the pride of the human intellect. No one mind can embrace all knowledge; but when, with great labor and praiseworthy diligence, a man has contrived to acquire a large amount of knowledge in several fields of research, he is apt to dwell with such complacency upon the results of this labor as

to fancy that there is really nothing valuable beyond, and that all other facts and phenomena of the universe may be classified under the same general principles with which he is so profoundly conversant.

In former ages, when there was really no physical science, and the loftiest minds expended all their powers upon the intricate problems of metaphysical research, it was very common to include all the known physical phenomena within the categories of the prevailing metaphysical system, and to construct cosmogonies out of the same materials with which the latest speculative philosophy was framed. Now, when physical science is in the ascendant, the tables are completely turned, and the physical philosopher superciliously includes within his *classes* all moral and spiritual phenomena. In both instances the process was perfectly natural. The marvel in the modern instance is that so many persons, dazzled by the brilliancy of physical discovery, are conceding to these gentlemen their extraordinary and unfounded claim.

Another peculiarity of one large section of the common physical philosophy of our time is its striking deficiency in logical power—in close and consecutive reasoning: This also naturally comes from the exclusive devotion of the mind to the observation and collection of phenomena. The finite mind, intensely engaged in one mode of action, gradually loses the capacity for strong and vigorous action in an opposite mode. And the general neglect of those most efficient trainers of the intellect, moral and metaphysical philosophy, may help to account for the facility with which the general public is yielding to the claims of physical science to cover the whole area of human knowledge, and to embrace the whole realm of being.

The reviewer of Sir Charles Lyell in the "London

Quarterly" seems to think it a wonderful effort of magnanimity, as well as a testimony to the convincing force of the evidence in the case, that Sir Charles Lyell should become the advocate of Mr. Darwin's theory after having condemned it. This exalted estimate of Sir Charles seems to us to be founded on an entire misapprehension of the peculiar qualities by which this gentleman has attained to such deserved eminence in his one department. As an indefatigable collector of facts in that one science—geology—he is entitled to all praise; but in the use which he makes of those facts, he has a very free imagination and very small logical power. The reason of his conversion to Darwinianism seems to be that the theory struck forcibly upon his imagination. He opposed it at first, because it was contradicted by his own favorite science. But his imagination was captivated; and besides, it concurred precisely with his own specially cherished geological dogma, in calling for indefinite billions of ages for the accomplishment of its results. Then, again, it accorded happily with the anti-Christian tendency of modern science. So the professor went over to the side of his friend, and easily disposed of the opposing facts of geology by saying that we do not know enough of geology to permit its facts to contradict a well sustained theory. We shall presently see how well this theory is sustained. Mr. Darwin had already disposed of the strong evidence of geology against him, by giving us a long chapter of his ingenious book upon "The Imperfection of the Geological Record."

The necessity for this apology for the pregnant silence of this witness arises in this way. All the facts in natural history during the historic period of the world are against the theory. The testimony of no more than six or seven thousand years is therefore promptly and contemptuously rejected as of no weight at all, because

too recent. The changes called for by the theory require more time, its author says. The inconceivable ages revealed by geology are necessary. To the geological record let us go, then, for the confirmation of the theory. The response there is precisely the same as in the brief historical period, It furnishes no confirmation. This would seem to put an extinguisher upon the theory. But an enthusiastic theorist is not so easily baffled. The required evidence, if not found, can be imagined. And the theory is sufficiently sustained, in the estimation of its author and its school, by the fact that the record, so far as we know it, is imperfect, and by the *supposition* that the missing portion may furnish the needed testimony. This is, all that is *known* of the existing historical period, and all that is *known* of the past geological periods, contradict the theory, but there is a vast *unknown* which *may* furnish abundant proof of the theory! And this is called science! Mr. Darwin states his theory in two forms on the same page.

“I believe that animals have descended from at most only four or five progenitors, and plants from an equal or less number.”

“Therefore I should infer from analogy that probably all the organized beings which have ever lived on this earth, have descended from some one primordial form, into which life was first breathed.” (Page 240.)

The facts upon which this astounding theory professes to be founded, are, 1st, The unity of type which characterizes all living things: 2d, The beautiful gradation by which allied forms approach each other, thereby puzzling the naturalists very much in adjusting their systems of classification; 3d, The variability of certain forms of life under the culture of human skill and intelligence.

The propositions which constitute the theory, and which are supposed to be based upon these facts, are also three, 1. There is over production, and a consequent struggle

for life in all living forms. 2. The strongest prevails, and propagates itself, producing a higher organization, which displaces the previous lower one. 3. The continued repetition of this process has evolved from one, or at most four or five primordial germs, all living forms. The wondrous variety and yet more wondrous adaptation of each specific form to the conditions of its life were produced by the action of a supposed faculty in the said primordial germ, and in each of its descendants, which the ingenious inventor terms "Natural Selection."

It should always be remembered that theory is not science. Theory is very useful, and may be an important aid to science when it is legitimately used as a guide to experiment and observation. But when used as the basis for dogmatic assertion, and elevated into the place of science, it is simply hurtful and presumptuous.

There is another theory in regard to the existence and diversity of living forms in this world, which is best stated in the language of its author.

"And God said, Let the earth bring forth grass, the herb yielding seed and the fruit-tree yielding fruit after his kind, whose seed is in itself upon the earth; and it was so."

"And God said, Let the waters bring forth abundantly the moving creatures, that hath life, and fowl that may fly above the earth in the open firmament of heaven."

"And God said, Let the earth bring forth the living creatures after his kind. cattle and creeping thing, and beast of the earth after his kind; and it was so."

"And God said, Let us make man in our image, after our likeness. . . . So God created man in his own image; in the image of God created He him; male and female created He them."

Putting out of view for the moment the Divine authority of this announcement, and looking at it simply as a proposed solution of a scientific question, which is the more probable, which accords best with the *known* facts, which explain most satisfactory the actual phenomena,

the theory of Dr. Darwin, or the theory recorded by Moses?

The last mentioned theory ascribes this inconceivable variety of life, concurring with a unity as wonderful, to the WILL OF ONE PERSONAL INTELLIGENCE, infinite in wisdom to contrive and in power to execute—the Creator of the world and of its inhabitants. Mr. Darwin frequently speaks of creative acts as if they were the labored manipulations of the sculptor, painfully moulding and fashioning the clay for his model. The Mosaic theory gives no countenance to such a representation. It simply describes an act of Intelligent Will endowing the earth and the waters, everywhere, with energy to bring forth innumerable creatures, united by a common type, separated by innumerable differences, each “after its kind.” This account is the complete solution of the otherwise insuperable problem of the distribution of living forms.

The Darwinian theory refers all this glorious luxuriance and infinite diversity of life and intelligence, to an *imagined* power of an *imagined* being, without intelligence, without even life, until life was “first breathed” into the “one primordial form,” by creative will. For we do not escape from the mystery of *creation* by this wild and gratuitous hypothesis. We only succeed in removing God as far out of sight as possible. We hide ourselves from Him in the darkness of a groundless fiction.

Let us compare these two solutions of a scientific problem—the origin of existing living forms—a little more in detail. The first and second facts out of which the Darwinian theory is framed, may well be considered together. 1. The unity of type in living forms. 2. The gradation by which allied forms approach each other, so that it is difficult or impossible for naturalists to adopt a

system of classification which will clearly distinguish these allied forms.

The Mosaic theory ascribes both these facts to an adequate and reasonable cause, when it refers them to the wisdom and will of that ONE Creative Mind to which Mr. Darwin is compelled to resort as the starting-point of his long-drawn system—the Infinite Being who “first breathed life” into his imagined primordial form. The unity of type, the beautiful gradation, and, what is more, the perfect adaptation in each instance of an inconceivably multiplied series of living beings to the conditions of the life of each, are all sufficiently, fully, and philosophically accounted for, by referring them to the infinite wisdom and power of that One Personal Intelligence. Unity of type comes naturally at least, if not necessarily, from the unity of the Intelligent Source of being. The source being ONE, why should not the type be one? This is the most philosophical solution of the problem; for instead of referring these vastly complicated phenomena to a cause purely conjectural, and, even if known, utterly inadequate, it refers them to a sufficient Cause with which, in a lower degree, we are thoroughly conversant. For the Divine Intelligence producing these results by an act of creative will, differs not in kind, but in degree from the human intelligence which we know to be perpetually operative on this earth producing by its intrinsic energy many forms of beauty, utility, and power, and producing also, as in the unsustained theory before us, many chimeras of fancy, and abortive monsters of conception.

Surely, if science and reason and philosophy are not myths, mere creatures of imagination, it is right and safe to reason from the known to the unknown, from a power which we verify by consciousness and constant observation producing certain effects, to a like power producing

other like effects, however different in degree. But the pseudo-science which we are now examining spurns this axiom of right reason, and contends that it is scientific to refer this inconceivable multitude of forms, contrivances, changes, and adaptations, to a conjectural primordial form, without intelligence, with nothing but life to begin with, choosing, changing, aspiring; evolving itself into these myriad forms of beauty, power, contrivance, design, adaptation. This dictum reverses the rule of logic, and reasons from the *unknown* to the *unknown*, and then declares that both are proved. The theory does even worse than this. It assumes as its unknown quantity, from which to reason, a power of which there is the largest conceivable amount of negative evidence to prove that it does not exist. The universal consent of mankind has concurred in the proposition that brute matter has no intrinsic power of choice, or will, or self-evolution, except within the narrow limits of a *law* impressed upon it *ab extra*.

Let it be kept in mind that this monstrous violation of all the laws of right reason does not at all rid us of the transcendent mystery of *creation*. It is compelled to call for that miracle of Infinite power, and then interposes between the stupendous miracle and our minds its thick, black veil, its fancied and monstrous genealogy, by self-evolution, from one, or "at most four or five progenitors"—vegetable or animal germs—of "all the organized beings which have ever lived on this earth." The credulity of such science is below that of the most groveling superstitions.

Contrast now with this gratuitous and unsupported hypothesis the sublime description of the creative act which gives us a reasonable account at once of the unity of type, and of the almost infinite variety and marvelous adaptation of all living forms. "Let the waters

bring forth"—"Let the earth bring forth." There is no account of life being "breathed" into these brute forms. This special act of Divine power was reserved for man, created in the image of God. It is simply an act of WILL, by Him who is Almighty—who made the earth and the waters, *endowing them with fecundity*, to bring forth all these things, *after their kind*. No man of science was there to watch the process. We do not know, we never can know, whether each living thing started from a germ as now, and was protected in its growth by the same overruling Power which commanded its existence, or whether the earth and the water brought forth the full-grown "progenitors of all living things." Analogy, if any analogy could meet the case, might incline us to the former supposition. Nor do we know the time in which the mandate was fully obeyed. Nor do we know whether the mandate is not still in productive operation. But here is the FACT—the existence of these infinite varieties of forms, with all their wondrous and elaborate adaptations; and here is the only sufficient, the only possible Cause for the fact—*the Creative Will of an Omnipotent Intelligence*.

Let us look now at the third fact out of which this theory professes to be framed—the variability of certain forms of life under the culture of human skill and intelligence. This one fact is really the starting-point and the sole support of the theory. It is all "evolved" from this "germ." That which gives significance and character to this fact is the commonly supposed immutability and permanence of distinct forms of life. As far as human observation can go back into the records of the earth, distinct living forms have continued unchanged, propagating invariably and only "their kind." Human intelligence, with time, and patience, and minute care, can partially modify this law. The florist can so improve

a single plant as to produce from it many varieties of beautified flowers, *of the same kind*. The horticulturist and the fruit-grower can exert the same beneficent but limited power in their respective departments. A succession of sportsmen, by assiduous care over successive generations, can produce from one pair of pigeons more than a dozen varieties of pigeons. But no care has ever succeeded in producing from a pigeon by this process a canary-bird, or anything but a pigeon. So human intelligence and skill have produced from the wild ox the Durham and other improved breeds of cattle. But no amount of skill and culture will change an ox into a horse, or into any other distinct living form.

The plain, logical conclusion from this class of facts would seem to be—if human intelligence is thus *powerful*, and thus *limited*, a like Intelligence, higher, supreme—Divine Intelligence—has produced all the infinitely modified forms of life which inhabit this world. And this logical and only reasonable conclusion from the premises is in precise accordance with the inspired record of creation, and turns against the Darwinian theory the only class of facts upon which it relies, and upon which the whole fabric is based.

Mr. Darwin's strange and unphilosophical inference, from this *limited* power of human intelligence over brute matter, is, that the brute matter has *in itself* an *unlimited* power of selection and self-evolvement, producing from the lowest germ the highest forms, and the infinite variety of forms of life that fill the world!

As the theory thus violates every principle of reason and logic, it equally contradicts all the facts of natural history. The immutability of specific forms stands out prominently as an unquestionable fact from the beginning of the historic period until now. But the scientific theorist laughs at this seemingly pregnant fact, because he

says the historic period is but as yesterday, and does not furnish sufficient time for natural selection to work in. Only the billions of ages supposed to be revealed to us by geology furnish the required time for all these "wonderful works." When we go to the geological record, we find there precisely the same testimony as in the historic period. The integrity and immutability of specific forms are engraven upon the rock in unmistakable characters. The geological record is too imperfect to be relied on, exclaims the enthusiastic votary of this misnamed science. If geology will not furnish us with the *facts* we want, it does give us *unlimited time*, and our imagination can fill up these bewildering cycles of ages with all the facts we need to establish the sublime proposition of the self-evolving power of the primordial form to improve itself into the inconceivable variety of beauty, and strength, and capacity which constitutes the living world! To this conclusion does the argument come!

But the case is, if possible, still stronger against the theory even than this. We have found the *true* meaning of the facts upon which the Darwinian theory professes to be based, to be a strong confirmation of the Mosaic account, and a positive refutation of the Darwinian hypothesis. We have found geology and science in all of their phases *proving the integrity and immutability of all living forms, both animal and vegetable*. Having thus ascertained the meaning of the facts, we can more easily dispose of the three dependent propositions out of which the theory is framed.

The first, about over production, is partially true, and need not be examined, because the second is the one postulate which Dr. Darwin requires as essential to his system, without which it falls to pieces and is a thing of nought. The postulate is that in the supposed struggle for life between all living forms, the strongest prevails,

and propagates itself, producing a higher organization, which by its superior vigor displaces the previous lower one—its venerable progenitor. This proposition is the acknowledged heart of the system. Is it true? The question ought to be, “Is it so certainly and universally true that it can reasonably be used as the basis of a theory so stupendous in its results, and so unlikely as that which it is employed to support?” But it is not necessary to put the question in this form. Is it true at all? Is it even probably true? is quite sufficient. We venture to affirm that it has not even verisimilitude.

As already stated, and as is frequently confessed by the author of the theory, the only improvements, the only beneficial changes, in the forms of vegetable and animal life of which we know anything, are those produced by human care and culture. As long as that care and culture are continued, the desired improvement is maintained, and acquires a sort of permanence. And unquestionably the same human intelligence, acted upon by a lively interest, will gradually get rid of the original unprofitable stock.

But what does nature do in the premises, when human intelligence and culture are withdrawn? How does the newly discovered faculty—“natural selection”—go to work? Do the gorgeous beauties of the florist continue to improve, when he no longer tends them? Do they even preserve their present form? In every department of vegetable and animal life to which this science of improvement has been applied, the rule is uniform, the law is universal, and is precisely the opposite of the proposition of Dr. Darwin. The tendency of nature is promptly and rapidly to retrogression to the original inferior form, to the lower organization, as soon as human care and culture are withdrawn. Let the gardener permit his vegetables to seed themselves, as it is called, instead of

selecting the earliest and largest ripened fruits for seed, and in a few years the degenerate and stunted product will be hardly fit for food. The plant has returned to its original state, and there the capacity of change is arrested, the form is permanent, until human intelligence again renews the process of improvement.

Leave a stock of Berkshires to nature and to "natural selection." Turn them into the woods to shift for themselves. All but a few worthless specimens will speedily perish. These may survive and propagate, until the original and inferior condition is reached.

Look at the little shaggy ponies of the Western plains of Spanish America, the degraded product of the noble Spanish and Barbary horses introduced into that country, and left to "natural selection."

This essential proposition of Dr. Darwin is in point-blank contradiction of *all the facts*, as far as human knowledge goes. All change, all improvement, for any purpose, outside of human care, is simply guess-work, is utterly *unknown*.

Not only is the general proposition thus disproved by the facts, but each minuter point and detail of the dictum is similarly disproved. It is not true that the higher organizations conquer and displace the lower in the struggle of nature. On the contrary, observation points to the reverse of this assertion as more nearly true. The lower forms of life seem to be far more persistent and enduring than the higher. Cold-blooded animals are known to be longer lived than the warm-blooded. The lower forms of life are incomparably more prolific than the higher. As you ascend in the scale, the number of offspring and the capacity of reproduction are diminished. Some of these lower forms will produce in a day more offspring than an equal number of the higher in a century. The higher the organization, the more exposed to disease, the

more liable to destruction. The rule holds good as between different families, and equally as between members of the same family. It even extends to different constitutions, classes, and grades of men. Feeble constitutions are often exempt from active disease. They live on, and are prolific, while the stout and hearty are swept away from around them. The lower grades of human society propagate without reserve, and tend constantly to a deeper degradation, and to the capacity of living on the minimum of subsistence. This well-known fact disposes of many of the sophistries and assumptions of a Darwinian disciple in the July number for 1869, of the North British Review. This writer undertakes to prove the upward progress of society from the lowest savage state, by the present contrast between the lowest and the highest class in London, assuming that the latter started from the present level of the former. Fortunately the evidence is too strong that the present condition of that lowest class is the result of long continued degradation. Two centuries ago, there was no such people in England as the present lowest class in London. The law is universal, that if men are removed from the moral restraints of society and religion—of society quickened by religion—they sink rapidly in character and condition. The history of large cities, and of the border lands of civilization, alike prove this rule. In cities, the increase of wealth and refinement tends constantly to isolate the lower orders from their superiors in these particulars, until the lowest class forms a *caste* as distinct and independent as if they lived in a distant country. When this stage is reached, the degradation becomes more rapid and intense, because the isolation is complete. Social restraint, religious restraint, cease to be operative. Men become animals merely, and give full scope to the animal propensities. The CASTE is completely isolated from that

social order which is informed, quickened, and moved by religion, and it becomes little more than a mere herding of brute humanity. Propagation goes on with no moral limit whatever; and in spite of the filth and squalor, the starvation and disease, the population in this lowest stratum increases far more rapidly than in any of the higher grades. Years ago, a distinguished London magistrate of large experience in dealing with this class, testified before a parliamentary committee, as the result of his observation, that if a row of hogsheads were placed along the curb-stones of the London streets, they would soon be occupied as dwellings by a yet lower stratum of human beings, who would propagate their likeness in these homes.

Now, then, which theory is more scientific—most like to science—that which ascribes the wondrously complex phenomena of living forms to a sufficient Cause, analogous to another cause which we see and know to be in constant action, producing analogous effects, or that which ascribes the same phenomena to a purely imaginary faculty, utterly unknown, the fanciful conjecture of an ingenious naturalist?

We have examined with care—we do not profess impartiality in such an issue—but we have examined with care, and *with full allowance of every legitimate demand*, the theory of Dr. Darwin. Instead of finding it science, or scientific, or reasonably plausible, we have found that all of its postulates are not only assumptions unsupported by proof, but that they are directly contradicted by all the known facts in that sphere of nature to which the inquiry belongs. Surely, then, we cannot be reproached as the enemies of science when we reject this theory, and all its cognate systems, on purely scientific grounds, as well as on behalf of reason, religion, logic, and common sense.

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