

like a ball of silver. The owners of this treasure, who had then no expectation of meeting with a purchaser capable of paying the price at which it was valued, kept it enclosed in a gold-mounted echinus shell, through whose convex crystal cover the Zosima Pearl shone forth with almost diamond-like lustre.

With this paragon, we close our account of some of the great Oriental pearls that have won for themselves a place in history. We have not here ventured on the consideration of the various theories that have been advanced in ancient and modern times to explain the nature and mode of formation of these highly-prized ocean-born gems.

THE BOUNDARIES OF SCIENCE.

A SECOND DIALOGUE.

Philocalos.

Philaletes.

Philoc. YOUR opinion on the subject of our last conversation has been a subject of increasing surprise to me. Without pretending to any power of estimating the theory we were discussing, in a scientific point of view, it appears to me that it belongs to a scheme utterly irreconcilable with other views which I know you to be incapable of discarding. I am aware that a certain class of thinkers seem to find a charm in the mere division of "reason and faith," which enables them to receive that as truth on one side of the boundary line, which, simply transferred to the other, becomes utter falsehood. I cannot believe you to be under the influence of so unphilosophical a view. The division into reason and faith appears to me a mere indication of the different modes of our perceptions; and, as we believe that all these perceptions come ultimately in contact with absolute objective truth, we have a full right to cross-examine our witnesses, to compare their evidence with each other, and to reject that which is incompatible with the voice of a higher authority, just as, in a case where sight and touch were at variance, we should all, I suppose, give the latter the pre-eminence as the more infallible indication of external fact.

Philal. But wherein are sight and touch at variance here, Philocalos? What has reason declared concerning

the origin of species by natural selection, which is contradicted by any part of the testimony of faith? Surely you do not find in the reply of the Aristophanic Socrates—"Not Zeus, but ætherial rotation"—any true antithesis? I need hardly combat so shallow a fallacy as the restriction of Divine agency to those channels which are visibly in connexion with the fountain head, or impress upon you the conviction that in the long and devious course which has brought the stream of creation to our level, not one drop that issued from the fountain has been lost. Now it is the course of this stream with which science is exclusively occupied, tracing its multifarious branches from point to point in an upward or downward direction, but never pretending to reach the original spring. Every step gained by science is a contraction of the miraculous,—as the one advances, the other must recede; and that conception of power *to alter*, which is the first effort of the mind to grasp the idea of Omnipotence, must in the scientific mind be wholly swallowed up in that wider thought of a power which, from the first, left nothing that needed altering.

Philoc. So far am I from the fallacious idea which you are prepared to combat, that it appears to me, as far as degrees of more or less are applicable to such a subject, that there is more power

evinced in creation, in proportion as the miraculous is restricted to a smaller area. Of course, all absolute beginning implies a miracle—nature excludes *origin* as rigidly as destruction. If there was a time when matter was not, there must have been an exercise of Divine power to bring it into existence which finds no analogy in any operation of nature. But I see as clearly as any man of science, I believe, that just in proportion as this exercise of exceptional power is limited, it is more in accordance with what we should conceive of omnipotence.

Philal. If you see this, what is there to object to in *any* theory which calls in the aid of secondary agencies in the production of species?

Philoc. There is the loss of every other link with the Creator but that of creation. There is an annihilation of all those hopes and aspirations which have linked themselves with such words as "I ascend unto my Father, and your Father." Natural selection is, of course, in so far as it expresses a real law, only a name for a particular kind of Divine agency. God is not the less my Creator, if I am the result of this complex machinery, but will you deny that He is the less my Father?

Philal. Before considering that difficulty, let us inquire how far it is necessarily connected with the subject before us. Let us distinguish any accidental connexion in a particular set of minds from logical cogency—the accidental ex-crescence from the legitimate fruit. Let us be sure that it is from the acorn and not from the oak-apple that we judge the oak.

Philoc. I can only repeat how impossible I find it to reconcile the belief in man's place in a spiritual kingdom with any such hypothesis of his origin as that of natural selection.

Philal. Every hypothesis will exercise an influence on the minds of its supporters beyond its proper sphere. No one of the sciences is so complete within itself that the student can confine his attention solely to that particular branch of the great tree. The sciences are divided by no mathematical lines, but by

gradations which blend with each other as the colours in the prismatic spectrum. Thus, no man of science can proceed far in any particular line of investigation without having the conviction forced upon his mind that all are but the various ramifications of some one principle, not capable, indeed, of any symmetrical arrangement, as the different divisions of a column, but diverging, according to a more hidden law and order, as the branches of a tree.

Now, to carry on the figure which I believe to be the most accurate statement of the fact, when science has once penetrated to the roots of the tree, she has done her work: she can tell us absolutely nothing of the seed. The laws of nature are the laws of development; while, strictly speaking, any discussion on origin ascends into the *supernatural*. I am not remarking on this as any criticism on the title of the work which we are discussing; at least, I should be entirely unprepared with any alternative which would better convey the writer's meaning; but it appears to me a misfortune that we have no word which would indicate origin in a secondary sense, origin merely of form.

However, to return from this digression, what I wish to urge upon you is this,—that what is true of the branches is true of the tree, in a less degree. Science does not, indeed, contain the elements of any decision concerning that which is *not* science; the study of nature affords no stepping-stone to the study of the supernatural; but the traveller who has reached the limits of that region which it is his business to survey, can hardly fail to indicate in the chart which he has drawn up some dim and uncertain views of the surrounding territory. The mountaineer who has tracked the river to its source catches shadowy and fleeting visions of the inaccessible summits above it.

Philoc. I wish you would not involve a meaning, which seems to me sufficiently obscure, in metaphors, which render it still more so.

Philal. There are subjects on which figurative language appears to me the

most exact. But what I mean is this,—that no man can leave the environs of his special field of study an absolute blank; no one can ascend to the verge of science without straying in thought beyond the boundary. Speculations on the *origin* of species almost force upon their author vague thoughts concerning the origin of life.

Now, for those minds with whom the study of the powers of nature has so absorbing an interest as to veil from them the action of the universal will, whose ever-present fiat is necessary to keep those powers in being—for those minds, the course which such thoughts will take is already settled. But this obscuration of the mental eye in the reign of Faith in nowise detracts from the sagacity with which the votaries of science have traced the course of the natural powers among the phenomena of material existence; nor should it lead us to shrink from the tenets they have established within their own legitimate domain.

Philoc. Your answer appears to me to be entirely without application to the particular objection I raised to the theory.

Philal. Before I answered your objection, I wished to guard against the effect of admissions in its favour coming from the other side; and I would caution you against supposing that an hypothesis cannot mislead without being itself in fault. In science, as in wilder paths, it is often true that “the light that led astray was light from Heaven.”

Philoc. Think, Philalethes, what you imply: that the creation possesses so little coherency, so little order, that the path which follows the steps of truth with undeviating accuracy in one region of thought, may set us on the track of pernicious error as it crosses the frontier; that the dominions of truth are analogous, not to the concentric orbits of the planets, but to the arbitrary lines which mark out political divisions of the earth. Surely it is the first which is the true analogy; in approaching the centre of Saturn's orbit, we cannot be removing ourselves from that of Mars. And if so, then it follows that those speculations

which, when pursued a step beyond the boundaries of their own proper sphere, land us in error with regard to man's spiritual nature, can hardly be trustworthy guides on the other side of the boundary.

Philal. Assuredly all the regions of Truth are concentric; every approach to the centre of one is an approach to the centre of all. But, just as, before the epoch of Galileo and Newton, a system was in vogue which gave the universe a false centre and false machinery, yet satisfied all visible phenomena, so may a train of thought which places the whole scheme of existence awry yet contain the whole truth relating to a particular section of it, and draw confirmation from appearances as fallacious as the rising and setting of the sun.

Philoc. You shrink from dropping the veil of metaphor, from defending the tendencies of a theory which is indissolubly connected with materialism.

Philal. I make no admission as to the tendencies of the theory; I only guard against being compelled to take into consideration any but logical consequences, unless they are logically connected with it. But, suppose it granted that the theory may in a particular mind, or a set of minds, be associated with materialism, I assert that this fact is no more prejudicial to its truth, than Newton's fanciful speculations as to the cause of gravity by the condensation of æther to the soundness of his great discovery.

Philoc. But, Philalethes, I am not speaking of any accidental connexion with error, but of logical consequence. We may follow the history of Newton's discovery of the law of gravitation without even forming an opinion upon its cause. The practical truth of such a law would be unaffected by any possible explanation of the law itself, as the action of some ulterior principle. But can you make this hypothesis of Creation and Materialism equally independent of each other? If, as we retrace in thought the course of organized being, we see at every retrograde step less and less evidence of spirit—if,

passing through all the various grades of animal life, we find that the measure of recency is the measure of that compound intelligence, will and feeling, which in its highest degree constitutes man—in thought, will, feeling, are the infallible signs of a wide removal from the source of being—what remains but the dreary creed that, as we reascend the stream of creation, Spirit, the result, should be left behind, and matter, the cause, remain? till, on reaching the fountain head, we find ourselves in the presence of matter alone,—the source from which we have proceeded, and to which there is every reason to believe that we shall return again.

Philal. The course of your argument has shifted its direction. You have brought two distinct objections to the theory—distinct, at least, as far as genus and species are distinct. You said just now that it made God *only* our Creator, that it destroyed our filial relation to him; you say now that it denies his existence.

Philoc. I think that, in expressing the first objection, I saw that it was but a stage towards the second—that the denial of any filial relation to God involves the denial of his existence.

Philal. There is a sense in which the theory is very likely to be understood, in which it does imply all that you have urged against it. It is possible to regard the formation of new species as a process of mere *accretion*. You may say that, at a given moment, there is nothing there but matter; at another, there is spirit; that is, you may make life the result of material force. Since *origin* is excluded from the processes of nature as rigidly as destruction, since nothing is contained in her laboratory which has not been extracted from her mine, then the spirit of man must be the result of these material agencies, unless it was already in existence when they began to operate.

Philoc. When they began to operate! Where was the spirit of man when, to use our author's words, "life was first breathed into the primordial form from which all organic beings have descended?"

Philal. Tell me, do you suppose that the mother who mourns over the dead body which she has never held alive in her arms, does not look forward to a reunion with the immortal spirit which left that little frame before any signs of spiritual existence were possible to it? Might not the existence on earth of either of us have been arrested at a point at which none of the capacities which make us *persons* were indicated in any outward shape? And does not this period, during which the spirit of man is as though it were not, bear a very appreciable proportion to his average life? Now this, which we have no choice about believing in the case of the individual, why should it be difficult to believe for the race? We are not now discussing the question of its *truth*. The probability of that remains unweakened by a single objection you have brought forward, unstrengthened by a single consideration with which I have replied. It rests on grounds which we are neither of us well adapted to discuss. But, inasmuch as the one thing of which both of us are certain is the close and intimate presence of a Father of our spirits, we should need no further disproof of *any* theory than its incompatibility with the conviction of his existence. The man of science is of course not obliged to start from the assumption, and it is therefore no answer to him to point out that he has called it in question. But the seeker after truth, if he has for one moment come in contact with this conception, feels that every principle incompatible with it bears the impression of falsehood as clearly as one which should assign more than three dimensions to space. But this is a condition demanded from us by no theory of physical science whatever. Let us beware, to use the fine image of Macaulay, how we bring down the ark of the covenant into the battle; let us tremble to link our trust in God with any but moral truth; let us listen to the exponent of any principle of nature without fearing that we thereby commit ourselves to any inferences respecting

creation. Nature selects, but that which she selects is not her work. She waters the earth, and cherishes the plants, but she does not sow the seed. The principle of natural selection is the answer to the question, How were these forms perfected? it throws no light on the question, Whence do they originally spring?

Philoc. But surely you do not pretend that this is the view of natural selection which would be accepted by the author who ascribes to it such universal sway?

Philal. I think that, to any question upon that subject, he would have a right to say, "I am not bound to investigate the nature of species. I have endeavoured to explain the manner of their origin. I have nothing to do with the origin of organization." If he entered into further explanation of views which do not demand it in order to be complete within themselves, if he quitted the ground of the physician for that of the metaphysician, I hope that he would acknowledge that this and every analogous hypothesis could be but an explanation of the manner in which the spirit enfolded within the bosom of nature is brought into consciousness and energy, as the windows are successively opened through which the light of life breaks in on the sleeping inhabitant. Such a moment is experienced by every individual; such a one may have been experienced by every species. The moment when it first became a species—when it arrived at that complete individuality of form to which it had been guided through, not by, all the accidents of nature—this moment would correspond to the birth of the individual. But the form itself was no new existence in the eye of the Creator. He laid the entire plan of organic life, and arranged the relations between nervous structure and sensible experience. His word governed the principles of generation, the measure of resemblance or divergence between parent and offspring, and the conditions of social subsistence. In his view, whatever was the primordial form into which life was first breathed, all these different species

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which have arisen from it were potentially present within it. The typical forms were present there, as the oak in the acorn; and these typical forms, to which Providence has guided at successive stages the stream of life, these are the origin of species. The infinitude of small deviations from the parent type, which may, according to the theory of our author, be exhibited in the offspring at every descent, may be regarded as a labyrinth laid out by the hand of the Creator, through which he furnishes a clue to a higher state of being, in the principle which rewards every step in the right direction with the predominance of the successful type over its rivals in the struggle for existence.

Philoc. But it is impossible to read the book we are speaking of, and not see that the author utterly repudiates all such ideas as you have brought forward. It is quite evident that he is no believer in any principle of development. He makes natural selection the sole agent in creating new species—not only, as you say, in removing impediments to their appearance, in bringing about a state of things suited to call for the full development of a germ which exists already,—but in producing the germ. Natural selection is, in his view, not analogous to the atmospheric influences which foster the embryo within the seed, but to some agency for which we should seek in vain for a parallel, as the sole factor in the production of new species.

Philal. It may possibly be so, though it may be that the strong prejudices with which you regard the theory may lend to it the colour of the glasses through which you are looking. But I do not think the investigation a very useful one. The point at which we must diverge from our author, if he means what you make him mean, lies beyond the boundaries of his domain of science. We may accompany him up to those limits without fear; we need not quit him one moment before he loses all peculiar claims on our attention as a guide, before he has set his foot upon ground where he is not more peculiarly

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at home than the rest of us. Nothing that he has tried to *prove* can influence our opinion of his data.

Philoc. But how little the theory explains, if this is all! How slight the importance of that agency which merely clears the path for a principle of development, for which principle I am certain, moreover, that our Author would never consent to clear the way.

Philal. Do not revert to any indication of opinion which is not an integral portion of the theory. But, with regard to a principle of development, does not the Darwinian theory imply it, whatever the author may believe about it? If there were not such a principle at work, putting forward on every side new and varied forms, what would nature have to select? What is Natural Selection but the rejection of the greater number of these forms? What does it supply? It no more creates new species than the bed of gravel creates the stream which percolates through it. What are *accidental* varieties—in what sense can we see the word *accidental*, but in that of belonging to some unknown law? And what are those varieties which are produced by some unknown law *but* the result of development?

Philoc. That is, the theory supplies materials for its own refutation?

Philal. Not at all; it merely supplies materials—as all logically coherent theories do, whether they are true or not—for the refutation of illogical inferences.

Philoc. Well, then, I repeat that the theory which merely clears the path for a principle of development explains very little.

Philal. It appears to me a very inadequate statement of the result of the hypothesis to speak of it as merely clearing the way for a principle of development. If natural selection be, indeed, the instrument by which species were produced, I should find in the pioneers who hewed a pathway for an invading army, through a mountain chain of solid granite, the best parallel to those forces of which natural selection is the summary. Of course, you may say that the pioneers

merely clear the way for those who are to do the work of conquest. But, if they carve out the path which leads to the promised land, leaving impassable barriers on every other side, I cannot think that their part is an insignificant one in the great work of conquest.

Philoc. Only you must allow those who enjoy a peaceful possession of the conquered territory to protest against any claim to an exclusive right to their gratitude on behalf of those who *only* removed obstacles, however insuperable without their aid, to the work of conquest.

Philal. Certainly; but I should not consider that a treatise on military engineering was an occasion forcing upon its author any judgment upon the relative merits of the labours to be performed by the engineer and the soldier.

Philoc. But the treatise professes a far wider scope than any which could be conveyed by that analogy. It *does* imply a judgment on the whole work of creation.

Philal. It is quite possible for a logician to overlook the fact that logic does not afford data, and I could hardly imagine a mistake which would more effectually distort his view of truth as a whole. But it would not make any gap in his system of logic. When he crossed the frontier, to take your own metaphor—when he came to the relation which logic bears to the philosophy of mind—*then*, no doubt, he would be set utterly wrong by such a fallacy; but, as long as he kept strictly within the boundaries of his particular science, it would not affect his reasoning.

Now the office of natural selection, in arriving at species, seems to me precisely analogous to the office of logic in arriving at truth. Neither of these instruments does more than combine in a more complex order the elements which both are powerless to produce. As the facts furnished by the senses or the axioms expressive of necessary truth are to the laws of logic, so are the unknown influences which affect the reproductive system to that inexorable destruction of the greater number of the modifications

thus produced, which is all we mean by natural selection.

Philoc. All we mean by it! How small a thing it is then that we *do* mean by it!

Philal. Is not this very simplicity of the hypothetical agent in so mighty a result, a mark of the verisimilitude of the hypothesis? Think of the laws of motion, for example; do they not baffle our comprehension in first turning our attention to mechanics, from their very simplicity? We turn over the words in our mind in the expectation of finding something more than the truism they convey; yet it was the want of a correct appreciation of these truisms which obstructed the progress of a theory which changed the scheme of the universe. All the founders of science have, as Sir John Herschel says, not only much to do, but much to undo. And, to my thinking, there is something in the very negative character of the theory, in the very fact that its chief work is to cut away all agencies but those which we actually see now in operation, which impresses on it the character of truth.

Philoc. I see now how large a part of the objections which arose in my mind against this theory are removed by a more exact understanding of the subject to which it applies. But that only brings us to my specific objections to this particular view of the origin of species. Suppose me convinced (I hardly know how far that is the case) that the introduction of secondary causes into the production of species does not necessarily call in question the spiritual nature of man and his filial relation to his Creator,—yet my reluctance to accept *these* secondary causes as agents in such a result remains unchanged.

I cannot reconcile myself to the admission of agencies which have the impress of what in man would constitute sin, to the work of creation. Do not silence me by pointing out the difficulty, which I already admit, in recognising the existence of evil at all.

I am aware that, logically, there is no degree in a contradiction; that, in believing in the existence of evil under a

good Creator, I have already admitted to my mind a contradiction which, as it cannot be softened down by any conceivable hypothesis respecting the mode of creation, so neither can it be heightened by it.

But there are instincts which are beyond the jurisdiction of any logical code; and to these I appeal in your heart, Philalethes, against a hypothesis which, carrying us back to the moment when "God saw everything that he had made, and behold, it was very good," shows us this scene of strife, of bloodshed, of suffering. Surely, it was not on *this* that the Creator pronounced a blessing! Surely, the command, "Be fruitful and multiply," did not mean, "Let every creature engage in an unremitting warfare with its fellows for the means of subsistence." This misfit between nature's powers of production and means of support; this constant flooding of the banks of existence; this want of balance between the organic and inorganic world; these, of course, I have no choice about accepting as facts. But is there such a trifling distance between the acknowledgment of their existence—in a world where sin has cast its mysterious shadow—and of their pre-existence in the mind of a perfect Creator, that you can span it with a single step?

Philal. The gulf which separates the two conceptions you have spoken of is one which no possible theory of the production of new species can require us to cross.

Philoc. How do you escape it? Here we stand at the summit of creation, the highest shoots of the lofty tree, whose roots stir the depth of earth, whose branches sweep the heavens. In the tree, as it stands, I see what seems to me distortion and blight. From the lowest fibre of the roots to the highest leaf something is amiss, something is the work of an evil power. How and why I am not obliged to explain; it is enough that I look back to a time when a perfect *seed* was dropped into the earth; when the germ, free from all taint of imperfection, first began to expand in the bosom of nature. And such a re-

trospert gives an analogous prospect; for, if all evil is extraneous to the expansive principle of life, the time shall come when the blight shall pass away, and the result image accurately the intention of the planter. But think what you imply when you tell me that man is the result of the predominance among his ancestors of those tendencies which in him are sinful; that the Creator delegated the work of his creation to an evil power; that the first thought of this wonderful universe in the mind of God was combined with evil; that the very foundations of organic nature were laid upon it, and therefore can never be separated from it.

Philal. It is strange that two conceptions which, to my mind, are as distinct as the flower and the seed, should in yours be so inextricably involved as to need restatement in such various forms. When Raphael designed the cartoons, was his mind occupied with the looms of Arras which were to be put in requisition, before his creation would shape itself in the silk, and gold, and wool, which were the destined means of its expression? Was the Flemish weaver in any sense the author of The Miraculous Draught of fishes? Do you suppose that he and his loom were present to the mind where the picture originated?

Philoc. You are speaking of a mind that could be occupied. The metaphor fails altogether when applied to that mind which not the whole creation can in any sense occupy.

Philal. Why so?

Philoc. Because it was only the limitation of the human mind which prevented Raphael from conceiving the means simultaneously with the end of his production. Were it possible that he should have been the most skillful of weavers as well as the greatest of artists, would not Leo have demanded that the tapestry should be woven by the hand which designed it?

Philal. Think one moment, Philocalos; in a world where not man only, but nature also, bears the impress of imperfection, must we not admit some analogous conception in the scheme of

creation to the Flemish weaver? How we reconcile this with the belief in Omnipotence is a question lying wholly beyond the sphere of the present subject—I believe, beyond that of human reason. But have we any choice about it? Is not the whole creation as distinct from, yet as similar to, the primordial idea in the mind of the Creator, as the tapestries of the Vatican to the cartoons of Raphael?

Philoc. Again, then, you return upon the position you surrendered at my first assault. You empty of all meaning such words as, "Thou wilt have a desire to the work of Thine hands."

Philal. I should empty of all meaning the wide visible world and the wider invisible world, if I lost anything of the force of those words. I believe that He has a desire to the manhood in us—the typical nature that is in each one of us—and which, overlaid and obscured by something that is *not* the work of God's hands, yet, underlying all outward forms, constitutes at once our essential humanity and our sonship towards Him.

Philoc. Yes, in man, no doubt, there is that which is not the work of God's hands; but what has this to do with nature? I have always been accustomed to look upon the manner in which cause and effect are linked in the physical world as a symbol and prophecy of the order to which man shall attain, when he has perfectly conformed himself to the will of God. But what becomes of this view if nature, too, is imperfect? How is nature our example, if she is a partaker of our imperfection?

Philal. I look upon that system of things which we mean by nature as a perfect means to an end. I see in the unvarying precision with which every law in that system regulates the smallest detail of the phenomena subjected to it, in the harmony between the vast and the minute, in the simplicity and co-operation of the various forces which are for us ultimate facts, in the tendency towards unity which is revealed to us by every advance in knowledge, as un-

mistakeable evidences of *design*. I see in every fact which the study of nature makes known to us fresh evidence of the unity of plan of this whole mechanism; and my confidence is entire that, whatever the purpose, it is completely accomplished. But, when you come to consider nature with reference to man—and, indeed, to all sentient beings—then the adaptation, the harmony between the two becomes, to my mind, very faint and dim. The attempts to make this harmony a complete one, of which such books as the *Bridgewater Treatises* are instances, are profoundly unsatisfactory to me. I do not deny that it is easy enough to extract from the book of nature some such message as they make it convey. Select your own passages from the great volume, omit all parenthesis, and add the marginal *pié legendum*, and I do not deny that any one of the sciences may furnish a very suitable illustration for a sermon. But to wrest them to this purpose appears to me a mistake of the kind which Bacon must have contemplated in his celebrated assertion, “That, as all works show forth the power and skill of the workman, but not his image, so it is of the works of God.”

Philoc. I cannot retain the thread of your argument. How does this explain your conception of the imperfection of nature?

Philal. It is rather intended as an illustration of what I mean by that imperfection. Is not the statement, that man has to work within a machinery to which he is imperfectly adapted, equivalent to an acknowledgment of imperfection in the machinery, with regard to him?

Philoc. Well, then, how do you reconcile this with nature's being—as you called it just now—a perfect means to an end?

Philal. Because I look upon this very misfit—this very want of adjustment between man and his dwelling-place—as a purpose of the Creator.

Philoc. It seems to me that the study of the anomalies of nature has too entirely tinged your whole tone of thought.

You have dwelt on the exception till you can hardly perceive the rule; and you forget that it remains to be proved whether nature can be called to account for any share in disease—whether that is not exclusively attributable to the folly of man.

Philal. Suppose it be so, you have not exonerated nature from the partnership which she shares with our own folly and sin in producing our suffering. In a sermon recently published, by an author whose productions will always deserve and command attention, the prayers for fine weather are attacked, on the ground (if I rightly understand the author's meaning) that we ought not to suppose that any *disadvantageous* weather will be sent us; that, in any circumstances, the laws of nature are so arranged as to work for our physical good. This doctrine seems to me based on a theory which would not be capable of adjusting itself to some of the most striking facts of nature. The weather is one link in a chain, including such vast and destructive influences as the earthquake, that arrests civilisation and fills a wide tract of country with ruins; the storm, that strews our coast with wrecks; the volcanic eruption, which entombs the inhabitants of an entire city. The true basis for an objection, in which I entirely sympathise, seems to me to lie here:—That the petition for or against any particular kind of weather is the expression of a habit of mind which regards the weather as connected with the will of God in some other manner than the ordinary chain of causation, which includes all the rest of the physical world; and, as such, I regard it as equally opposed to true philosophy and true religion. But that a bad season will never prove a plague and punishment to us—when man has done his best, that nature will always lend him a helping hand—this appears to me a hypothesis that any general, unprejudiced view of science at once destroys.

Philoc. You mean to say, then, that somewhere or other there is a misfit between man and his dwelling-place;

that, if the machinery was ever perfect, some evil power has laid its hand on the mainspring, and deranged the working ever since ?

Philal. Yes ; and that influence lies wholly without the boundaries of science, which is exclusively occupied with the machinery itself, and can take no account of any influence from without. Go back as far as we will, therefore, science only shows us the working of the present order of things. And what I insist upon is that, so far as that order is imperfect, it is an obscured and dimmed image of that perfect creation when the morning stars sang together, and all the sons of God shouted for joy.

Philoc. The Flemish weaver having marred the design of Raphael.

Philal. Exactly so.

Philoc. Still this only seems to me an illustration of your statement as regards the *result*. It is the introduction of conception of evil into the *means* that I object to.

Philal. If you once believe that there is derangement in the mechanism, why should it be any additional difficulty that this very circumstance is converted into a means of good ? The aspect of animated nature as one vast battle-field is a painful one, but it is a fact we have no choice about accepting. This warfare would be evil in man, and we must imagine it as evil in some sense wherever it is ; but that this evil agency should be forced to serve as the pioneer of higher forms of being, seems to me in accordance with all that is revealed to us of God's dealings with his creatures—in analogy with all that we know of Him as the Father of our spirits, and the Judge of our deeds.

Philoc. But this view of nature seems to me to remove the events of the physical world so entirely beyond the cognizance of the Creator.

Philal. Not so ; it does the very reverse of that. It is the natural theologians who are forced to argue as though in certain exceptional cases we must regard the Divine hand as for the moment withdrawn. I admit not only no absence, but no *degree* of volition. I insist that

you must not imagine one kind of will to produce those results in nature which are, and another to produce those which are not, apparently beneficial. Only, I say, this is his will for a world in which one influence is constantly at work against his will. This is the aspect which He wills that nature should bear towards a being who has yet to be conformed to his will. That every phase of the evil within should find some reflection without ; that in the lower animals man's lower tendencies should be imaged forth ; that in the outward face of nature his gloom, his rage, his apathetic despair, should find by turns some responsive glance ;—this is the echo of his own sin ; it surely had no part in that first Divine idea of the world to be inhabited by sinless man ; it will have no part in a world from which sin has been banished. But, till then,

She would fain relieve us,
Fain our grief beguile ;
She cannot deceive us
By her outward smile—
For we know that death
Torments her all the while.

Philoc. Tell me, then, do you mean this—that the perfect creation is *not* this actual creation that we see before us, that this is the mere copy of some pre-existing archetype ?

Philal. Do you remember the answer of Socrates to Glaucon, when the latter has professed his disbelief in the existence of the Republic ? In Heaven, he replies, there is laid up a pattern for him who wishes to behold it.

Philoc. Yes, of a Republic. I know I am restating an objection which you have answered ; but the difficulties which attend any such view of the material world return upon me afresh after you have appeared to put them to flight.

Philal. Think rather of the negative than positive side of my meaning—for that, indeed, *is* my meaning. I am advancing no theory as to the nature of species. I am only trying to show you how an hypothesis which professes to explain the means in which forms of being are reached affords no inferences

respecting the origin of being—how evil, in the process by which these forms are defined, is not the shadow of evil in the Eternal Mind in which these forms arose.

Philoc. And this theory of the origin of species, which has been regarded as an offspring of materialism, you, then, regard as a key to the great parable of nature?

Philal. I do not rest my faith in any theory on the harmony which it may possess with views of a different region of truth; but I do assert that the analogy which this kind of theory possesses with truth upon subjects where analogy must be our best guide, is a fact which ought not, indeed, to affect the balance in which we weigh the theory on its own merits, but which may well overcome all reluctance to receive it when these have been clearly ascertained. Can we imagine a fitter home for man during this season of probation than one that bears this lesson inscribed at every turn—that failure, and suffering, and strife, and even death, are but the steps by which he has been raised to the height at which he finds himself? Could there be a symbol more replete with hope for him in all the failure and strife he is to find within? In such a view of the production of new species, it seems to me, if the words may be used without irreverence, as if the Creator had condescended to impose upon Himself the limitations of human incapacity—as if He had willed that the history of creation should present us with a type of the course and result of all unremitting, patient, faithful work.

Philoc. How can this apply to the work of him to whom time does not exist, to whom the countless ages which this scheme demands for the introduction of every new form, are but as a watch in the night; and whose design is fulfilled by the incomplete and undeveloped forms which strew the workshop of nature as much as by the finished specimens which she displays as her masterpiece?

Philal. I know these are difficulties; but I cannot think that the symbols are

meaningless, that the feeling was a mere delusion, which led one of the first among the students of nature to a noble carelessness for the reception of his discoveries; "the book," he said, "may well wait a century for a reader, as God has waited six thousand years for an interpreter." I cannot feel that the message of hope, of encouragement, of consolation, which such a theory as this translates from the parable of nature, is any creation of man. In the ebb of hope which comes to most of us when the morning freshness of life is past, when our path is cumbered with the rubbish of abandoned and incomplete work, and the blunted tool drops from the nerveless hand, and we sink into the numbing apathy of failure—what a depth of meaning do we find in such a view of creation as this—of such mighty changes accomplished through such faint and dim gradations, such innumerable failures for one success, such a slow and such an unpausing movement in the stream of creation, widening towards the mighty ocean! Then, indeed, we hear the voice of a teacher in nature. "My child," she seems to say, "you must work as I have worked. I have not broken the mould because the vessel was marred upon it. I have not turned my eyes for one moment from the patterns set before me, because I was compelled to cast aside the broken fragments of the unsuccessful copies. I, plying at my silent loom, unpausing and unhasting, set before you an example that rebukes despondency and cowardice, that inspires lofty hopes and resolute endeavours. The thread of life was not my work; that was given to me: but, when once I had wound it on the shuttle, I had no occasion to renew it. I weave it according to the manifold patterns set before me, beginning from the simple and lowly organisms where that golden thread is scarcely visible, proceeding through the gradually more complex forms that show it more and more plainly, until it supplies the materials of this costly vesture of humanity, that has been found worthy to clothe the Son of God."