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Yet I will attempt it, as I have begun, not trusting in myself but in God, and will do what I can with his help. But let us separate the things which remain to be said from those which have been said, by a new introduction, lest by their unbroken length, these things become tedious to one who wishes to read them.

[End of Book First. To be concluded.]

ARTICLE IV.

SPECIAL DIVINE INTERPOSITIONS IN NATURE.¹

By Edward Hitchcock, D. D., LL. D., Amherst College.

No subject of theology has in it more true moral sublimity than the government of God over this world. Yet it is eminently a practical subject. Our views of it afford a test of our piety and a type of its character. Nay, there is one feature of this government, that has been regarded as the chief distinction between revealed and natural religion. We refer to Special Divine Interpositions. These have been supposed to be peculiar to revelation; while nature moves on by uniform, unchanging and unchangeable laws; nor does the whole history of those laws, as given by natural science, show a single example of interference or modification on the part of the Deity.

We venture to call in question the correctness of these views. If we have read nature aright, it teaches a different lesson. That lesson may be worth learning. We choose for our subject, therefore, *SPECIAL DIVINE INTERPOSITIONS IN NATURE, as made known by science.*

Let us, in the first place, endeavor to affix a definite meaning to the phrase: *Special Divine Interpositions.*

But here, perhaps, it may be necessary to interpose a remark, to prevent misunderstanding. We assume, as the basis of much

¹ This paper, essentially as here given, was delivered at the Anniversaries of the Newton and Bangor Theological Seminaries.

of our reasoning, those views, now almost universal among geologists, and very common among theologians, which teach that this world existed through a vast and indefinite period before man was placed upon it. Such an opinion we think perfectly reconcilable with a fair interpretation of Scripture; though this is not the place to go into the proof. But let no one imagine, when we take such views for granted, that we mean to cast the slightest doubt upon the inspiration and literal truth of revelation. Let us be believed rather, when we express the conviction, that, if admitted, they afford a strong corroboration and illustration of some most important doctrines of revelation.

We proceed now to affix a definite meaning to the phrase: *Special Divine Interpositions.*

It requires but a few years' experience in this world, to satisfy any observing mind, that natural operations are carried on in a settled order; that the same causes, in the same circumstances, are invariably followed by the same effects. We call this uniformity of operation, the course of nature; and the invariable connection between antecedent and consequent, we call the laws of nature. If we should see a new force coming in to disturb this settled order, we should call it a miracle. It might do this by a direct counteraction of nature's laws; and this is the common idea of a miracle. But if an unwonted force were added to those laws, the result would be a miracle; and so would a diminution or suspension of these actions; for in either case the effect would be out of the ordinary course of nature, and this we take to be the essential idea in a miracle. Perhaps the best and briefest definition of a miracle, is, an event that cannot be explained by the laws of nature. It may, and usually does, contravene those laws; but it may show only that their force has been increased or diminished.

This, then, is one example of special Divine interposition. Is there any other? Most writers, theologians as well as others, would probably answer in the negative. For they admit only two classes of events in the universe, the miraculous and the ordinary; the supernatural and the natural. And yet most of them maintain that God exercises over the world a special providence. It is, indeed, true that very wide differences exist as to the meaning of this phrase. One theologian tells us that the providence of God "over the human family is termed special;" and that "over those persons who are distinguished for virtue

and piety, is called most special."¹ Another calls that providence special "which relates to the church."² Another regards providence "special when it relates to moral beings, to men and human affairs."³

But whatever may be the views of this phrase among technical theologians, the leading idea attached to it among Christians generally, is, that God provides and arranges the circumstances in which men are placed, so as to meet the exigencies of individuals, just as he would have them met, and so as will be best for them. In other words, he provides means exactly adapted to meet the specific wants of individuals.

Now it is an interesting inquiry, whether this can be accomplished by the ordinary and unmodified operation of the laws of nature. We confess ourselves unable to conceive of but two modes in which it can be done.

It is not difficult to imagine how God, at the beginning, when he established the laws of nature, did so arrange their operation as to bring about such results as the exigencies of every individual would demand, and at the exact moment desired. Human intellect is, indeed, confounded when it attempts to conceive of a foresight so vast as to embrace in a glance the history of every individual of the race, and then so to arrange the countless agencies of nature, that every item in the history of the numberless millions of our race should be as carefully and exactly provided for, as if only one individual were concerned. But we are certain that all this is perfectly easy to Infinite Intelligence. To suppose the contrary, is to destroy the idea of omniscience; and, therefore, we are bound to believe what we cannot comprehend.

It will help us to conceive how God might thus arrange and adapt the laws of the universe to meet particular exigencies, if we consider how it is that most events are brought about in our experience. We are apt to regard them as dependant upon a single second cause, or, at most, upon a few causes, just because one or two are the immediate antecedents. But how few events are there, that have not been essentially modified, at least as to the time and manner of their occurrence and in intensity, by what may be called lateral influences. We see a given cause operating, and we are apt to feel that we know what will be its ultimate effect. But we forget that every event in the universe

¹ Storr and Platt's *Biblical Theology*, p. 240.

² Buck's *Theological Dictionary*.

³ Knapp's *Theology*, Vol. I. p. 501.

has a connection with all other events; that, in fact, the whole series of causes in the universe constitutes a plexus, or net-work, in which, if you remove one of the fibres, you remove the whole. Every occurrence is, indeed, dependent mainly upon a leading cause; but the result may, after all, be prevented, or greatly modified, by any other cause. So that, as Bishop Butler remarks: "any one thing whatever, may, for aught we know to the contrary, be a necessary condition to any other."¹

Conceive of a vast hollow sphere, in which balls of various sizes are moving in every direction, and with all degrees of velocity. Fixing your eye upon a single ball, you see it moving towards a given point, and, if it meet with no obstruction, you are sure that point will be reached. It may pass through its whole course untouched. But when your eyes are opened to discern the countless multitude of other balls flying through the same sphere, you feel almost sure that it will be deflected from its course, and its motion accelerated or retarded, by a multitude of collisions; nor can you predict, by any mathematics which the human mind can master, what will be the exact course of that single ball. But how easy for God to do it; and how easy for Him so to place the other balls and to give them such momentum, as will carry the single one to a given point at a given time.

Now this supposition gives us a not unapt representation of the manner in which the events of the world of matter and of mind are brought about. They are almost never the result of a single secondary cause, acting directly and simply, but of a great multitude of causes, modifying one another, and conspiring to bring out the final development. All these agencies were originally ordained and arranged by the Deity, in the manner that seemed best to infinite wisdom, which had infinite power at command. Can it be, that they were put into operation without any plan, or with only a general object in view? Who does not see that God might, at the beginning, have given to these countless forces such degrees of strength and such adjustment and direction, that they would bring about just such results in the history of every individual as would be desirable? Thus would every case of special providence be met as certainly as if He should interfere miraculously at the moment in each man's life when special interposition would be desirable.

¹ *Analogy*, Part I. Chap. VII.

But with such a complex system of second causes in operation, it is easy to see how the same object could be accomplished by such a modification of some of those causes by the Deity, at any given moment, as would produce the desired result. And this might be done out of human view, so that man would see only the ordinary operation of nature's laws, and, therefore, there would be no miracle; for any event that can be explained by the regular operation of nature's laws, as already remarked, is not a miracle.

To most men these two modes of providing for special providences: the one by a disposition of the laws of nature in the Divine mind from eternity, the other by some change effected at the moment by Divine interference in the complex causes of events; we say these two modes will seem to most persons very unlike. Indeed, they cannot see how there should be anything special in an event that was provided for in the counsels of eternity, and which transpires as the result of arrangements then made. In order to make it special, they feel as if it were necessary that the Deity should interpose, in some way or other, at the time of its occurrence, just as the mechanic finds it necessary to modify his machine, if he wishes to accomplish some specific object not provided for by its regular operation.

Now we feel confident that such impressions result from our limited views; or rather from the difficulty which finite creatures experience in understanding the mode in which an Infinite Being thinks and acts. It is hard to divest ourselves of the idea that, in his processes of thought and action, God is altogether such an one as ourselves. But there are certain principles, true of the Divine mind and Divine action, that cannot enter at all into human powers and human conduct. One is, that no new plan or motive of action can ever enter the Divine mind, and consequently whatever plans we find developed in God's government, must have been perfectly formed in the counsels of eternity. Another principle is, that God never acts except under the guidance of those fixed principles which we call law. Hence miracles are brought about by fixed laws as much as common events; that is, in the same circumstances we may expect the same miracle. The law of miracles does, indeed, differ from all others, and this constitutes a miracle. But to suppose that God ever acts without the guidance of a settled principle, is to impute to him a want of wisdom and character, which we should be

slow to charge upon an eminent man. No less absurd is it, to suppose the Deity ever to act by the impulse of after thoughts, as men do; or that he ever does anything which he had not, eternal ages since, resolved to do, in manner and time exactly as it takes place.

If these are correct positions, what possible difference can it make, whether we suppose God to have arranged the agencies of nature at the beginning, so as to meet every exigency, or to interpose, whenever necessary, to accomplish specific purposes by some new force or law? Why is not the one as special as the other? If he did in eternity arrange and balance the forces of nature in a particular manner, with the express design of meeting a particular exigency, what matter how many ages intervene between the arrangement and the event? If a miracle was needed at a particular moment of human history, and God originally so arranged the universe that the law of miracles should come in just at the right moment, would the event be any the less special than if we suppose he stood by at the moment, like a finite being, and by his power arrested or counteracted the laws of nature? And the same is true of the means by which a special providence is brought about. An eternal provision made for it, shows merely the perfection of the Divine plans and operations, but takes nothing from its speciality.

A question may arise in some minds, whether such views do not make all events special, though such a statement be a solecism. For if God has arranged the agencies of his natural and moral government so that all events happen, just as He intended, on what ground is it proper to say that one of them is more special than another? Do they not all meet some particular exigency? and what more can any of them do?

The fallacy of such an objection lies in the assumption that all events are equally the objects of God's intention. If it were proper to apply such a term to God, we might say that there is such a thing as an *incidental* providence, that is, an event which transpires as the necessary result of a certain arrangement, but which was not the specific object of such arrangement. Perhaps our meaning may be made obvious by reference to an illustration already employed.

We refer to the supposition of a vast hollow sphere with balls flying through it in all directions, and of course often interfering with one another. Take a particular ball, and admit that God

has so adjusted its direction and velocity, that, in spite of collisions, it shall reach a given spot at a stated time. Suppose that thus to reach the point, is the grand object God has in view in setting the ball in motion. Yet on its way to that point, it might encounter a multitude of other balls, and each collision would constitute events as distinct and as certainly foreseen and determined upon as the final one. But they might not accomplish any specific object, and be merely incidental to such a system of moving bodies. God might, indeed, in infinite wisdom make them subservient to other objects besides the ultimate one; but they might be mere incidental occurrences in such a system, which even Omnipotence could not prevent without altering the system.

Now have we not two classes of events, equally the result of Divine power and wisdom? yet one of them is special and accomplishes a definite object, the other is merely incidental, and may or may not be used for a special purpose. Just so can we see how the special providence of God may be distinct from common providence, although both are equally the work of God. He has so arranged the agencies of his government, that certain specific objects shall be accomplished infallibly. But through the operation of those agencies, a multitude of other events are brought about incidentally, which, although related to special providences, are not such in themselves.

Another inquiry may arise in reference to some of the preceding reasoning. We have endeavored to show that special providences may be the result of an original adjustment of the agencies of the natural and moral world, or of direct interposition by the Deity out of sight in modifying those agencies. Now the question is, which of these methods is actually employed in the Divine government? Can we determine which? If by special interposition at the moment, is not the evidence of such interposition precluded by the very supposition we have made? For the statement is, that the interposition must be made out of our sight; while within view, the event seems to be brought about by the ordinary laws of nature, since, if made within sight, it would be miraculous. All we can prove, therefore, is, that God can thus interpose and modify events within sight, by altering their antecedents out of sight, and this is all that seems necessary for the purposes of religion. Hence it is that the Scriptures never raise any such questions as this, but simply and boldly

assert the agency of God in the leading events in the history of nations, communities and individuals.

From the preceding course of reasoning, we think we may consider the following positions as established :

First, that there are two modes in which Divine interposition may take place ; the one by miracles, and the other by special providences.

By a miraculous providence, we mean, such a superintendence over the world, as interferes, when desirable, with the regular operations of nature within the sphere of human vision, and brings about events, either in opposition to natural laws, or by giving them a greater or less power, than in their normal state.

By a special providence, we mean, an event brought about apparently by natural laws, yet, in fact, the result of some special agency on the part of the Deity, either by an original arrangement of natural laws, or the subsequent modification of second causes which lie beyond man's sphere of vision.

Secondly, that both these modes of interposition take place in accordance with fixed laws, or rules of action, so that there is a law of miracles and of special providence as well as of common phenomena.

Thirdly, that the difference between miracles and special providence lies in this, that the former cannot, and the latter can, be explained by the laws of nature.

Fourthly, that special providences may be the result of an original arrangement of the laws of the natural and moral world, such as to produce special results, or of a direct modification of those laws at any time by Divine power, in some of the links of causation out of sight.

And, finally, that the events are equally special, whether the result of an original ordination in the Divine mind, or of direct modification of natural agencies at the time of their occurrence ; nor can we, from the nature of the case, prove in which mode, or whether by both modes, Divine wisdom acts.

The main question now returns upon us, whether there is any evidence of special Divine interposition in nature, save those which revelation has recorded ? All such interpositions must, indeed, occur in natural operations, since it is their suspension or modification that constitutes the interposition ; but the inquiry is, does science, or common history, apart from revelation, contain any such records ?

We waive the inquiry at the present time as to the evidence which uninspired civil history may contain of special interposition, both because the field is too wide for the limits of this Article, and has already been to a considerable extent explored. But the records of physical science have not hitherto, to our knowledge, yielded much of this kind of fruit. Our object at this time is to attempt to gather at least one cluster from that field.

It must be confessed, that, as a general fact, physical science seems barren of any evidence of special Divine interference; presenting us, instead, with operations as uniform and unchanging as mathematical laws can make them. Nevertheless, if we do not greatly mistake, on some portions of the vast field we can discover the imprints of special and miraculous providence.

We shall speak first of special providence; but only in a brief manner.

From the nature of the case it might be presumed, that we should need a revelation to show that God had originally arranged, or directly modified, natural agencies so as to meet exigencies in the case of individuals or communities. For as man sees it, such providence seems to be brought about by unmodified natural operations. It is hardly sufficient to prove special providence, to find that great wisdom is shown in contriving and adjusting the laws and agencies of nature, so as to meet the necessities of the animate creation. We want the proof that those laws and agencies have been so arranged and modified as to meet particular exigencies, and with those exigencies specially present in the Divine mind. For all the purposes of religious faith, it is sufficient to show that God can do this; and, therefore, we need not expect that nature will offer many examples which clearly show it to have been done. But believers in special providence suppose that they can find proof, in their own experience, or that of others, that God has thus interposed, either to bless or punish them. When they perceive that various causes have conspired — causes, it may be, both remote and undesirable — to bring about a certain result, they call it a special providence. We know that we need to be slow and cautious in drawing such inferences; but not unfrequently the evidence is so clear and decided, that not to do it would be hurtful scepticism. We will mention one or two analogous cases in nature.

It is no longer a conjecture, but a settled fact, that our globe has been the seat of several distinct economies of animal and vegetable life; that whole races, if not over the whole globe at once, yet over wide districts, have become extinct, and been succeeded by new families, and the new species have been quite different from the old, requiring new conditions as to location, climate and food. Now in every instance yet known to us, the new races have been met by conditions exactly adapted to their wants. And this has taken place, although the state of the globe has been one of slow but constant flux, both from the escape of its internal heat, the vertical movements of continents, and the action of volcanos and water. When we consider how delicate a balancing of these and a multitude of other agencies would be requisite to accomplish such an object; how many causes must have been adjusted and made to converge to a given point through a long series of ages, it does seem to us that this case should be regarded as something beyond a mere wise and benevolent ordination of nature's laws, and as a special adaptation, foreseen and provided for by the Deity, either by an original adjustment of natural laws, or by their subsequent modification, so as to bring the case fairly within the definition of a special providence. If any think that by thus regarding a case of this kind we should include all examples of wise adaptation as special providences, we can only say, that there certainly is a difference that should be recognized, between cases of this sort, which seem to have been the special object of Divine wisdom and intention, and those incidental events which result from the adjustments necessary to bring about the special events.

But the records of science furnish us with another class of examples in nature, still more indicative of a special providence. They are cases in which complicated causes have operated through vast periods of duration, anterior to man's existence, or even anterior to that of scarcely any of the more perfect animals, in order to provide for the wants and happiness of those animals, especially of man. Laws apparently conflicting and irregular in their action, have been so controlled and directed and made to conspire, as to provide for the wants of civilized life, untold ages before man's existence. In those early times, vast forests, for instance, might have been seen, growing along the shores of estuaries, and these dying, were buried deep in the mud, there to accumulate thick beds of vegetable matter, over large areas,

and this, by a long series of changes, was at length converted into coal. This could be of no use whatever till man's existence, nor even then, till civilization had taught him how to employ this substance for his comfort, and for a great variety of useful arts. Look, for instance, at the small island of Great Britain. At this day 15,000 steam engines are driven by means of coal, with a power equal to that of 2,000,000 of men; and thus is put into operation, machinery equalling the unaided power of 300,000,000 or 400,000,000 of men. The influence thence emanating reaches the remotest portions of the globe, and tends mightily to the civilization and happiness of the race. And is all this an accidental effect of nature's laws? Is it not rather a striking example of special prospective providence? What else but Divine power, intent upon a specific purpose, could have so directed the countless agencies employed, through so many ages, as to bring about such marvellous results?

Or take an example on a still more gigantic scale. It is already ascertained that, by the same process of vegetable growth and decay in the hoary past, thick beds of coal have been accumulated in the rocks of the United States, over an area of more than 20,000 square miles, and probably many more remain to be discovered. Yet, upon a moderate calculation, those already known contain more than 1,100,000 cubic miles of coal; one mile of which, at the rate it is now used, would furnish the country with coal for a thousand years; so that a million of years will not exhaust our supply. What an incalculable increase of the use of steam, and a consequent increase of population and general prosperity, does such a treasure of fuel open before this country! If our numbers should become only as many to the square mile as in Great Britain, or 223, there is room enough, this side of the Rocky Mountains, for 500,000,000; and, including the western slope of those mountains, for 700,000,000; equal almost to the present population of the globe. And yet all that has been thus seen in this country, and all that is in prospect, is only an accidental, or incidental, event in his theology, who admits no special providence in nature. We are not of that number; for we not only believe that God, through vast cycles of duration, directed and controlled the agencies of nature, so as to bury, in the bosom of this continent, the means of future civilization and prosperity, but that a strong obligation hence results for every one living here, to throw all his energies

into the work of making this land a glory and a blessing to the nations.

Let us go once more, on the wings of imagination, back to that remote period of our world's history, when most of its present continents were beneath the ocean. As we hover over the waters, we see them agitated by internal forces, and now and then smoke and ashes, and it may be flames, issue from their surface. Submarine volcanos are pouring forth their contents; and could we look beneath the troubled waves, we should probably see beds of various kinds, thrown out by the volcano, spreading themselves along the bottom. Among these beds we should probably see gypsum and common salt. But what has this to do with special providence? Let the ages roll on and we shall see. By and by that ocean's bed is slowly lifted above the waves. Those waves, during its emergence, cover it with a soil adapted to vegetation. Man at length fixes his dwelling upon it. He discovers, among the exposed strata, the gypsum and salt which he so greatly needs, and which by ingenuity and industry he can extract. And thereby can he greatly multiply his comforts and his numbers.

In like manner, might we go back and trace out the origin of the various ores, the marbles, the granites, the porphyries, and other mineral treasures so important to an advanced state of the arts, and of civilization and happiness. And we should find them originating in agencies equally remote, equally chaotic and irregular, and seemingly as much removed from all connection with man's long subsequent appearance. But it does seem to us that, during the long series of preparatory agencies, we can everywhere see the finger of God's special providence, pointing to the final result.

But we turn now to inquire, in the second place, what evidence we have, in the records of science, of God's miraculous providence? And we take the position that, in the natural history of our globe, we meet with phenomena explicable only by miraculous intervention.

Not to speak of the earliest condition of the world, which hypothesis alone can describe, let us follow back its history only to the time when legitimate theory shows it to have been in a molten state. That its internal parts are still in that condition, and that its now solid crust was once so, seem to us to be proved by fair inference from facts; and such is the opinion of almost all

scientific men. Think of it now in that condition; a shoreless ocean of fire. It is not difficult to conceive how, by the radiation of its heat, a solid crust should form, and at length the water condense upon its surface, while volcanic force should form such inequalities as would make beds for the oceans, and elevations for continents. Nay, by the action of the waves and the atmosphere, soils might be accumulated upon the surface. But, in spite of all that merely natural operations could do, what a scene of utter desolation and loneliness would it present! That wonderful power, which we call life, and the still more mysterious principle of mind, would be absent. How then were the numberless forms of organism, animal and vegetable, possessed of life and instinct, and some of them with powers of intellect, how were these introduced? If miraculous interposition be not necessary here, we know of no exigency in which it can be; and we may as well dismiss the idea from our philosophy and our theology. Just see what the problem is: nothing less than to take a world of rock, more or less comminuted by water, and to convert it into essentially such a world as the present; to take a world utterly dead and desolate, and spread through its atmosphere, its waters, and its solid surface, ten thousand forms of life and beauty. Has nature any hidden inherent power to do all this? Why, then, can we not lay our finger upon a single manifestation of creative power in nature in these latter times? On that power is the prerogative of the Deity alone. Who shall have the boldness and even the impiety to transfer to blind, unintelligent law, what demands infinite intelligence and infinite power, miraculously exerted?

And yet there have always been men who have done this; not, indeed, in the bold language in which we have stated the principle. Yet some of them have confessed that their object was to sustain atheism. Others have said merely that they meant to show that everything, even the creation of animals and plants, was accomplished through the inherent self-creating power of law, but they left the origin of the laws to each one's own convictions. Nay, some have attempted to reconcile this creation by law, not merely with theism, but with a belief in revelation. This is the form in which this hypothesis has clothed itself in our own day. In such a dress it has ventured forth from the philosopher's study, where it has so long been isolated, and become incorporated with the fashionable literature

of the day. And it has enough of plausibility about it to make it popular with men, who have only a general, but not a minute acquaintance with science, and who, afraid to live without some religious system, are yet unwilling to adopt one that brings God near. This is not the place to discuss such views. We will only say, that true philosophy must reject this hypothesis, first, because the facts adduced to sustain it, when scrutinized, are too few; and, secondly, because for every fact seemingly in its favor, a thousand testify against it. Accordingly, all the great living and recently deceased masters of physical science reject it. Does it appeal to anatomy and physiology? Cuvier, Owen and Carpenter cry out against it. Does it evoke the aid of chemistry? Berzelius, Turner and Liebig see its shallowness. Does it call on zoology for aid? Agassiz and Ehrenberg can refute its claims. Does it search the archives of geology for support? Sedgwick, Miller, Lyell and D'Orbigny can show how certainly they will fail there. Or, finally, does it appeal to botany? Hooker and Lindley, Torrey and Gray, know that it will certainly glean nothing to sustain it on that flowery field. The fact is, it is only here and there that a second rate naturalist will sympathize at all with such dreamy views.

But there is another and, perhaps, a more plausible mode of evading the general argument for the miraculous introduction of organic life upon our globe. When we descend into the rocks a certain distance, say six or eight miles, we reach those that contain no remains of animals or plants, and show the metamorphic action of heat, by which they have been partially or wholly melted. Now most geologists consider this horizon as the starting place of life on our globe, and that the rocks below it were formed before the existence of animals or plants. But some, and they eminent geologists, maintain that these lower rocks did once contain organic remains, which have been obliterated by the influence of the intense heat, and that, therefore, we cannot tell when life first appeared on the globe. For aught we know, these metamorphisms may have been going on forever.

On the other hand, it is said, that, admitting extensive metamorphic action in the lower rocks, and this is admitted by all, it seems hardly probable that every trace of organic existence should be obliterated by a heat not powerful enough to destroy the marks of stratification and lamination which still remain.

But such subjects would lead us into discussions too prolix for the present essay. We will, therefore, only say, that even if we admit that the apparent is not the real horizon of life in the rocks, there is one scientific fact that proves it did once begin, however far back we may suppose these metamorphic cycles to have extended. In other words, we can prove that there was a time when life did not exist on this globe, and consequently a time when it was first introduced. And this is the argument:

If any body, such as the earth, having a certain temperature, be surrounded by a medium, or by other bodies, with a lower temperature, it is certain, from the laws of heat, that the warmer body will continue to give off its heat to the colder ones, till at length they will be brought to the same temperature; unless the higher temperature of the central body, is maintained by the perpetual generation of heat within itself. Now we know that at present the earth is placed in exactly this condition; for it can be proved that the temperature of the sphere surrounding it, is at least fifty-eight degrees below zero. Consequently heat must be continually given off into the planetary spaces, and, unless there be some internal source of heat, the earth must be growing colder. When did this cooling process commence? Those who believe an indefinite series of organic beings to have existed on the globe, will not surely fix a beginning, because that would be yielding the main point in their hypothesis. Yet it is certain that, if the earth has been cooling for an indefinite period, the time must have been when its surface was too hot for animals and plants to live upon it; nay, when it was in a melted state. There must have been a time, therefore, when the first animals and plants were commanded into existence by the miraculous fiat of Jehovah. For the idea that the earth possesses within itself a power for the indefinite renewal of its heat as it escapes, finds no support in philosophy. We can conceive how heat might be produced while combustible substances were burning; but we know of no possible way by which an indefinite supply could be evolved.

We are unable to conceive how any philosophic mind can escape the force of such reasoning as this, which natural theology brings forward to prove a period in the history of this world, when it was destitute of organic races. But this is not the only argument which science can offer to prove miraculous interposition in nature. A second proof, quite independent of the first,

is found in the fact that the earth has been the seat of several nearly independent systems of life, since animals and plants were first introduced. A certain group, wisely adapted to one another, and to the state of the air, the waters, and the surface, as well as to the food and the temperature, have flourished for a long period; and, as some of these circumstances have changed, they have either gradually died out, or have been simultaneously destroyed by some catastrophe; so that few if any species have survived. Afterwards new races have been introduced, exactly fitted to the altered condition of things. These also, after flourishing long, have disappeared and another and another system has succeeded, until we can distinctly trace five economies previous to the existing races. Many writers say that the number of systems has been much greater; and, were we to limit our views to portions of the earth, it is undoubtedly true. But we can show that all the races, animal and vegetable, have been changed at least five times, over the whole globe; and five such changes are as good for the argument as five hundred. For though we can see how, by natural operations, organic beings can be destroyed, yet what but infinite wisdom and power can repeople the lifeless waste? This question we have considered under our first argument, and hope we have shown that nothing but miraculous power could have done it.

But there are some peculiarities that attended the introduction of successive races, which deserve notice. From the nature of the case, the world must have been preparing, by the reduction of its temperature and increased productiveness of its soil, for a greater variety of organic beings, and for those of more delicate and perfect organization. And we find that, at the successive epochs of creation, there was a correspondent increase of the higher races, "a gradual ascent towards a higher type of being,"¹ in connection with "a gradual improvement in the style and character of the dwelling place of organized beings."² This is called the *doctrine of progression*, and it obviously points to a beginning, not only of organic races, but of the present system of inorganic nature, as well as to miraculous Divine interposition.

It is well known, however, that at least one distinguished geologist takes opposite views of this subject, and maintains

¹ Sedgwick.² Hugh Miller.

“that the existing causes of change in the animate and inanimate world may be similar not only in kind, but in degree, to those which have prevailed during many successive modifications of the earth's crust.” This is called the doctrine of *uniformity*, or *non-progression*. It is not intended by its able advocate to teach the world's eternity, although it has that aspect; nor does it conflict with the idea of miraculous intervention in the creation of animals and plants; for it admits that “the succession of living beings has been continued, not by the transmutation of species, but by the introduction into the earth, from time to time, of new plants and animals; and that each assemblage of new species must have been admirably fitted for the new states of the globe as they arose, or they would not have increased and multiplied and endured for indefinite periods.”¹

Even the doctrine of non-progression, then, is consistent with miraculous interpositions in nature. Much more does the doctrine of progression demand it. And we confess ourselves compelled to subscribe to the latter doctrine. So far as inorganic nature is concerned, we have already assigned a reason for this opinion. Perhaps the evidence from organic nature is not as strong, because we cannot say certainly how many of the more perfect animals will yet be discovered in the older rocks. But so far as we do know, the progression has been very decided. More than 24,000 species of animals have been dug out of the rocks; 700 of which are mammalia or quadrupeda. But 695 of these occur within 2000 or 3000 feet of the surface, while in all the 64,000 feet below, only five species have been found. Birds, the next less perfect class of animals, are scarcely more abundant in these lower rocks. Reptiles are more numerous, and extend to a greater depth, while the fishes, the least perfect of all, are still more abundant, and are found nearly at the bottom of the series. And the same increase of numbers would be found, were we to descend still lower on the scale of animals. All this accords with the doctrine of progression, and so do the facts respecting plants. Now, making the largest allowance for future discoveries, it seems hardly possible that it will ever appear, that as large a proportion of the higher orders of animals and plants existed in the earlier periods of our globe as at present.

But we hasten to offer one more proof of God's miraculous interposition furnished by the records of science. It is the crea-

¹ Lyell's *Manual of Elementary Geology*, p. 501.

tion of man. All observation teaches us that he was one of the last of the animals that was placed upon the earth. In vain do we search through the six miles of solid rocks that lie piled upon one another, commencing with the lowest, for any trace of man. And it is not till we come into the uppermost formation, we mean the alluvial, nay, not till we get almost to the top of that, merely in the loose soil that is spread over the surface, that we find his bones. And yet these, formed of the same materials as the bones of other animals, would have been as certainly preserved as theirs in the lower rocks, had he existed there. The conclusion is irresistible, and it is acquiesced in by all experienced geologists, that man did not exist as a contemporary of the animals found in the rocks. At least five vast periods of time, with their numerous yet distinct groups of organic beings, passed over this globe before the appearance of man. This is not a dreamy hypothetical conclusion, but a simple matter of fact, which has been scrutinized with great care, and by some unfriendly to revelation, who would gladly have found it otherwise. But no fossil man or works of man have been discovered below alluvium (in which we include drift); nor would any really scientific man risk his reputation by maintaining the existence of the human species earlier than the alluvial period.

What an astonishing exhibition does this scientific fact bring before us! Suppose we could explain by chemical and organic laws how the inferior animals were gradually developed from one another in the successive periods of our world's history. Yet here we have the phenomenon of a being introduced at once, superior somewhat in organic structure to the other animals, but raised immeasurably above them all, by his lofty intellectual and moral powers; a being destined to take the supreme control of all inferior natures, and, so far as need be, to subject them all to his will; and in fact to convert the elements into servants to do his pleasure. The anatomist can, indeed, describe his organization; the physiologist can point out the functions of his organs; and the zoologist can assign him his rank at the head of animate creation; but how is the psychologist baffled, when he attempts to unravel the wonders of his spiritual powers, and the theologian, when he looks into the depths of his moral and immortal nature! And did it demand no miracle to bring such a being upon the stage, and fit him exactly to his condition? What greater miracle does even revelation disclose? Admit, if you

choose, that all other events on the globe, even the creation of all other organic beings, might have been accomplished by ordinary laws ; yet, so long as the great fact of man's creation stands out so conspicuously on our world's history, we need nothing more to establish, beyond cavil, the reality of Divine interposition in nature. God has impressed his own signet so deeply upon this last act of creation, that scepticism dare not directly attempt to deface it. And this grandest miracle of nature is also the greatest of revelation. It stands up a lofty and immovable rock amid the ocean of existence, to arrest and beat back the waves of unbelief and to reflect the glories of Divine power and wisdom.

We might add other arguments corroborative of the same principle. But if the three which we have adduced, independent and cumulative as they are, do not satisfy, we despair of producing conviction. We may be laboring under some hallucination on this subject ; but we cannot see why the evidence of special Divine interpositions in nature is not as clear and decided as in revelation. The only difference seems to be, that in the one case we depend on the testimony of living witnesses ; in the other, upon the conclusions of science. But if such interpositions have been made in nature, it is easy to see how important are the bearings of the fact both upon theology and upon piety.

See, for example, how the miracles of nature take away all presumption against the miracles of revelation. We all know that this has been a favorite point of attack, both in ancient and especially in modern times. The grand argument has been, that miracles, being contrary to all experience and all analogy, cannot be proved by human testimony. We remember the metaphysical network woven by Hume on this subject, which he fancied too strong for any Christian champion to break through ; and we know too, how many professed Christians at this day assume in their theology that miracles are only ingenious myths. Little did these men imagine what a record on this subject lay concealed within the stony leaves of the earth's crust ; or that the hammer of the miner and the geologist would bring facts to light that would sweep away at once all their ingenious quibbles. So long as Christians could meet them only with abstract reasoning, they felt strong. But now we lay open the solid rocks and show them there miracles of crea-

tion as wonderful as the miracles of revelation, and of them, the creation of man, perhaps the most remarkable of all, is the same in both records. We show them, that interference with nature's usual course has been a rule of God's government from the remotest times; and the conclusion is irresistible, that what God has done, during the earlier economies of our world, he will be likely to repeat during the human era, should his purposes require it.

Not less effectually does this subject remove all improbability from the doctrine of special providence in the case of individuals and communities. Nay, the facts which we have presented form an *a fortiori* argument for the exercise of such a providence. For if we find proof registered on the rocks, that God has taken care to adapt the state of the world wisely and benevolently to the nature and wants of the lower animals that have peopled its changing surface, and prospectively and specially for the comfort and happiness of man as a race, we may with still stronger confidence presume that He will see to it that the exigencies of individuals of that superior race will be taken care of. Henceforth, then, when we witness the exhumation, from the quarries, of the strange beings that once occupied the earth, let us not regard them as mere objects of an idle curiosity, but as so many arguments to show us that God will take care of our individual interests; and when we wander through the deep seated coal-mine, or any other excavation where human industry is extracting mineral treasures to advance civilization and happiness, let our faith gather thence an argument for implicit trust in that providence which, in the depths of past ages, buried up these deposits for the special use of civilized man. How delightful for the Christian thus to find food to nourish his faith, where most men see only rugged rocks and think only of accumulating wealth.

So, too, this subject takes away all presumption against the doctrine of special Divine influence on the human mind. For if God would work miracles to accomplish his purposes in the natural world, much more ought we to expect that He would exert those influences upon the human mind, which are not inconsistent with free agency, and are essential to prepare it for a higher state of existence. This he can do without a miracle; and it is an exigency which the whole history of his providence leads us to expect will be met in this manner.

See, too, what a new and interesting argument may be derived from this subject for the Divine existence. The usual argument, that from design, requires us to prove, or assume, a beginning to the matter of the universe; and here the atheist, hiding himself in the fogs of the doctrine of chance, and an eternal series of things, can make a quite formidable show of argument. But admitting miracles in the modifications of matter, we need not carry our thoughts back beyond those modifications, and may leave the question of the origin of matter untouched, without any injury to atheism. We thus get rid of a multitude of dreamy abstractions, which have so long enveloped the argument for the Divine existence, with a mist. We force the atheist out of the obscurities of the deductive, into the clear light of the inductive, philosophy. We bring the subject down from the airy region of metaphysics and place it on the firm ground of common sense.

This subject, also, may be made to subserve another purpose, no less important. It aims a deadly blow at all those subtle systems of religion founded on the supposed unending uniformity of nature's laws, and their inherent power to accomplish all the changes of the organic and inorganic worlds. Some of these systems, as we have remarked in another connection, admit that there might be a Deity to ordain these laws originally; but that is a question of no great importance, since it is the laws themselves and not Divine intervention that has taken the world in the state of nebulous vapor, condensed it into a sphere, brought in at first a few species of animals and plants of the simplest organization, in the state of monads, and from them gradually developed all the higher forms of life by the force of external circumstances and an internal tendency to improvement, until, at length, as the last act of the drama, man in the form of the negro race was evolved from the semi-quadrupedal orang, and still pressing onward has assumed the loftier character of the Caucasian.

Now, either the entire history of our globe, which has been dug out of its stony archives, is false, or this hypothesis is untrue. The history is based on facts, gathered from a thousand fields, widely scattered, yet all teaching the same lesson; the hypothesis is speculation merely, springing from a few supposed facts, half buried in fog and twilight. Which shall we adopt? Philosophy cries out, responsive to the voice of nature: It is God, and not mere law; an infinitely wise and powerful God, the God

who doeth wonders, whose miraculous interpositions are recorded in the volume of nature as well as in the volume of revelation.

Finally, this subject identifies the God of nature with the God of revelation. We greatly mistake the general sentiments of mankind, if they do not feel that the Deity recognized by science, is a quite different being from the Jehovah of the Scriptures. The first is regarded, indeed, as infinitely perfect, but as distant and uninterested in human affairs; binding the iron chain of law around all created things. But the God of revelation is an infinite Father, who is ever near his children, watching their every step, with an ear ever open and quick to hear their cry for help, and with a heart of boundless love to sympathize with them in all their trials. It is these different aspects in which the Deity is presented, that makes the religious man jealous of those views of theology which science offers; and it is because he does not wish to feel that God is so near, and so observant of his actions and thoughts, that often the scientific man is disgusted with the God of revelation. But this subject shows us the same God in both dispensations. He who so often interposed miraculously for his ancient chosen people, and providentially, at least, for the followers of Christ in every age, that same God, as modern science informs us, has shown the same watchful care over the material creation in all ages, and specially interposed, whenever necessary, for the welfare and happiness of all sentient beings. And herein does the pious heart recognize, in the God whose glory is seen in the heavens, and who has filled this lower world with beauty, the same infinite Father, whose wisdom and mercy shine so gloriously in the plan of redemption.

If these views be correct, do they not give to the works of creation a double charm to the Christian heart? And do they not suggest the inquiry, whether those who preach the Gospel might not make much more use than they do of natural religion? If we mistake not, there is a prevalent jealousy of facts and principles derived from nature; just because those facts have been sometimes perverted to throw discredit upon revelation. But we have long been satisfied that, from the fields of natural science, efficient support may be derived to some of the peculiar, and to the carnal mind, the most offensive, doctrines of revelation. We have brought forward in this Article, only a single cluster of the fruit from that field. But other and richer clusters, we doubt not, would reward the search of abler minds.

See what such men as Chalmers and Harris have done; and let all who now preach, or who mean to preach the Gospel, follow in their steps, and we doubt not that Christians, instead of being fearful that science and revelation are in conflict, would find that they sustain and illustrate each other, and that the heart of piety might be warmed at the shrine of nature, as well as at the cross; for, in an important sense, the cross may be found in nature, and nature in the cross.

But, after all, the tendency of the age is to substitute that which is artificial for that which is natural. Hence it is, that the Christian passes with indifference the works of God, while his soul rouses and his eye brightens when it turns to the works of man. Oh, what a magnificent temple it is which Jehovah has made our dwelling place! It is a vast whispering gallery, echoing and reëchoing with his name and his praise. How much do they lose, who always have its vast dome above them, and its lofty columns around them, and yet hear none of those whispers or echoes, nor feel any of the inspiration of the place; but whose supreme attention is devoted to "the gewgaws and trinkets, the puppet shows and histrionic feats, which fashion, and ambition, and sensuality, have surreptitiously introduced there." How insensible to every noble impulse has his heart become, who has neither eye nor ear for the charms of nature. For she is the kind mother of us all. In her arms were we cradled, on her bosom were we nursed, and her voice falls on every well-attuned ear like the music of heaven. It is, indeed, the music of heaven; for nature's harmonies are but a transcript of the Divine perfections, and her voice is, therefore, the voice of God.

We fear, however, that such sentiments do not accord with the experience of most Christians. They look upon the system of nature as a field well-adapted to regale the fancy, gratify the taste, and delightfully exercise the understanding; but not to warm the heart and feed the spiritual taste of piety. Creation is, indeed, a splendid temple, but it is cold and lifeless. No sacred fire burns upon the altar. No crucified Redeemer is there to fix the attention and absorb the affections; no Spirit of grace speaks gently to the soul. The religion of sentimentalism may flourish by communion with nature; but the piety that saves the soul and blesses the world must seek for its nourishment at the foot of the cross.

True, it is at the cross we must learn how to be saved and how to save others. But because we cleave with supreme affection to the God of redemption, must we abjure the God of nature? If it feed our devotion to muse on the character of that God who devised and executed the marvellous plan of redemption by a long series of miracles in human history, shall it afford no nourishment to our new-born nature to find that the Author of this vast universe has interposed, in a no less special and wonderful manner, to fit up this world that it might become a proper theatre for the display of redeeming love? Is there not something wrong in our hearts, if we do not recognize the same wonder-working beneficent God in the natural as in the moral world? Creation and redemption are but parts of one great system, and we may not disjoin what God has united; neither may we depreciate one part of the scheme in order to exalt the other. We will try to unite them in our experience as well as in our judgment. Then shall we see the same great truths imprinted upon nature which shine forth in redemption. Then shall all our communion with nature serve only to strengthen our love of the cross, while the more powerfully we are constrained by the love of Christ, the more delightfully and profitably shall we wander among the works of God. Oh, how meagre is his enjoyment of creation's beauties, who looks at them with only the eye of the cold calculating philosopher, or the mere enthusiasm of the poet, but not with a Christian's heart! It is only such a heart that can vivify the scenes of the natural world, with the presence of God. Nature has charms, indeed, for the mere man of taste, and of philosophy. But it is not till we bring in the religious element, that the affection becomes such as God would have it, a pure and a sanctifying emotion.

It is no wonder that such a love as this should be a deep fountain of happiness in every condition of life. It does not, like almost all earthly affections, become weaker with advancing life, when the pressure of cares, disappointments, and the infirmities of advancing years, come upon us. The man may become weary of the world and be deserted by it. Feeble health may infuse wormwood into the common pleasures of life; treachery and ingratitude may convert professed friends into enemies, and pierce his heart with many a pang; and old age, with its failing senses and failing powers, may deaden his sensibilities to almost everything else; but if in early life a religious love of nature

has taken possession of his soul, he will ever find it a sweet solace in the hour of desertion and bereavement; and, even amid the frosts of old age, the sacred flame, less bright only than his immortal hopes, shall spread a sweet light along his dark passage to the grave.

Such a view of nature as this was taken by the writers of the Bible. The labored distinctions which we make between common and miraculous events, were unknown to them. In every event they saw and joyfully recognized God's hand, and hence it so often happens that the sentence which begins with praise to the God of nature, ends with ascriptions of glory to the Redeemer.

Nor is this all; for these same views of this subject are taken in heaven. For the redeemed from among men, as they stand upon the sea of glass, and sing the song of Moses and the Lamb, exclaim: *Great and marvellous are thy works, Lord God Almighty.* Yet these ransomed ones are ever ready to join in what seems the common chorus of heaven: *Blessing and honor and glory and power be unto him that sitteth upon the throne, and unto the Lamb forever and ever.* In heaven, therefore, at least, will the God whom science describes, be identified with the God of redemption. Would that it were so on earth! It will be, when educated men, especially ministers of the Gospel, shall have fully developed the harmonies between nature and revelation. Here, then, is an object, second only to that of the personal salvation of men, inviting the labors of those who go forth, after long years of preparation, from our Theological Seminaries, burning with the desire to do what they can for the good of man and the glory of God. The field is open and inviting, and the ripening grain abundant. May those who take the sickle, have a large share in so noble a work, and late in life *return, bringing their sheaves with them.*