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to the happiness of the saints in heaven, it must be imperfect until that addition is made ; which does not seem consistent with the perfection of their state."¹

ARTICLE VI.

○ SCIENCE AND THE BIBLE. NUMBER III.

WITH REMARKS ON THE "SIX DAYS OF CREATION" AND THE "WORLD-PROBLEM" OF PROF. TAYLER LEWIS.²

By Professor James D. Dana, Yale College.

SCIENCE AND THE BIBLE,—the first and the second revelation ; the one telling of God's wisdom and power, and his plan of creation ; the other declaring God's holiness and love, his majesty as the Infinite King, his condescension as a Redeemer : the one proffering aid to physical and intellectual man ; the other meeting the highest wants of the soul, and opening to it the light and joy of heaven :—these are the views recognized in our earlier chapters on Science and the Bible.³ Our plan led us to dwell mostly on the earlier revelation, as this is too often misunderstood and depreciated even by men of whom more knowledge might be expected.

But our words have been regarded as an attempted ele-

¹ Bod. Div. pp. 1088, 1089.

² "The Bible and Science, or the World-Problem," by Tayler Lewis, Professor of Greek, Union College. "Cancta fecit bona in tempore suo, et MUNDUM tradidit disputationi eorum, ut non inveniat homo quod operatus est Deus, ab initio usque ad finem."—Ecclesiastes 3: 11. "And there was a voice from the firmament that was over the heads of the living creatures."—Ezekiel 1: 25. 352 pp., 12mo. Schenectady. 1856.

³ In the use of the word science, for nature-science or knowledge, we may seem to be ignoring other branches of science. The fault is in the English language ; for neither *natural science*, *physical science*, or *inductive science* covers the whole range. Besides abundant usage, we have the authority of the Preface and various other parts of the "Six Days of Creation." We were satisfied, therefore, that we should be rightly interpreted.

vation of reason or nature to a level with the Bible.¹ There are few that will see heresy or a "pious fraud" in the phrase "Science and the Bible." Yet some further illustration of the relation of the two revelations to one another, and to man and truth, may not be unprofitable.

¹ The "World-Problem" says, on page 183: "It is this putting nature and the Bible on a seeming par [that is to be dreaded]; a practice of which some are so fond, though all the real deference is in reality paid to Science in every case of seeming collision. It is this patronizing parallel, now so commonly run between the 'two books,' as they are styled, 'the book of Nature and the book of Revelation,' and of which we have such a fine specimen at the close of Professor Dana's article. These are the things most hostile to the Bible, most injurious to a true and hearty faith. This is the real naturalism."

Is this remark about Professor Dana true? The sentiment is often repeated in the "World-Problem." *Is it true?* We cite from that closing paragraph, that the reader may judge:—

"The universe and the Bible are consecutive parts of one glorious volume; the *former* teaching of infinite harmonies, coming up from the deep past, and of man's relation through Nature to God; the *latter* of man's relation through his own soul to God, and of still loftier harmonies in the eternal future; the *first part*, telling not only of the wisdom and power of God, but also of man's exaltation, at the head of the kingdoms of life, the being towards whom, with prophetic eye, all nature was looking through the course of ages, preparing his earthly abode, arranging every ridge, and plain, and sea, and living thing, for his moral and intellectual advancement, and with so much beneficence that man, when he came to take possession of the domain, found everywhere lessons of love and adoration, and read in his own exaltation a hope, though a trembling hope, of immortality; the *second part*, after a chorus epitomizing the former revelation, pursues its closing thought, Man in his relation to his Maker, makes that hope of immortality sure, and points out the way of life, by which he may enter into everlasting communion with God his Creator and Redeemer. If students of nature fail of that way of life, it is not that science is evil, but man fallen."—*Bib. Sac.*, Jan. 1856, p. 129.

Page 217, the work says: "But it is folly to talk of Professor Dana's views of the Bible account. What he presents does not lean upon the Bible at all, and he takes no pains even to give it that appearance." *Is this true?*

Page 140, we read: "There is one thing connected with this matter of 'the eternity of matter,' that really tries the patience. We allude to the bugbear of Platonism raised by such writers as Mr. Lord and Professor Dana, and the stereotyped charge they make, that Plato taught this doctrine." *Is this truth?* Has Professor Dana made any such charge? Platonism has been charged on Professor Lewis, but not this doctrine on Plato, not even by way of implication. And, moreover, the Platonism was in effect acknowledged in the "Six Days of Creation," by the citation of the similar views of Plato.

Page 225, it is stated, that "The most astonishing thing of all is, the fact that this poor natural knowledge,—poor, we mean, in the attitude assumed by the reviewer [Professor Dana], though having a beauty and an honor when it

It will be seen from the confession of our faith, more than once given, that we regard the two revelations as holding distinct positions; in harmony, it is true, both having the same Author, but yet different in scope and purpose. The past and present constitute the subject of one; the present and future, of the other; and that future an eternity; that eternity, the life-time of the soul; and that soul capable of piercing eternity with its gaze, and reaching upward to realms of happiness only through the light of this second revelation.

The revelation in nature was first opened to man, while he was still bearing the image of his Maker. With that image bright, like heaven's own orb, he could read of love

chooses to be modest,—should so dare to put itself face to face with the Scriptures; not in the attitude of a manly, though impious, antagonism, but in the far more insulting spirit of petulant rivalry."

"Face to face with the author of the 'Six Days'" is here made equivalent with "face to face with the Scriptures." Is this good arithmetic?

The "World-Problem" is remarkable for its personal abuse of "Professor Dana;" not only his opinions or writings, which were legitimate subjects of criticism, and opinions called Professor Dana's, but not his, which are still better game though not as legitimate, but also his personal character. Two additional examples will suffice to illustrate this quality in the work.

"The professed orthodoxy of his [Professor Dana's] literary position would lead him to speak well of the Bible, and to be rhetorical about 'the harmonies;' but he is sometimes off his guard," etc. *ib.* p. 152.

After mentioning, inaccurately, the relations of Geology to the Mosaic narrative, laid down by Professor Dana, he adds:—

"This scanty act of homage once rendered to the Spiritual Power, very much as the Italian Machiavelli makes his appeasing bow to the Conclave, science breathes freer and passes on." p. 239.

The above is part of a running fire kept up through the volume about "pious" Professor Dana. After the first shock at finding one's honesty and general character assailed had passed, an indifference followed, mingled with a disposition to stand and wonder if all this could have come from the author of "The Six Days of Creation." We could have wished, however, that he had spared Professor Silliman, who is wantonly made the subject of a sneer about pious freethinkers, on page 174. Perhaps he would say that he refers only to his science;—strange words, if so. We quote:—

"There are parts of the world, there are schools of thinking where faith in any objective or supernatural revelation has in the main already died out. They are able schools, too, most scientific thinkers, as good thinkers as can be found among us, but where do they find the supernatural? As far as science is concerned, or their rank in science, these foreign free-thinking naturalists ought to be, at least, as pious as Professor SILLIMAN or Professor DANA."

and infinite glories in every work from a Father's hand. A perpetual radiance then passed from heaven to earth, and from earth to heaven, and the light of nature added brightness to the ever-flowing interchange. But man fell; self usurped the place of God; the light became dim within, and the revelation in nature dim also, to such a soul. Then the second revelation began its announcements, seeking to restore to man that which had been lost of the image of God, to rekindle the consciousness of Heaven's sympathy, and guide him to the paradise he had forsaken. And the revelation went on deepening in its tones of love, until God himself came down to man in the person of Christ, as the promised Deliverer. When now, through him, truth and love again possess the human soul, nature, although herself an uncertain guide to divine truth, may become effulgent with celestial light. The two revelations thus stand apart. As much as eternity exceeds time, and the soul, all else created, so far does the second transcend in importance the first revelation.

"Science and the Bible" is a glorious climax, like that of creation itself, when the earth's passing ages of beautifying features and life reached their completion in the age of Man; or like Man's own progress, from scenes of toil and care to the freedom and bliss of the heavenly paradise. To one whose mind, instead of dealing in abstract discussion, is occupied with thoughts of progress, progress in the earth's genesis, progress in the moving nations, progress in man towards his upper home, the phrase "science and the Bible" is most natural. The mind expands with the idea, as if now gathering strength from the finite, to rise, with growing faith and love, towards the Infinite.

But although these two revelations are so diverse, and the second vastly transcends the first in its realities, we may not speak lightly of the study of nature. One who is buried in his own contemplations, and knows nothing of the depths of truth in God's works, is ill prepared to be a self-appointed judge. In such hands, the world must fare poorly, and the world-problem become more of a riddle than ever. We have here an example.

In a tone not at all good-natured, the author of the "World-Problem" speaks of the sciences,¹ especially the natural sciences, as very easy to learn and very mischievous in their influence; of the "scientific conventions," as given up to physical or natural science (not because men in these sciences choose to have conventions, but), because "these topics are most directly popular;" of geology as "the most vaunting" of all the sciences, and having its special charm, to many minds, from "its furnishing a ground of objection, whether true or false, to the credibility of the Scriptures;" while in fact it demands no greater powers of mind "to examine the epidermis of the earth and make curious discoveries among its dorsal fins," than "other branches of the same scientific genus." It talks of the "wondrous conceit of science in the common mind," the scientific "lingo" used by quackery, and "that miserable concoction of inane delusion, modern spiritualism;" as if all this, and much more of the same sort, had anything to do with the true bearings of science, or was presenting a just view of its influence on the age. It is very much opposed to the "grand display of decimals," and "the millions and billions" in some scientific lectures, and has quite an argument on the subject, in which the wit is too good to be lost. He is speaking of lectures on astronomy, p. 47.

"A rigid exhibition of the mathematical modes of determining the distances of the planets, would be dry and wearisome. In most audiences, moreover, notwithstanding the boast of its being a scientific age, it would be unintelligible. But to make a grand display of decimals, to talk of millions and billions, and distances which the cannon-ball could not traverse in a thousand years, and rows of figures reaching round the earth, this gives them a wondrous view of the science, and of the still more wondrous human mind that can make such computations, and entertain such far-reaching ideas. Thorough and patient instruction in the doctrine of transits and parallaxes, with the necessary demonstrations and diagrams, would drive the wearied audience from their seats; but let them be told, in thaumaturgic style, of the wondrous swiftness of light, and how a luminous stream, two hundred thousand miles long, enters the eye every time a man winks, and there is immediately a hail-stone chorus of applause."

¹ World-Problem, Chapter I. *passim*, for the quotations which follow.

Again science, according to the "World-Problem," parades its utilities and practicalities, and this is one great source of its popularity. Consequently science is becoming too popular; "it is demanding a deference from all other departments of thought, which is not due to its dignity or its true reality." "In the language of prophecy, 'it has become the horn having a man's voice speaking great things,' and the world, even the religious world, is wondering after it."

It admits that "there are scientific men of loveliest piety, of most religious modesty." But then in the next breath, thinking evidently that some have dared to call in question the author's nature-theory and exegesis, he comes down vehemently on "pretentious, noisy, arrogant science;" and observes that "the want of religious strength and earnestness" in the age, "is very much in proportion to the noise it makes about the Bible," and the so-called 'harmony of science and revelation,' or the 'two revelations,' as it is fond of styling them." Modest science appears to include those students of nature who have no nature-theory but that of the "Six Days of Creation," and who walk directly behind its author.

These views may seem to be of little importance to any one. But the conclusion of the whole matter is, that "all science must be excluded from Biblical interpretation, as well as all deductions from any science which we are sure was unknown to the writer." A plea is afterwards added for the author's favorite faculty: he says, that "*Imagination* may be soberly indulged; but all scientific hypotheses, as such, are worthless and contemptible."¹

The author has a special horror of crucibles and magnifying glasses. Speaking well of outside nature, he thus discourages (the italics are ours):

"Nature is ever praising God." "But it is the *fair, round, honest, open face* of nature that does this, that face that we all perceive and understand at once, that we see by the *naked eye*, and without the aid of *scientific glasses*." p. 324.

¹ World-Problem, p. 70.

Again, as to ideas of *law* and *nature*, he speaks exultingly of —

“Those broad and universal views that lie upon the *honest, intelligent face* of nature, those views that require not so much the *experimenting crucible*, as the *musings, meditative mind*.” p. 160.

These are not casual remarks only; the position is supported by arguments at considerable length, and the Bible is brought in (pp. 329, 330) as giving its weight to the view.

To oppose such notions by sober argument, seems almost belittling. Indeed, the sentiments are not all wrong; and later in the volume it is admitted that “science wakes up thought, thought beyond her own discoveries, or the strictly scientific domain; and this is the main use of her.”¹ But the truth is so mixed with error, is so much like the sugar in a bitter dose, that it is hardly perceived after the whole is taken. There are also, in the same chapter, many excellent remarks on the Bible, enforcing the necessity of its profounder study as the true cure of scepticism, of implicit faith in its teachings as our only law of life, and of earnest desires after the riches of Christ’s love: and in this we most heartily concur; for we believe and know that the sacred word is all and more than is pronounced, the very truth which, if Christians will only take it into their lives, breathe it in their words, and labor for it with body, mind, and soul, will stay the materializing influences of the age, and carry forward the church to victory. But the praise of the Bible is brought forward in a way to throw a false light over science. We therefore offer here a few general thoughts upon nature as man’s assistant in progress.

Although man is immortal, the earth is his appointed place of pupilage. His body is of the dust of the earth, and is under the same laws of growth with animals, and also depends largely upon the laws of chemistry or inorganic nature. While having senses to put himself in connection with nature and serve as avenues of knowledge and aids to his thinking mind, the world is filled with knowledge, not, it

¹ World-Problem, p. 304.

is true, of Greek and Hebrew, but of another language of wider significance and deeper wisdom; the depths of nature being the unfathomable depths of the infinite.

The earth was thus made the arena from which Man was to rise to celestial heights. It was his duty to love and obey his Maker; but this was not all his duty. He was ordered to subdue and have dominion, and so to take strength and wisdom from the infinite source within his reach. While other species reach maturity, within and without, by simple growth, being in a sense made by nature, even to the finishing stroke, Man is required to work out his elevation, and is held responsible for his ignorance and weakness. He was to love, love with all his heart, but none the less to search and "find out knowledge" from the world around him. And thus Science and the Bible were to go hand in hand in man's education.

In that early age, when the *whole Bible* consisted of merely the first commission and first promise given to man, nature was by his side. The beauty of flower and leaf, were there, to refine and cultivate; the grandeur of the hoary mountain and the rushing torrent, to quicken his soul to great deeds; and all the earth sent forth an incense that should bear him upward, in devout contemplation. And beyond this, there were truths of utilitarian character beneath the surface, essential to his very existence. He was to learn to strike the fire from the flint; to change the stony ore into the implement of toil; to search out fibre for cord or useful fabrics; to fertilize the soil as it became exhausted by cultivation; to find the plastic clays and mould them into utensils. So in many ways, his life and subsistence were dependent on help gathered from nature.

Is it said that knowledge so simple as this, is not science? It is nature-knowledge, and of the very same kind that is the basis of existing science. It is a shallow notion that only more recondite facts make up science. Nothing happens around us, in the material world that is not now embraced within its range. The rising and setting of the sun, the changes in the seasons, the dew and rain, snow and hail,

each and every fact, however trivial, is taking its true place in man's comprehension of the system of nature. Denouncing scientific knowledge is denouncing all knowledge of material things and their changes.

The ancient world saw matter only in its broad generalities. Beauty found its response in the soul; the sublimity of the vast and unmeasured in time and space had there a sympathetic chord; the order and system in nature answered to the love of harmonies that possessed man's inner being. And under these expanding influences, and growth in intellectual and moral truth, a lofty elevation of the individual man was attained. Yet along with these means of growth, there was also a knowledge of nature that gave man some control of her powers, although that knowledge was not systematized and reduced to scientific law.

Thus nations were enabled to rise in intellectual strength, and also to fill their coffers and enlarge their bounds by pillage and rapine. Pillage and rapine were essential to that greatness while the acquaintance of man with nature remained so meagre. The philosophers of that era, as of others before it, found it vastly more pleasant to lie at ease and dream out worlds, than to study profoundly the world which God had made; and it was very natural, therefore, that metaphysics should have preceded physics.¹

In these modern times, man has gone beyond facts to principles, which is equivalent to grasping the deep centres of motion in the grand systems of forces, instead of simply using the outer effects or operations. It is going to the very springs of action, and from them wielding nature's mighty energies. In this seemingly presumptuous daring, man simply searches into nature, learns how the single energy evolves its multitudinous effects, and then accommodates himself strictly to her friendly laws, and so takes her aid; and the profounder the acquaintance, the more profuse her yield of bounties. It was a great step of progress when, instead of simply gathering the ripened fruit from nature's

¹ The "World-Problem" appears to find great significance in the fact that metaphysics preceded physics; see page 103.

orchards and fields, man learned that there were germs within the fruit which were themselves capable of developing trees. And so it is in investigating nature,—every new law made out is a germ for man's use in securing the fruits of the earth; and the more fundamental the law, the vaster the range of products.

The Divine light shed over the world and down the ages, from Christ, the centre of history, taught man to *love* and *trust*. To love God, God's law, and all truth; to love man; to love God's works; to trust God in humility; to trust one's self.

It was man ennobled that fell humbly at the foot of the cross. And after he had escaped from the tyranny of a spiritual despotism that sprung up, and, for a while, stifled the germ in its growth, he became conscious of his dignity, and felt strong in the use of that reason which placed him above the brute. He loved all truth; and while having, in the Bible, an unimpeachable standard for moral duty, he looked for as sure a test and as profound a source of law for the physical world. He therefore humbly and assiduously sought of natural phenomena their laws; and thence came the sciences of nature, which, in a single century, have grown to an extent that reproaches the ancient world for its indolence, and rejoices the modern for its rapid exaltation.

Now wherever we look, we see the gifts of nature that have been gathered by her students. Our dress, and the little implements about our person, to ink and paper; the furniture and material of our houses; our fuel, lights, modes of heating and ventilation; our printing, copying, engraving; our means of transporting water, air, time, or thought; our aids to poor eyes, deaf ears, broken limbs, and suffering humanity in numberless ways; in fact, nearly all our material sources of comfort, necessity, and luxury, have derived much from modern scientific research. The heavens and earth, with their overflowing treasure-chambers, appear to have had their broad doors thrown open before us, for all to take that will; for God, in nature as in spiritual life, is no respecter of persons. The plodding man of science, in his

cell, caring little apparently for the world, seems to be the very impersonation of concentrated self. Let it be so: still the fountains which he lays open are nature's fountains, and whatever his aims, the fountains are generous to all.

Science has its non-utilitarian side, its truths of unspeakable grandeur, its beauty of transcendent excellence. But, as long as a God of love rules, the useful will stand by the side of the beautiful and true. The latter are enjoyed by the few, while the useful reaches all, like the water, air, and light. Every new law, learned in any branch of science, is a source of universal good. And thus nature, with her myriad voices, is ever repeating: God is good! God is good!

The world, moreover, is becoming conscious of the good received, and cannot help rejoicing in the blessings. It recognizes that the world's growth, even her intellectual and religious growth, is directly connected with this rising of nature, as from her grave, to man's help; for every new element of power gained, if man is faithful, will strengthen the arms of Christian benevolence, and become leagued for the spread of truth. It is no light thing, in the history of this wide-spread nation, no trivial event in the progress of the race, that steam and electricity have been added to the world's forces. Can we know of the sympathies that run along the wires of a continent and over the globe and not recognize the moral power in those cords of metal? Can we come from the Bible or Tract House, where these agencies are working for Christ, to doubt that God means all for good? They are giving a quicker flow to Heaven's light, and widening its circle of radiance. And if the devil claims to use them too, so he did with the great central force of Christianity, when this was sent forth. Yet the victory shall be to the strong; and where is strength but with Him who shall forever reign?

May not, then, the man who preaches divine truth and loves his race, rejoice over the triumph of mind, and mingle this with other causes of thanksgiving; and, while rejoicing, urge man to trust and press on in the great contest with evil? Or shall he rather come out in rapid declamation

against the growing monster ? or, within his cell, write ill-tempered books about the age, giving vent to his thoughts in words like these ? —

“ Hence there is so much mere talk about the Bible. Politicians magnify the Bible. Are they really going to the Bible, drawing nearer to the Bible, or is the Bible viewed as coming down to them ? Literary men are sentimental about the Bible. Social reformers cant about the Bible. The tendency sometimes manifests itself in an appearance which would be ludicrous were it not profane ; the bully chief of the Empire Club breaks up a meeting of fanatics, as he calls them, because “ they abuse the Holy Bible,” and the vile makers of vile political platforms endorse the act, and the spirit of it, in their canting resolutions about our civil and religious liberties.” — *World-Problem*, p. 39.

The age has its evils ; but surely this is not applying a Bible-corrective. There is little profit in looking fierce at Science. Her movement is the movement of mind, and is as resistless as that of a planet in the highway of the heavens. And as she moves onward, she shall become inscribed throughout with “ Holiness to the Lord,” but not the sooner for such treatment.

It is not surprising that one who talks of “ transient,” “ pretentious, noisy, arrogant science,” should also denounce what are called the internal evidences of the Bible ;¹ for this is carrying a principle to its legitimate conclusion. It is natural that such a man should see only evil in “ Lowthian criticisms,” and discover in them “ a mixture of the ‘ Jews’ language’ with the ‘ speech of Ashdod ;’ ”² that he should go to the good old days of ignorance and credulity, when there was no “ infidel geology,” for his examples of the loftiest faith ; and that he should take the side of the priests against Galileo.³

Moreover, it is not wonderful, perhaps, that his imagination should be troubled by those dreadful crucibles and magnifying glasses ! which man uses to work out evil from nature’s depths instead of delighting in her “ round, honest, open face ! ” those depths that send forth bad-looking imps

¹ *World-Problem*, p. 31.

² *Ibid.* p. 38.

³ *Ibid.* p. 55.

of science, to haunt the faithful and make them lose their equanimity in fruitless contest with the evil things!

A few weeks since, we were in the laboratory of a friend, a good chemist and a good Christian. He was so blind to the world's welfare as not to know the evil of meddling with crucibles. So he took down one, put in it a mineral containing the essential ingredient of clay, mixed with it some pieces of a very soft inflammable metal, called sodium, and placed the crucible in the fire. There was nothing specially objectionable in the fire, as it was that of a common coal-stove. After half an hour had passed, he found in the crucible, in place of the material put in, a metal, as white nearly as tin, as hard as iron, more malleable than silver, as sonorous as bell-metal, and not liable to rust like iron or copper; and, moreover, it was only half as heavy as iron. It was, therefore, a metal combining most admirable qualities with this remarkable levity. It had been called *aluminium*. He has often performed the experiment; and, along with other believers in nature, he sees from it that at least one third by weight of all our clay-beds, granites, slates, and many other rocks, consists of this strange metal aluminium. In his infatuation about the thing, he will not admit that there is any harm in this dragging of aluminium out of its hiding-place, or any proof about it that nature is hateful or false beneath the surface. Indeed, he believes that in this very aluminium, there is proof of the goodness and wisdom of God, and therefore cause for renewed thankfulness for His gifts in nature.

Another friend delights in using those suspicious-looking pieces of glass, convex on one or both sides, called magnifying glasses. Instead of being satisfied with the eyes which God gave him, he most daringly puts such a glass to his own optics, and ventures to affirm that he sees what was before invisible; and, moreover, he confesses to no compunctions for this prying spirit. He should, no doubt, be content with the "honest, open face of nature;" but he has a curious way, and will look. He sometimes puts a miserable little scale of a butterfly's wing under his magnifying-

glass, and observes a delicacy of detail in its configurations quite in harmony with nature over her broader features, showing new beauties and no trace of imperfection. A display of colors, as well as perfection of form, is often brought out, which calls forth his admiration ; and his Christian soul rejoices in believing, "my Father made them all." Such self-deception would not, of course, be possible, had he listened to teachings from a higher source ; he would not longer grovel among nature's littlenesses, but take big trees, big mountains, and the "fair out-speaking face," to help him, above the world, toward his Maker. Every look at the minims of existence, impresses the truth that God is not, like man, one who makes only big things well ; but that his perfections are seen even in the extremest limits of microscopic vision. What pitiable error ! This natural theology is a dark labyrinth, "where there is just light enough to see the terrific darkness."¹

The same friend sometimes turns his microscope towards a little worm or insect — a contemptible thing, that Nature should have known better than to have made at all ; and probably would never have made, had she not blundered sometimes ; for "nature does sometimes blunder" and "do her work badly." Through the lens, he observes the heart beating, the blood coursing through the body, muscles contracting as the little limbs move, nerves branching off from the nervous centres to play telegraph between the parts of the body ; and thus all the wheels of life are in motion under his eye. He is enchanted with the sight. He pursues his studies, and learns of universal laws of life, and believes them God's laws. But poor miserable man, should he not know that there is danger, fearful danger, to the highest interests of the race, in such lookings ? that this is the road to infidelity, and the more he sees the worse he will grow ? — He reflects that many, very many, look over the broad face of nature and see no God there, and some trust to "pure reason's" wings, and yet descend to the fool's depths. And

¹ World-Problem, p. 326.

he pleads that looking with glasses only extends the field of observation and widens the area of God's glory ; and that what is thus brought to light speaks no less of an Infinite Mind than the "honest, open face." Deluded mortal, that he should not see that evil lurks beneath the face, — evil to man's material, intellectual, and religious interests. This searching of nature dwarfs the mind ; for, are not thoughts, like pyramids, proportioned in size to the square miles of surface on which they rest ? It degrades the whole being ; for, is it not chaining to infinitesimals a soul fitted to rise, in its contemplation, towards the infinite ?

But does not some material good come to physiology, and so to man, from this close study of inferior animals ? So it goes, with this evil age, there is "this continual appeal to utility,"¹ "the everlasting sing-song of the steam-engine and the magnetic telegraph," of "the manufacturing of paints, and soaps, and quack medicines" by chemistry, of the discovery of coal by geology, and other triumphs of these crucible and microscopic men ; they are ever proclaiming the useful, and even pretend to thank God for the utilities of science.

But the thoughtful man says : "the open face of nature" looks, to most men, very much like a lap full of eatables ; and they even buy and sell land according to its productiveness in these materializing products. They look at an apple-tree, and instead of being content to live on its beauty of leaf and golden apples, actually ask "How much a bushel ?" and buy and eat, as Eve ate in paradise. Then running water,

¹ Page 49, The "World-Problem," says on this point : It is urged that chemistry is of vast importance in the practical arts ; it is a great aid in the manufacturing of paints and soap ; it furnishes us tests whereby to distinguish poisons and quack medicines ; as though these ludicrous impositions that science may multiply, but which it will take something more than science ever to drive from the world, were the only kind of quackeries from which we have now-a-days anything to apprehend." Page 50, "And then there is the everlasting sing-song of the steam engine, the daguerreotype, and the magnetic télégraph, as though the rapid transmission of a thought were of vastly more importance than the quality of the thought transmitted, or the age was to be lauded for the improvement of the one, whatever deterioration might take place in the rank and true value of the other."

even glorious old Niagara, is turned into a mill-stream, and the ocean's borders into salt-pans. Thus man looks at that "fair, out-speaking face," and, instead of taking its spiritual food alone, and breathing the atmosphere of heaven, he allows his lower nature to treat the earth as if it were a great potato-bin. Indeed, when autumn comes round, instead of dwelling on the glories of the returning orb of day through the revolving year, the bright flowers and foliage of summer, and the magnificent displays of lawn and forest, hill and mountain, starry nights and storms, he appoints "a thanksgiving" for the successful harvest, as the Jews did in ancient time, because the cellar is full, and the loft stored with corn. Thus even the "open face," the "round, honest face," that "fair out-speaking face," takes, to most men, the aspect of a broad lap; and, so far as its utilities go, it seems to have as depressing an influence on the spiritual man as the manufacture of paints and soaps by chemistry, or the discovery of coal by geology, or the invention of the electric telegraph through the laws of the physical world. And then the old familiar face, which to all has been in sight since the first-opened eyelids of childhood, is very commonplace and unsuggestive to most men; while a look beneath the surface, sometimes awakens the sudden thought that God, in truth, is here. Besides, the "honest, open face," is, after all, a very deceitful one, — making men think that the sun and all the stars go around the earth as a centre, that the planets have a very criss-cross sort of movement, or perhaps go whirling in eddies, and every day's experience tells of some of her outside falseness; so that men now know better than to trust always the "honest, intelligent face," and look deeper for the truth.

What matter if men do blunder? it does not hurt the soul like the perilous searching into nature's depths. There is the free and open heaven above the earth's surface, while, "as we descend into this region, the pure upper air grows dim." "As we get down among the wheels of the vast machinery, we lose the light of heaven above, and yet find no sure standing-place for our groping feet below. It is

like the insect who has gone down into the interior of the great Haarlem organ,"¹ etc. For nature is like a big Haarlem, with "pipes, and keys, and springs and pedals;" and the insect man, to take in its glorious harmonies, must flit aloft to where he may receive the whole chorus of sounds as one.

But the thoughtful man observes, that the harmonies of nature do not all come from big pipes or wide superficies; that, as Elijah was taught, they are not in the storm or earthquake, but God speaks in "a still small voice;" that the deepest wisdom in nature, and its most wonderful music, rise from unseen depths, and not from the surface, open to man's indolence; that nature claims to be, throughout, God's work; and even the minutest point is as much a manifestation of his wisdom, as the "round, honest, open face," and affords as broad a basis for soaring thought. And then he quotes David's words: "Great are the works of the Lord, sought out of all who have pleasure therein;" knowing that it is as true of the works in the creation, which God pronounced "good," "very good," as of his dealings with man. Thereupon his opponent says, with emphasis, that he

¹ Not to do injustice by this fragmentary way of citation, we quote at some length from page 326: "We have presented the two extremes. There is a middle region which is 'neither day nor night,' or rather where there is just light enough to see the terrific darkness. It is the region of natural theology, to use the name without admitting its propriety: it is the dark labyrinth of physical adaptations, as distinguished from ends or true ultimate designs. As we descend into this region the pure upper air grows dim. As we get down among the wheels of the vast machinery, we lose the light of heaven above, and yet find no sure standing place for our groping feet below. It is like the insect who has gone down into the interior of the great Haarlem organ. He is crawling among pipes, and keys, and springs, and pedals; if an intelligent insect, — a supposition that may be rationally entertained, — he may be deep in acoustics, estimating the time of aerial pulsations, or measuring with his microscopic eye the chords that subtend vibrating arcs; but the glorious anthem that rolls above is all unheard, or comes to him only in dull and discordant tones. The comparison is not extravagant. Its justice has been verified in men who have seen nothing but mathematics in the heavens, and chemical affinities upon the earth. This interior anatomy of causation, where there is nought before the eye but passing links, joined letters of which we can not spell the words, with double readings, too, and oft times double interpretations, may be all very curious as matter of inductive science, but it is certainly unnecessary, if not unfavorable, to faith."

should not apply David's words to such a purpose,¹ words often desecrated by being "taken as the motto of a lecture, or occasionally of a scientific book," and, what is less proper, "sometimes found at the head of a sermon, so called, which does the Scriptures the honor of selecting from them a text, whilst its substance, if substance there be, is made up from geology and telegraphs, and the wonderful discoveries of the age." He adds: "Among all the wonders science reveals, there is nothing so truly wonderful as the fact that some of its Professors can stand in the presence of these four great scriptural ideas — the Word, the Spirit, the Ineffable Working, the Divine Repose, and yet babble away about their rock-written revelation."² The revelation in the rocks! "Batrachian clamor!" "Quackery!" "Foolery!" "Insane bigotry!" "Gabble!" "Prattling," "vaunting," "pretentious, noisy, arrogant science!"³ "The lamentably perverted use of the word *inspiration*, in certain transcendental quarters, is bad enough; but it is more defensible and less mischievous than that corresponding abuse of the term *revelation*, which is such a favorite with a certain kind of naturalizing orthodoxy."⁴

The author of the "World-Problem" is ever mixing up the study of nature with infidelity. At one moment he speaks of science as well enough, sometimes says it has grown vastly, and then starts off with a series of denunciations, which imply that science is all bad enough, and worse for its growth. He will take it for granted that natural theology is religion made from nature, and therefore "overwhelming scepticism" (although, as commonly understood, it is the religion of the Bible gathering some thoughts of God from nature), and then he will battle away as if Apollyon's host were in sight, and would surely turn their backs, in cowardly defeat, before his valiant pen.

The flashy sentimentalism of nature-religion, which talks of God's power and goodness, and the beauty of flowers

¹ World-Problem, p. 332.

² Ibid. p. 226.

³ Ibid. Epithets applied to science or scientific men.

⁴ Ibid. p. 333.

and dew-drops, as if they were subjects of equivalent value, which ascends to heaven with the fragrance of pinks and roses, and knows nothing of prayer, the Christian's means of heavenly communion, or of humility and love, his badges of fellowship with Christ, deserves the severest rebuke. And that style of preaching that exults in the progress of science as if this were man's chief hope, rather than one of the means of promoting the far more glorious triumph of the Gospel, merits no less condemnation. But the darkness and labyrinthine features of *adaptations* in natural theology, however inconclusive the argument they afford, is far from obvious. The subject takes its tinge from the mind that contemplates it, and is by no means necessarily disconnected from the final *ends*. Nature is full of adaptations, pressing themselves on man's attention; and it is very bad for us all, if they all are "terrific darkness." It is, in that case, a very pernicious feature of the world; and of course man should be very careful not to see one of these adaptations; or if he sees, he should never put 2 and 2 together, for that would be the beginning of corruption. But we have yet to learn, that the case with us or the world is so bad.

In the relations of the utilities of science to man, the truth is simply this. Here are facts, in vast numbers, poured on the world, through scientific research; facts from nature, or, more correctly, forces, intended for man's good. On the other side, there is mind. The forces are good, mind bad. Which is to be attacked? The proclivity to evil in mind is so great, that it is almost sure to accept good without gratitude, and sink virtue beneath selfishness, when it does not also say: "There is no God;" and it matters not whether the good things come from one source or another, whether from chemistry or crops, the material or ideal. Now what are we to do? Denounce the things received, as a child quarrels with its playthings? Denounce the men who gather them and call them the materializers and naturalizers of the age? Rather let every one who loves his Bible endeavor to promote spiritual life in man. This is meeting the evil in its source. And if wrong principles spring up among the facts,

or worse infidelity from high-flying philosophy, while exposing the error as far as you can, still press on with only greater zeal for the spread of Christian truth, and more earnest labor in turning men to God. Believe, too, that science will run its own errors in the ground, even if it have no help from other sources. When men are right within, facts from without will reach their proper place, and serve their true end in promoting both intellectual and religious elevation.

One great duty of nature, with her finite forms and measured distances, is, like that of objects in the foreground of a picture, to aid man in his conceptions of things more remote, and educate him into some appreciation of the boundless. The "World-Problem" views the matter differently, and objects, as we have shown, to the use of numbers and comparisons with visible things for such a purpose, deeming them mathematical, emotionless, and naturalizing; and, accordingly, it condemns certain works on the "Architecture of the Heavens." But he who remembers that the sublime is not in the thing seen, or words uttered, but in the mind, would not thus write. It is the sublime mind that looks over the broad ocean and feels its sublimity. Most men are so bound to sense as scarcely to rise beyond the actual; while with others, eternal and infinite are overwhelming words that almost crush the soul in their vastness. If a speaker or writer endeavors to enlarge the conceptions of the world of beings whom he sees so intent upon the earth alone, if he states the distance of the sun from the earth, of the earth from Neptune, of Neptune from Sirius, and so carries the mind by stages to the distant nebulae, and then to the thought that the milky-way, with our planetary system, is but one of the nebulae of space, like those that are mere points to the telescope, he may afford no help to some minds, beyond what comes from the expression "worlds of worlds."

¹ World-Problem, pp 117, 118. At bottom of p 118, it says: "We may seek to compensate for this [the disuse of old expressions] by rows of decimals, and frigid conceits of solar systems turned into sand-glasses to measure eternity; but it is all a blank as compared with those mighty pluralities, the *aeons* and *olams*, and 'worlds of worlds' of the earlier mind."

But many will feel the soul expanding with the contemplation, and will acknowledge this as one of God's appointed means of helping short-sighted man to understand his glories. Man may thus talk of nature and see no God beyond, or rise only into the upper regions of æsthetics; but this, as we have said, is more against man than nature.

Science has a great work of good to perform in connection with the Bible. It is true, the Bible can stand without human aid. But fallen man has need of help. He is liable to be led astray by his own heart, and by false opinions around him; and science, if false, may strengthen the evil propensity within, and all perverting influences; or, if true, it may point him in the right way, and confirm right principles. Whenever it proves a helpmeet to the Bible, it fulfils its highest purpose, giving sacred truth a firmer hold on the world of beings whose faith needs support from every source within its range. This is its great end: not to "patronize" the Bible, as the "World-Problem" has it, in its contemptuous misrepresentation of our views, but to remove sources of infidelity arising from misused science; to supply truths that are beyond the compass of the Bible, and elucidate others that have deeper meaning as man rises in knowledge; to check the presumptuous exegete in his eagerness to philosophize, by presenting facts that fix limits to speculation; to bring nature out to view in her true grandeur, so as to enliven the love and increase the wisdom of believing man, and throw some light among groping beings that have not yet cast their eyes upward to a God of infinite goodness. Science here has a great work to perform, and we would say: "Onward, with all your might." And in the same breath we should say, as Christians: "Speed on, and rest not." God has given us his promise of help, as he has not to science; and if the church fails in her mission, it will be owing to her own feeble, faltering, cowardly self.

The "World-Problem" and the "Six Days" have another grave charge against the study of nature. They say that Plato and Aristotle, through "pure reason," soared into regions of loftier and surer truth than modern science is

capable of, the method of the old philosophers being expansive in its influence, that of the other *narrowing*.¹ The question suggests itself: How did these philosophers attain to such an elevation? By what method did Plato acquire his ideas of nature?

We may be excused if we enlarge a little on a point touched upon in our second Article, even if the thoughts are not altogether new.

The mind has the power of gathering, and also, through its intuitive faculties, of expanding and developing, what it receives, and educing truth therefrom, but not the power of originating, without some previous perceptions. Having gathered ever so little, that little, like a germ, may expand or grow to great dimensions, the extent depending on the quality of the mind itself that receives the germ. The faculty, or rather group of faculties, most promotive of this expansion, is embraced in the power of appreciating order or system, and consecutive relations, whether in external nature or moral and intellectual truth, together with a consciousness of the unity of all harmonies; these qualities rendering the soul responsive, as we have said, to the order or system in nature, and involving, as we believe, in the perfect mind, the idea of a one author, God. The growth of the mind is carried forward through the differences or discordants and concordants which it perceives in objects or actions; it being in-

¹ The "World-Problem" remarks as follows, on p. 314, with a mixture, as usual, of truth and error: "No modern school ever entered more profoundly into the questions of origin, first matter, first motion, first form, first unity, first diversity, first organism, first laws, ideas, types, and which was first respectively things,—that without which they could not be things or have in any sense a self-hood or *ipseity*,—no modern school, we say, ever entered more profoundly into questions like these than some of the earliest thinkers. Bacon and Leibnitz may be ransacked for anything on these subjects more acute, and we may confidently say, more satisfactory, than the reasonings of Aristotle in his *Physica* and *Metaphysica*. We might safely go farther up the stream of time, or we might come nearer to our own age, and still find evidence of the position that what is called science is got the only, not even the best, preparation of the soul for the higher cosmological questions, if we *will* discuss them apart from revelation." Then is the error here of supposing that science has nothing to do with the reason, instead of being knowledge systematized by the reason for the use of the reason."

tuitively capable, in itself (though very differently, in minds of different qualities), of judging of error, of preferring the good, of appreciating the harmonious in all departments of knowledge; and the inferiority of a mind, in any of its faculties, is manifest in this, that facts enter and remain mostly as disconnected thoughts, and do not rise into their concordant or discordant or consecutive relations. The mind must start from objects and experiences it has met with, in striving towards any conclusions regarding the philosophy of nature. A few tones of harmony may become the germ of a philosophy of music; while without the experience, the mind, as regards this faculty, would have been a blank. Again, on looking abroad, man sees the regularly recurring events of night and day, summer and winter, the rising and setting of the sun and stars, and the proportions in nature's forms; and there is, here, a response within, if the sensibility be of high order, as much as in the case of musical harmony; and there is a yearning after other experiences of order, system, or harmony, in objects or occurrences around; and as the sensibility increases, nature is found to be fuller and fuller of delight, and the music of the spheres a reality. The mind observes the progress from the seed to the plant, then to the blossoms, and finally the seed; again, from the egg to the perfect being, and so on; and in each case, the being perpetuating itself in a seemingly unending round. This also strikes the chord of system within, and, if the chord be a susceptible one, and the mind vigorously expansive, the idea of growth or progress in cyclical successions becomes a joy to it, and the endless roll of earth's changes a chorus of harmonies.

But it has been well said, that we may be led by the very height of our pleasure in system, to imagine it, where it is not, and so grow in error; for mind is too apt to send out its rampant fancies on the nurtured side, far beyond the truth. We may, in our eagerness, through momentum gathered from nature around us, spring with a bound from the earth to the heavens, or from life on this little sphere to universal nature, and in order to account for successive creations, conceive of creative power dropping seeds of exist-

ences into the womb of a self-subsisting nature, as the husbandman drops his seed into mother earth ; or, with deeper thought, observing that the spirit of man is the man, and, thinking of the life-spirit of an animal as the essence of the animal, we may conceive of life-essences or spiritual types or entities, now and then sown in the seed-time, springing up and harvested, and followed by the declining season, or a winter of decay, all in true cyclical succession ; and so rise to a theory of nature as a separate, growing, sleeping, and blundering individuality, in analogy with the individuality of man.

We may go still higher, and conceive of many natures having thus been made, each to go through with its cycles of activity and sleep, growth, successive germinations, and death ; and regard existing nature as one in a series, that began somewhere in the infinite past, and the germinations in its progress as due to some law of reproduction, or to action on the part of the Creator imparting the life-essences necessary to new births. Thus the mind ascends from the facts of this dull world, to a system which shall embrace an infinity of worlds, and an infinity of successive natures. And should not finite mind exult in seeing, within its grasp, universe upon universe of worlds, reaching from eternity to eternity ?

This is the path by which ancient philosophy ascended to its sublime height. The philosopher started from the earth, from *scientific facts* and *analogies*, indeed, whether so recognized or not ; and from these took his adventurous flight. And is it not from somewhere in those heights, that the author of the " World-Problem " looks down, and talks of the " gabble," " prattle," and " Batrachian clamor " of science ? At so lofty an elevation, he sees only the surface of things, and rejoices in the " honest, open face."

Now, to his misfortune, the elevation is no real one. The ascent is very much such as a man may make by pulling at his ears : if persevered in, the effort might perhaps make the ears long.

We may see the harmonies of earth ; we may take in

all these harmonies as one chorus ; and then, in ecstasy of joy, we should look up and give praise to the one infinite God. This is the legitimate end of all the finite around us. Its very oneness was intended to exhibit God's oneness ; its beauty, perfect order, and unbending law, his wisdom and inflexibility of purpose ; its irresistible energies, his power ; and its passing and past events, his appointed plan of progress through the ages. But when we begin to scale the heavens on reason's wings alone, it ends, whether we think it or not, in an assault on the eternal throne. This is the daring Babel of intellect, of which the brick Babel was but a type.

We see well the feebleness of mind for such attempted flights, in its devising or adopting a "development theory," and suggesting at least the hypothesis, that a monkey might have been straightened up into the body of a man.¹ We see its spirit in its grand nature-system, while the study of nature is held in distrust. Arrogant, pretentious, bigotted science ! Arrogant, because it dares to clip the pinions of such philosophy. Pretentious, because it claims to study God's works, and learn truth therefrom. Bigoted, because its faith in nature, as a revelation from God, allows it not to swerve from the true interpretation of His laws !

Philosophy of the "pure reason" kind, in its ambitious reachings, once claimed that man, and all nature, were but an eternal round. But the records placed in the earth have put a check to that conception, confirming the sacred word, and curbing hypothesis. It thought to make creation a growth from the simple planting of monads, and a beautiful idea it was deemed. But here God's records in the earth put another check, declaring that it was not so. It thought to make a few successive plantings to give out the grand result. But the same records, like a voice from omnipotence coming up from the depths of the past, say beware ! there has been no making of species from species. Man is thus almost forced, by his study of the earth, to acknowledge the Creator's hand. He may walk firmly and joyfully as far as

¹ Six Days of Creation.

² World-Problem.

he has that hand to guide him, and then should bow humbly before him who alone is from everlasting to everlasting.

We have yet to inquire, What is the true idea of nature's individuality.

[To be concluded.]

ARTICLE VII.

BRANDIS ON THE ASSYRIAN INSCRIPTIONS AND THE MODE OF INTERPRETING THEM.

By Professor George E. Day, Lane Theological Seminary.

[The following essay is taken, with some abridgment, from a recent treatise "on the historical gain from the Deciphering of the Assyrian Inscriptions," by Dr. Brandis of the University of Bonn, of whose labors in this department, honorable mention is made in the Annual Report of the Royal Asiatic Society for 1856. It has been translated for the *Bibliotheca Sacra*, not only as furnishing an interesting view of the serious difficulties to be encountered in ascertaining the meaning of these ancient records, and the means employed to overcome them, but also as exhibiting the ground of the distrust with which many of the translations of Rawlinson and Hincks have been received in Germany.]

Not far from the eastern bank of the Tigris, opposite to Mosul, rise two mounds, between which winds a small stream called the Khosser. Upon the northern mound, which is about fifty feet in height, and much larger and higher than the one on the south, stands the village of Koyunjik; upon the southern one, called Nebbi Yunus, stands a mosque [said to be] erected over the tomb of the prophet Jonah, and surrounded by dwellings. Both of these mounds are remains of artificially constructed terraces, on which