

THE
PRESBYTERIAN QUARTERLY.

NO. 24.—APRIL, 1893.

I. THE DOCTRINE OF INSPIRATION AS AFFECTED
BY THE ESSENTIAL RELATION BETWEEN
THOUGHT AND LANGUAGE.

Do we think in words? Do we think only in words? Do we always when we engage in thought employ for that purpose language? Is it possible to think fruitfully, to think to any advantage, to think at all in any other way? On the assumption that one can think without words, is it possible to express, even to one's self, to formulate,—to communicate one's thoughts, *i. e.*, convey them intelligibly to others,—through any other medium? Must there not be some medium or vehicle for every form whatever of thought-expression; and must or must not that medium be language?

Some of these and kindred questions are not merely of curious interest, but also of profound significance and consequence, and have accordingly not only awakened the attention and occasioned and stimulated the researches of the great body of philologists and logicians, and the specialists in physiology proper, and of course those in mental physiology and what is now known as physiological psychology, but have also occupied the minds of some of the wisest philosophers and greatest intellects the world has ever seen. But what is still more to the purpose at present, the answers given to some of these questions have an incidental bearing on the inquiry as to the fact and extent of an infallible inspiration.

It will be the aim of this essay to indicate and touch upon the main problems which arise from a consideration of the more important of the interrogatories just referred to, and then to point

IV. PROVIDENCE AS A DOCTRINE OF SCIENCE.

I. HUXLEY'S PICTURE OF THE WORLD.

"The conception of the constancy of nature," writes Professor Huxley, "has become the dominant idea of modern thought. To persons familiar with the facts on which this conception is based, and competent to estimate their significance, it has ceased to be conceivable that chance should have any place in the universe, or that events should depend upon any but the natural sequence of cause and effect. We have come to look upon the present as the child of the past and as the parent of the future; and as we have excluded chance from a place in the universe, so we ignore, even as a possibility, the notion of any interference with the order of nature. Whatever may be man's speculative doctrine, it is quite certain that every intelligent person guides his life and risks his fortune upon the belief that the order of nature is constant, and that the chain of natural causation is never broken."—*New York Lectures on Evolution, Lect. I.*

"The history of every science is but the history of the elimination of the notion of creative or other interference with the natural order of the phenomena which are the subject-matter of that science. When astronomy was young, the morning stars sang together for joy, and all the planets were guided in their courses by celestial hands. Now, the harmony of the stars has resolved itself into gravitation according to the inverse squares of the distances, and the orbits of the planets are deducible from the laws of forces which allow a schoolboy's stone to break a window. The lightning was the angel of the Lord, but it has pleased Providence in these modern times that science should make it the humble messenger of man; and we know that every flash which shimmers above the horizon on a summer evening is determined by ascertainable conditions, and that its direction and brightness might, if one's knowledge of these were greater, have been calculated. Plague, pestilence, and famine are admitted by all but fools to be

the natural result of causes, for the most part fully within human control; and not the unavoidable tortures inflicted by wrathful Omnipotence upon his helpless handiwork."

"Harmonious order governing eternally continuous progress, the web and woof of matter and force intertwining by slow degrees, without a broken thread, that veil which lies between us and the infinite, that universe which alone we know and can know, such is the picture which science draws of the world; and in proportion as any part of that picture is in unison with the rest, so may we feel sure that it is rightly painted."—*Lay Sermons*, pp. 282, 283.

Such is the picture which Professor Huxley, and the class of scientists to which he belongs, would have us accept as a true picture of the world in which we live, and of which we form a part. Our world, according to this representation, is but a vast machine working out results—history, in the wide sense of that term—just as some great power-loom weaves out a piece of figured damask according to the pattern to which it has been set. The loom, once started at its appointed task, works on without any possible interference, or even supervision, on the part of him who originally built it, and set it in motion.

II. IS THIS PICTURE TRUE TO NATURE?

1. For convenient use in the business of life man has embodied the knowledge of the earth's surface acquired by direct observation in what we style maps, and these maps form a most important part of our treatises on geography, *i. e.*, the picture of the earth. Look at one of these maps now, and you will find laid down there continents and oceans, islands and lakes, mountain ranges and rivers, all of which we may naturally suppose to owe their present existence and form to the operation of what Huxley calls "natural agencies," by which he means mechanical forces, *i. e.*, forces acting without intelligence or will. But in addition to all these, our maps are filled with marks of the location of cities, and canals, and railroads; and our geographies are filled with particular descriptions of them, as if this knowledge was of even greater practical importance than that of continents and islands and mountains.

Cities, and canals, and railroads do not owe their existence to mere mechanical agencies. They are confessedly the work of man. His intelligence has located them, and his will, as an efficient cause, has determined their construction.

And this condition of things in our world is not a new condition, which has begun to exist in our day. As far back as history throws any light upon the subject, our world has had its cities, canals, and roads, if not railroads, all acknowledged to be the work of man. In every part of the world which man has inhabited in the past, we find remains of his workmanship in some form or other; from the stately ruins of pyramids and temples in Egypt, to the chipped knives and arrow-heads of the lands in which savage man has had his home. Now, in "the picture which science draws of our world," according to Professor Huxley, cities, and canals, and railroads are entirely left out, and so the picture is incomplete, as even the schoolboy will see.

2. Turn now from our examination of maps to a study of the world, as it everywhere surrounds us and presents itself to the eye. Among the phenomena which challenge our attention, alongside of ocean billows raised by the wind, and streams of molten lava pouring forth from volcanic mountains, and the flow and fall of waters in rivers and waterfalls, are ships making their way over the ocean, often in the very "teeth of the wind," and fires "cribbed and confined" in furnaces, in which man is extracting useful metals from their ores in spite of the chemical affinity which binds the elements of the ore together; and railroad engines moving up the very mountain side in opposition to gravity. In all these, and in a thousand similar ways, man is doing a work in the world in which he appears as an efficient cause in making the world what it is to-day.

"The natural sequence of cause and effect," in the sense in which Prof. Huxley uses that phrase, never built the city of London, or dug the Suez Canal, or constructed the Pacific Railroad; nor does it sail our steamships in their voyages across the ocean, or manage our iron furnaces, or run our railroad engines. If history, in the wide sense of that term, be a piece of figured damask woven in nature's loom, there are figures there to which the

loom was not originally set, but which have unquestionably been introduced by the free will-power of man.

Professor Huxley's picture of our world is fatally defective, in that the phenomena resulting from the operation of the will-power of man are entirely left out. His map is worthless to the active man of business, because it makes no note of the location of cities, the centres of business, and of canals and railroads, the great channels through which the business of the world is conducted. Such a map might serve well enough for the parched desert of Sahara, or the perpetually ice-covered regions around the poles, but for the habitable portions of the world, the portions in which alone man has any special interest, it is glaringly defective, and so, untrue and utterly worthless for all practical purposes. That so well-trained an observer, as Professor Huxley undoubtedly is, should take no account of man and his works in his picture of our world, is passing strange, when in the very picture he gives us, he finds himself compelled to recognize their existence. Thus, he writes, "plague, pestilence, and famine are admitted by all but fools to be the natural result of causes, for the most part, fully within human control." How can this be reconciled with his statement, "we ignore all possibility of any interference with the order of nature?" And again, "the lightning was the angel of the Lord, but it has pleased Providence, in these modern times, that science should make it the humble messenger of man." By the phrase "science should make it the humble messenger of man," he must mean, that man through his science has made it his humble messenger. Man, and not science, is the efficient agent here.

The Duke of Argyll has well said: "A fallacy is getting hold upon us from a want of definition in the use of terms. 'Nature' is being used in the narrow sense of physical nature. It is conceived as containing nothing beyond the properties of matter. Thus the whole mental world in which we ourselves live and move and have our being is excluded from it. But these selves of ours do belong to nature. Let us never forget, then, that the agency of man is of all others the most natural, the one with which we are most familiar—the only one, in fact, which we can be said, even in a measure, to understand."—*The Reign of Law*, p. 7.

III. MAN'S AGENCY IN OUR WORLD.

Professor Huxley tells us, and tells us truly, that man, in our day, has "made the lightning his humble servant"—it lights up his cities when the sun has gone down,—it carries his messages with a speed to which no other messenger can attain,—it is beginning even to take the place of water and steam-power in driving his machinery. And this, which is true in the case of electricity, is true also, to a greater or less extent, of all the mechanical forces of nature. In view of this fact several questions of no little interest at once present themselves :

1. Is man's control of these forces of inanimate nature limited? And if so—how, and to what extent is it limited? "Man's power in respect to these laws," *i. e.* mechanical forces, "extends only, first to their discovery and ascertainment, and then to their use. He can establish none, he can suspend none. All he can do is to guide, in a limited degree, the mutual action and reaction of the laws," *i. e.* mechanical forces, "among each other. They are the tools with which he works—they are the instruments of his will. In all he does or can do he must employ them. The more he knows of them, the more largely he can employ them, and make them minister to his purposes."—*Reign of Law*, p. 12. As illustrating the truth stated above, take the case of the electric telegraph. Man ascertained certain laws governing the transmission and operation of electricity, viz., that through certain substances, "conductors" as they are called, electricity passes freely, and with inconceivable rapidity; and further, that when an electric current is made to pass through a coiled conductor surrounding a bar of soft iron, the iron, for the time being, becomes a magnet; and then, by stretching a wire conductor from one place to another, and arranging instruments at the two ends of the wire so that the continuity of the current of electricity may be broken at will, by the application of his finger, breaking the current in the instrument at one end, the instrument at the other end is made to "click" out every such breakage. Having before arranged that "clicks" of certain kinds represent certain letters of the alphabet, the operator in New York is enabled to "click" out a communica-

tion to another operator at the other end of the wire, in London, it may be. In all this, there is no establishment of a new law, or the impartation of a new property to electricity, nor is there any suspension of an old law. The electricity which transmits man's message across the Atlantic to-day is the same in nature, and in the laws which govern it, that electricity has been from the beginning; and man has made it "his servant" by ascertaining those laws, and conforming the action of his will-power thereto.

2. The fact just stated, that man in making use of the forces of inanimate nature—the only forces of which Professor Huxley's picture of the world takes any account—must first ascertain the laws which govern them, and then conform the action of his will-power thereto, will explain to us, in so far as the matter is capable of explanation, how it comes that the free operation of this will-power causes no disorder or derangement in nature. Were there no forces in operation in our world but the forces of inanimate nature, then would the world be neither more nor less than a vast machine—a power-loom, such as Huxley has represented it—and could work out no pattern in the damask it was weaving but that to which it was set at the beginning. Fatalism would be the true philosophy; and fatalism in a form in which it would inflict a death-blow on all effort on man's part to better his condition, and would make progress in science not only utterly useless, but a curse rather than a blessing. Why should an intelligent man labor to attain that which he must know is unattainable? Or, why should he seek to increase his knowledge when an increase of knowledge would be, in nine cases out of ten, but an increase of sorrow? Man may well be thankful for the knowledge that our world is no mere machine, driven by mechanical forces only, *i. e.*, forces acting without thought or will. It is a vast law-governed world in which free will-power is ever at work, often controlling and directing the operation of the mechanical forces inherent in matter; the two classes of forces acting in perfect harmony one with the other; and any picture of it which does not take account of both these classes of forces is essentially defective, and so untrue.

3. A characteristic difference between the free will-power of

man and the mechanical forces inherent in lifeless matter, such as gravity, is that the one is guided and governed by mind—mind in the sense of, “The intellectual power in man; the power that conceives, reasons, judges, wills, imagines, remembers, or performs any intellectual operation” (*Imperial Dictionary*); the other by inflexible law. Man’s works all bear the marks of the directing mind of man, and of the knowledge and skill to which he had attained at the time at which the work was done. A traveller through the Syrian desert comes across certain marble columns, some standing, others prostrate, at a point once occupied by the city of Palmyra. At once he recognizes the work of man here—that these columns are the remains of an ancient man-built temple. In what is yet evident in their arrangement, contrivance appears, and in their forms, the fluting of the columns and the carving of their capitals, the architectural taste and mechanical skill of man such as it was in the East two thousand years ago are seen, and there is no doubt in the mind of the traveller that man’s will-power has been at work here. Mere mechanical forces, acting without man’s direction and control, would never have produced such results as these. The marks of the operation of man’s mind may be very faint, and yet, when they appear, Professor Huxley and the class of scientists to which he belongs, are accustomed to treat them as indubitable proofs of man’s agency, as in the case of the arrow-heads of chipped flint found in the superficial strata of many lands. They even designate the men whose work they believe them to be as paleolithic or neolithic men, according to the comparative excellence of the work. It may be difficult to define in general terms the characteristic marks of the operation of man’s mind, but practically there is very little difficulty in distinguishing man’s work from that of the mechanical forces of nature.

IV. THE AGENCY OF THE LOWER ORDERS OF ANIMALS.

The will-power of man is not the only will-power operating as an “efficient cause” in our world. The flight of the eagle toward her eyry on the mountain cliff, the spring of the tiger upon its prey, the darting of the fish through the water, all furnish evi-

dence of the existence of a will-power in the lower animals, entirely distinct from the mechanical forces of nature, such as gravity and heat. In these instances will-power in the lower animals acts in perfect harmony with the established laws of inanimate nature just as it does in the case of man, and this, for the reason that it acts under the guidance of mind, using the word mind in its wide sense, as is evident from the results of its action. In the lower animals instinct does the work of reason in man, and within its proper sphere instinct is as trustworthy a guide to will-power as reason.

This agency of the will-power of the lower animals is not something peculiar to the present day; but, as is evident from many traces of its operation it has left behind it, it has been at work through ages antedating the existence of man on the earth; and so like are these results to those effected by the will-power of man that in some instances it is difficult to distinguish one from the other. As instances in point take the following: "Bones have been found cut and polished in deposits which seem to have been immersed in water since man dwelt upon the earth, yet so finely cut and polished as, in the opinion of many, to prove human skill, aided, too, by instruments of rare perfection. Sir Charles Lyell, however, ventured to put among the beavers in the Zoölogical Garden in London some bones similar to those discovered; and after leaving them for some time, recovered them, cut and polished by the beavers so nearly like the others, as to leave no doubt that in both cases the same agency had been employed. So, in this case, the pre-Adamite man proved to be a beaver, and the perfect tools, which argued such high civilization, the beavers' teeth."—*Pierson's Many Infallible Proofs*, p. 139. Sir J. W. Dawson tells us, "A very remarkable discovery was made in 1875 by Professor Rutmeyer, of Basle. In a brown coal deposit of tertiary, or at least 'interglacial', age—whatever that may mean—in Switzerland, he found some fragments of wood so interlaced as to resemble wattle or basket work. Steenstrup has, however, examined the evidence, and adduced strong reasons for the conclusion that the alleged human workmanship is really that of beavers."—*Origin of the World*, p. 386. In view of

such facts as these it must be admitted that any picture of the world which fails to take account of the operation of a will-power in the lower animals is essentially defective, and so untrue.

V. THE AGENCY OF GOD.

If there be a will-power at work in the world lower in the scale of excellence than that of man, and the proof of the existence of such a will-power, as we have seen, is undeniable, the question will naturally present itself—May there not be a will-power more excellent than that of man at work in the world also? An affirmative answer to this question seems to be demanded by such facts as the following :

1. Thoughtful men from the very earliest times, and in every part of the world, have believed in the existence and continued activity of such a will-power—the will-power of God—working out what we are accustomed to speak of as his providence. Among the earliest records of human thought and opinion which have come down to us, is the celebrated Behistun inscription. In that inscription, as translated by Oppert, we read : “And Darius, the king, says, these are the princes which call themselves mine. By the grace of Ormuzd”—Ormuzd was the supreme god according to the faith of the Persians—“to me they made subjection, brought tribute to me, what was ordered by me unto them, in the night-time as well as in the daytime they executed. And Darius, the king, says, in the provinces the man who was my friend, I cherished him; the man who was my enemy, I punished him thoroughly. By the grace of Ormuzd, in these lands was my law observed; and what was ordered by me unto them, that they executed. And Darius, the king, says, Ormuzd gave me this kingdom, and by the grace of Ormuzd, I possess this kingdom.” *Records of the Past*, Vol. VII., pp. 88, 89. This belief, often greatly distorted, lies at the foundation of all the ancient religions, and pervades the writings of all the most ancient authors—those of Herodotus among the Greeks, Berosus among the Babylonians, and Manetho among the Egyptians. Another proof of the universal prevalence of this belief in early times we have in the fact, that the most ancient ruins found in all lands are not the

ruins of palaces erected as the habitations of kings, nor theatres erected for the amusement of the people, nor forts built for defence against the attack of enemies, but temples erected for the worship of a higher order of beings than man, and worshipped because of the belief that they took an active part in the affairs of the world.

2. To the faith common to all Christian people in our day, Dr. C. Hodge has given expression in his words: "The theory of the universe which underlies the Bible, which is everywhere assumed or asserted in the sacred volume, which accords with our moral and religious nature, and which, therefore, is the foundation of all natural, as well as of all revealed religion, is that God created all things by the word of his power; that he endowed his creatures with their properties or forces; that he is everywhere present in his universe, coöperating with and controlling the operation of second causes on a scale commensurate with his omnipotence, as we, in our measure, coöperate with and control them within the narrower range of our efficiency."—*Theology*, Vol. III., p. 698. The greatest of English dramatists gives expression to this same common faith in his words:

"There's a divinity that shapes our ends,
Rough-hew them how we will."

Even Professor Huxley, when representing the world as a vast machine, in which mechanical forces alone are active, writes: "It has pleased *Providence*, in these modern times, that science should make it" (the lightning), "the humble messenger of man." Now, whether we regard this recognition of Providence as governing the progress of science, as the expression of a real though unacknowledged belief on the part of Professor Huxley himself, or as merely a form of expression he found current among men, and adopted to make himself understood; it furnishes at once an illustration and a proof that the belief in Providence is a common article of faith among the English-speaking peoples of to-day, the peoples who stand highest in all that is embraced under the comprehensive title of "modern civilization."

3. This on the one hand. On the other, it may be said that while the belief in Providence in all ages and countries has been

that of the multitude, there have always been those who rejected the doctrine, the philosophers, as they style themselves among the ancients, and the school of scientists to which Spencer and Huxley belong in our day. This is true. But, then, it is at the same time true that this seems fairly traceable to the fact, that in their study of nature they confine their attention to the mechanical forces at work around them, taking no account of the operation of the will-power of man and the lower animals, and thus are led to give us a picture of nature fatally defective, and, for all practical purposes, utterly worthless.

It is characteristic of the human mind that when its powers are concentrated on the study of even the narrowest field of research all the world outside that narrow field is forgotten, or remembered only as it stands related to the subject-matter of that study. To the enthusiastic entomologist, "the wide world" is little more than a vast hive for the breeding and transformation of insects; and to the devoted florist, the production of a new variety of some favorite flower is an event more interesting than the revolution of an empire. Remembering this, we can account for the fact, that so careful and accurate an observer as Professor Huxley has shown himself to be in the department of science to which he has devoted his life, can trace the operation of gravity, heat, light, and electricity where the common observer does not dream of their presence, and yet take no note of the operation of the will-power of man or God, at work side by side with them. This, if I mistake not, gives us the true explanation of the disbelief in Providence, and, in some cases, in the existence of a personal God, on the part of a few scientists, and if so, that disbelief is entitled to little weight as an off-set to the almost universal belief of mankind in every age and in all countries.

Charles Darwin, referring to his entire loss of all taste for poetry and painting of which he was conscious in his old age, writes: "My mind seems to have become a kind of machine for grinding general laws out of large collections of facts, but why this should have caused the atrophy of that part of the brain alone on which the higher tastes depend, I cannot conceive. . . . The loss of these tastes is the loss of happiness, and may possibly be injurious to the

intellect, and more probably to the moral character, by enfeebling the emotional part of our nature." And again, "In my journal I wrote that whilst standing in the midst of the grandeur of the Brazilian forest, it is not possible to give an adequate idea of the higher feelings of wonder, admiration, and devotion which fill and elevate the mind. I well remember my conviction that there is more in man than the mere breath of his body. But now the grandest scenes would not cause any such convictions and feelings to rise in my mind. It may be truly said that I am like a man that has become color-blind, and the universal belief by men of the existence of redness makes my present loss of perception of not the least value as evidence."—*Life of C. Darwin*, Vol. I., p. 311.

4. The proof of the operation of a will-power mightier than that of man—a will-power such as the common faith of mankind attributes to God—as an efficient cause in the original creation of our world, meets us everywhere. "I am fearfully and wonderfully made," wrote a thoughtful man three thousand years ago; and this saying has been repeated by thoughtful men in every succeeding age down to the present, whenever they have given careful study to the structure of the human body. The eye presents us with the most perfect achromatic lens in existence. The hand, as an instrument of grasp, is perfect. The simple hinge of the finger-joint, with the "universal joint" exhibited in "the ball and socket" of the thigh, man has imitated but never equalled. In these, and in a thousand other particulars, the structure of the human body exhibits evidence of a skill and power on the part of the maker far superior to that of man; and to trace them to the agency of mere mechanical forces is but one degree more foolish than to credit them to the operation of chance.

Admitting then, that the operation of a will-power mightier and more excellent than that of man can alone give us an explanation of the marvelous structure of the world—of which man's body is a part—in its origin, is it reasonable to believe that having made, the Creator has abandoned, it? To this question, Professor Huxley would reply, The universe is governed by natural law. "Is it natural law which governs the universe? Or, does God govern

it by natural laws? Men perpetually cheat themselves with the idea that law is a power, whereas it is simply the method of a power. Whence the power of the natural second cause? Originally from God. Hence it is utterly improbable (whether we can comprehend it or not) that God shall have so arranged his own power communicated to his works as to obstruct his own personal will. Remember that God is a person, and not a mere *anima mundi*. He is a sovereign, moral person.”—*Dabney’s Theology*, p. 719.

VI. GOD’S AGENCY UNLIMITED.

Man occupies a higher position in nature than other animals, in part, because he has reason as a guide to his will, whilst in them the will-power is put forth under the guidance of instinct. The bee can build as perfect comb for storing its honey as the most skilful man can; but, even if it had the might, it could not build a ship or construct a steam engine. Instinct is limited in its range, though perfect within the narrow bounds of its operation; and so must be the will-power which it governs and guides. Reason has a far wider range; and a range becoming wider and wider as science—in the sense of man’s knowledge of nature—advances; and so man’s will-power can act in a thousand directions where that of the lower animals is powerless. And yet man’s efficient agency is limited, and that in various ways. Not so with the efficient agency of that Being, higher and more excellent than man, to whom we give the name of God. As we learn God’s nature from the study of his works, he is omniscient—knows and understands nature in all its parts; with him, science is complete—he is omnipresent—not confined to a particular locality as man is—he is almighty—able to accomplish any and every purpose he may form; and hence, while the will-power of man as an efficient agent is confined to matters few in number, and limited to the narrow circle of which he forms the centre, the operation of the will-power of God may be traced everywhere and through all time.

“In that intelligible order,” writes Dr. A. Hodge, “which pervades the infinite multiplicity and heterogeneity of events which makes science possible, we see and certainly know the presence of intelligence, of personal will, of moral character, *i. e.*, of all that is

connoted by our common term 'personal spirit.' God is seen to be of common generic character with ourselves. The great difference we see is that while we are essentially limited in respect to time or space, or knowledge, or power, God, the personal agent we see at work in nature and history, is essentially unlimited in all these respects. The only reason that so many students of natural science have found themselves unable to see God in nature is that their absorption in nature has made them lose sight of their own essential personality. Hence they have attempted to interpret the phenomena of consciousness in terms of mechanical nature, instead of interpreting nature under the light of self-conscious spirit. But the scientist, after all, comes before his science, the reader before the book he deciphers; and the intelligibility of nature proves its intelligent source, and the essential likeness of the author of nature who reveals himself in his works, and the interpreter of nature who retraces his processes and appreciates alike the intellectual and artistic character of the design."—*Presbyterian Review*, January 1887, pp. 2, 3.

VII. GOD'S AGENCY THE HIGHEST AGENCY AT WORK IN THE WORLD.

Among the mechanical forces at work around us the most subtle and mysterious is that to which we give the name of life, or the vital principle. We must class it among mechanical forces because, in so far as we can see, it acts without thought or will of its own. Its subtle operations are known to us through the effects produced, and within its proper range it dominates all other mechanical forces. For example, under its operation rotting matter, which man casts forth as loathsome to his senses of sight and smell, is transformed into the beautiful and fragrant lily; and again, ages ago a particle of carbon was by vital action incorporated in the structure of some gigantic fern or lepidodendron, and when thus fixed it was by pressure and heat made to assume the form of coal. This coal, in our day, is dug from the earth and burned, and so disappears from our sight. It is not destroyed, but, floating about in the atmosphere, it may a second time be laid hold upon by a living organism, and, under the operation of the vital principle, become a part of that organism, plant

or animal—it may be of man himself. The story of its manipulation by this subtile force is more wonderful than the metempsychosis of Eastern fable. The structure of a living plant seems very simple. The cellules of which it is made up, even when studied with greatest care and with the help of the most powerful microscope, seem very much alike in form and structure. And yet, under the operation of the vital principle, crude sap is transformed in one cellule into sugar, in another into starch, and in yet another into coloring matter. We say “under the operation of the vital principle”—for let the crude sap be absorbed by a piece of dead wood, wood which has died so recently as still to retain its original structure—and no such transformations are wrought.

What is this life, this vital principle, this subtile force in nature, working so quietly, and yet so mightily, and with such strange results? We can answer with certainty it is not gravity, it is not light, it is not heat, it is not electricity; it sometimes makes use of one or more of these as man does, but it is something distinct and different from them all. Of its essential nature we know absolutely nothing.

Of its operation we know, (1), That it pervades the whole living organism in which it works. In the growing plant, for example, this vital principle causes the absorption of the crude sap by the roots, its rise through the stem and distribution among the leaves for elaboration by the exchange of certain of its elements with the atmosphere, and then its return and distribution for a further elaboration in the cellules, by which it is transformed into lignine, starch, gum, sugar, and coloring matter, each one of these proximate elements being produced in its own appropriate cellule. This exceedingly complex operation is going on in all parts of the living plant at one and the same time; and with such unfailling accuracy that the typical form and composition of each several part is never departed from; and (2), The vital principle works from within. Living organisms, whether plants or animals, are not builded, as a house is, but grow.

As this vital principle, whether we regard the subtilty of its nature or the wonderful character of the work it accomplishes, must be regarded as the highest form of mechanical force, so,

among the will-powers at work in the world, the will-power of God, manifested in his Providence, is undoubtedly the highest form of will-power of which we know anything. And it should cause no surprise, certainly it furnishes no sufficient ground for cavil, that we find it, (1), Pervading the world in all its parts; a truth sometimes expressed by saying that "God is immanent in nature"; nor (2), That we find the will-power of God "working from within," and not from without, as that of man does; that God's providential purposes are not built up, but reach perfection by a process of growth.

Professor Huxley tells us: "Every science must consist of precise knowledge, and that knowledge coördinated into general propositions, or it is not science."—*Humbolt Library*, No. 21, p. 472. In the coördination of precise knowledge, or facts, in any particular case, it is of the first importance that the coördination embrace all the facts which properly belong to the case. In our courts of justice, a witness is sworn to tell "the truth, and *the whole truth*"; and this, for the reason that a partial statement of truth is often a most mischievous falsehood. And this partial statement of the truth is just what Professor Huxley is guilty of in his picture of our world according to science, quoted at the beginning of this article. He has taken account of the mechanical forces at work in nature, but utterly ignored the several kinds of will-power at work side by side with them. And, what makes this neglect the more fatal to just conclusions is, that will-power often controls and directs mechanical force; as in the case cited by Huxley himself, where "the lightning is made the humble messenger of man."

Our world is not a great automatic power-loom weaving out the pattern to which it was set in the beginning by the hand that made it. "The harmonious order," of which Professor Huxley speaks as characterizing the progress of events, can be reasonably accounted for in no other way than by considering it the product of the will-power of God—and of one God only—"coöperating with and controlling the operation of second causes on a scale commensurate with his own omnipresence and omnipotence, as we, in our measure, coöperate with and control them within the

narrow range of our efficiency." Divine Providence, and neither chance, nor fatalism, is the philosophy to which true science points us.

We have a statement of the doctrine of Divine Providence such as true science demands, made by one of the kings of ancient Babylon in the words: "And at the end of the days I Nebuchadnezzar lifted up mine eyes to heaven, and my understanding returned unto me, and I blessed the Most High, and I praised and honored him that liveth for ever, whose dominion is an everlasting dominion, and his kingdom is from generation to generation; and all the inhabitants of the earth are reputed as nothing: and he doeth according to his will in the army of heaven, and among the inhabitants of the earth; and none can stay his hand, or say unto him, What doest thou?" (Dan. iv. 34, 35.) Should Professor Huxley ever turn away from the contemplation of mere matter and mechanical force, and "lift up his eyes unto heaven," I doubt not "his understanding would return unto him," and Nebuchadnezzar's faith in Divine Providence would become his faith.

GEO. D. ARMSTRONG.

Norfolk, Va.