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Revelation Through Geology.

BY RICHARD S. J. DENIORD.

As theories rise and fall, the world grows wise, and he who follows the philosophic method learns to unlearn and prizes the opportunity to "let go" as theories begin to sink in the great ocean of error. We believe that there is a Royal Road to Learning that "leads to all truth." The time will come when men travelling that road can mount the stepping stones that lead up to Truth's grand Citadel. We have seen theories come and go, as mere ephemeral upheavals in the sea of time, and we here present another. This of course is planted on time's eternal sills—a thing not born to die, and in the day its overshadowing branches fill mankind's sky there will be "no darkness at all."

We wish to use the world-wide interest now taken in the North-world gold problem to disseminate a few original thoughts among thinking men, as well as among those who call themselves "geologists."

In the present effort we will try first to convince our readers that the earth once had an annular system. This we will have to do by following a line of strictly philosophic inquiry into the various stages of world-growth as affirmed by the past and present conditions of the globe. Then we will attempt to show what elements composed the earth rings; and that gold was necessarily one of those elements. Finally, we will present the proofs that in the inevitable and progressive collapse of these rings the polar regions of a planet must receive by far the greatest part of the matter composing them, and that because gold was no insignificant part of these rings, the polar lands must be the richest gold regions of the earth.

The present physical conditions of the earth, as we understand them, are not accidental in any sense. As the lily and the rose have a beginning and a subsequent career responsible to conditions inexorable and despotic, so a world starts on its eternal round under the ministration of *law*, and the most subtle variations in the results of the primal impress of potencies can be but responses linked in everlasting union. This being the case, in order to follow up the grand progression of conditions of world evolution, as planned by the Great Architect of the Universe, it is pre-eminently essential that we should know what the primal conditions of the earth were. Then knowing these conditions and knowing the law regulating them, we can at least hope to erect a theory that will not fall—a glory that cannot die. Until we can plant our feet on this rock we must admit that we are floating at sea.

In this age of tireless research we have come to know very positively what some of the primal conditions of the earth were. The one potent condition—the condition from which utter necessity has passed a grand array of overflowing and overtopping consequences down to our day—is what is known among

all intelligent men as the *molten state of the primitive earth*. At this our starting point let us be sure that we are right, and I ask the reader to see that the writer does not slip from this rock. It is well known by geologists whose eagle eyes have pierced the earth to its granite sills, that its oldest sedimentary beds now rest on what was once an igneous mass. The sedimentary formations are of great thickness, estimated variously at from ten to forty miles, or even more, and such is the testimony of the lowermost beds that the geological world, with no important exceptions, stands solidly in support of the proposition that the earth was once an igneous liquid mass.

But we can bring other witnesses to testify in this case. It must be conceded that all worlds in all essentials *are made alike*. This is what countless millions of stars and suns affirm. Every sphere that scintillates in the empyrean must be a molten globe. The spectroscope affirms the proposition and tells us across the mighty void of space that all worlds *begin their career alike*—swaddled in garments of flame as our sun is swaddled now; rocked in its cradle of fire inveterate, as every other sun is rocked to-day. Thus our earth was once a glittering, blazing star, so surely as law is law. But the chief witness we have close at hand, whose testimony nothing can impeach, is the great ocean of water that rolls around the earth. We know that every drop of it was formed in fire. If I plunge a cold steel rod for an instant in the hottest furnace, I find it covered with little globules of water, and thus we learn that water is being formed in the most fervent fires. That is what every fire on earth is doing to-day. Every furnace and volcano is pouring its tribute of water into the air.

We stand on the ocean's shore. The truest, strongest and most daring and dauntless witness of earth testifies before us. If every drop of these mighty waters was born in flame, what was the immeasurable and titanic might of the earth's primal furnace from which these waters came? Now the chemist wants no other proof than the deposition of oceans that the world was once a molten sphere. Then as oceans affirm an

igneous or sun state of worlds, so a sun state or molten condition of worlds, on the other hand, affirms the birth of oceans. The man of sense then looks out upon God's empire of inveterate fires and knows what is going on all over the universe. He knows that oceans are being born and sent to the skies from every flaming star and sun. Then he concludes that this is not all that these world-furnaces are doing, for the spectroscope at his side affirms that, associated with ocean vapors, *mineral and metallic vapors* ride on steeds of flame.

We turn back to earth in its childhood and knowing an ocean rolls around it to-day and knowing, too, that its primal history is fire-impresed upon its bosom, we see it with every drop of these waters soaring as a vapor canopy on high-winged in perpetual flight about a hot and seething globe. We look down the ages and see these vapors have fallen back to mother earth. We see the earth bloom—a scene of activity and life, and the chemist tells us that every leaf and blade that flutters in the breeze, every tree that towers above, every animal that lives, does so because in an age gone by the molten earth gave birth to interchanging and eddying energies. The very mountains rise and look down upon the plain because the earth was once a blazing star.

We take up a glass of ocean water and subject it to a strict and honest analysis. We find in it a trace of gold, but enough of it to show that vast millions of it are locked up in the oceanic waters. How did it get there? Plainly it was associated with the steaming vapors as they arose from the molten earth. In predicating then, that present world-energies and present world-conditions are but the echoes awakened in the fires of the molten earth, one also predicates that the distribution of the gold and other metals and minerals now found on and in the earth crust is a direct resultant of that former state of the earth. In other words, if the earth had never been an igneous sphere, the iron, lead, copper, silver and gold now found in the North-world would not be there. If the earth's primal fires had not been kindled the oceans had not been made; the rivers would not

flow ; plants would not grow ; man, as he is, would not have been, and earth would be a mighty desolation. Without a molten age there could not have been a Cambrian age. The Silurian, Devonian and Carboniferous ages whose aqueous formations incase the world with all their wondrous hoard of wealth, would not—could not have been as we see them to-day.

• Water is a fire-formed compound, and without the fire-born oceans what would our world be like? Air is a fire-made product of the molten earth and what would this planet be without air? Fuel is a fire-made product of the molten age and without it earth would be a dead waste. When we look from the physical to the psychical world it does not take the thinker long to see that our thinking and our thoughts are linked to the energies as caused by an igneous activity in an age gone by. It seems as though the Infinite Psychergy has so interwoven all things in the macro-cosmos with primitive igneous energies that the philosopher is forced to look back into the great world-furnace of archæan times to find the true solution of the great problem of *Earth and Man*.

The problem of the molten earth as thus seen comprehends a great many others. No argument is needed to prove that when the earth's watery vapors went to the skies, all else that a melting earth could send aloft *went with those waters*. We want the reader to see that we do not state this proposition amiss. Some years ago there was enough lead vapor lost in cloudland to pay all the expenses of the great lead plants. To-day each of those furnaces is furnished with an appliance by which the lead vapors are condensed and saved, and the lead thus secured is one of the chief sources in the manufacture of white lead which yields great income to the mine owners.

Now the conclusion drawn from this is inevitable. These puny artificial fires for reducing lead ores were able to vaporize and send a large quantity of lead to the skies. But every pound of that lead was once in the molten earth—in the very midst of a furnace a thousand times more competent to send it aloft. There is then no avoiding the conclusion that lead vapors went

up with the watery vapors formed in the same world furnace. They floated together on high and when those watery vapors came back to the earth the lead came with them.

Other witnesses equally emphatic speak from our mints, in fact from every mint of the earth where gold, silver and copper are reduced for coining. In these mints it is found necessary to use the greatest precaution to avoid the loss of gold vapors. They rise in the flues and pipes, condense and fall as dust on the roof and floors of every department connected with them, and thousands of dollars of gold dust are saved every year by cleaning up the pipes, etc. Gold vapor is even present in the reducing apartments and the very clothing of the workmen about the furnace becomes laden with it and is burnt and made to give up its gold. This too be it understood is all caused by the puny fires of man. If gold is so readily vaporized, how did the world's great hoard of wealth act when the mighty fires of the world's alembic gathered it from the earth's inmost depths? Plainly every atom of it that heat could gather from the earth's bosom was vaporized and carried aloft and made mingle with the watery skies. Gold is so readily volatilized that a sphere which contained it could not be molten and not load the surrounding air with it. It is vaporized in heat that would not melt iron or steel. A gold nugget will vanish as vapor at a temperature of 2100°, but pure iron or steel cannot be fused at such a heat. It will flow at 2900°. Now we know that iron not only is molten in our sun, but that vast oceans of it are there in a vapor state. It is idle then to conclude otherwise than that every sun the eye can see, is hot enough to send its gold to the skies, if it has any of it. But we need not speculate here. Every world certainly has gold if analogy has any force in arguments. But in this discussion we care not whether other worlds have gold or not. We know the molten earth had a vast amount of it and all men know too that it was volatilized and sent to the skies.

The same course of igneous action, without the shadow of a doubt, forced every metal and mineral that the earth's heat could

vaporize, into the flaming skies. Thus the primitive or molten earth was simply enveloped by an atmosphere of mineral and *metallic vapors*. But let us bear in mind that all the primeval waters of the globe were in that hot and flaming atmosphere. There is no guesswork here. This is plainly Nature's plan of world-making. See now the wisdom of the Infinite in all this. How could man get a pound of iron, gold, silver or any other metal if the power that watched the childhood of the earth had not gathered these metals from its bosom by inveterate heat and lifted them into the heavens and held them there till the molten planet grew cold and then received them back again, planting them in and on the outer *crust* where man can secure them.

These metals have returned to the earth ; the primeval waters have also come back. They went to the skies together, for they arose from the same furnace, they floated in the same primeval air, in fact they all together made the atmosphere and what an atmosphere it must have been ! From that atmosphere many thousand miles in depth, the superficial beds were largely deposited, but here we must ask the reader if we have stated anything but demonstrable facts ? Surely we cannot push the molten earth aside in this argument ; for if we did, witnesses would crowd in from every star and condemn us. With a molten earth we have an ocean-maker and a metal extractor and sublimer. With a molten earth we have a primitive atmosphere that was laden with *gold, silver, iron, lead and every other metal* that immeasurable heat could carry aloft from a boiling and raging sphere. That molten earth grew cold. That watery ocean fell. The metal vapors condensed long before the watery vapors did, but *they also fell* and they must be found on the earth's crust and within it.

The reader should bear in mind that this whole process was under the beck of law. Law regulated the rise and fall of vapors then, just as it regulates their rise and fall to-day. Then, however, the vapors arose from the earth's own heat. Now they rise and condense under the influence of solar heat. But heating and cooling processes operated then as now. It

was the age when the condensation and formation of mineral and metallic clouds took place. But in the fall of these primitive vapors we should bear in mind that they have been driven to a great height. It has been calculated that the molten earth had an atmosphere over 200,000 miles in depth. Now this great atmosphere rotated with the earth as a part of it, say once in 24 hours. Some physicists say it must have rotated in half that time. But that is rapidly enough for our purpose.

At that rate of rotation the condensing vapors on the bounds of the primitive atmosphere 200,000 miles deep, were whirled through space at the rate of 50,000 miles per hour. But it is well known that everything that moves around the earth at the rate of more than 17,000 miles an hour *cannot fall to its surface*. If that great atmosphere had been but 100,000 miles deep the outer vapors had moved 25,000 miles an hour as a revolving mass and could not fall. This was the condition of things for unknown ages. All that time the rotating mass exerted a tremendous force at the equator, but no force whatever at the poles. Anyone can see that all the vapors on the bounds of the atmosphere, in fact all the matter in the primitive atmosphere, during the igneous era, above a certain height, went toward the equator, for the simple reason that the greatest impelling energy operated to carry it thither.

We certainly have not made our claims too strong,. As a great revolving mass, hot and seething to its inmost depths, forever driving metallic and aqueous vapors as far as it could into space, there is no avoiding the conclusion that such vapors were carried originally *from the poles to the equatorial skies*.

The process of world-making then thus far is very simple. A molten earth, a great mineral, metallic and aqueous atmosphere involving it. Finally, those atmospheric materials were carried out still farther and into the equatorial regions. There they condense and from utter necessity form into rings. But while this is going on, the earth is gradually cooling and in course of time heat ceases to repel terrestrial matter, and then comes the turning point in the world processes. Vapors that

were held aloft simply by heat in the lower atmosphere, began to lose their support there and return to the earth's surface. Law, however, still held sway. As these lower vapors, now condensing, fell, where did they fall? So long as the earth rotates, it lifts as it were, all falling matter that floats near the equator and in a certain measure prevents its fall there, but does not so prevent it from falling at the poles. So that during that long period of time when the earth was cooling and permitting the lower vapors to descend, they must have floated slowly and constantly to the North and South poles, and there they must have fallen.

Following thus a line of philosophic sequences from the first, we are forced to admit that during the ages of igneous activity, vapors were lifted and forced toward the equator, but that during the decadence of igneous action and gradual cooling, all returning matter moved toward the poles to fall. How can we escape this conclusion?

But here we must note other regulating conditions. The primitive atmosphere was very heavy. Laden with a vast amount of minerals and metals of the earth's crust as admitted by eminent men, that the atmosphere was capable of supporting mineral and metallic clouds at a vastly greater height than the atmosphere of to-day is capable of supporting aqueous clouds. It has been calculated that the barometric column of mercury equivalent to the primeval atmosphere was about 22,000 inches high or more than a third of a mile. Instead of an atmosphere pressing on the earth 15 pounds to the square inch it was an atmosphere that pressed more than 10,000 pounds to the square inch. So say the physicists, but to be on the safe side we will reduce it to one-hundredth of this and yet we have an atmosphere dense enough to float clouds of gold dust higher than the loftiest clouds of to-day.

Then too we must note that the watery vapor was the universal vehicle that aided to support the metallic dust of the primitive atmosphere. Watery vapors formed around each golden grain as a nucleus just as it forms about a grain of dust to-

day. So that we may look back to a time when the vast ocean floated as clouds of aqueous vapors in which the gold of a world was locked, and we must follow those vapors back to the earth from which they came.

But let us remember that the great mass of these vapors long before the decline began had been driven into the equatorial skies. Let us remember that as these uppermost vapors rotated with a velocity of more than 17,000 miles an hour they could not fall even after the earth cooled, while the lowermost vapors rotating less than 17,000 miles an hour could and did fall. And as we have seen, such vapors as did condense and fall, fell more largely in those regions where there was less centrifugal force exerted and fell least where the centrifugal force was greatest. It is plain that from the premise of a molten earth all vaporized matter, aqueous, mineral and metallic, that fell back to the earth immediately, as it cooled, fell from the equator toward the poles, and all of it that has not been carried, since it fell, toward the equator, lies still in those mighty storehouses of the earth, North and South. Gold, silver, copper, lead, zinc, nickel and every other metal that existed in the lower primeval atmosphere lie there in their mother lodes, and from these lodes the rest of the earth has been supplied, and other gold regions formed.

Following strictly in a line of philosophic argument it must be seen that for a vast period of time after the earth became cold and rigid, and the lower vapors had descended, a vast ocean of aqueous, mineral and metallic exhalation remained on high and continued to revolve around the earth, and in the equatorial skies. As these outer vapors condensed and continued to revolve independently around the earth they occupied less and less space and hence ringed formations began. The outer rim of vapors could not unite with the inner vapors in mass, for the reason that the former moved much more rapidly than the latter. The rim of this wheel moved faster than the hub and the two parts must have separated as the mass condensed and contracted. Thus we must have at least two rings, an inner

and an outer one. But a further examination shows that as the mass contracted many rings were formed. That universal element, water, was one of the many that composed those rings. As a universal solvent it contained gold, and contained it most abundantly in the superheated state; in that superheated state it rolled for ages in the skies, and as a vehicle it bore its load of gold back to the earth.

It is not necessary for us to enter into the consideration of how these rings broke loose from their ancient moorings and fell. We know they have fallen, and we know, too, that the earth contains what they contained. If they contained gold, the earth's crust has it now. If they contained aqueous vapor, the ocean has it now. But what we think is necessary to consider is the positive proof that primitive and prehistoric man saw at least two vapor canopies or vapor heavens and worshipped them as gods. And also the fact that as a ring declines it must become a canopy as it falls from the equator to the poles. Such canopies as now hide the true surfaces of Saturn and Jupiter will be our witnesses in making this fact clear. For has not Jupiter been seen to drop a part of his canopy at one of his poles. Witnesses of this kind force us to the conclusion, that as we have the most abundant legendary evidence of an overwhelming deluge, and of the opening and falling of heavens, and as all such heavens must have been canopies or vapor heavens, we are forced to admit that man has seen some of the last remnants of the annular or ring system of the earth.

Before concluding this first paper, let us look a little into this legendary testimony, for it is plain that man saw the remnants of these primal vapors, then annular matter and canopy vapors continued to fall all through geological ages and closed the great drama of world making in very recent times.

The most ancient account which comes down from Latin sources distinctly affirms that their oldest god was *Coelum* or Heaven, and that this deity after ruling for a long time was dethroned and banished. Now all legends must flow from some basic truths and the inference drawn from this, is that the

ancient Latins worshipped the heavens as a deity and as that heaven passed away, it was a vapor heaven, in fact a canopy of vapors, and if so, it must have come from the earth's annular system, as primitive vapors on their way to the poles.

The old Pelasgian Greeks have sent down to our time a legend almost identical with that of the Latins. It tells us that the primeval deity was *Ouranos* (Heaven) and that after he held the celestial throne for a long time he was driven from his throne by Kronos, the god of time. In other words, we are told that the original heaven was an *ephemeral* one, and therefore a vapor canopy on its way to the poles.

The ancient Hindu worshipped the god *Varuna*. Now, Sanscrit scholars tell us that *Varuna* and the Greek *Ouranos* came from one and the same root, which signifies a *water heaven*, the root *VAR* meaning water. Now, this Hindu deity also passed away and gave his throne over to such deities as *Kala* (time), *Agni* (solar-fire), and other celestial characters. In other words, *Varuna* was an *ephemeral* heaven—a vapor canopy, and the earth's ring system comes plainly into view.

The ancient Egyptians worshipped a god called *Canopus*. He was a water-god and the water-jar was his hieroglyph. The name is plainly the original for our word canopy, and this deity was vanquished in a *contest between solar fire and water spirits*, and it is impossible not to see canopy progression here, —the banishment of *ephemeral* or *water heavens*.

The old Chinese legends present similar thought, but here we find the most overwhelming testimony yet. Their legends state that in the most ancient times the heavens were *very close to the earth*, and that in a great contest between the solar fires and the water spirits “*the old heaven passed away*,” and moreover as this old heaven passed utterly away it is said a *new sun came into power*.

The Scandinavians have a legend of a conflict of a *sealed heaven* which once upon a time opened and let in the solar legions which upon marching over heaven's bridge, broke it down. The ancient Parsees speak of “*Heaven's Floating*

Bridge" and their Sun *Mithras* was a *concealed god*. The Egyptians also worshipped Amen, a name for heaven, but the meaning of the word is "hidden" and we plainly have the concealed canopy or the hidden heavens. They also worshipped Amen Ra, the "concealed sun."

These ancient memorials present to us the most overwhelming testimony that infant man saw and worshipped a vapor canopy which passed away and permitted a hidden sky and a hidden sun to come into view. The legends that are here given are but a drop in the ocean of evidence that will appear in future pages of this Journal. Before the writer is a pile of MSS. over three hundred pages which is labelled "*The Origin of Man.*" While another pile of MSS. of two hundred pages is labelled "*Mythology Unveiled.*" The latter presents the world's evidence that infant man saw this world overcanopied by a vapor heaven on its march to the poles. We do not then have to rely on astronomic and geologic evidence that the earth once had an Annular System. Man saw its last remnants. He worshipped that canopy as a god, as a god it was banished and a new sun and sky came into view as it passed away.

(*Continued.*)

The Journal of Psychosophy is the only publication advocating the Psychic Origin of All Things; Seen or Unseen. Every student and thinker should study the startling propositions that will appear from time to time upon its pages. It will present sound truths, though in so doing old theories will be shaken and old foundations uplifted.

Is the Present Civilization Due to Emotion, or a Microbe ?BY RICHARD S. J. DENIORD.

It is certainly true, no matter how strange it may appear, that every age sets up its own peculiar scarecrow. We seem to have set up two : "Microbe" and "Emotion." Though the word "hell" is well-nigh banished from ethical literature we have now, instead of the preacher, the doctor who assures us that our unchecked emotions are a frightful source of mental and nervous disorders ; while others again give us a spasm by informing us that the best we can do is to eke out a precarious existence in the midst of myriads of microscopic monsters. Thus it seems that the "devil" appears in a modern avatar as a *Microbe*. But an overworked theory, like a worm, will turn. And when those, who are not content with scaring the majority of people well nigh to death by the revelations of the microscope, turn to our interiors and tell us that in our very moral nature—which until now we had supposed to be separated from the physical by a great gulf—lurks an insidious cause of actual disease, I feel like telling them to "Go to, and take your bacteria with you." For what are we to do should an illogical public get the idea that neither Adam's sin nor irresponsible molecular motion, but micrococci and bacilli, are the cause of human faults and frailties? Are we soon to see experts in our courts discoursing learnedly of a kleptococcus, or an incompatibility bacillus? From "emotion causes disease" to "emotion is disease" is an easy, almost inevitable step ; therefore, let us pause and consider.

Does emotion cause mental and nervous disease? We all have indulged emotions of one kind or another, in the course of our lives, possibly to a degree sufficient to have given "evidence of an ill-balanced mind" if anybody was looking. Our ancestors, having no idea of the dreadful consequences in the way of neurotic constitutions they were entailing on posterity, fought and loved and laughed and hated according to nature and their own weak wills—and thought they were advancing

civilization! This is enough to shake one's faith in ancestors and even civilization itself. What can be done about it? How are we to escape the frightful consequences of this huge mistake? Let us hope that it is not too late to begin a crusade against emotion. Let us see what has been done in the past. We find that among the various intellectual legacies that have been handed down to the present day, we have received the Stoic ideal of subjugation of the emotional nature, from the Greeks. Men have made little effort to realize this ideal, because, while they saw that some of the emotions were harmful, they did not know that all were intrinsically so, and they have therefore felt that Stoicism was a mistake. Perhaps since we are informed that the danger is in emotion as such, and that—pathologically considered—a strong religious fervor must be as bad as party hatred, sympathy as discontent, love as jealousy, we may make more progress toward the cure of our mental disorders? Professor Baldwin has pointed out that the emotions are fundamentally a unit, lending one another their power over the moral nature. Then, if we want to make ourselves really safe against the encroachments of disease we must eradicate all our emotions without discrimination. The person who discriminates is lost. When this is done we can smile again, knowing that though the ordinary evolved vertebrate, with his healthy human excitements, is an advance on the jelly-fish, his struggle for existence is not to be compared with that of the cool, calculating octopus whose body and soul are never thrilled by emotional fervors.

But emotion plays so prominent a part in this life that existence without it would be "Hamlet" with *Hamlet* left out. Most of the phenomena of civilized life are reducible to emotion; indeed, certain emotions have been indispensable in human development. As we advance we may learn to substitute some set of rational impulses for the useful moral ones of religion, love, and sympathy; if we dispense with emotion on account of its disease-breeding quality; we *must*, of course. And need we regret it? When we say that love, religion, and sympathy

have been indispensable factors in civilization, we are not saying that if those emotions had been altogether wanting in human breasts there would have been no civilization. There would have been a better one for anything we know to the contrary. But we *have* a civilization, and we *have* emotions ; and, as we always have had the latter, there is no doubt that the former, such as it is, has been formed along emotional lines.

This civilization might have been better, but after all, it is not so unsatisfactory that we want to part with it altogether. At least we think enough of it to make the necessity of keeping it up a stock argument for perpetuating the type of religion upon which it is based. Moreover, it is not all the product of chance ; it is partly the child of volition. If evolution is civilization's father, volition is its mother, and it was not born without throes of emotion. Of course, mankind did not say to itself in the beginning: "Go to ! I will become civilized!" but started out on its long journey, with no idea of its goal, in pursuit of temporary and immediate gratification ; but as time went on the goal came into view, and then a higher emotion—the desire to be civilized—took the place of the lower, and chance yielded the direction of the flight to will.

All through history, in both its stages, we view with dismay the action of desire ; and we feel that to place humanity's dearest interests in the hands of emotion, which likely enough would "cause disease" and so swamp the whole business of evolving civilization, was a very risky thing to do. It was well for us that *reason* got its start at or about the same time, and that those irresponsible emotions of ours did not have things all their own way. Some slight headway has been made, during the course of civilization, toward subjecting to the faculty of reason ; yet even now we are told that they cause hysteria and hypochondriasis, and enfeeble the intellect when they get the upper hand of a person. But what would have been the result if they had gained the mastery of the race in those old days when nothing seems to have been known concerning them, and before things were well started on the course they have event-

ually pursued? This might so easily have happened ; if the emotions had been a little stronger or the reason a little weaker. When we are told all this we cannot help but marvel that we are not a race of neurotics or madmen, or both.

A writer in a medical journal recently opened up what is called by a reviewer an interesting field of thought by warning his readers against their emotional nature as a dangerous and unsuspected nursery of physical ills. Be that as it may, here we are, bearing the civilization we have achieved, with even stronger emotions, and the wonder is that natural selection has not eliminated them long ago—if they are really bad and deleterious. Somehow it seems to have been reserved for us to eliminate them ourselves—in obedience to the warnings of the medical writer aforesaid. Just as well for us again—for if natural selection had taken the matter in hand *we* should have been eliminated along with our emotions, as that is the way natural selection works, to make room for a race born without them ! Probably there was no such race to take our place, and so we were left to jog along under those grievous impediments without ever finding out that they existed until now. Shall we ever know how much they have hindered us? And is it our blind folly which caused us to think that they have *helped*? Much as we may strive to control them, when we *do* yield to them we somehow feel ourselves to be nobler creatures ; we live more in a minute under the sweep of strong emotion than in weeks of jog-trot, self-complacent serenity. It gives us thrills of insight and flights of power and draughts of blessedness we can experience in no other way.

There are circumstances in which the exhibition of violent feeling by large bodies of men, where individuals do not check but excite each other, makes for advancement of the race. If people are taught to subordinate emotion to reason in ordinary times, they are taught all the more to subordinate ordinary motives—reaching all the way from instinct to reason—to emotion in crises. Emotional crises have originated reforms and religions, have demolished tyrannies, and established

republics and benevolences. They, like the fever which leaves the body in a more wholesome condition, are no doubt an awful waste of protoplasm, but the quickest, perhaps the only, means of reaching the good that results.

A few persons during the world's history, have dared to ask plainly whether what we call civilization is a good thing. The doubt is raised now and then whether mankind would not be happier and better without so much progress; but in the onward rush of conquest for commerce and the arts the doubter has been silenced, or voted mad. It is generally agreed that this world is on the right tack, and that the impulse to become civilized to still higher planes is a healthy one. But, if emotion "causes hysteria, neurosis, and insanity," since the whole race has indulged its emotions so long and so extensively there must be an unsuspected strain of mental disease in us; and, if we are not mentally healthy, ought we to be sure that we are right in our views about civilization, progress, etc.? Human progress is largely an outcome of the play of emotions; and, if some of the results of emotion are diseases of the brain, may not civilization itself be a disease? What if, in that remote period already referred to, the emotions *did* run away with the race? What if they *did* have things their own way, and we are a race of neurotics, or worse, without knowing it?

We ought to be able to escape our usual *a posteriori* point of view, in which this seems the best of all possible worlds, and to conceive for a moment that such was in fact the origin of the evolutionary process that has brought about our present ideals of morality and progress. The emotions, as we know from experience, are both unruly and tricky—capable of leading whole nations astray and making fools of them. It is possible that we have been victimized by them all along on a colossal scale. If civilization be a morbid growth, the rampant condition of our emotions after all these centuries of intellectual development can be explained—they have survived in the struggle for existence because they were part of the outfit calculated to bring about the present morbid state of things.

Disease, then, must be the normal condition! Evolution, instead of eliminating disease, has fostered it! And the world is a hospital and lunatic asylum combined, where disease, instead of being cured, is perpetuated!

What a gruesome idea, you say? Yet how glad we ought to be that it was suggested before it became forever too late to do anything! The writer will be surprised if we do not shortly hear of some bacteriologist turning from the unavailing pursuit of the consumptive bacillus to that of the civilization coccus. An aristococcus has not yet been identified; but it may be assumed that one exists without danger of gross error, since we are informed that some kind of a coccus is found to be at the bottom of a great many varieties of mischief. Somebody will presently catch the little beast and cultivate him, and then we shall know. The same difficulties may be met in trying to nurture him as in the case of the gonococcus, with which I understand it is impossible to inoculate the lower animals; but subjects may be induced to offer themselves for civilization in the persons of faddists, jingoes, and dudes, whereupon the difficulty will be overcome. There will be no more danger connected with the experiment—than those experienced daily at Vienna for instance—for civilization, though incurable, is not necessarily fatal.

We used to shake in our shoes at the very name *Bacillus*, but we are learning nowadays to scoff at it a little. We know, at least, that not all bacteria are disease-breeding. This world is filled with bacteria, and, if they were all fatal, we would certainly need more lives than a cat in order to survive even to that age when the civilization bacillus or coccus began to affect us.

The aristococcus appears to be thriving in the human race, and at the same time to be in strange accord with our environment; for the civilization malady does not tend to run itself out, as a fatal one would, by killing off all its victims. The question is, "Is our environment what it ought to be? Is it all wrong?" Unfortunately, if the cut and dried beliefs that are handed down to us are to rule, we cannot find an answer to this

question until an aristococcus is actually discovered, and civilization thus demonstrated to be a disease—then our whole attitude toward history must change. Until then, we have a perfect right to say : “ No coccus, no disease ! ”

Meanwhile we need to bear in mind one or two very comforting facts—that the thing that has been is that which shall be, and there is no new thing under the sun ; that if there is no Providence there never was one, and similarly, if there are bacteria here always have been. Even that *fin-de-siecle* microbe, aristococcus, if there is one, has always existed, and it is still an open question whether anybody is the worse for it. Is emotion dangerous ? We are at all events in no more peril than Alexander the Great and his contemporaries, who loved and laughed and sympathized and aspired in practical immunity from the assaults of pathogenic bacteria and of the medical genius who warns against emotionalism. Let us go and do likewise.



The Dawn.

O the freshness of the morning,
 When the day has just begun,
 When the dawn is on the hill-tops,
 And the valleys one by one
 Laugh away their twilight shadows
 At the shining of the sun.

When the dew is on the meadows,
 And the mist is on the streams,
 And the music of the woodland
 As a mighty chorus seems,
 While far off the wood-lark warbles,
 Like a sweet voice heard in dreams.

There is hope and inspiration
 In the message of the breeze ;
And the murmurous breath of spring-time,
 Stirring in the leafless trees,
Steals away the cares of winter,
 And the burdened spirit frees.

Brighter yet is childhood's morning,
 When the world seems all in flower ;
Life itself a dainty rose-bud,
 Growing fairer hour by hour,
Hiding in its heart of sweetness
 Gems of future strength and power.

When existence is a gladness,
 Of all fears and cares beguiled,
All the notes of being, making
 Music fresh and undefiled,
Nature giving lavish treasures
 To enrich a little child

Time sweeps onward, but the memory
 Of those early hours will stay,
Through all chance and change awakened
 In the dim, untravelled way,
Till, beyond these nights and mornings,
 Dawns Psychition's perfect day.



Force, Law, and Design.

Force, Law, and Design are words which in these days are often in the mouths of men. Sharp discussions, confident assertions, and grave conclusions turn upon the meaning and application in which they are used. By some, force and purpose are held as natural enemies each bent on the destruction of the other. If law attempts to intervene she runs the risk of being torn in pieces between the two. The questions concerning these terms are not new to us. In the schools of science, they are as old as Socrates. Does blind force or intelligent purpose rule the universe? Are the laws of the universe self-poised and self-balancing tendencies that hold one another in accidental equipoise; or are they simply the media by which the forces originated by the Creator's power manifest his thoughts, so that man may understand and obey them? In modern physics force and law are great words, deservedly great as all candid men confess; so great and self-sufficing, in the opinion of some, as to hold no definite relation to purpose. Some hold that they indicate no design; others teach that they exclude all thought in nature, and all belief in an invisible designer; while others believe that they are the more radiant with thought just in proportion as they reveal new facts to the penetrating eye of science.

In these conflicts and uncertainties of opinion it may not be amiss to look these terms in the face, in order to gain a definite notion of their import and effect upon our views of nature, of man, and of God. These questions suggest themselves: 1. What conceptions of force, law, and purpose are held by the man of average intelligence without scientific culture? 2. How far the discoveries of modern science modify their opinions? 3. What difference in our views of nature, man, and God are caused by the rejection or recognition of design in science? We begin with the views that are accepted by the unscientific man. Every human being believes that he can do something that by action he can produce some change in the material

world. He can strike a tree with a stick, or stamp the earth with his feet, or beat the air with his vocal organs. He can break a rock in pieces or grind it to powder, he can produce heat and flame by rubbing two sticks together. The capacity to effect a change is known as force. We need not ask whether he has a name for the power which he knows he possesses. That he knows he possesses force is obvious from the fact that he puts it into exercise on any—even the slightest—occasion, that he increases it by exercise, that he defies his antagonist to measure strength with himself, and that he even prides himself on the simple possession of it without putting it to the proof. We do not ask whether he originally refers power to himself as a spirit or only to his body, or to both as undistinguished in his conscious self-inspection; it is enough that he knows what power is by the consciousness of using it. He also distinguishes several forms of power, as to run, to hear, to see, to push, to pull, to kindle a fire, etc., to all of which several capacities he would give but a single name had he the power to gather them under a single generalization.

But he does not limit the possession of force to himself. He believes that other men and animals possess similar capacities. He does not know this directly of them as he does of himself; but he knows it by effects which both achieve. How he knows this is not our business here to explain; it is enough that he does know it and as positively as that he possesses these powers himself. That he believes this of man and animal no man doubts, nor that he believes this with a positiveness that is stronger than demonstration can impart. We do not undertake to explain the process nor to give the reason for this assurance but merely to state the fact that it is beyond dispute.

Man also finds force in nature. He sees effects achieved which he himself nor any nor all of his fellows nor all of the animals can produce howmuchsoever either may desire to produce or to avert them. The wind resists his progress, takes away his hat, howls around his cabin or scatters it in wrath. The great natural agents, water and fire, the earth and the air,

are now his smiling friends scattering blessings beyond his hopes, or his wrathful foes surpassing his extremest terrors. We do not ask whether he personifies the force or forces of nature, making each separate part of the whole to be alive nor if he does, by what process he dispels his illusion; we only affirm that he finds force in nature, even after he has ceased to believe every stream and rock and tree to be alive. At what point in his history he reaches this position, or how definitely he holds it we need not ask; we only assert that at some time he gains and holds intelligent belief that force or the forces of nature do not directly proceed from a living animal but belong to insentient matter.

He also begins very soon to learn that these forces produce their effects under uniform conditions. Friction however long-continued does not set a stick on fire unless the wood is dry. The wind does not propel a boat unless the sail is firmly held at an angle which varies with its force and direction, and unless the boat is headed in a certain direction. The missile does not strike the mark unless its aim is changed in accordance with the force of the wind and the distance of the mark. The untrained child, full of untried and untaught strength, goes forth to subdue the universe, and expects that it will bend and yield to his will; but he finds the universe ready to give blow for blow. The harder the child pushes the more stiffly does the universe push back. By this, he learns that he cannot effect all that he desires; that there is force in other beings like himself; that nature is strong as well as himself; and, that in order to accomplish anything he must use his own force in certain relations to the forces with which he contends; in other words, that he must stoop if he would conquer, and must study the conditions under which alone nature will grant him any favors.

The infant is not long in learning that nature acts according to laws. He does not cry after the moon a very long while. He does not beat his fists in anger against the door that stands in his way more than a few times. He learns how it can be opened. He looks into the face of this universe that confronts him

with its battery of forces, and as fast as he finds out the conditions and ways after which each will act, he acts accordingly. The savage does the same; he subdues the earth, the air, and the sea, just as he entraps the beast, and tames the dog, and breaks the horse, and subjects the elephant, by learning how each will act, and acting accordingly, either with or against the force to be overcome. Just as soon and just as far as man believes that any force in nature is uniform in its action, just so soon and just so far does he understand that force produces effects under varying conditions.

Last of all, the common man believes there is purpose in nature. The forces which he finds in himself are capacities to produce effects. These effects are objects of desire or dread. As he would gain or avoid them he regulates his own action by what he knows of the changing laws which he has learned are the conditions of success. Just as often as he acts thus intelligently he acts for a purpose; and as far as he is rational he is controlled by some design. Force, controlled by law, always supposes some end. When it is thus employed, and the design is worthy, the cycle of all the relations by which man knows and acts is complete, and his whole being is filled with light and joy. If this is true of himself it must be true of the universe of truth and law without himself; he cannot doubt that the living beings who are like himself must be impelled by design as far as they are rational.

But how is it with the universe that is not living the universe of earth and sky, of forest and sea, of mountain and abyss, of sunshine and storm, of lightning and earthquake, of the jocund dawn and the pensive evening, of fruitful showers and starving drouth, of healthful breezes and the blasts of death? How does the universe open to the primitive or unscientific man as soon as he ceases to believe it to be a living monster, or half-living and half-dead; as soon, in short, as he regards it as an aggregate of insensate forces-- especially if he finds law in it which regulates the operations of these forces, and holds them to orderly and certain results. We do not enquire

whether he asks was it created by another or does it exist of itself; we do not care whether he believes there were one, or ten, or ten thousand spirits engaged in the making of it, or whether it was not made at all. We ask simply whether he believes that purpose or design controls in the action of its forces so far as they are seen to be regulated in uniform methods to uniform results. No sooner does he ask the question, is there thought and intention here, than he replies at once, of course there is. He is a fool who knowing that so far as he himself is rational he controls forces by their laws, does not also believe that the steady, and regulated, and controlled actions of nature manifest intention and design. Whether this is, or is not the way in which unscientific men should conclude there can be no question that they do interpret nature after this fashion, and cannot be easily persuaded to the contrary. We may not be able to explain how men in common life reach this conviction, yet we cannot doubt that they do. We may not be able to trace the workings of the mind of an infant that finds in the face of its mother the thoughts and feelings that flit across her features, that beam from her eyes and leap from her lips. We may not understand how the first slender thread is swung from mind to mind and heart to heart when man meets his fellow, nor how these many threads are united into strand after strand, till almost sooner than we can tell it, a strong cable binds the two, and then another, and soon a sure and steady bridge is fixed along which thoughts come and go, almost without the intervention of words. In like manner we may not be able to untwist the subtle logic, if logic it be, by which the material world is known by the spirit to exist, with its relations to space, and yet to be diverse from the spirit, and to be endued with powers whose energy it measures and whose designs it divines; but the fact cannot be shaken that the man of common sense holds these beliefs in respect to the fellow man with whom he has had to do, and in respect to the nature whom he seeks to interpret in order that he may control and obey her. Deny to man the capacity for interpreting the thoughts of his fellow men and you make him a hermit and an

imbecile. Society, with its language and arts, with its civilization and amenities becomes impossible. In like manner if you deny to him the power to find law and purpose in nature his power to understand nature and to use nature is at once shut off.

But enough of the man of common sense and common life ; no one can doubt that he believes in force, and law, and purpose, in the senses explained ; all his language speaks it, all his actions manifest it, all his movements are controlled by this three-fold faith.

We pass to our second inquiry ; we ask how far the discoveries and lessons of science modify this natural faith ? And first, in respect to force, does science teach us any less or very much more than we already know. Does the scientist abandon or outgrow or overgrow the views of force in nature which the common man accepts as that something by which agents produce changes and effects, and to which these changes are ascribed as their cause and explanation ? We say in reply : First, science multiplies the forces of nature. We mean what are taken to be separate forces, and have been previously unknown. Gravitation is discovered by Newton as a force never before recognized, whether far or near. Electricity is established by Franklin ; galvanism is revealed by its great discoverer. New chemical agents are brought out from their hiding places, and for the first time shew their hitherto unsuspected capacities, that anon cause their discoverer to dance with delight over the new agent which for the first time plays some magic trick, or prostrates him upon the earth by an unlooked for explosion. The number of separate chemical elements, each with its peculiar effects, is set down for the time being as about seventy. There are mechanical forces of masses and molecules, modified in gases and liquids ; the chemical agencies already spoken of ; the crystalline forces ; the vital forces as conceived in plants and animals, which involve origination from something living, nourishment from prepared material, growth after a plan, irritability, and in animals sentiency and

intelligence which are complemented in man by the cognitive, sensitive and volitional forces which comprise the moral attributes of the human soul. Thus does science proceed, recognizing differences before unnoticed in the various effects in matter and mind, and ascribing to each of these effects its producing cause, till it has marshalled about itself and learned to recognize the several forces, which we have rather roughly enumerated.

The second, and next effort of science is to unite these forces by finding likenesses in their modes of action, or by transforming them into one another. Science very early recognized as a test of the sameness of a force, that it should produce its effects under common conditions, or so-called laws. Thus, Newton would not for years accept his own theory of gravitation until he had proved that this so-called force in the distant planets acted with a varying energy, just as a supposed similar agency was known to act upon bodies near the earth. It was an immense step in chemical discovery to be assured that chemical agents enter into composition in definite proportions. Another important advance was made when it was discovered that the chemical elements, however closely united, could be separated by the galvanic agency. This warranted a conclusion that the forces that held them together was a special method of the action of this lately discovered force. It was not long before the force called galvanic was seen to manifest the phenomena of electricity proper, then those of mechanical force, and that these were found to be interchangeable. Nor was it very long before all these so-called forces were accepted as modes of motion now breaking out into velocity and momentum, and then disguising themselves in the unceasing but unseen play and counterplay of molecular vibrations. This was the beginning of the new doctrine of the correlation or transformation of force, according to which the forces in question were held to be only different names for different manifestations of the same agency, and that as molecules in motion each could be made to appear as the other, backwards and forwards, and the

quantum and intensity of either could be measured by the mechanical work which each could do. This discovery is now very generally accepted. Up to this time scientific men had been inclined to find many forces in nature, grouping them together in classes by a common relationship. Henceforth the protean agent that appeared and reappeared in these several so-called forces is regarded as single and supreme, whose nature is declared but whose presence is marked by relations of motion in space. Every one of these groups of phenomena was henceforth explained as a mode of motion. We do not criticise the logic by which this significant conclusion was reached; we merely state the fact.

The transformation of mechanical force prepared the way for the doctrine of the possible transformation of the species of plants and animals. Hitherto, it had been held that some hidden agency dwelt in every individual living being, whether plant or animal, which kept it true to its kind, with some room for variation indeed, but with a prevailing tendency to return to the original type. Science began to conjecture, and learned soon to declare that there are no fixed species, and no force to hold the progeny to their kind; that the law of living beings is the law of change and progress from the simpler to the complex; and that all the present species now living are the products of agencies that for uncounted generations have been developing higher and nobler forms of life from the lower and less perfect. Some were so bold as to assert that the lowest forms of life had been originated from inorganic substance. Two difficulties stood in the way of the acceptance of this extreme doctrine. The first was that no experiment could be brought to prove it decisively and satisfactorily. And yet both Huxley and Tyndall were strongly inclined to anticipate that it will be established. Huxley says "that the scientist is no reasoner who does not accept it as a theory." Tyndall says: "it is a magnificent generalization, too splendid not to captivate the scientific imagination." They have both said that every experiment which professes to have developed living out of dead matter has been a

palpable failure. The second difficulty is, that no laws worthy of the demands of science have been discovered for the forces that conspire in the development of living from non-living, or from lower to higher forms, much less in a great transition which the theory assumes. As applied to living species, however, development had been accepted by very many naturalists on the ground of what are called decisive analogies derived from the observations of plants and animals that are now dead. The force or forces, however, that have acted in this wonderful story of progress have a low scientific value whether estimated by a mathematical standard, or any scientific formula. The first of these forces is a tendency to vary, such as every man has been aware of who has raised a seedling from a grape or apple, or every boy who has bred from a pair of pigeons ; but this tendency cannot be definitely formulated. The second is the reaction from environment to confirm a variation that is gained, whether air, or soil, or food, in hostile or favoring conjunction, but which is equally indeterminable, and in its very nature incapable of being formulated. The forces and laws are only indefinite generalizations founded on vague or imagined analogies between a working of every kind of force with every other, and their relations to heat, light, and kindred agents, or their supposed dependence on particles of matter in varying forms and movements. Inasmuch as these agents are supposed to depend on different modes of motion or on different molecular textures, it is inferred that every agency concerned in the development of the living from the living, and the living from the dead, must depend upon some change in the arrangement or motion of molecules. Hence it is concluded that all the wonderful functions and processes of living beings, including their capacity for development are brought about by mechanical changes in the matter of which they consist. By logic of this sort all the forces which we call vital, in all their varieties of form and function, of nutriment and growth, of alleged development and future progress, are reduced by a single generalization to some supposed mode of motion or some adjustment of material particles.

Having established evolution in the production of everything living, it is not difficult to affirm it of the formation and masses, the structure and the motions, of the cosmical bodies. A beginning is of necessity assumed of particles of star-dust in a certain condition of motion and with a certain environment. This being given, everything else follows—the massing of the earth in all its phases, its revolutions, the formation of clouds, the generation of light and heat, the consolidation of the molten rocks, the melting, cooling and transformation of the same, the separation of land and water, the generation of plants and animals, etc.—in the way already described. Man himself, and all that pertains to him, his brain and his mind, his heart and his will, his character, his civilization, his history, his institutions, his morals and his manners, his aims and his destiny, are all the products of certain particles that originally found themselves in motion from a rarer to a denser medium.

These extreme views are far from being accepted by the majority of scientific men. Very many of the most eminent reject them as romantic dreams. They are the extremest doctrines which could possibly be reached by science in its search after unity—in its efforts to resolve into a single force the many science seemed at first to discover. It falls not within our purpose to examine the truth of these views in this article; so we have simply to ask what new light, so far as they are true, do they cast upon the scientific conception of force? In other words, what change is made by science in the views of force which are held by the man of common sense? As far as we see, it simply confirms the view but makes no change. Conceding that all phenomena are to be referred to change in the particles of matter, and that these changes have succeeded one another in a progressive order from the simple to the complex, then all the forces of the universe are resolved into the capacity of these atoms to move in certain directions and at certain rates. We need not say that the capacity of matter for motion is the first form in which force is known to the child, and continues to be known to men. As far as science explains phenomena by this

single force it employs a conception which is thoroughly familiar to the common man. Men of science are ready to confess that they cannot define force, and are nearly all agreed that after searching the universe to master its secret, by sense, imagination, and reasoning, they are forced to come back to the simple conception with which they set off when they crossed the threshold of science.

Leaving force we proceed to law. We have seen that the child and the savage have a correct notion of law, as far as they have occasion to apply it. They believe that effects may be produced by combining the agencies of nature after a certain fashion. The boy flies a kite and sails a boat by uniting two forces; the man applies a lever by a similar process. As we learn new forces we invent new methods of combining them in order to reach definite effects. When unusual effects or phenomena occur we endeavor to explain them by supposing a combining of forces which we have never observed. By and by we learn to measure by number the energy of the forces which we employ, and then the directions in which they are applied, and the sphere to which they extend; in other words, we begin to express the laws of force in mathematical relations. Herein lies the secret of the progress of modern science, that it estimates and defines the conditions of phenomena in terms of number and magnitude. To this, astronomy owes all its precision and nearly all its discoveries. Mechanics and gunnery, hydrostatics and engineering, chemistry and molecular physics all depend on the magic of algebra and geometry. Their abstract relations make the conditions absolutely definite and precise. The application of mathematical tests has established whatever truth there is in the doctrine of the correlation of forces and given plausibility to the hypothesis that all the qualities of matter, whether chemical or vital, whether organic or inorganic, are owing to the different rates and directions in which the ultimate atoms move. Let one example suffice. The ultimate molecule of Oxygen has its well-known sensible properties, and its different capabilities, when united with the other elements or bases with which it is

known to unite in different proportions. Let it only be admitted for a moment that all these various capacities of combustion, detonation, acidification, corrosion, etc., are owing to the ultimate atoms of which the ultimate molecule is composed, to the rapidity or the tension or the vibration of each, or it may be to the gyrations or revolutions ; let it also be supposed that all these are capable of being expressed in mathematical symbols, and you have an example of what many believe to be the ultimate explanation of all the cosmical phenomena. That this is the farthest possible from being proved as yet of the forces that are assumed by the evolutionist even of the most modern school, has already been explained. So much for the conception of law, which is rightly conceived as the distinctive characteristic of modern science. Law is not a force, but it supposes a force already existing. It expresses a regular mode in which a force acts in producing an effect, either alone or with other forces. Inasmuch as no effect in nature is produced by a single force acting alone, but is always the result of the joint action of several, the known action of one force is often spoken of as conditioning the other. In this way it happens that a law of nature is often conceived of as though it were a force in nature, because forsooth the presence of a second force, or the particular manner or direction of the action of the first is a condition of a definite result. These conditions are believed to be fixed. It is only as fixed that they are called laws, only as unchanging that they are said to regulate the processes of nature and the actions of men with respect to them. All science assumes that these laws are unchangeable and trustworthy. For all these reasons, it is not surprising that by many the laws of nature have been conceived as separate and independent agents, not laws given or imposed on force, but lawgivers and lawmakers of themselves, independent and irresponsible forces, owing allegiance to nothing higher, and exacting allegiance from every other human being. So much has science learned concerning law in nature.

What more does she teach than the common man—than the common boy has already recognized? We answer, nothing

new in kind. The boy who flies a kite knows that the force he employs to lift his kite will only help him under certain conditions ; the savage who uses a bow or a rifle knows that when the wind is high he must aim in accordance with the force that would blow his missile aside. The boy and the hunter believe these conditions to be uniform and fixed. The accomplished scientist enlarges the rude formulas of each intricate proposition concerning the composition of forces, which he applies not only to projectiles, but to pressure and resistance, to the tension of solids and liquids and gases. The only difference between the two is that where the boy and hunter knows one law the scientist knows a thousand ; where the former can only rudely apply their rules to a few cases in their own practice, the scientist formulates them in mathematical expressions and applies them in a myriad of cases ; whereas the knowledge of the one terminates with themselves or some rude traditions which they hand on to the next generation, science in some sense gives the advantage of starting at the goal which the preceding had already reached. But as to the nature of law and its relation to force, there is no considerable difference between the unscientific and the scientific man ; the one understands both as completely as the other. Perhaps the scientific man, for the reasons already given, is of the two more likely to misconceive law, and to esteem it an independent and self-acting force—to personify it as a demigod, half intelligent and half impersonal, or deify an hypostasized abstraction.

We come at last to the belief in purpose or design in nature, and ask what changes in our notion of it, or our confidence in it, are wrought by science. Let us recall to mind the truth that the unscientific man assumes that everything which is done in nature is done for a purpose. He does not learn this from experience, but requires this belief in order to learn anything from nature. It is with his belief in purpose, as it is with his belief in force and law. He does not weigh the evidence both for and against, and at last decide that the evidence preponderates in favor of both ; but he opens his mind and inquires what

force or forces produced them, and under what laws or conditions these forces acted to produce this result. Similarly he inquires for what end do they take place. He may not be able to answer any of these three questions in respect to many events or phenomena, but nevertheless he is compelled to ask them all by his belief that an answer to them is reasonable. This is the position of the unscientific man in respect to purpose. We inquire next does science teach man to take another position, and if so, what is it? Are the facts or the discipline of science fitted to lead the student of nature to believe more or less firmly that nature is controlled by design? *This is the one question for which this study was undertaken. What is our answer?*

We notice first of all that if modern science by its own confession has learned nothing and can teach us nothing with respect to the nature of force, it has divided and subdivided the points from which every form of force proceeds to an extent that severely taxes our faith if not our credulity. The molecules that are packed into a cubic inch of any species of matter are now counted by the billion, and the atoms into which each is subdivided by we know not how many more; and these atoms, if we adopt one theory, are capable of manifold motions upon which the special qualities of the molecules depend; if we accept another each molecule or atom is endued with a capacity of its own to act in accordance or antagonism with manifold others, having the aspect of being manufactured articles. Of course, if this be true, every one was manufactured with some definite design. Let this mass of matter be heated, every one of its myriads of particles is set in motion in a peculiar way, pressing against one another so as to expand the bulk of the mass, and with such irresistible energy as to set in motion all the particles of bodies near itself. If it is a cubic inch of water they are separated into steam, or if some unstable chemical compound the mass is at once decomposed into its constituent elements. If it is transparent its particles are interpenetrated by an undulating ether, whose undulations

are variously affected by its substance, giving to the eye that is near it all the refracted colors, or moving onward for miles they excite another eye that is waiting to respond. How many countless actions and interactions between these moving particles or points of force within so narrow a space! As far as we can see every particle meets with a response in every other after a definite manner and a uniform law, the same here as there, the same now as then; whether *here* is in this apartment and *there* is in the remotest fixed star, or in the earth's unvisited centre; whether *now* is at this instant, or was in that morning when the stars sang together their first harmonious note, when all these conspiring atoms greeted one another as friends. If we think of the energy of these agents, as well as their variety and number, our convictions are deepened that they were designed for one another—that is, were fitted to act upon and with one another in definite methods and to definite results. A cartridge of dynamite makes us shudder to look at it. Our terror is allayed by the thought that its power to do mischief is limited to the presence of one or two conditions, and that these conditions of its exploding will never change. Had we no belief that every agent was thus fitted for every other, we could but tremble at any possible catastrophe which the seemingly most harmless object might occasion. Modern science has by its discoveries multiplied the suggestions of possible disorder a million-fold by the insight it has afforded into the constitution of the earth and air and water, and their relations to light and heat. She calms our terrors effectually by confirming our confidence in the fixedness of law. But she best establishes our faith in law by assuring us that every agent and every force was designed to act with every other for some rational end. Some of us at evening have encountered a swarm of midges moving hither and thither in a compact yet severed mass, winding backward and forward along their mazy paths, as though they were weaving a many threaded tissue, never jostling though seeming just about to strike, keeping their form as a whole, which proceeds as though directed by a

single will, and yet alive with individual activity. This is a feeble picture of what science teaches is going on in the most solid masses of matter as they are quietly transformed by manifold workings within. It is utterly inadequate to set forth the currents and countercurrents that make up the palpitating life of a growing tree, that weaves the texture of stem and bark, of bud and flower, that compounds by subtle selection and recombination the nourishing fluids from the earth and lifts them up along the lofty channels to elaborate them in the leaf by subtle exchanges in the air, and then to compact them at last in the new years growth. Our illustration would be a mockery of the changes in the animal economy, as they appear in the glorious universe of sentient beings. Yet science has soberly taught us to regard the cosmical system itself, from the largest masses to the tiniest molecules, as a vast aggregation of atoms, each held in place and form by acting with and counteracting on one another. Let certain of these forces cease to act in the same proportions as now, and the earth would fly into tiny fragments as suddenly as one of Rupert's drops, and the words of Shakespeare would be literally fulfilled.

“As the great globe itself, and all which it inherit, would leave not a rack behind.”

The tiniest flower that hangs by a thread over a rushing stream is not kept in its place more truly by that thread, than the thread and the crumbling verge on which it hangs are held in place by forces which come from the Sun and Jupiter and Saturn. Some of us may have stood on the old tower that once overlooked the principal cascade of Niagara Falls. If so, we shall remember, that the spectator looks directly on the stream as it sweeps over the unseen verge many fathoms deep, smooth on the surface, forever shattered, and yet the same forever. As one looks beneath this treacherous surface, he sees the masses of foam in moving pillars rising perpetually and constantly broken, ever newly created, ever dashed into myriads of glittering and manicolored drops, giving to the eye

and the mind at first a vivid impression of chaos itself. But there is no chaos here. Substantially the same forces are repeated forages, the same colors are maintained, the same pillars stand though always falling, except as there are slight variations in the quantity of water, the force of the wind, the light of the sun, with now and then a breach in the rocks beneath. We have in this scene an image of the universe as known to science. The matter is fluid ; the forces might change, their laws only are unchanged, because these are adjusted by purpose that has adapted the one to the other. The unstable yet permanent cataract is an apt image of the universe as modern science beholds it, made up as it is by motions and commotions that are so subtle, so noiseless, so manifold, so tremendous, and yet so nicely adjusted and so peaceful that nothing seems so stable.

Let us return to our image again. We have said that now and then a break in the rock beneath changes the form and inner movements of the cataract, and we know that the cataract itself has notched the records of the ages of its retrocession upon the rocks by its side. So the universe, as science teaches us, is not stationary in its forms. It has passed through varied phases, each of which has been developed largely from the preceding, under unchanging laws. Whether a creative force may now and then have intervened, or is ever fulfilling its behests by a plastic energy, we do not here care to inquire ; we care to deal only with the forces which all believe to be fixed in their actions and their laws. If purpose, as we have seen, is required if we would explain the harmonious action of the forces that act in any present phase of the universe, purpose is also required for the more numerous and complicated adjustments which are involved in the development of one phase from another. If the adaptations are many which hold the elements of a growing tree or a living body together, those are far more numerous which are involved in the changes in form, and structure, and function, which follow one another in regular procession for a century of life. But what is a century of the life of a tree to a thousand

centuries of one of the fermenting geologic periods, with its meltings and its freezings, its upheavals and depressions. But in each, every particle of matter has had some share in the enormous mechanical and chemical changes, by heat and cold, water and fire, that have prepared the earth for life; each phase in its order, the simpler before the more complex, till the structure was complete. If we suppose a controlling design to be present, and that the law of progress marshals, impels and guides every mass and atom in this procession towards a completed plan, then development is explained as possible. Huxley says, and he says truly, as it is a fundamental proposition of evolution: "That the whole world, living and not living, is the result of the mutual interaction, according to definite laws, of the forces possessed by the molecules of which the primitive nebulousness of this universe was composed. If this be true, it is no less certain that the existing world lay potentially as the cosmic vapor; and that a sufficient intelligence of the properties of that vapor could have predicted, say, the state of the fauna of Britain in 1869, with as much certainty as one can say what will happen to the breath on a cold winter's day." (Critiques, etc., p. 305.) This is very true. Now let us suppose that a master in science had selected for his study that portion of nebulous matter which was to constitute the brain of the wisest man in 1869. If he knows the definite laws of this nebulous mass so thoroughly as to see it in this savant's future brain, he must know what it can be and do with reference to all the other particles with which it will need to act, and follow its future activities through all the phases which it will assume till it emerges into the intelligent brain and begins to think. The man who could predict this orderly progress from what he sees in these particles of nebulous matter, sees in them the plan of their development. A plan is involved in the very constitutions of these particles, which is understood only as these progressive possibilities are discerned. If the particles were to be created with this constitution and surrounded by their fellows by a Being who had anticipated in his mind their history, we should

say at once that design controlled their existence and the developed activities that were to follow. If law regulates the result of the combined activity of two forces, or two million agents in present harmony, and if law would seem to indicate thought and reason, how much more does the orderly development of such forces manifest design, when long periods of time are required. This suggests the remark that if we accept what is called a tendency to variation, of which Darwin makes so much, or the tendency to differentiation, on which Herbert Spencer insists, and use either to account for the evolution in which all scientists believe, then we must suppose each to act under the steadying direction of design for unnumbered generations, or the result would be indefinite vacillation. If, for example, a collection of nebulous vapor should start on the road of transformation which it must travel for some millions of years till it lands in the brain of a scientist, fully panoplied for a sturdy fight with every dissentient, it not only has a long way to travel, but it is a road which must steadily tend toward this single goal under the influence of all the attractions and repulsions that it encounters on the way. If the particles concerned are at the start shunted off by an impulse which they can continue to sustain, all is right; but unless this destination is assigned, and every arrangement is made to hold them to it, it is a mere chance whether any regular tendency can be maintained. There will be serious hazards of fatal disturbances and confusion. If we resort to the survival of the fittest, we find the same difficulty in supposing that the crowding atoms that line this hyperbolic pathway will push for billions of ages with such an even pressure as not, now and then, to trample down even the fittest, or push them off to another track. But enough of evolution and progress, in regard to which scientific men are not all agreed. It is time that we had returned to the beaten highway of methods and truths which are accepted by all.

Science requires exact definition, or precise and complete enumerations of the properties that separate one class of objects from another. As in common life so in science, the most sat-

isfactory definition states what anything exists for in relation to other objects, or assigns its place or function with its neighbors in a rational system. Let three straight lines be drawn separately from given points. Apart from one another they are three straight lines only ; but as soon as they are seen together in their several relations to one another, as parts of the triangle which they constitute, they are defined by the triangle for which they were drawn, and which by being drawn they create. One hundred sticks of timber lie confusedly in a heap. Each may be defined as sill, or joist, or rafter, according to the use for which it is designed or best fitted in construction, as the frame of a house, or bridge, or barn. Every object which we define we define best by its function, and one or another function or relation is selected as best according to the place which we give it in the system of things, or the purpose to which it is to be applied.

We classify on the supposition that certain groups out of the tens of thousands which we might make are significant, and are likely to be permanent in the designs of nature ; and that the characteristics which we select are permanent in these permanent groups, and will help us in learning of other capacities and adaptations. Or, we suppose that certain groupings of nature, certain qualities by which we collect and marshal them, are of greater significance in the designs of nature in respect to science or practical life, when we gain a step beyond the classification and naming, which other people do for us, and begin to theorize and invent and discover for ourselves ; in other words, when we look below the surface of things, the language by which we describe our processes seems to take for granted that design is what we are searching for. We inquire into the meaning of things, their true intent, import, and significance ; the ideas and secrets of the universe, etc. Every artisan, experimenter, and inventor, every florist, every pigeon or dog fancier, every stock breeder, as truly as every discoverer of great laws or truths, tries first to guess, and then essays to confirm what this or that sign imports. All the poetic and idealized

representations, all the mythological conceptions, concerning nature's favored child who is her consecrated priest, her chosen devotee, proceed on the single assumption that nature itself is controlled by design in her own processes, and in her modes of making them known.

We have already seen that the belief in the laws of nature, in the regularity of its action, or the mutual or steady adjustment of one force to another, is but another form of assenting to the truth that design and thought are supreme. The circumstance that scientific men often stop short with these laws, without asking themselves what the belief in law implies, proves nothing except that they are so occupied with this or that special line of investigation or inquiry as to have little leisure or occasion to inquire whether purpose underlies law. The exclusiveness of their occupation, with the very concentration of their inquiry within these limits, and the current religious belief, which connects nature's laws with the supreme being whom they worship, render superfluous any speculative thought upon the import or designs of nature. Now and then it happens that a very able truth-loving student forgets, in the fervor of his faith in law, that any inquiry in respect to the grounds of this faith is required or admits of a rational answer. Others confound laws with forces, and personify the confused perceptions of both, and assume a position of contemptuous defiance towards any thinker who asks them to give a reason for their faith in these abstractions. Notwithstanding all this, the fact remains true that modern science has myriads of more occasions to believe that nature is palpitating with thought, than had ancient or modern common sense, or ancient science. It not unfrequently happens that the objects of inquiry are so many, the phenomena so engrossing, and the questionings and explorations so fascinating, that the grand impression of the universe as a whole fails to be responded to.

We observe, in conclusion, that the truth that design controls the universe alone furnishes science with a satisfactory conception of nature, of man and of God.

By nature we mean the material part of the universe. Here we are met again, notwithstanding all that has been reasoned on the subject, with the obstinate question, how can dead matter express objective thought? The answer retorted is, does not animated matter express not only thought but feeling as well? Do you doubt the existence of your friend, or the thought which flashes from within the recess that has never been penetrated except by himself, and writes itself upon the face that incloses and veils it? To this the reply will be ready, that we allow that animated matter can reveal the thought which it expresses by word or look, but it does not follow that matter of another sort can reveal design, much less that it can manifest feeling. We answer it can, because it does, and in cases in which all men feel and no one will dispute. Take any one of the many automatic machines with which we are now so familiar. Is not thought made visible here? Do not indications of design flash from every movement so vividly and impressively, that we almost think or say the machine is insouled? Is it said that this is because we have seen the construction of similar machines, and that any work known to be of man, or contrived by the mind of man, may naturally be interpreted through another like itself? To meet this difficulty we select another example—the talking machine, which was copied from an apparatus not made by human hands, or devised by human thought. But this you say was imitated from an apparatus—the parts of it? Not alone the parts as such, in shape and quality of material, but the parts as adjusted to one another in the production of articulated sounds seemingly with the design of producing spoken language, that is, the thought in it. But if so, then the design must have existed, and been made manifest through the structure itself. Is it said that design is thought into the natural talking apparatus, by analogy from manufactured whistles and reeds, etc.? This is sometimes said, and it is charged as unscientific that man's reasons in adjusting means to ends, under the limitations of his materials, is made the norm and measure of an imagined thinking in nature. This and nothing else is the meaning of

the current charge of anthropomorphism made now so freely ; as though nature were belittled and dishonored by having her thoughts interpreted by the analogies furnished from human procession ! We reply science is and must be anthropomorphic, so far at least, that man must exalt the authority and trustworthiness of his own intellect, if science is to stand. If the interpretation of design in nature is anthropomorphic, then the discovery of that geometry in the heavens by which every eclipse is foretold, and the nautical almanac is compended, is also anthropomorphic.

This leads us to add that design in nature alone assigns to man his true place in nature. If we are asked what we mean by man's true place, and are told that we beg the question by assuming that man has any place (any destined place). We answer, we mean by man's true place in nature, that place on the one hand which science must assume for the intellect of man, in order that science herself may maintain any consistency or assert any authority, and the place on the other hand, which the morals and manners, the laws and institutions of man must assert for his hopes, his obligations and his rights. These are strikingly contrasted with the place and authority which are allotted to man's intellect on the supposition that man is the temporary product of material force, and with the dignity and destiny which are accorded to man's desires and hopes, on the theory that he exists for a few years to be dissolved into his original elements, and to reappear in other forms of being and action. If science has any authority, the intellect of man must assume to judge the operations of nature, and interpret them by its own. It finds that its own operations are controlled by design, as far as they are rational, and it cannot but believe that the same is true of the regulated operations which nature presents for its interpretation. In doing this, the intelligence of man assumes permanent authority to judge of the past and the future by relations and rules that are supreme and abide forever. Science must assume for man kingship over nature, and thereby kindred with God.

If we take the other view, namely, that man being the product of nature is just what nature makes him by the temporary development of her progressive agencies, and in the mathematical, causal, law-interpreting, design-divining relations by which he judges of his intellectual powers, then science is dethroned and man is dethroned with her. His relations were only his modes of looking at things as long as he lasts, but there is nothing true in things which correspond to them; therefore all and both the subjective processes and their imagined objective counterparts will disappear at the next turn of the wheel when man is whirled off into something else. But what will become of science if this theory of man is true? If man's view of nature is anthropomorphic then science is necessarily anthropomorphic. If man assumes too much in finding design in nature, then by the same rule he assumes too much in finding force, or law, or anything in nature, nay, even in finding in it arithmetic and geometry. To deny design in nature because it is anthropomorphic requires us to deny force and law as well. It should never be forgotten that what we call science is the product of human thought; and if we do not assert for man and the thought of man its appropriate authority, then science itself should bow off the stage. But science in these days is not very willing to be bowed off the stage, and it should certainly not be, and for this reason, it ought to assert man's place in nature for him, as an intelligent being; but this it cannot do, unless it finds design in nature and assigns to man supremacy. Next, if design rules in nature there is also a place in nature for man as an emotional and involuntary being. This is assumed in all our social and political theories, in our ethics and politics, in our institutions and our laws, in all that we say of human duties and human rights. All these take for granted that man is able to recognize all these relations, and that some of them are supreme over all others, in the estimate of man's position in the intention of nature. Those who deny design must necessarily regard moral relations as the changing products of social sympathies and antipathies. They must inter-

pret conscience to be the reflex of advanced experience and capricious fashion ; duty to be the command of the majority ; right to be what is conceded by the will of the strongest to the weakest party ; and man's destiny -to die and to rot ! His future life is an impossibility, and his destiny after this life is but a phantasm or a dream, except as the thoughts and feelings which he has evolved live on in the impulses that they have imparted to the thoughts and feelings of other beings who follow, for there is and can be no other future life. This is a short statement of the ethical, sociological, and political creed that is taught by those who find no design in nature, and make everything which gives man his dignity and self-respect to be the product of social environment plus a more or less considerable variation of individual impulses. We need not argue that such a view destroys conscience and degrades man, that it makes the educated and cultured more selfish and grasping, and the uneducated more discontented and revolutionary. It claims to be very new with its high-sounding abstractions, and its scientific pretensions. It would be easy to show that it is as old as Lucretius, and that it is dangerous in proportion to the confidence with which its want of coherence is disguised, and its immoral tendencies are hidden, even from its advocates, by its ambiguous language, its rhetorical speciousness, and arrogant dogmatis m.

The assumption of design in the universe justifies the faith of science in a personal and intelligent creator. We had almost said it requires this in order that intellect may rest in a completed idea of a well-rounded universe. A creator is a being who originates all the active beings, and imparts all the force or forces that exist, and who regulates their mutual activities by the laws which he has imposed upon them to accomplish the designs which he proposes, in the existence, the development, and activity of the material and spiritual universe. You may try in vain to stop short at any view of the origin of things, without designing force, if you hope to provide for science. You may try the theory of force only, as Herbert

Spencer does, and refer this origin or existence of things to a persistent, unknown and unknowable power, unlimited in space, and without beginning or end in time. But in this conception you have all the mystery that pertains to a self-persistent personal creator with no advantages. We have a being who is himself unexplained, and who himself explains nothing. But what next, according to Mr. Spencer? Why, somehow this unknowable power appears as acting through or upon a mass of matter which is in a state of unstable equilibrium, in which there is provided potentially all the events and beings which are to be developed in the future history of the universe. How it happens that each particle is in its place, with its wondrous potencies and promises of vegetable and animal life, of heroes and battles, of philosophers and religions, of lords and ladies gay, of saints and fiends, is not explained. How each happens regularly and progressively to act, no one seems able to explain.

But all the future is here. Here is destiny but no design. Law is here, because each particle that stands or moves in this star-dust must act with every other particle according to the capacities of each to condition the other. There must be progress steady and onward we are told, according to a law which sets in motion a set of constantly shifting and changing partners, every figure being more complicated than the other till the dance is out. Here again is destiny—the destiny of evolution, destination with perpetual progress but no design.

Take now the other view. Let science recognize purpose and there is explanation by law. The force of every individual agent is the condition of every other as far as they act in mutual dependence on one another. Admit evolution, even in the extremest form, concede that everything has been produced out of the original star-dust. Even then we need not ask which best satisfies the demands and the discoveries of science, which is the best working hypothesis, this theory of an impersonal force, or the theory of an intelligent creator whose thought preceded the act that called the universe of forces into existence,

fixed them by law in obedience to designs of love that blest beforehand those beings who were to interpret in science, and imitate in art, and honor in worship, the one knowable God—knowable by them, because made in his image.

The offerings and sacrifices of the people to the gods in the temple of mammon are required to be made in cash.

The cataract in the modern scientific eye, is where the facts of the universe are swept over the precipice by the muddy waters of human ignorance and lost from view!

Somebody is inventing a thinking machine; it is badly needed in the modern world—for the natural thinking machine that is thrown in free with the process of coming into the world, is about rendered useless through multiform dissipation. Let them have another thinking machine!

Poverty.

Have pity on them! For their life
 Is full of grief and care;
 You do not know one-half the woes
 The very poor must bear.
 You do not see the silent tears
 By many a mother shed,
 As childhood offers up the prayer
 "Give us our daily bread."

Truth As a Factor In Psychotherapy.

The statement that truth is better than error or falsehood, considered as an ethical proposition, commands the instant assent of everybody. Considered as a social proposition, it is generally regarded as impracticable, if not absolutely vicious. This is doubtless due to the observed tendency towards social disintegration when too much truth is told in fashionable society. Considered as a scientific proposition, it commands the universal assent of all true scientists ; but it is almost totally ignored by everybody else.

The true scientist and the true logician know that a correct conclusion cannot be drawn from a false premise. They know that no fact in this wide universe is inconsistent with any other fact. Hence the true scientist is necessarily an earnest and conscientious seeker after truth ; for he is fully aware that any admixture of error in his premises will render his conclusions nugatory and his labors abortive.

Students in physical sciences do not need to be instructed in these elementary principles. Nor does the truly scientific student of Psychotherapy need to be informed of the value of *facts* as a basis of correct reasoning.

But there is a large class of students and practitioners of various branches of mental science, many of whom DO need to be reminded that truth is better than error or falsehood. We need scarcely say that we refer to those who practice healing by mental processes only. In this class all who heal the sick by other than practical methods are included.

There is a tendency among mental healers to try to force upon the mind of their patients, as a condition precedent to their recovery, some idea that is of doubtful verity, if not palpably absurd. The "Christian Scientist," for instance, will begin by telling his, but more often her, patient that it is all a mistake to suppose that there is any such thing as sickness, pain or death. He may be suffering the tortures of the damned ; but he is soothed by the assurance that it is all owing to a false

education—"a race belief" that he has a body to suffer—a vicious system of philosophy that teaches mankind that there is such a thing as matter.

We do not mention this as an evidence of moral obliquity on the part of the "Christian Scientist. Far from it; for he is usually a very amiable person. He believes just what he says when he assures the victim of a headache that he has no head, or the sufferer from a toothache that he has no teeth. He is perfectly honest and sincere when he tells you that there is no such thing as sin, sickness or death. He is hysterically conscientious when he declares that the whole physical universe has an existence only in a diseased imagination. He is simply a member of one, or both, of two very large classes of people; one of which is composed of those who will subscribe to no system of philosophy the fundamental principles of which can be demonstrated to be true; and the other is composed of those who will consent to believe nothing except that which everybody knows to be untrue. The "Christian Scientist" ranks very high in both these classes. In other words, he is unscientific and illogical to the last degree. For instance, it is one of the cardinal tenets of his faith, that, because he can occasionally heal the sick by mental methods, it follows that his own theories of causation must necessarily be true. He also believes that his failures are due to the unbelief of his patients in the fundamental tenets of Christian Science philosophy; in this he is not far from the truth. It is certainly not conducive to that calm passivity and receptivity of mind that is essential to successful mental healing for a suffering patient to be told that there is nothing wrong with him, that he has no pain, that he has no sense, that matter is a delusion of his imaginary intellect, and that sickness is merely a figment of a disordered non-existent brain. If the patient is a man of common sense he is immediately antagonized, and the power and influence of the healer in his case has departed forever. If, however, the patient happens to be one of those who are fond of believing that which they know to be untrue, he will very likely be

healed, and "Christian Science" will have made another proselyte and scored another triumph; but at the expense of truth. That is to say, the healing is effected by inspiring the faith of the patient in a statement that is palpably false.

It is obvious that, in a very important sense, "Christian Science" must be classed with healing by amulets, placebos, relics, shrines, charms, and the various compounds and appliances of the voodoo doctors and medicine men of the savage races.

In saying this we do not wish to be understood as seeking to throw undue credit upon "Christian Science" as an effective method of mental healing; for it is a well-recognized fact among scientific students of Psychotherapy that they do cure disease. It is also known that amulets, placebos, *et id genus omne* are also effective remedial agents, often to a wonderful degree. But it is also known that the effectiveness of all these various methods is due to the universal law of *Psychition*. In point of fact all methods of mental healing are identical, in that they are governed by the same law. And we are aware that the whole law of mental healing is embraced in three fundamental propositions, namely:

1. *Man is endowed with a dual consciousness, with objective and subjective polarity.*

2. *The objective is constantly amenable to control by suggestion.*

3. *The subjective is constantly amenable to psychergy which has absolute control over the functions, sensations and conditions of the body.*

It follows that, when Psychotherapy is used, it acts upon the entity of the patient which when thus appealed to is by the first law of its being potentially able to restore the body to its normal condition. Moreover, by virtue of a concomitant law, the subjective entity is compelled to accept Psychotherapy and act upon it.

This, of course, is a very general statement of the law. Its successful operation depends upon conditions which are clearly

enunciated in our lectures at the Toronto School and Sanatorium of Practical Psychotherapy, so that they cannot be entered upon here. It can be confidently stated, however, as a well ascertained fact that this law correlates all systems of mental healing ; and that all healing by mental processes is dependent upon the law of Psychition, consciously or unconsciously applied. A placebo is a suggestion which the medical profession has thoroughly understood and practiced for centuries. An amulet is a suggestion which the superstitious have effectively employed for ages. Sainly relics are suggestions which the church has employed with wonderful success since the days of Constantine. The insensate jargon of the " Christian Scientist" constitutes merely suggestions which have proved effective in hundreds of cases. It is especially efficacious with those who are governed by their emotions and are untrained to habits of correct reasoning.

It will thus be seen, first, that an effective suggestion is not necessarily an oral suggestion. Secondly, that it is not necessarily a statement of fact. Thirdly, that the power that effects the healing is resident within the patient, as well as outside ; and therefore the cure does not depend solely upon an extraneous force.

Having thus correlated all systems of mental healing under the one universal law, it follows as a corollary that other theories of causation which do not take into account the law of Psychition, are necessarily wrong. It follows that all suggestions made in the treatment of patients in pursuance of any theory that does not take the law of Psychition into account, and which any other theory or hypothesis enters as a factor, are false. For instance, a suggestion that ascribes a healing power to an amulet is necessarily false. A suggestion that ascribes miraculousefficacy to the bones of dead men must be placed in the same category. A suggestion that healing power resides in a placebo is a falsehood. A statement that there is no such thing as matter, that pain, sickness and death are mere figments of a diseased imagination, is grotesquely idiotic ; and a suggestion that a

belief in such nonsense is a necessary precedent to recovery from illness, is ridiculously absurd. Nevertheless, as before remarked, suggestions may be absolutely false, considered as a statement of fact, and yet be therapeutically effective. All history is full of illustrations of the truth of this statement. Were it not true a placebo could never have been effective, and "Christian Science" would never have had an existence.

The question, therefore, naturally arises, whether, after all, a false suggestion is not just as good as a true one, in any and all cases, since all will admit that some of the most remarkable cures recorded in history have been brought about by suggestions as false and ridiculous as ever entered the brain of the ablest pseudo-scientist. It is in answer to this question that we desire to submit a few observations, based upon a somewhat extended experience and study. We shall not, however, discuss the question from a moral or ethical standpoint, nor do we propose to be drawn into a discussion of the propriety of purposely deceiving sick persons concerning the nature of their ailments or their prospects of recovery. All such questions can safely be left to the discretion of those in charge. Nor shall we discuss the question as to the propriety of treating by false suggestion those who are incapable of understanding or accepting true ones. All this is foreign to our purpose, which is to briefly inquire into the relative value of true and false suggestions, considered from a purely practical, utilitarian and scientific point of view.

As already said, it is unnecessary to remind the true scientist that absolute TRUTH is essential to the successful study of any subject that can be designated as a science. The science of Psychosophy—of which Psychotherapy is but an art—constitutes no exception to this rule.

Many otherwise able students and practitioners of Psychotherapy have been in the habit of ignoring this axiom on the supposition that as the objective was amenable to suggestion the subjective could be controlled through the objective. No greater mistake could be made. It is true that the objective is amenable to control by suggestion of any sort. But it is also

true that the subjective is an ardent lover of truth. We admit, however, that in matters of indifference the subjective may be "suggested" into acquiescence to certain absurd statements. But this is through settled beliefs and principles of the objective gaining control of the subjective. In a case like this it will be found very difficult to overcome principles and settled beliefs by suggestion; just in proportion to the value and importance of those beliefs.

In fact, it may be set down as a general rule in hypnotism that every false suggestion to a hypnotized subject results in a nervous shock, exactly proportioned to its degree of departure from the truth and moral obliquity involved in the suggestion. Persistence may overcome it, but it is always at the expense of the subject's *nervous organism*.

It is obvious that patients who are healed by any system of mental therapeutics the working hypothesis of which embraces a false suggestion are liable, at any moment, to have the foundations of their faith broken up by any accident that either deprives them of their *amulet* or enlightens them. On the other hand, the man who is made aware of the potentialities resident within himself, and is instructed in their proper use in connection with the Universal Law of Psychition, is in command of the most potent force in Nature below that of Omnipotence.

It will thus be seen that, as before intimated, first, mental healers may be divided into two classes, namely, those who heal by false suggestions, and those who strictly adhere to truth in all therapeutic suggestions. Secondly, that in Psychotherapy truth is absolutely essential to the attainment of a full measure of success. Thirdly, that truth is not, and cannot be, employed under any system that is not strictly scientific.

It must, therefore, be obvious that those who heal by Psychotherapy cannot afford to ignore, or deal loosely with, the one essential pre-requisite to success in the investigation and practice of all the true sciences, namely, TRUTH.

Editorial Notes.

It is an inspiring tonic to know that we are addressing an audience of several thousand people each month, and to feel we are successful in arresting their attention by our *Relative*, rather than the abstract, phases of the New Thought Movement.

Each of us has a vocation, a task which no one else can perform for us, though there are many who need to be set their task or shown the way how they may reach their ultimate. We can never accomplish our life's work by saying that we have not the ability to do so. Rather, we should say that we *have* the requisite ability and force of will, and proceed at once to prove our words true. Man has no rival ; therefore, he governs every intelligence that is lower in the scale of being than himself. Being limitless, there are no heights he cannot climb ; yet as he reaches a certain standard it rises, and he must again push to a still greater elevation.

“Some feet will tread all heights now unattained ;
Why not thine own ? Press on ! Achieve ! Achieve !”

The Creator needs you to make all things complete quite as much as you need Him to help you do it. You need not drift aimlessly on the sea of circumstances, for with a knowledge of psychosophy you have the power and are yourself the pilot to guide your lifeboat through all streams of error into the harbor of perfect freedom from all limitations—Psychition. We are ever building our “temple without the sound of the hammer being heard,” and it depends on the dweller how it shall be built, whether intelligently or ignorantly. If the former, it is built on a rock, and you have made your life a grand and noble one ; if on the latter, you have built on the sand and are subject to a washout as well as being swayed from your sandy foundation by the error in every passing breeze. Let us build in accordance with the plumb-line of eternal truth and we

will build better than we know. Later on, we begin to see the object which we have steadily kept in view, that we have struggled and toiled for so long, begin slowly to be realized and shape itself into our lives.

Do not think that psychosophy can be gained without effort or without working for it; truly, if anything is worth having it is worth working for. You do not want anything free; and if you did you could not get it, for the price of your work lies in the completeness of what you have done; what you have striven for and achieved. I do not believe in any sort of free salvation—save that which I work out for myself. I would not take a book or paper I could not pay for, and though many publishers advance the doctrine that “the truth is free,” yet in sending out their publications they charge a certain price; and this is just, for otherwise no one would appreciate their wares, and neither party would be a gainer, because there would be no sacrifice on the reader’s part—he would not be given *value* for what he had *received*. Value for value-received is a command of the Creator or it could not be a law of nature as well as of man.

At Hartford, Conn., a convention is in session, as we go to press, to consider the various phases of new Thought. No doubt many men of many minds will be drawn together; followers of the different schools, cults and sects, who will have their own favorite prescription for the cure of all “the ills that man is heir to.” We hope that too much time will not be given to criticisms nor spent in fitting out those who have been able to attend to grapple with the problems of yesterday. For, should this be the case the convention will be making a mistake. Truth is always true, yet it ought to be remembered that the truth of yesterday is not the truth of to-day. Unless human progress is a mere delusion, an eternal circling around the same fixed point, different periods possess as their peculiar charge different sides of Truth. Our grandfathers may hold forth in argument of the utility of the muzzle-loading musket, but the Maxim of to-day answers in a manner quite conclusive.

The justifiableness of a new metaphysics is one of the most debated subjects in the field of psychology. But the leaders of the movement need not hope to advance so long as they conduct the debate on the plane of abstractions, as it is now well known that on abstract ground it is easy for an ingenious debater to construct an argument for or against anything. He needs merely to invent a squinting definition of the thing to be defended or condemned, and then to deduce from the definition the inevitable conclusion wished for, and he draws out with a flourish just what he has put in. There has been a deal of this shuffling with definitions in discussions concerning the new thought movement. And this question-begging method of definition has so confused the subject under discussion at Hartford, that, no doubt, many will come away loaded with ammunition, which is a good thing providing they have been taught how to shoot, and given some knowledge of the game they are supposed to bring down. Dust-shot is no use for bear, and any time spent in making catapults with which to face the battleships of science will, indeed, be time lost. Instead, we trust that every moment will be occupied in earnest endeavors to come to some decision as to the terminology best suited to explain the aim and object of the new thought movement. Abstractions will not do, nor could all the conventions which the world has ever known make an assumption stand for a fact. What we want, and what we must have, is a terminology that explains the premise. With the premises known the conclusion will be a Science.

Seldom has mankind in the history of the world, faced such a magnificent opportunity to prove the vitality of Psychosophy as at the present day, when the hearts of many are sick of dogma and hungry for those higher manifestations of the soul which has ever been the ideal of the world's noblest prophets. We have nearly reached the point where another step must be taken by civilization, and it remains for mankind to say how that step shall be taken. Whether it will be accomplished by the armies

and navies of the world, amidst the roar of cannon, the shock of arms and a night of savagery; or by a grand evolutionary movement which shall mark man's rise above the old-time method of progress by brute force?

A power is manifesting itself in thousands of advanced thinkers to-day which causes them to cry out against all this *seeming to be* in both Church and Nation. Under their scathing but truthful arraignment the gigantic religious trusts are failing and withering; the clergymen are losing their power and are commencing to realize that they cannot be by seeming to be, that they can only *be* by *being*. Many have ceased to claim that their doctrines are reasonable, indeed, many are ready to admit that they are unreasonable, and are stepping out from among those who continue to bear false witness of Him whom they profess to follow. In reality they have placed a golden cord around His neck, and have added another letter to His name. It is Gold rather than God that is worshipped in our modern churches. The same holds true whether the interest of aristocracy or the interest of the people is held forth from the pulpits—They are catering to Gold! And as a witness of truth this Journal adds its voice to show that the mental rays generated by Psychosophy are penetrating the world and dissecting all pretensions in both science and religion.

Prof. Meese, of Indiana, has entered the prophetic field and conjectures that the earth will some day be without oxygen, a necessary element in human respiration. In concluding his remarks, however, he said: "There is at present no great need of alarm, as the modern facilities for making more are now well understood, and, even leaving that fact out of consideration, it would no doubt take billions of years to exhaust the present natural supply." If that be the case, we feel like asking him why he spoke at all. For all that we can see in it is the fact that the mental oxygen of some of our modern scientists is becoming so exhausted as to mentally *as-fix-iate* them beyond all possibility of resuscitation.

Psychosophy is the realm of harmony. When Psynergy sweeps the nerve-wires of the sensorial system it warms the body, permeates its every atom and radiates throughout each cell till Psychition draws the physical powers into unison and re-establishes their uniform and mutual functions.

The war of modern science and religion is almost over. For three centuries it has been stoutly maintained by orthodox clergymen that the facts of science were out of harmony with the Bible and with the idea of the personality of God. To-day the clergymen and the entire modern church admits the demands of science ; and Darwinism, the nebular hypothesis, chemistry and other scientific facts are being taught in theological colleges.

In order to answer some of the inquiries, that reach us by every mail, in reference to the object of this Journal, we would say : The Journal of Psychosophy is primarily devoted to the investigation of ALL PSYCHIC PHENOMENA. That its pages will recognize the inter-dependence of the physical and psychical—body and soul—and the utter necessity of an intelligent understanding of the simple as well as the complex man, to the end that, we may the better understand and treat his disorders. We hold that the inter-dependence of the soul and body is such that man cannot be successfully treated by material means alone, to the exclusion of psychical methods, and vice versa—the one is not complete without the other. We believe Psychotherapy to be the basis of all healing ; but, we are ever ready to change our opinions on this point when it is demonstrated that our views are wrong. It is also our aim to amalgamate Psycho-therapeutics with other judicious and scientific methods of treatment. We are not at swords' points with any of the various schools, pathies or isms of the day, and we stand ready to incorporate the truth contained in all, in our endeavors to uplift and better the physical, psychical, and moral condition of mankind.

Our search will lead us in the by-ways and paths of Hypnotism, Psychometry, Psychography, Telepathy, Astrology, Geology and many other fields. The student of the occult sciences will readily see how the first four will aid us in our work. Some will, perhaps, be puzzled to know how Astrology and Geology can bear any relation to Psychosophy. To all such we answer: Read the Journal, and in due time the relation will be clearly shown.

Should the policy here outlined meet with your approval, please step upon the platform and hand in your subscription to the *Journal of Psychosophy*, and you will find the questions which you wish answered, fully explained therein, as our time is too limited to answer the numerous inquiries in any other way. Further, we believe that it is as much your duty to become a subscriber to a Journal which your very questions prove you are interested in, as it is our duty to only reply through its columns.

As all things come from the same Source, containing the primordial substance of all things, they are all intimately related and connected with one another, and are essentially and fundamentally a unit. Any difference existing between two dissimilar things arises only from a difference in the forms in which the primordial substance manifests its activity. Such a difference is caused by the different grades through which such forms have passed in the progress of their evolution and development.

Psychosophy is a maze to those unwilling to contrast its completeness with the fragmentary systems with which the world is filled. The universe is a labyrinth of mystery to the modern mind; it is a maze. It is also *a-maz-ing* that those who do not understand it should declare the universe to be materialized nonsense!

The First School of Practical Psychosophy.

A Scientific Exposition of Miracle, Magic, and other Occult
Phenomena.

A New Conception of Knowledge.

A New Method of Education.

A New System of Therapy.

This school has been established with a threefold purpose. The primal object is to introduce to the intellectual world a *new* Natural Science—**PSYCHOSOPHY**—founded on demonstrable facts and conformable to the rules and methods of other branches of experimental science. The second is to free the people from the bondage of suggestion and sickness, by teaching them the operation of a universal law—*Psychition*—to which every fibre, function, and faculty of their being is related. The third is to satisfy the desire, of many truth-loving and inquiring individuals, for a rational explanation of the vast array of psychical phenomena that have been observed and recorded in modern times.

Psychosophy

Is the concentration and focalization of the various branches of natural science, for the purpose of a lucid interpretation of the life of man. It deals with the foundation as well as with the facts of science, in an exhaustive discussion of the origin, development, and destiny of the human race.

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Knowledge in its very essence, together with the laws which regulate its evolution and manifestation in the human individual, forms the subject matter of the *New Science*.

Psychosophy is the Science of being and knowing.

It is not only a new adjustment of the various intellectual products of past ages, but also an extension of knowledge into the invisible and imponderable realm of mind, where hitherto undiscovered forces and unrecognized faculties have awaited the forward march of man illumed by the cosmic light.

Every branch of science has been enriched by the wider generalization, but probably none more profusely than the comparatively new science of Physiology, as the unknown and doubtful functions of certain biological organs and tissues have been rendered clear and definite, by the new light which shines from Psychosophy.

The field of Theology has also been cleared and need no longer remain subversive of speculation, or dependent on dogma, as Psychosophy exemplifies inspiration and revelation, and demonstrates *Man's True Place in the Cosmos*. The new Theology declares that man's highest aim and ultimate design, in every stage of eternal existence, is to know and conform to the natural laws of the visible and invisible universe.

Psychotism

Is the science and art of evoking and developing the psychical faculties. This is the *Royal Road to Learning* for which the greatest intellects for many centuries have been in search. Though there are many instances in history where individuals have accidentally discovered this road, there is no instance recorded where anyone has indicated or described it to his fellows. The present school of Practical Psychosophy is therefore unique in this respect that it points out this Royal Road to all who are desirous of travelling upon it. A short cut to knowledge is now open to all who are willing to fulfil the necessary conditions. The various psychical states and phenomena such as psycholysis, psychesthesia, psychography, psychometry, som-

nambulism, mesmerism, hypnotism, etc., are but partial and ephemeral manifestations of a more general law which is easily understood and readily explained by the complete science and art of Psychotism.

Psychotherapy

Is the final triumph of the healing art, which has been throughout its whole history a distinctly evolutionary process. Every step in its progress has been marked by the intelligent employment of subtler forces and simpler methods. When Psychergy—than which no more subtle or potent force is under the control of man—is intelligently applied to the treatment of disease, Empiricism will have been replaced by Science in the domain of medical practice.

Psychotherapy teaches the true cause of disease, and the conditions of recovery and cure, and announces the basic law of healing.

Psychotherapy must not be confounded with the systems of Christian Science and Divine Science of healing. It is entirely and emphatically distinct from them and other similar mental systems in two respects: It is more advanced, exhaustive, and complete; and is based on the principles of Natural Science. It is, in brief, the unification and perfection of all other systems. Though we humbly and most reverently recognize the truth in whatever form or relation it may appear, we also as earnestly and positively shall endeavor to rid, the sacred practice of healing the sick, of the mysticism, sectarianism, and manifest absurdities, which are connected with these *Pseudo-sciences*. It must then, at the outset, be distinctly understood that in the teaching of Psychotherapy, natural (not so called christian or divine) science methods are followed, the phenomena of Physics, Chemistry, Biology and Psychology are viewed as *facts*, not as *delusions*, and the grand results of the observations and investigations in medical science are fully recognized and accepted.

In Psychotherapy therefore we shall expound and demonstrate, in the most impartial manner, a *New System* of healing, with its laws and fundamental principles so well defined, clearly en-

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unciated and plainly proven, as to combine under one scientific generalization all the claims and views of the various sects and schools which have hitherto appeared so radically different from each other.

A Sanatorium has also been established and equipped in connection with the School of Practical Psychosophy where interested persons may have practical evidence and demonstration of the principles taught in our school.

Further information concerning the School and Sanatorium will be forwarded on request.

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