ARTICLE II.

THE INTELLECTUAL ELEMENT IN MATTER.

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I WISH to make use of some very common knowledge. What I say rests in the current intelligence of the times, for it is derived from the simplest elementary lessons in chemistry. If the common schools do not, the higher schools do, teach the facts and principles to which I call attention, and they so pervade the publications of the day that the common mind may be assumed to know them or readily to apprehend them. I am not about to put forth new knowledge. I am only going to ask attention to the significance of what is already known. The processes of adjustment of what we have may be as fertile in thought and as useful in education as the process of acquisition.

In laying the foundations of theism, the argument to design has always had the most prominent place. This has been natural, for the facts out of which other arguments could be shaped have not been discovered till recent times. The science of chemistry has only just celebrated its first centennial. But the adaptations of means to ends in the structure of organs and in the functions of life was noticed ages ago. This is the classic ground of argument for theism,—good yet, as all things classic are. The principle of natural selection has been running on this argument to design through human history, with the result of the survival and persistence of that which is fittest. But I attempt nothing here. There is more primitive ground, lying back of this old line of thought which has been so successfully worked—ground perhaps not

so attractive—and yet perhaps on which theistic conclusions can be based, as convincing and invulnerable as those reached by the study of the adaptations and functions of organized life.

Matter is usually set, in thought, in antithesis to mind. The terms "mind" and "matter" convey to us suggestions mutually exclusive. We do not search matter for marks of intelligence. The argument to design has fixed our attention so much on vital functions and their products, that we are oblivious of traces of the action of mind where there is not life. Matter, as we ordinarily see it, is not productive of theistic suggestion. We find it usually a hard, dull, inert substance, and there we leave it. It resists us, if we do not let it alone, and the most of it, so far as we are aware, does not meddle with us, if we do not interfere with it. So we go, as far as it is concerned, our unthinking way. You find proof enough, in the common use of language, that the ordinary view of the world, or the universe, of matter is not fertile in springing theistic thought. The term "materialist," in common speech, designates an atheist—one who cannot see either in or beyond matter any evidence of the existence of a God. To him, matter is the night of mind: on its horizon the darkness shuts down—a darkness in which no God has worked.

But, when properly questioned, I think matter will seem no such dull, voiceless *stuff* as this view makes it to be. In its own way it will bear testimony to the being of a God, who has left upon it the unmistakable, ineffaceable impress of his mind. I do not know that I can impart this conviction to others. But I assert its existence in my own mind, and I will try to show how it is raised.

Perhaps no man has looked further, or with clearer perception so far as he has seen, into the ultimate constitution of matter, than J. Clerk Maxwell. He testifies that the atoms of matter bear evidence of "*fabrication*"—the atoms of each one of the elements bearing the common

tokens indicative of that substance, just as all coins of common value bear the same stamp from the mint. While that is not the line of thought I purpose to pursue, I call attention to the fact that Clerk Maxwell pushes the argument to design clear to the forefront of all the matter in the universe; and I want to serve notice here on any atheistic materialist, that if he wants to take up an atom, according to the scientific authority of J. Clerk Maxwell, he must take it up *with the argument to design attached.* If such materialist finds the atoms too hot to hold, under such circumstances, then he must not meddle with the atoms.

I should like here also to call Herbert Spencer's attention to the force of Maxwell's language. Mr. Spencer speaks, with derision, of a "carpenter theory" of creation. There may be some justice for that scorn when some departments of nature are under investigation; but I am inclined to think that we shall find much about matter that is better interpretable to thought by such terms as "carpentry," and "masonry," and "mechanics," than by any other coin of speech. I call the attention of Mr. Spencer to the fact that it is not with theologians he must deal, but with one of the first physical scientists of this latest age, when he derides carpentry in creation as that thought finds expression in the terminology "the fabrication of atoms." Under that form of speech, not only the head, but the whole camel, is in the tent. My only point here is to effect an introduction between these two persons. With that duty and privilegé met, I turn aside.

I here want to submit a criticism on Janet. In his treatise on "Final Causes," he says: "If nature were reduced to physical and chemical facts, the hypothesis of final causes would be useless." That is bad theory, for it implies that physical and chemical facts are incapable of revealing mind operating in their theatre. If nature were so reduced, you might be crowded back upon the more

simple and primitive ground of physics and chemistry to search for evidences of design; but I should not want to admit hypothetically, as Janet seems to do, that such evidences could not there be found. If Janet's supposed case were fact, we should be cut off from a higher department for evidences of design, it is true, but we should not be debarred the lower.

To the same end Janet further says: "So far as mechanism suffices, we have no need of final causes—if it sufficed everywhere, there would be no need of them at all." In answer to which it may be said, that one must have a curious view of mechanism, if the first thought it springs be not that of ends in view. The ends in view may be reached by mechanical means, and be mechanical ends, but they are no less ends in view. One would not fare well at the hands of the artisans of this mechanical age if he were to tell them that the work of their hands could not possibly be a means of suggesting intelligence. The fact is that there is no more fertile ground for raising the argument to ends in view than mechanics. You can argue the certainty of ends in view therein, although you are utterly unable to specify *what* ends. You may see many timbers lying about on the ground; you cannot tell whether they are to form a barn, a mill, or a bridge—but you are convinced that they are there for *some purpose*. I take it that, for one reason, Maxwell says the atoms bear the evidences of fabrication, because they suggest to him that they have been fashioned to subserve *some* ends, though he might be unable to tell beforehand the specific purpose. Janet makes the distinctive character of final causes to be adaptation to the future. Certainly mechanics is not barren of suggestion over that ground. If you show that a vital function is mechanically performed, you have not thereby deprived it of the power to suggest adaptation to the future.

But, dismissing the argument to design, I begin at a point this side the atoms in molecular physics. We are

here not so far beyond wading-depth as we should be out with Mr. Maxwell and his atoms. It is upon the compounds which are formed by the combinations of the atoms of the various elements with each other, that I wish to hold attention, i. e., to the familiar facts of inorganic chemistry.

There are, I believe, about sixty-five substances which refuse further resolution by processes at present known to us, and are considered elemental. We have very convincing reasons for believing that these elements are as distinctly marked, in their character, in the total solar and sidereal systems as with us on the earth. Even if Mr. Lockyer's hypothesis of the essential unity of all matter should prove true, i. e., that all our elements are but different forms of one and the same material entity, wrought out by the varying physical processes through which they have passed under the manipulation of the various physical forces to which they have been subjected, that would make no essential difference with the philosophic problem of matter. Given Mr. Lockyer's hypothesis, and the universe stands before us as the workshop in which Maxwell's atoms have been fabricated. But the fact is that the condition of the universe has been such for a long time, and must continue such for a long time to come, that distinct sorts of atoms will subsist, which we may as well call elemental as not, and of which we have sixty-five specimens on this planet. There may be a chemistry of atoms as there is a chemistry of compound molecules, or a physics if you prefer, but we have not yet attained it—at best only speculatively.

As the physical problem actually stands, we find the elements of matter will combine together and form new substances as unique in character as the elements themselves; as, for instance, the gas hydrogen and the gas oxygen combined form water—a substance whose properties are as definitely marked as are those of its constituents. The gas oxygen will combine with solid carbon,

as coal, and both will disappear in new compounds having properties utterly unlike in their potencies to those of either of their constituents. It is with these compounds that we usually deal on this earth, and they are what we commonly designate as "matter." There are very few elements which we find in a pure state. The crust of the earth, so far as we have observed it, is made up predominantly of chemical compounds. The water, and the bases of the soils, and the rocks, are compounds. But the significant thing about all these compounds is that in them *their elements coexist always in exact mathematical ratios.* The law of definite proportions is one of the first and of the last truths of chemistry. Given a chemical compound, and it always and everywhere consists of *so much and so much of its constituting elements.*

I am aware that there are certain facts which seem to indicate that the law of definite proportions has its exceptions under certain conditions or in case of certain substances. But nothing is more certain than that these peculiar cases are *exceptions*, and that the rule is as given by the common statement of the law of definite proportions. Certain fractional variations seem in some cases to be possible above and beneath the usual combining numbers, but these cases do not affect the great rule of definite proportions. There may be perturbations—eccentricities in the conduct of the atoms as of the planets. But each will be found to have its compensations, so as to guarantee the great rules in which the stability of the system seems to be insured.

So exact are the combinations of the elements, that you could make a book account, if you chose, of the chemistry of matter, in this way for instance:—

One Molecule Water,	Dr.
To Hydrogen Atoms	2
To Oxygen Atoms	1

And that account will stand good for any aggregate of the molecules of water in the sea, air, and universe. If

you took for examination the common salt out of the water of the sea, your book account would run:—

One Molecule Salt.	Dr.
To Chlorine Atoms,	1
To Sodium Atoms.	1

And that account will stand good for all the salt of sea and air—for it seems to pervade the air as well as the water of our planet. You could enter up such a book account with every chemical compound formed by matter. But, whether *you* could make the account or not, *it is made, and carried out in nature to the last molecule of every chemical compound.*

Now this mathematical registry of all the chemical transactions of nature is a fact familiar enough, but I do not think we have any adequate grasp upon its *significance.* If we had, I am sure the word "materialist" could not hold the content of meaning which it now carries: it would have to unlade its old cargo, and take in new freight. Mathematical expressions are the purest expressions of intelligence. I think, if we wanted to see an instance of intellectual ability, we should look to a mathematical exercise for it.

Sir William Hamilton says: "To my particular constitution of mind a mathematical theory presents even more of the intense unity of a living spirit, than the work of a poet or of an artist." I think that conviction respecting the intellectuality of mathematics is not peculiar to Sir William Hamilton; it is a common conclusion of the human mind. If we see things held, over and over again, to the same numerical ratio, we make there our shortest inference to the presence of controlling intelligence. We have no arguments in such case about ends in view of other orders of thought. Mathematical computation is, *per se,* intelligence. And just what we meet in the chemical combinations of matter is mathematical computation carried on, so far as we can see, to infinity.

If I find a boy's slate covered with figures making together a definite mathematical computation, I am not slow

to conclude to an intelligence putting the figures on the slate. If I find all the slates in a school-room carrying the same figures, and all expressing the same result, I am not slow to conclude to the unity of the intelligence whence this uniformity of mathematical computation proceeded, in the guidance of text-book or teacher. Why shall I conclude differently respecting the connection of mind with the mathematics when the sum is not on the slate but *in* it? I find perhaps as complicated mathematics in the composition of a slate as ever found expression on its surface, and all slates of the same chemical composition always contain the same sum. A slate carries in its composition the following formula, or one equally intricate:—

$$\text{Slate} = \left\{ \begin{array}{l} \text{Silica} = SiO_2 \\ \text{Iron Oxide} = Fe_2O_3 \\ \text{Alumina} = Al_2O_3 \\ \text{Potash} = K_2O \\ \text{Magnesia} = MgO \end{array} \right\} H_2O.$$

The varieties of slate are made by differing mixtures of the constituent minerals in the above formula. But let a base of one of the above minerals appear, and it must enter into chemical combination under some uniform mathematical expression as above—so much with so much in every case.

What is impressive is the *amount* of such expression in this earth. It is substantially infinite even here. All the water in and about this planet has a strict mathematical registry of every molecule. If you add to its quantity, as you may, by combining hydrogen and oxygen derived from other sources, you must fall into the prescribed mathematical formula to produce it. According to such and such numbers must you work. According to a mathematical formula marked out—well, why not?—by the Ancient of days.

Take a piece of granite. You have dead matter there surely enough. *Ne plus ultra.* When you strike granite, the geologist tells you, you have come to azoic matter. But granite may be said metaphorically to be *alive* with the mathematical expressions of intelligence. It is pecul-

iarly alive with such thought. If I write out a formula for granite, it would stand like this, for one variety:—

$$\text{Granite} = \begin{cases} \text{Quartz} = SiO_2 \\ \text{Feldspar} = \begin{cases} SiO_2 \\ Al_2O_3 \\ K_2O \\ Fe_2O_3 \end{cases} \\ \text{Mica} = \begin{cases} SiO_2 \\ Al_2O_3 \\ MgO \\ Fe_2O_3 \end{cases} \end{cases}$$

So far as any of the constituent minerals are hydrated, H_2O is to be added to its symbol. The different varieties of granite will be formed by varying quantities of quartz, feldspar, and mica, or by replacing mica with hornblende, or, in one mode, by substituting for the potash of feldspar, soda or lime. But, whatever the variety of granite, its formula is registered in definite arithmetic.

Every compound molecule in the whole complicate mass of granite carries in itself its own ratio of combination, and that ratio is observed in all the granite in the world. I am unable to find in granite "the promise and potency of the human mind;" but I do not see how I can fail to be convinced that I find there the assertion and potency of the divine mind. Consider a moment. It takes mind to read out this mathematics of matter: I cannot see why it did not take mind to read it in. It is the pride of science that within a century it has been able to discover this mathematics in the rocks—and it is a just pride too—but science has discovered only what was *there*. Man's mathematical capacity has only *discovered* the impress of another mathematical capacity on matter in all its elemental combinations. To my mind the arithmetic of the molecules makes a perfectly satisfactory theistic argument as far as it goes, i. e., an argument to intelligence as that is expressed in mathematics. I do not, however, want to call the transaction of my mind, in the case in hand, an argument to intelligence; it is rather a *perception* of it, and the perception is to me a vehicle of a revelation *pro tanto*. I find matter, then, to express mind so far as mind finds a

medium of expression in mathematics—and that seems to me a very great way—the expression seems of a very high intellectual type.

There is a further view I wish held in mind. I have spoken of the antithesis we make between mind and matter as though the latter were clear of the former. The truth is that when you come to question matter closely, it is the *materialism* of it that soonest escapes you, the *intelligence expressed in it*, upon which you can longest retain your grasp.

No man hath seen an atom at any time. An atom and the New Jerusalem are both, alike, articles of faith. Physical indications point to the one, and moral to the other. Mr. Tyndall has recently said that no man has seen a *molecule* of a chemical compound, and that he is never likely to see such molecule. It can never be hoped that microscopic aids to vision can reveal to sight a chemical molecule. In dealing with a molecule you are beyond the possible range of the senses of man; no nerve can interpret its matter to you. In this helplessness of sense, in this obscuration of matter, the one thing we are certain of is the mathematical relation of its elements to each other. In the last analysis you are more sure of the accuracy of your conceptions of the intelligence expressed in matter than you are of any other feature of it. In other words, the most ultimate thing which science has made known, or probably can make known, respecting matter, is the intellectual stamp upon it impressed in its mathematics.

If you follow the lead of science, you cannot stop on matter and regard it as a dead fact barring your progress, but you must follow it out till all traces of it are lost in mind, and then proceed on that mind alone.

FORCE.

There is one further step we might take here. But the elaboration of the thought to which we should be intro-

duced would call for the space of a full article, and so we can only point to one of the most fascinating of topics. I have *matter* before me in this essay, and I must not leave it for the entrancing subject of force. But out here in the molecule matter and force come together in a way which we must not suffer to escape our observation. We have seen that there is an exact registry of the quantities of the elements which make up a molecule. If now we turn from the matter to the *force* by which the elements are united in a molecule, or separated therefrom, we should find the same accurate mathematical registry. With just so much energy are the elements locked together in a molecule; it requires just so much to separate them from each other. So that, given a molecule, there may be known not only the mathematics of its quantities, but the mathematics of its accompanying energy. This double registry is kept with every molecule. The molecule, each of its kind, owes so much to elemental matter—so much to force. So we find force converging to the same point as matter where the intellectual element supersedes all others in its apprehensibility.

Now the amount of this arithmetical reckoning in the matter of the *earth* is so stupendous that we may call it infinite. Think of the number of chemically combined molecules in the granite, in the sandstones, limestones, ores, and clay! Every atom of every molecule in all this mass of matter is numbered and definitely yoked with its fellow or fellows. The very matter of the earth puts us in the presence of a mathematical intelligence substantially infinite.

I think we have not yet arrived at the point where chemical compounds are detected or identified in the sun, or the stars, or in comets. But, as meteors sometimes bring us a chemical composition at least as complicated as granite; and as the evidence points to the formation of that composition outside our atmosphere; and as we have found many of the elements, in the heavenly

bodies, with which we are here familiar; and as they there exhibit similar deportment as with us, and manifest like potencies,—we are justified in concluding that chemical combination has taken place, and will take place, in the same manner elsewhere as here. That introduces us to the molecular mathematics of the *universe*. The infinite arithmetic of the *earth* must be infinitely involved and then it could only be a unit symbol toward expressing the infinite arithmetic of the heavens. Yet it is *there*—matter cannot escape it—every combination in time and space shall utter it. There is an *Erdgeist* or a greater *Stoffgeist*

> Working and weaving in endless motion
> An infinite ocean

of testimony to an Infinite Intelligence—that too in the present tense—for the universe is yet young and we are beholding it in the making. "My Father worketh up to this time" is the profoundest present truth.

In concluding, then, on this topic, we may say, You may have matter, but you must take it *with evidences of mathematical intelligence attached.*

WILL.

When I find this mathematical registry kept in every instance of combination, so that there can be none without it, I infer *determination* as well as intelligence—I infer *will* running parallel with the intelligence throughout its whole extent. We conclude to sovereignty from an expressed, "Thus and so shall this be, and not otherwise,"—if we find the expression enforced. What shall we say when, in all the chemical combinations of matter, we find a mathematical "Be it thus and so" always enforced—never a failure—on earth, nor, so far as we can read, in the skies?

Take into account the number of the formulas employed in matter. They are almost as great as would arise from the permutation of the sixty-five elements, and bear in mind *each system in this intricate network of combina-*

tions is always true to itself. If there is intelligence in the mathematical expressions, *there is will in this enforced selection of the same formula for any kind of compound out of infinitely conflicting possibilities.* We certainly could conceive that matter could exist, and combinations be made in it, without this strict reckoning kept. Chaos is conceivable. A mathematical cosmos suggests choice, suggests "I select this, not that—I will have this, not that." It is the pride of man that he can resolve and recombine so many chemical compounds. But in doing it he is compelled to follow along the lines marked out by an establishing Intelligence and Will. You may attack a compound and break it up. But there is a prior order running along all your work. It says, "You may dissolve, but you shall not confuse nor transmute—so much of one element you can have, and so much of another, no more, no less. You may take elements and make combinations of them—make a different combination, if you please, from the one you broke up to get the elements." But here again the prior order runs, "You may combine, but you shall not confuse or obscure—so much with so much, no more, no less." The whole transaction brings out to the mind a command running somewhat like this: "I will have elements; I will have combinations, but always on the basis of *my reckoning* with the elements; *that* no power shall disturb." I cannot see why *will* is not written in this universal feature of the combinations of the elements as well as the mathematical thought.

Now let us see where we are. Beginning with Maxwell's "fabricated" atoms, we have in matter either pure elemental aggregations of such atoms, as in gold, or compounds united according to an unvarying mathematical determination, as in slate or granite. If matter, as we thus know it, does not bear to us upon itself the impress of intelligence and will, I think it is because we set aside its best known, even its most palpable, characteristics.

Materialism as a term carrying the philosophy of atheism is misnomer; it is a coin of ignorance circulating in these days when science has cast out of it the last traces of atheistic signification.

We conclude this topic as we did the one before, You may have matter, but you must take it *with the evidences of will attached.*

BEAUTY.

But there is one other line in which the impress of mind on matter becomes evident. Matter is as much the receptacle of *beauty* as it of mathematics and the will thereto related. Not only is the arithmetical reckoning kept with the atoms, but they are charged with the possibilities of beauty. If there were no life on this globe,—nothing here but its matter,—there would still be very much of the æsthetic exhibition which so charms us in nature. The ocean would still roll in the breeze and glimmer in the light of the sun, moon, and stars. The dawn would blush, and the sunsets have their glory of crimson and gold. Fleecy vapors would roll along the mountain-sides and hover over their summits. The white snow would carpet the earth, and the bow would still be painted on the retreating storm-cloud. I know some of these phenomena are much modified by the presence of vegetation. But much of this æsthetic exhibition would be here, or the possibility of it, without life. It is said, if there were no ear to hear, there would be no sound, and, if there were no eye to see, there would be no morning red or evening gold. But that is not so. Our senses are simply a means of interpreting to us the phenomena of nature.

> Full many a gem of purest ray serene
> The dark unfathomed caves of ocean bear,
> Full many a flower is born to blush unseen
> And waste its fragrance on the desert air.

The gem is *there* whether a human eye sees it or not, and flashes back to the light the beautiful modifications

of the ethereal waves of which its structure makes it capable. The flower is *there*, and sends forth its fragrance whether it falls on a sensitive human organism or not. Each eye sees its own rainbow. But that is not because there is no rainbow except as the eye fashions it, but because it is all rainbow—glory piled on glory—where each eye detects the beauty revealed to it. Those rhythmic movements in air and ether which we recognize as harmony in sound, and beauty in color, are *here* connected with the *matter* of the earth and of the universe. "The harmony of the spheres" is not a mere human fancy. It was, as originally uttered, æsthetic prophecy, into the meaning of which those who uttered it desired to look, which science is daily more and more passing along up to the realm of æsthetic conviction. The music of the spheres may stand as the bass in the diapason of the system. Away at the other end of the system, as treble, is the "*ἀνήριθμον γέλασμα*"—the laughter, "as of numbers without number," of atoms in their rhythmic dance. There is basis for an æsthetic philosophy of matter of something of that sort. Science is revealing to us the principles of such a philosophy. But science is revealing nothing which is not *in* matter to be revealed. I think that an *æsthetic decree* may be found written in the constitution of matter as plainly as the mathematical order.

There are many drops of water on the earth; but every drop has within it its rainbow possibilities. It makes no difference where it comes from,—whether it is distilled out of the atmosphere, or whether it rolls in darkness on the bed of the sea, or deeper still is more darkly hidden in the structure of the hydrated rocks,—it has everywhere its æsthetic commission written within it. Nay, more; here, as in the case of mathematics, if you form the molecule yourself, if you unite, as you can, the elements oxygen and hydrogen, the drop of water resultant must execute the æsthetic determination,—it must glisten in the

sunshine, and in its analysis of light reveal the rainbow rhythms. Every possible molecule of water must be an agent to execute the universal order for beauty impressed upon its kind.

This order is written in the constitution of all matter. Silica (silicon oxide) makes up a larger part of the known crust of the earth than any other mineral. But just as any drop of water in the sky will give you the beauty of the prismatic colors, so any free collection of silica will give you the beauties of the quartz crystal. The nisus for beauty is *there* in all your silica, and it has a wonderful expression in nature. The grains of the older sandstones will almost always exhibit one or more unmarred facets of quartz crystal. Even where the edges of the facets have been worn, subsequent depositions of silica show an attempt to repair the crystal along the old lines.

A clay bank is to an ordinary glance an unæsthetic affair; but all its alumina has within it the possibility of the beauty of the sapphire. Combined with silica and other bases, alumina gives rise to a series, not easily numbered, of the most beautiful minerals, each of which in purity is held to definite forms and powers of beauty. You find matter thus held to the definite expression of *beauty*—you find it *all* charged with æsthetic possibilities. Here, again, we are blind if we do not read a declaration and an order running thus: "In beauty I delight; beauty I will have."

We say beauty affects the sensibilities. I believe the argument respecting its origin in matter is as short as that respecting the mathematics of matter. Both are intellectual, spiritual in cast. Both speak of mind by their very existence. That a thing mathematically done is not intellectually done is absurd. That a thing æsthetically done is not spiritually done is absurd. There may be a question as to whether either be executed; but, that granted, there is no question about what follows. Mind perceives itself on the track of mind.

As we now know it, we ought to be past the period of question as to the expression in matter of mathematical idea or æsthetic inspiration. And the proof of each stands on its own basis: neither is amenable to the other, nor to any principle other than itself. Both are radically undecomposable. Mathematics is made up of no constituent parts: it *is* itself. So it is with æsthetics. Both may stand in matter—do stand in matter as a sphere of exhibition. Mathematics reveals itself to intellectual perception, and beauty to æsthetic sensibility. Each department has its own logic, its own modes of being perceived, its own upspringing convictions.

At an orchestral concert the other evening, there came up to my thought not so much the genius of the conductor and of his corps of assistants, as suggestions of *theism* along both the lines we are now pursuing. Whose was the mathematics of the ratios of the vibrations of the matter of the musical instruments and of their relations to each other? Not the musicians. Their merit was that they had hit upon and could follow a pre-existing system. As to their share in the æsthetic element, Milton has it exactly,—

> Untwisting all the chains that tie
> The hidden soul of harmony.

The harmony was *there*, bound in the matter, and the musician's part was to loose it. They were acting the role of revelators. They were messengers, prophets. But whose was the message—whose the burden of the harmonic prophecy?

Here, again, if you will have matter, you must take it *with its æsthetic capacities attached, and the meaning thereto belonging*. Here, then, in matter, are expressed unquestionable intellectual and spiritual principles. In matter a psychology is revealed, and you cannot cut off question and conviction respecting its source, history, purport. Matter, so far from being dead, neutral, speechless, becomes under the inspection of science vocal of mind. I see not how we

can escape from the conclusion that in it we recognize the impress of the great triad of capacities which we usually distinguish as component of mind—intellect, sensibility, and will. That is the finishing stroke of materialism as a refuge of atheism. The raw material of things testifies of God as well as any more finished product—as well as the forms and functions and instincts and intelligences of life. A century of the examination of matter by science has only detected in its realm the indubitable proofs of the divine existence and government, which had before been seen in organized life, in the operations of society, and in the moral functions of the soul of man. Here, as it must be everywhere else in the universe, when the testimony is carefully taken, supposed atheistic witnesses will testify for *The Government.*

> Out of the eater came forth meat,
> And out of the strong came forth sweetness.