

CHAPTER II.

ON THE THEORY OF MAN'S INTELLECTUAL PROGRESSION.

SECTION I.—THE ORDER OF THE SCIENCES.

1st. THE sum of all things which man can *know* is circumscribed in quality, although in each quality there may be combinations of indefinite extent. That is, there are only so many *possible sciences*, although each science, in its own department, may be pursued indefinitely.

2d. The sciences are capable of being *classed* on a system which is not arbitrary.

3d. The *discovery* of the sciences as an historical fact is correlative with the scheme of classification. The *classification* is a mere process of the intellect, whereby the sciences are arranged in a certain order, according to a principle. The *discovery* of the sciences is an historical fact, extending over many centuries. We assert that the order of discovery has been correlative with the order of classification.

4th. In the order of discovery, we are at a certain

point, or at a certain number in the series, according to the scheme of classification.

5th. There is, therefore, the strongest ground for believing that the future sciences will be discovered and reduced to ordination in the same order that they stand in the scheme of classification.

6th. Correlative with the *sciences* are the *arts*.

The sciences are *knowledge*, the arts are *action*.

7th. With the discovery of the sciences, there follows invariably a new and amended order of *action*; that is, the *arts*, or the products of human activity, continually improve with the progression of the sciences. [The word *art* we use not in its restricted and partial sense, as applying more particularly to the *fine arts*, but in its general sense, as signifying the systematic products of human activity. The fine arts are, to a great extent, the gift of the individual, and consequently are so far independent of science.]

8th. The sciences are classed *on their complexity*. To determine the position of a science in the scheme of classification, we have only to ask how many substantive concepts does it necessarily involve; that is, with how many *nouns-substantive* can it be made and expressed.

9th. The order of the sciences is as follows:—

1. The mathematical sciences.
2. The force sciences.
3. The inorganic physical sciences.
4. The sciences that treat of vegetable organization.
5. The sciences that treat of animal organization.
6. The sciences that treat of man and his functions.

Let it be remembered that *science* is not a *reality*,

but only a form of *thought*. Science exists in the mind, and in the mind alone; it is the mind's mode of viewing reality.

The realities are matter and mind.

Let any portion of matter be subjected to our investigation, and the mind, from the necessary laws of its constitution, *abstracts* the qualities of that portion of matter, the one from the other, and then investigates the laws of those abstractions.

The laws of those abstractions constitute the mathematical sciences.

These abstractions form the much-decried (and much less understood) *categories*, under which all scientific knowledge must range itself.

These categories are for the mathematical sciences—

1. Identity. What *is* A?
2. Equality. What *is* A *part* of?
3. Number. How *many* parts?
4. Quantity. How *much* is each part?
5. Space, (position, extent, direction.)
6. Force, (classed especially hereafter.)

And each of these *primary and undefinable* abstractions, or substantive concepts, furnish us with a distinct science.

The rational process of thought in every science is *subjective*, and does not require to be taken into consideration. The abstract sciences arise from the application of the rational process of thought (*subjective*) to the above concepts, which are the *objects* of the sciences.*

* Anterior to all reasoning whatever, there is the ontological necessity, or *necessary form of thought*, which precedes all science.

Every *object* in every department of human thought may and must be considered under three aspects.

1st. Existence. 2d. Relation. 3d. Function.

All that man can know of any thing whatever comes under one of these heads.

1st. The thing; 2d, its condition; 3d, its function; and to these three answer the three processes of the mind.

1st. Apprehension. 2d. Classification. 3d. Reasoning.

When, therefore, the *categorical concepts* are apprehended by abstraction, the *second* process is the *classification of the forms* of the concept, and the *third* process is *reasoning*. In every science, therefore, we have classification and reasoning; and we have only

The most universal *form* of science is logic, or *syllogistic*, in which we have the *blank* form into which the mathematical sciences place numbers, quantities, and spaces. Logic is the first form of *reasoning*; which reasoning in the mathematical sciences is called *calculating*. But anterior to reasoning, there is the mode of the substantive terms, and the mode of the propositions which are to enter into reasoning; and these modes are determined by ontology or metaphysic, which furnishes the *axioms* or self-evident truths. These axioms are taken as subjectively true in the sciences, but ontology considers them first as objective. Thus ontology pronounces nothing whatever on the *reality* of being, but on the *mode of being in thought*. Ontology, then, divides substantive thought into substance, attribute, cause, effect, necessary existence, contingent existence, power, function, &c.; and when the *mode* of these has been determined, these substantives are transformed from objective consideration into subjective use. Science exists in the *mind*, and thus when forces, for instance, function in the mind, they function through the laws of ontological classification: without ontology there could be no science whatever.

to ask *what* do we classify, and *with what* do we reason, to determine the name and the nature of the science. The most ultimate abstraction which the human intellect can form, is the noun-substantive in its generic character without attribute. It therefore is the primary and fundamental element of science, which, by the addition of attributes or *predicates*, shall become the substantive element of any science whatever. We assert, then, that the *first possible predicate* that we can attach to the noun-substantive, in its *generic* character, is *Identity*; the *second*, *Equality*; the *third*, *Number*; and so on.

Correlative with the course of nature and of thought (or knowledge) is the course of language; and here we have the same exhaustive triplicity, beyond which it is impossible for us to go.

Apprehension-furnishes us with *the name*, classification with *the proposition*, and reasoning with *the syllogism*. The name, the proposition, and the syllogism include every thing that can be expressed as science.

We have, then,—

The course of nature.

1st. The thing. 2d. Its condition. 3d. Its function.

The course of knowledge.

1st. The concept. 2d. Its classification. 3d. Reasoning.

The course of language.

1st. The name. 2d. The proposition. 3d. The syllogism.

The concept is the thing (ens) apprehended by the intellect.

The name is the expression, in language, of the concept, and consequently of the thing.

Classification is the apprehension of the condition of the thing, in which are included all its *quiescent relations*; and the proposition is the expression, in language, of that classification.

Reasoning is subsequent to propositional knowledge, and is the process whereby a new proposition is made to evolve from two anterior propositions.

The syllogism is the complete expression, in language, of reasoning; and both are correlative with all the active functions of real nature.

Were man incapable of reasoning, he might apprehend all the realities of nature, and classify all on the most perfect system of ordination; but never, by any possibility, could he explain and *calculate the functions* of realities. Every function is *active*, and every action involves an agent, (or *cause*;) and were man not endowed with the intuitive principle of causation, all motions, combinations, functions, in a word, all *changes*, would immediately become inexplicable, and the universe would forever remain a vast enigma.

The actual constitution of the human intellect is as absolutely necessary to all *science*, as is the existence of the realities of which the sciences respectively treat.

Such, then, are the *general* characteristics of all the sciences, that is, of all the true sciences that involve functions and reasoning; for the so-called sciences that do not involve functions and reasoning (descriptive botany, zoölogy, &c.) are mere classification, and not sciences. The general form of scientific knowledge, then, is A,—the name, the concept, the thing.

A is B,—the proposition, the classification, condition, or relation of A.

B is C,—the classification, condition, or relation of B.

Ergo, A is C,—the consequent of the two anterior propositions. The whole forms the syllogism or reasoning, which is the expression of the *function* of realities.

Let us now turn to the formation and growth of the abstract sciences.

Let A, B, and C be called *terms*; and, as nomenclature is at first purely arbitrary, these terms may be made to stand for any thing we please.

The *first*, most simple, and most elementary form of reasoning, is reasoning in identity, or *with* terms of which identity (or its opposite, non-identity) is predicated.

A is B; B is C; *ergo*, A is C.

A is B; B is not C; *ergo*, A is not C;

where the terms are *singular*, is the very simplest form of all reasoning, and consequently the most general and least specific form of all science whatever.

The *second* form of reasoning is reasoning *in* equality, or *with* terms declared to be *equal* (or its opposite, *unequal*) to each other.

When we reasoned in identity, the terms were incapable of division; but when we reason in equality, the most general form of division is introduced, and our terms are now divided into *whole or parts*. We have therefore become more specific, and can say, *the whole of A, part of A*; the whole of B, part of B; *e. g.*,—

The whole of A is equal to part of B.

The whole of B is equal to part of C; *ergo*, the whole of A is equal to part of C.

The *third* form of reasoning is reasoning in *number*, or reasoning with terms, which are not merely divided generally into whole or parts, but into parts that have been specifically numbered. A is now divided, not merely into whole or parts, but into 1, 2, 3, 4, 5, 6, &c., parts.

Reasoning in identity and in equality is what is termed logic, although in logic there are *two* sciences; the one the science of identity, the other the science of equality. The science of number is called arithmetic, and is nothing more than logic with the terms divided into numbers.

The *fourth* form of reasoning is reasoning in quantity, or reasoning with terms which are not only numbered, but which have a *quantity* attached to each of their parts. In arithmetic, all the units are supposed to be absolutely equal to each other; in algebra, on the contrary, the units are capable of various magnitudes.*

Our terms are now divided into numbered parts, which have quantity attached to them; let us now add a new predicate to the quantities, and a new science arises.

The *fifth* form of reasoning is reasoning in *space* —

* Quantity and number are frequently confounded with each other, and algebra has been termed universal arithmetic. They are essentially distinct, inasmuch as arithmetic starts from the unit, which is indivisible, and the number continually increases with the repetition of the unit. Quantity, on the contrary, starts from infinity, which is divisible *ad infinitum*, the quantity diminishing continually as we increase the number of the parts. Number and quantity are in the inverse ratio of each other.

geometry. What were before only *quantities*, have now become quantities of space; and the laws of position, direction, and extent constitute the *fifth* science.

The *sixth* form of reasoning is reasoning in *force*; and our terms, becoming more and more specific with the addition of each new concept, have now become *forces*.

Such is the necessary order of the mathematical sciences.

1st. Logic; which really includes *two* sciences.

3d. Arithmetic; that is, logic applied to units or number.

4th. Algebra; that is, arithmetic applied to quantities.

5th. Geometry; that is, algebra applied to space.

6th. Statics; that is, geometry applied to force.

In this order, the mathematical sciences must necessarily be classed, and in this order the mathematical sciences must necessarily be discovered. Ten thousand men originating the mathematical sciences by a process of independent investigation, would necessarily discover them in this order; and were ten thousand worlds, peopled with human beings, to go through the process of making anew the mathematical sciences, every one of those human races would pass through the same intellectual course, and evolve the abstract sciences exactly in the same necessary order. The constitution of human reason forbids that it should be otherwise; one science being impossible until its antecedent is so well known as to be capable of subjective operation. Thus, unless the laws of identity are

known, there can be no investigation of the laws of equality; and until the laws of equality are known, there can be no investigation of the laws of number; and until arithmetic is known, there can be no investigation of the laws of quantity; and until the laws of quantity are known, there can be no investigation into the relations of spaces; and until geometry is known, there can be no statics.

But the mathematical sciences are abstract, *à priori*, and deductive; their principles are not principles of observed truth, but of rational necessity; they emanate, in their scientific character, not from the operations of nature, but from the operations of mind; *sense*, at the *utmost*, furnishes only the subject matter from which the intellect derives the element,—the one noun-substantive, of the science; while all the propositions, and all the reasonings, and all the far-off conclusions, are furnished by man's rational mind, as exclusively as if matter had no existence. And these mathematical sciences form the abstract preparation of man for the acquisition of real or physical knowledge. Without the mathematical sciences, there can be no physical science—there may be classifications, facts, propositions innumerable; but science, which involves the syllogism, there never can be till the abstract sciences are so far advanced as to be capable of subjective application to the real facts of nature.

Let us now make an observation on the method by which one science grows out of another, by the introduction of only one single new concept or substantive idea.

For want of better names, (at present,) we shall

call the sciences of identity and equality simple and compound logic.

In simple logic the rational process of the intellect is *subjective*, and the terms (of which nothing is predicated except identity; for instance, A is B, B is C) are *objective*.

In compound logic the terms have a new predicate; they are no longer *identicals*, but *equivalents*, and simple logic is now subjective, (that is, *in operation*,) while the equivalents are objective, that is, *operated upon*.

Logic being the first, most general, and most abstract of all the sciences, is universally *applicable*; it may be applied to every subject of human thought.

Logic is the universal *form* of all science; it is the general formula or expression of science. The mathematical sciences are only *logic*, with numbers, quantities, spaces, or forces for the *terms*; and the physical sciences are only logic, with physical realities for the terms. The *form* remains universally the same; and the progression of the sciences, or the advance from one science to another, consists in adding predicate after predicate to the terms, and thereby rendering them continually more complex. The *form* remains exactly the same; but in the mathematical sciences we *commence* with the major and minor propositions, and thence *deduce the consequent*. In the physical sciences, we first commence with the consequent and minor proposition, and thence *infer the major*. When the major is inferred, we can then reason deductively, as in the mathematical sciences.

Let us therefore *apply* logic to numbers; that is, instead of our terms being merely *equivalents*, let us

make them numbers, and every proposition that was true in logic is now true with regard to numbers; that is, we create arithmetic, which is nothing more than logic applied to numbers, and in which logic is subjective, and number objective. Having made arithmetic, let us *apply* it to quantities, and we have algebra where arithmetic is subjective, and quantities are objective; arithmetic being the process of operation, and quantities being the substantives operated upon. Let us now *apply* algebra to space, that is, to *positions, directions, extents*, and geometry is originated. In geometry, algebra is subjective, and *the forms of space* are objective.

Let us now *apply* geometry to force, and statics is originated where geometry is subjective, and forces are objective.

In the above sciences, not one single idea has been introduced that requires sensual observation, and all the *operations* have been operations of the mind.

Let us now apply the above sciences to the substantives and operations of real nature, and the physical sciences arise one after another in a similar order of complexity.

In statics, the whole question was, whether the forces did or did not neutralize each other at a given point; but nothing was said as to the consequences if they did not neutralize each other.

Let a new substantive concept be introduced, and let the consequence of force, which has not been neutralized, be *motion*.

Let us remember, that in every department of knowledge we have to consider, 1st. The thing. 2d. Its condition and relations. 3d. Its function.

The six sciences of which we have spoken, treat only of quiescent conditions and relations; and when applied to the realities of nature, they apply only to the quiescent conditions and relations of those realities. But the realities of nature have functions, and those functions form the groundwork of the physical sciences.

In the transition from the abstract sciences to the physical sciences, it is usually supposed that we overstep a broad line of demarcation, about which there can be no possible mistake. It is usually advanced, that in the one class of sciences we have nothing but *abstractions* and their necessary relations; while in the other class we have tangible or visible realities — good solid *matter*.

Such a mode of viewing the sciences is as clumsy as it is empirical, and calculated only to satisfy those who (however deeply versed in the specialities of any one particular science) have never turned their attention to the relations of the sciences among themselves.

The transition from the abstract sciences to the physical sciences is not the abrupt leap so commonly supposed; it is a gradual transition, that is, a transition *step by step*, in which the step that lands us on the real universe is neither greater nor less than any of the previous steps that had conducted us from one science to another; or if, indeed, it can be called greater, it is only greater in a gradual ratio of increase, which might be already observed to pervade the abstract sciences. The *difference* between the sciences may be viewed as gradually increasing; but we maintain that, if this view be taken, the increase of

the *difference* is in a progressive ratio, and that there is no such thing as stepping out of one region (the region of the mathematical sciences) into another region, (the region of the physical sciences,) by a passage that brings us into a sphere altogether dissimilar. So long as mere *classifications* are called sciences, there can be no just views of science, and consequently no just views of the relations of the sciences to each other. Classification, wherever it may be found, and to whatever it may refer, is only one of the preliminaries of science; and it is only when we can *reason*, that is, deduce a new proposition from propositions already ascertained, that science has properly commenced.

Let us, then, inquire what is the step by which we pass from the mathematical sciences to the physical sciences. Our *terms* from equivalents become numbers, and from numbers become quantities, and from quantities become spaces, and from spaces become forces. Force *involves* space, quantity, number, equality, and identity; but it does not involve matter. As a real fact, we may have no force without matter; but in logical analysis force may be considered, and may be reasoned with quite independently of matter. In statics, then, our terms were forces, and the question was, Do the forces neutralize each other, or do they not?

Now, every portion of matter must be considered, like every thing else, under the three phases. 1st. Existence; 2d. Condition and relation; 3d. Function. And the physical sciences, properly so called, treat of the *functions* of matter.

What, then, is the simplest and most universal function of matter? for this is the criterion by which we recognize the first physical science.

The simplest and most universal function of matter is *motion*; the science of motion, therefore, is the first, the simplest, and the least specific of all the physical sciences.

Let us now examine the step that leads from *force* to *motion*.

It is evident that all the physical sciences must be based on the observation of the existence, condition, and function of the real matter with which man is acquainted; and that every real motion must be the motion of some one particular portion of matter. But every portion of matter has a certain number of *accidents* attached to it; that is, has a number of *predicates*, which are quite superfluous in treating of motion, and which, consequently, must be *abstracted*. Color, density, chemical composition, &c., &c., must all be reserved for future consideration, until the most general laws of motion are discovered.

In statics our *terms* were forces, and the question was, Did or did not the forces neutralize each other?

Let us consider the simplest form of motion; and as a physical body would involve a number of predicates, let us take only the essential one, namely, the one that is absolutely necessary to the formation of a new science. In statics we had no motion; and as every motion requires a something that shall move, let that something be (not a planet nor a portion of real matter, both of which are as yet much too complex) but *a point*, with no other physical predicate than that it is *movable*.

Our term has now become a *movable point*, and the *forces* which in the previous science were objective, now become subjective; that is, the laws of force which were to be *discovered* in the previous science, are now to be called into actual operation for the purpose of evolving a new science, which, in its turn, will again be called into subjective operation for the purpose of evolving another new science, and so on till the whole series of the real sciences is completed.

With forces acting on a movable point, all that we can treat of is the *direction* and *extent* of the motion, with the *position* of departure, the *positions* of transit, and the *position* of arrival; that is, the three substantives of geometry, *position*, *direction*, and *extent*, exhaust all that can be discovered until a new concept is introduced.

Hitherto the concept *time* has not been taken into consideration. As *space* is the necessary condition of the existence of matter, so is time the necessary condition of the functions of matter. *Space* is the necessary condition of *statical* science; *time* is the necessary condition of *dynamical* science.

Let us, therefore, add *time* to the motions whose directions and extent have been previously treated of, and we immediately add the laws of *velocity*; that is, the relation between time and space.

The science of motion (dynamics) brings us to the verge of the physical sciences.

We have said that the functions of realities constitute the bases of the physical sciences. Let us, then, ask, What is involved in a *function*?

We hold the principle to be absolutely universal,

that, "wherever man observes a change, there he infers a cause." A function, then, is necessarily composed of three items. 1st. A cause; 2d. An object; 3d. An operation, or phenomenon. The cause is the agent, the object is the thing operated upon, and the phenomenon is the change in the condition or relation of the object.

But we have stated that *reasoning* is correlative with *function*, and reasoning is expressed in language by the syllogism. In the syllogism, therefore, we must find a correlative triplicity answering to the component items of the function.

The function gives us the cause, the object, and the phenomenon; and, answering to these, the syllogism gives us,—

1st. The major premiss; 2d. The minor premiss; and, 3d. The conclusion, or consequent.

In the mathematical sciences we have, *given* the major and minor premises to find the conclusion; in the physical sciences (*while they are in process of discovery*) we have, *given* the minor premiss and conclusion to find the major premiss. But when a physical science *is* discovered, that is, when its facts have been generalized in such a mode as to cast aside dispute, we are then enabled to reason deductively, in the same manner as in the mathematical sciences; and so long as a science is incapable of this deductive reasoning, it is only undergoing the process of discovery.

In the physical sciences, all that we can *observe* is, 1st. The condition of the object; and, 2d. The phenomenon. The *cause* is forever hidden from sensual observation, and is only apprehended by the reason.

The condition of the object, when expressed in language, furnishes us with a *proposition*; and the phenomenon, when expressed in language, furnishes us with another proposition relating to the same object.

Now, let *any two* propositions of a complete syllogism be *given*, the third can be inferred; and in the physical sciences, *observation* gives us the *condition* of the object (namely, the minor premiss) and the *phenomenon* (namely, the conclusion) to find the major premiss. But, although *the cause* in a function is hidden from our senses, it is absolutely required by our reason; and every observed phenomenon* is considered by the human mind as *the effect* of some unseen agent or cause.†

We have already stated that *science* is only a form of *thought*; the physical sciences may be termed, *nature seen by the reason, and not merely by the senses*.

We must consider, then, how the facts of sensational observation are transformed into the propositions of rational science. For this purpose, let us consider what is furnished by observation and what by reason.

Observation gives us, 1st. The condition of the object; and, 2d. The phenomenon. And reason, under all circumstances, views a function as composed of, 1st. The cause; 2d. The occasion; 3d. The effect. The condition of the object given by observation, is what the reason terms the *occasion*; and the phenom-

* We apply the term *phenomenon* exclusively to the action or operation, not to the object.

† We are aware that the sensationalists deny this; but until they have abolished *force*, the *cause of motion*, and demolished dynamics, they can advance nothing on this subject worthy of attention.

enon given by observation, is what the reason terms the *effect*; and these in the syllogism are represented by the minor premiss and the conclusion. Consequently the problem of the physical sciences is, to infer such a major premiss as would make the observed phenomenon (when stated in language) follow syllogistically from that major, and from the observed condition of the object, when stated in language.

To express this technically, let A be the object, and A is B, its condition; and let A is C be the expression, in language, of the phenomenon.

Observation then gives us, —

A is B, and A is C.

But (A is C,) being the phenomenon, is regarded by the reason as *an effect*, and is consequently the *conclusion* of a syllogism, one of whose premisses is wanting. The problem then is, to supply the wanting proposition of the syllogism; that is, such a proposition as shall make the conclusion follow from the two premisses, according to the laws of logic. The required proposition is, B is C. [B being of course distributed when we reason with whole and parts.]

Such is the general problem of the physical sciences expressed in the most abstract form; but when we turn to realities, our terms, A, B, C, must be *written out*; that is, instead of abstract terms, they must be descriptions of the physical realities and phenomena, and, instead of presenting themselves under the form of alphabetic letters, as they do in logic, they present themselves under the form of propositions, (perhaps very numerous and very extensive,) containing a mass of real observation. Every single term may be a

proposition, or a series of propositions, or even a syllogism; but the final result in every case is, that the whole are at last assembled into one syllogism, however extensive, and however complex may be the character of the premises.

Those who are familiar with logic, (and every one ought to be so,) will at once observe that B is the middle term of the syllogism; and consequently the problem of the physical sciences is to discover the nature of that middle term that will connect the condition of matter, or the *circumstances* of matter, with the phenomena manifested in those circumstances.

Now, it will be observed, that in nature we find no proportions, ratios, squares, roots, forces, &c., &c.; these are all mental abstractions; yet these are the great middle terms of the physical sciences that enable men to reason of the effects of new combinations. No man, for instance, ever *observes* "the inverse ratio of the square of the distance;" all that he can possibly observe is actual distance — so many inches, feet, miles; but the ratio he discovers by his reason, generalizing from particular facts to the general expression of those facts. And when he has discovered such a ratio as shall coincide with all his observed measurements, he is then enabled to reason deductively, having found the middle term of his syllogism. This middle term may be a generalized fact or general proposition, or it may be a force or cause; and the difference between these is, that the general fact or proposition produces the *logical* consequent, and the force is conceived as external to the mind, existing in real nature, and producing the *real* consequent, or effect, or

phenomenon. In the physical sciences, therefore, two distinct classes of problems present themselves,—the problems of *inference*, and the problems of *deduction*, expressed logically as,—

1st. *Given* the minor premiss and consequent, to find the *major premiss*.

2d. Given the major and minor premises, to find the *consequent*.

In the process of *discovering* the physical sciences we have the first problem; namely, *given* the observed conditions of matter, and the observed phenomena, to *infer* the force, or forces, that in those conditions would produce those phenomena. And when such forces have been suggested as would, by acting regularly, produce the phenomena in the given conditions, the facts are said to be explained, and a vast power of future calculation (reasoning) is immediately acquired by man. For immediately the middle term has been discovered, we are enabled to reason deductively, that is, from the two premises to the consequent; and this middle term being a *constant*, we have only to ascertain any new *conditions* to enable us to *predict future phenomena*. If the real phenomena coincide with the predicted phenomena, (that is, if the effect in nature coincide with the consequent of the syllogism,) a verification is afforded that the inferred major premiss was correct; but if they do not coincide, we are immediately led to the conclusion, either that the inferred major was erroneous, or that in the minor some condition had been overlooked, which has tended to alter the character of the phenomena.

Between the syllogism, the intellectual reason of

mankind, and the operations of external nature, there is the most perfect parallelism; and this parallelism affords a most undoubted proof of the *objective veracity* of the *subjective convictions* of the human mind. Were the general convictions of the human reason (its axioms) not true *objectively*, as well as necessarily true *subjectively*, the prediction of physical phenomena would be absolutely impossible. And although the philosophic sceptic may by ingenious ambiguities involve that question in doubts and sophisms, surely we may rest satisfied that the same hand that made the heavens and the earth in so wonderful a harmony of order, has not made the human reason only a mockery and a delusion.

Having indicated the general process by which the sciences evolve one after the other, thereby giving a necessary order of classification, and a necessary order of chronological discovery, we shall not attempt the particular classification of the physical sciences, but confine ourselves to a few remarks bearing on the definite meaning of our argument.

In dynamics, as an abstract science, our *term* was a movable point. Let that point be endowed with *physical* characteristics one after another, and the physical sciences arise. From a point let it be transformed into a body possessing *weight*, or *resistance*, and we have general mechanics—a science partly physical, partly mathematical.

But here we must guard against being imposed on by a system, however simple that system may appear.

In the mathematical sciences we found that there was but *one* series, and that all were coördinated upon

one single line. We must not thence infer that we shall find exactly the same simplicity in the physical sciences. Man has only one reason, but he has several senses; and those senses may furnish us with elements independent of each other, although in the order of the sciences depending both on the mathematical sciences, and both requisite before we can proceed to other and more complex sciences.

Such we presume *light*, *sound*, and *heat* to be. Now, although we can have no hesitation in affirming that optics is impossible until the mathematical sciences have been evolved and are capable of application, and although we must necessarily have optics *before* we can possibly have the physiology of the eye; yet there may be no such mutual dependence between optics and acoustics, and we may therefore be obliged to group these together as holding the same rank in the classification, and consequently as likely to be discovered about the same time.

And here another question is necessary, of considerable importance to the true understanding of the character of science. "How far are the real physical sciences (astronomy, for instance) to be considered as true *sciences*?"

All the phenomena of nature are operations — things *done*. Now, science consists of *knowledge*, and knowledge exists in the *mind*. How, then, are we to view the real operations of nature, considered as external to the mind?

The real operations of nature are to be viewed as *arts* — as divine arts — and their *comprehension* alone can be called *science*. The universe is God's great

workshop, and man is the rational spectator, whose office it is to comprehend the processes that are there carried on. The motions of the planets do not *constitute* science; it is the rational apprehension of those motions in the human *mind* that constitutes science. But the principles of mechanics are far more general than all the facts of astronomy; they apply not only to the real sun and the real planets, but to all possible suns, and to all possible matter constituted in a manner similar to the matter with which we are acquainted.

Consequently astronomy, vast as it is, must be viewed only as a real illustration of the principles of mechanics, as an exemplification of dynamics; which exemplification in every real item might have been totally different, and yet have exhibited the very same principles. The heavenly bodies might have been twice as numerous or twice as few, and yet have exhibited exactly the same principles of construction; in which case the science of mechanics would have remained exactly as it is, while actual astronomy would have been totally dissimilar.

From the more simple motions of matter we turn naturally to those that are more complex; that is, from those that are more *general* to those that are more *specific*. When the mere motion of a body is considered, it is evident that this motion is subject to the same laws, whether the body be a stone, an apple, or an animal. But when matter is subdivided and classified, it is found that some motions and some phenomena are altogether distinct from the general motions of matter. The phenomena of magnetism, electricity, and chemistry, therefore, take their rank

after mechanics, and these in their turn are the necessary preparations for a new order of sciences.

We have said that the classification of the sciences, and their chronological discovery, (or reduction to ordination,) must follow the order of their complexity. From the more simple we pass to the more complex; from the more general to the more specific.

Let us then ask, What is necessary to the *complete understanding* of a single portion of inorganic matter — a pint of water, for instance? (Speculations on things which *cannot* be known respecting matter, of course we altogether exclude.) This matter may present itself in three forms; vapor, liquid, and solid — the phenomena of *heat*, therefore, are involved. It may be decomposed; chemistry, therefore, is involved; Electricity may be generated in its passage from a liquid to a vapor; electricity, therefore, is involved; it may move as a solid, or as a liquid, or as a gas; the motions of solids, liquids, and gases, therefore, fall under separate consideration. It may sound — acoustics; may transmit or reflect light — optics; it may appear in the form of rain, hail, or snow; as a solid, its sides may be numbered, their angles and their area measured; and that measurement involves the theory of quantities; and finally, without logic, we could not reason about it at all. It will be found, on close examination, that the *complete* understanding of this pint of water involves *all* the physical and *all* the mathematical sciences. But this pint of water does not as yet involve *organization*. Let it, however, be presented as a constituent part of a plant, and a new series of phenomena immediately present themselves; and, for

the understanding of these new phenomena, every one of the previous sciences is absolutely requisite. After the inorganic sciences, therefore, come the sciences of *organization*, of vegetable and animal physiology, showing a continual increase of complexity until we arrive at man, the most complex and most highly organized of all the earth's inhabitants.

To consider man, however, merely in his physiology, is to regard him only as an animal made up of certain organs, each of which has its function. Physiology teaches us *of what* the human body is composed, and *how* the mechanism of life is carried on. It teaches us what man *is* in his bodily frame, and it endeavors to give us a rational view of the functions and uses of his parts. It points out the relation of those parts to the whole, and it shows us how the living man — the active, thinking, and sentient agent — is a compound of wondrous and varied mechanisms. But still, though physiology be the highest and most complex of all the physical sciences, there is something beyond it, something that comes after it in the logical order of classification. Man himself has his functions; and when we have considered what man *is*, we may turn to what man *does*.

Man is by nature a social being, made to live in society, and his social acts have their laws, which, when understood, give us a new order of knowledge, altogether distinct from the knowledge contained in the previous sciences.

Men must buy and sell, cultivate and navigate, trade and manufacture; in a word, men must *act*; and, as there is no necessary power determining them

to act in any one particular direction, there is ever before them a right course and a wrong course; the one tending to a good and beneficial condition of society, the other to a bad and detrimental condition of society. And again, men may trespass on each other; may inflict pain on each other; may do evil to each other. Men, therefore, must *legislate*.

And here an evident distinction presents itself, which enables us to *classify* human action. We may ask, "What means will lead to a certain end?" and "What is the end that *ought* to be produced?"

We have here *two* social sciences, in each of which there is the same stable truth that prevails in all the other sciences, if man can only discover it and reduce it to scientific ordination. It *must* be within the reach of man, or else we must admit that all rules of social action are purely arbitrary; that is, in fact, that there are *no* rules. Such a supposition, however, is perfectly absurd, and can never be *consistently* maintained.

On the above distinction is grounded the division of social science into *non-moral* and *moral*; the one treating exclusively on the relation of means to an end, and the other exclusively on the end that *ought* to be the object of pursuit.

In these new sciences, *human action* is the element with which we have to reason; and the *conditions of men* are the phenomena that result directly from that action. We have, therefore, —

1st. An inductive science of human action, which presents itself in the following form: —

1. Given the actual *actions* of men in their social capacity, This is the minor proposition of the syllogism.

2. Given the actual *conditions* of men.

This is the consequent or conclusion of the syllogism, the conditions of men being *the effects* of their actions.*

And the problem is to find "the general expression of the relation between the actions of men and their social condition." When this general expression is found, it supplies the major proposition of the syllogism; and the criterion of this major being correct, is, that the observed phenomena contained in the consequent of the syllogism would follow logically from the major and minor premises. If such a major cannot be found as would logically produce all the observed phenomena from all the observed conditions, we must seek further until a satisfactory major is discovered.

2d. A deductive science of human action.†

It is evident that, anterior to all induction whatever, there are certain acts which ought *not* to be done. The first man who committed *murder* was as

* The *conditions* of men here spoken of must not be confounded with the *conditions* of the syllogism. The syllogistic conditions are the conditions of the subject with which we reason, and here we reason with human actions. Were we, however, to reason inversely from the conditions of men to the probable actions of men in those conditions or *circumstances*, (quite a legitimate and a most important syllogism,) then those conditions would really become the logical conditions, or minor proposition; whereas, here they are the consequent, or conclusion.

† This science is perfectly *distinct* from any deductions that might be made in the previous science when the major proposition was discovered. And yet there cannot be the slightest doubt that the two sciences, perfectly understood, would lead to the same identical conclusion.

guilty of committing *a crime* as the last man who shall raise the unhappy hand of violence against his brother. He could, however, have no *inductive* evidence of the effects of his action; and the same holds true of robbery, fraud, and every other crime. Consequently we may inquire, What was it that made the first murder a crime, and how could man know that such an act ought not to be performed?

The mind of man views actions not merely in their physical characteristics, but as being equitable or unequitable, just or unjust; and this *equity* gives an *à priori* boundary to action, and lays a moral restriction on man, which will prevent him from injuring his fellow, even where he has no inductive evidence whatever.

The principles of this equity are abstract and universal convictions of the reason, and the problem presents itself in the following manner:—

1st. Given the general axioms of equity. (This is the major proposition;) and,—

2d. Given the physical or non-moral characteristics of an action. (This is the minor proposition of the syllogism.)

To find the moral character of that action, namely, whether it be a *duty* or a *crime*. (This is the conclusion of the syllogism.)

The first of these sciences is political economy, which is purely inductive, and treats of the physical effects of human action so far as those effects are to be discovered in the condition of societies. The second is politics, the science of equity which is purely abstract, and treats of the universal principles that

ought to regulate human action, so far as men can affect each other by their actions.

The fundamental noun-substantive of political economy is *utility*, of which *value* is the *measure*.* The fundamental noun-substantive of politics is *equity*, which, having its abstract laws in the very constitution of the human mind, gives us the moral measure of human action.

We now turn to the practical bearing of our argument, for which the rough sketch we have given of the classification of the sciences was only the requisite preliminary.

We maintain, then, —

First. That the sciences, classed on their complexity, must be classed in the following order: —

- 1st. The mathematical and force sciences.
- 2d. The inorganic physical sciences, beginning with the most general, and terminating with the most specific.
- 3d. The organic physical sciences, composed of vegetable and animal physiology.
- 4th. The sciences that relate exclusively to man, and that treat of human action. These are, (1) *non-moral*, political economy, which treats of the beneficial or prejudicial effects of human action; (2) *moral*, politics, which treats of the moral character of human action, whether that action be the action of a single individual towards another individual, or whether it

* And value (the abstraction) is itself measured by the outward fact of exchangeability, and exchangeability is again measured by the middle term *money*; in Britain, for instance, by *gold*, which is called the standard.

be the action of a whole society, or portion of a society, with all the formality of legislation, &c. Politics is, in fact, nothing more than the moral law which ought to regulate the actions of the individual, extended to the actions of men when associated as a political society, the same moral law being obligatory on multitudes that is obligatory on the individual.

Our argument then is, that "*there is a natural probability in favor of a millennium;*" and this natural probability is based,—

1st. On the division and classification of human knowledge.

2d. On the fact that the chronological order of the *discovery* of the sciences is the same as the order of classification.

3d. On the power of *correct credence* (knowledge) to produce *correct action*.

Let us, in the first place, endeavor to settle definitely what we mean by a *millennium*.

1st. We do not mean any particular portion of time.

2d. We do not mean a miraculous condition of society, produced by the power of Almighty God working supernatural changes in the *nature* of man. It may be *true* that God, in his infinite goodness, shall, ere the world's end, so enlighten mankind by the divine spirit of grace and wisdom, that it may almost be no metaphor to say that man has become a new creature. This may be *true*; but this is not what we refer to.

3d. We do not mean a personal reign of the Son of God, the Savior of the world. On this subject we can offer no possible opinion. That the Lord Jesus

Christ shall reign in *power*, and that his will shall be done on earth ere the earth's history closes, we believe with the most undoubted assurance. But that the Redeemer of mankind shall again appear in *person* before he cometh to judge the world, this is a question which we must leave unanswered.

4th. By a millennium we mean a period of universal peace and prosperity—a reign of knowledge, justice, and benevolence—a period when the condition of man upon the globe shall be the best the circumstances of the earth permit of—when the systematic arrangements of society shall be in perfect accordance with the dictates of man's reason—and when societies shall act correctly, and thereby evolve the maximum of happiness possible on earth.

A millennium, therefore, is for us a period when truth shall be discovered and carried into practical operation. This is the essence of human welfare,—*truth discovered and carried into practical operation.*

Let it be remembered that the progress of mankind, in the evolution of civilization, is a progress from superstition and error towards knowledge. Superstition and error present themselves under the form of *diversity* of credence; knowledge presents itself under the form of *unity* of credence. Wherever there is knowledge, that knowledge is the same in all parts of the earth, and the same in substance whatever language it may use as the instrument of expression. The progress of mankind, therefore, is a progress from diversity of credence towards unity of credence. There is but *one* truth, *one* scheme of knowledge; and consequently, wherever knowledge is really attained, di-

versity of credence is impossible. Where men differ in credence, they differ because one or all have *not* knowledge.

We have, then, to ask, "Into what branches is knowledge divided?" "What is the *logical* order of those branches in a scheme of classification?" "In what *chronological* order have the various branches been reduced to scientific ordination?" "At which branch are the most advanced nations *now* in the nineteenth century?" and, "What are the branches that yet remain to be reduced to scientific ordination, and in what *order* may we expect those future branches to be reduced to the form of *science*, which excludes diversity of credence?"

The natural probability of a future *reign of justice* is based on the answers to these questions. If there be a scheme of knowledge, and if the past history of science proves that the sciences have been evolved one after the other in accordance with that scheme, we assert that there is nothing unreasonable in anticipating that the future progress of discovery will continue to go on in the same direction. On the contrary, we maintain that such anticipation is a fair, legitimate, and impartial inference from the facts before us. We are well aware of the ridicule which practical politicians endeavor to throw on the anticipation of a political millennium, and too often with a levity which we cannot esteem other than unbecoming, when we know that the Creator of mankind has distinctly promised a period of peace and prosperity to our race. It may not be given to man to know the times and the seasons, but most certainly it is given to man to know

the fact; and surely it would be as wise to speak of that fact with modest reverence, instead of associating it, or even a wrong anticipation of it, with the scoff, and the jeer, and the gibe of ridicule.

To the above questions, then, we give the following answers:—

1st. *Into what branches is knowledge divided?* Into the facts of sensational and psychological observation, rational science, and history. Savage nations may see the sun rise and set, and the moon wax and wane, and they may see for centuries these and the other phenomena of nature without advancing in intelligence. The son, like the father, may live and die a savage. It is not till man begins to *reason*—that is, to make rational science—that the foundation of natural civilization is laid, and the first step taken in that course which continually tends to distinguish man more and more from the animals, and to make the intellectual portion of his nature predominate over the instincts of his bodily frame.

History, again, is a branch of knowledge *common* to every reality with which we are acquainted. In it, therefore, we must not look for the great element of human progression. That element is found in rational science, and rational science is divided into the following branches:—

1. The mathematical and force sciences, beginning at logic, and ending with dynamics.

2. The inorganic physical sciences, beginning with the most general, and ending with the most specific.

These we have attempted to arrange *generally* in the table in the Appendix.* What are called the

mixed sciences are only *general* physical sciences; and these, of course, would come first, while chemistry and galvanism probably would occupy the most advanced station in the series.

3. The organic physical sciences, including (1) vegetable physiology, and (2) animal physiology.

Anatomy is not a *science*, it is a mere classification forming a portion of physiology. Physiology is the *architecture*, (anatomy,) *dynamics*, and *chemistry* of organized bodies; that is, architecture, dynamics, and chemistry applied to the functions of *vitality*.

4. MAN SCIENCE.

The sciences of human action are, —

(1.) A sensational and inductive science, called political economy.

(2.) A moral and deductive science, which we call politics.

The order in which we have given the sciences answers the second question, namely, "What is the logical order of the branches of knowledge in a scheme of classification?"

The third question is, "In what *chronological* order have the various branches been reduced to scientific ordination?" The chronological order in which the sciences have been discovered, or reduced to ordination, is correlative with the logical scheme of classification. As a history of the actual evolution of the sciences would be out of place in the present volume, we must be content with stating the fact, that the mathematical sciences were first evolved, then the more simple of the physical sciences; and that the progress of discovery, since the time of Newton down

to the present day, has been, as nearly as we could possibly expect, on the very same principle of complexity that forms the ground of classification. And it would not be difficult, we think, to prove not only that it *has* been so, but that it could not possibly have been otherwise. Without geometry, statics and dynamics are *impossible*; without statics and dynamics, hydrostatics and hydrodynamics are impossible; and without hydrostatics and hydrodynamics, that portion of physiology which treats of the phenomena of vegetable and animal circulation is also impossible. Here the one science must precede the other in chronological discovery, because it is requisite to render that other science discoverable. The one is the means whereby we attain to the other, just as, in a single science, one problem must be solved before we can, by any possibility, attain to the solution of another problem. And *the law* of this dependence of one science on another is, that the truths of the antecedent science, which *are the objects of research* when we study that science, become subjective — that is, *means of operation* — when we study the consequent science.

It is impossible, therefore, that the sciences should be discovered in any other than a certain order; that is, man must acquire knowledge on a scheme which has laws as fixed and definite as the very laws of the sciences themselves.

We may remark, however, in the evolution of the sciences, that it is not necessary that the whole (all that can be known) of an antecedent science should be evolved *before* the elementary portion of the consequent science is commenced. When geometry has

made a certain progress, statics may be commenced; and thus the earlier portion of statics may be evolved coincidentally with the more advanced portion of geometry. Again, when inorganic chemistry has made a certain progress, organic chemistry may be commenced; and its more elementary truths will be undergoing a process of evolution coincidentally with the more advanced truths of inorganic chemistry.

Thus, although the sciences are necessarily antecedent and consequent to each other, they interweave or overlap each other in their chronological evolution; just as father and son may be alive at the same time, yet the father is necessarily older than the son. And in the evolution of the sciences we may have several generations on foot at a given period; we may have three, four, five, or six sciences all undergoing the process of evolution, but all at different stages of progress. The first may be tolerably complete; the second less so; the third still less so; the fourth may be but beginning to assume the form of a teachable branch of knowledge; the fifth only settling its nomenclature and classification; while the sixth only shows symptoms of commencement, attracting perhaps a large share of attention, but being replete with arbitrary opinion, superstitious credence, and general diversity of statement. When geometry was a science, astronomy was a superstition; and when mechanics and astronomy were sciences, chemistry was a superstition; and when chemistry had assumed the form of science, political economy was a superstition; and now that political economy begins to assume somewhat of scientific ordination, politics is little better than a superstition.

We may, therefore, have several sciences on foot at the same period, yet all at different stages of progress. And this brings us to the next question, —

“At which branch or branches of knowledge are the most advanced nations now in the nineteenth century?”

There are several tests which we may apply to a branch of knowledge to ascertain whether it is or is not a science; that is, whether it is as yet reduced to scientific ordination.

1st. It must have a definite province, so that we distinctly understand what we are reasoning about.*

* The great error of *philosophy* has been the want of a definition. Philosophers have forgotten to tell us what it really was that they were going to treat of. It is quite evident that *thought*, and the *laws of thought*, are perfectly distinct from *realities*, and the *laws of realities*; and no science under the same name can be allowed to treat of both. Philosophers have jumbled the two together in a most illegitimate manner; and the consequence was, that when they encountered something connected with *thought* which they could not explain, they astounded the world with inconceivable assertions with regard to *realities*. Some, by this rather curious process, discovered that there was no *matter*; others, that there was no *mind*; and some, though we almost hesitate to affirm it, dared to call in question the existence of our divine Maker, and to dethrone the Lord of heaven and earth.

If philosophy will treat of *thought*, let it confine itself to thought; and if it will treat of *realities*, let it confine itself to realities, and become theology, or any other branch of knowledge; but we maintain that it is quite illegitimate for philosophy to jump backwards and forwards, from thought to reality, and from reality to thought. Such a method necessarily produces *inextricable* confusion, and the very foundations of human credence become shaken in the minds of those whose intellectual constitution enables them to see only as far as the difficulty without seeing through it. Hume, perhaps,

2d. It must be *teachable* as a branch of knowledge. For this purpose, its propositions must be coördinated, so that we can know whether we are at the commencement, or how far we have progressed beyond the commencement. Philosophy, as yet, has scarcely a commencement, middle, or end; although symptoms are beginning to show themselves that, ere long, we may expect something very much more satisfactory.

3d. It must be capable of subjective application. This we consider to be the proper criterion of the state of a science. If it is incapable of application, it is only undergoing the process of discovery; if it is capable of application, it is so far complete. It is then the same for all men alike, (there is but *one* truth,) and it becomes a means of operation whereby things are done which could not otherwise have been done.

We ask, then, at what sciences are the most advanced nations now in the nineteenth century?

It is evident that the mathematical sciences, and the more general physical sciences, fulfil the above

only intended to *puzzle* people; and his amazing acuteness enabled him to baffle and to mystify many an honest head. But it was a fearful amusement: it might be a mere game, but it was a fiend's game; and although we cannot but admire the clearness and purity of Hume's intellect, we have often thought—and not without regret—how much greater and how much better a man he would have been, had he endeavored, in honest sincerity of heart, to *solve* the difficulties as well as to propound them. We have no doubt whatever that Hume knew that his *sophisms were* sophisms, and in his own mind saw much farther through them than he liked to acknowledge. Had Hume not been a sceptic, he might probably have been at the head of all modern writers on philosophy; for he undoubtedly possessed that exquisitely subtile intellect, without which a man—however great his other acquirements—can never be more than a second-rate philosopher.

conditions. The question, then, is with the advanced physical sciences, and with those that follow them in the scheme of classification.

Let us take chemistry as the most advanced inorganic physical science, and classify the sciences that follow chemistry in the natural scheme of classification. We have then

Chemistry.
Vegetable physiology.
Animal physiology.
Man science.

The new *term* acquired in the passage from the inorganic to the organic sciences, is *vitality* — *life*.

Vegetable physiology presents itself under two aspects, which give us two sciences; the one treating of the structure and functions of the *organs* of plants, the other of the structure and functions of the whole vegetable kingdom, considered as one of the great organs of the terrestrial economy.

A science, we have said, contains, —

1st. A nomenclature. 2d. A classification. 3d. Reasoning.

And the correlatives of these in *nature* are, —

1st. The objects. 2d. Their conditions. 3d. Their functions.

Vegetable physiology, then, has two forms; that which relates to the life, growth, and propagation of a single plant, composed of many *organs*, and that which relates to the vegetable kingdom, composed of many *species* of plants.

Let us designate these as *internal* and *external* physiology, and we shall then be able to classify the various branches of botany.

A SCIENCE IN GENERAL.

1. NOMENCLATURE.	2. CLASSIFICATION.	3. REASONING.
The objects described and named.	Statement of the conditions and relations of the objects.	Syllogistic scheme of the functions of the objects.

GENERAL FORMULA APPLIED TO,
1st. *Internal Physiology.*

Nomenclature of the various parts, or organs, of the single plants. Description of the organs.	Classification of those parts, including their mechanical and chemical adaptation.	Function of those parts in the phenomena of life, growth, and propagation.
<i>2d. External Physiology.</i>		
Comparative nomenclature of the various plants that inhabit the globe. Comparative anatomy.	Classification of those plants, and their arrangement.	Function of plants in the terrestrial economy.

The support of the animal kingdom is the great practical function of the vegetable kingdom.

The same principles of classification apply to animal physiology, where we have, —

First.

Nomenclature and description of organs. Descriptive anatomy.	Classification; that is, the organs assembled into <i>apparatus</i> — <i>e. g.</i> , digestive apparatus, respiratory apparatus, &c.	Function of those parts in the phenomena of animal life.
<i>Second.</i>		
Comparative nomenclature of the various animals that inhabit the globe. Comparative anatomy, and description.	Classification of those animals, and their arrangement into groups.	Function of the animal kingdom in the terrestrial economy.

The individual nomenclature of the various plants and animals is in the first place *arbitrary*, and subject to no rules; comparison, however, introduces the element of coördination, and a systematic nomenclature is adopted, constituting the scheme of species, genera, classes, &c.

It will be observed that chemistry, hydrodynamics, &c., are absolutely requisite before internal vegetable physiology can make a scientific progress. The functions of the organs of plants are explicable only in and through the perfection of the inorganic sciences, and the latter must necessarily be so far advanced as to be capable of subjective application before the former can by any possibility be explained.

But if the immediate use of plants in the physical economy of the earth be the maintenance of animal life, external vegetable physiology, which treats of the functions of the vegetable kingdom, is the necessary preparation for internal animal physiology; no theory of the *nutrition* of animals being possible without first of all arriving at a knowledge of the nutriment. Hence, also, the chemistry of inorganic matter, and the chemistry of vegetable substances and products, must be evolved before there can be a theory of vegetable nutrition.

The maintenance of animal life is the physical ultimatum of the earth—the last final function of matter. When we proceed beyond this, we arrive at a region where the functions are no longer purely physical; for although man in his political economy may partly be viewed as a higher kind of animal, yet his functions, even in that region, are essentially distin-

guished from those of animals by the introduction of *intellectual* computation. The physical world may, it is true, sustain mankind — may feed, clothe, and shelter man's animal frame; but in the *production* of food, and in its *distribution*, there is a function of intelligence which prevents the maintenance of man from being classed as a mere *physical* phenomenon.

When, therefore, we turn to the sustentation of men associated together in society, we have passed from the region of *mere* organization, and have entered the sphere of rational intelligence.

The science that treats of the production and distribution of food, and the other physical requirements of man, is termed political economy; and the ultimatum of that science is, "How may the greatest physical good be procured for the greatest number?"*

This ultimatum is not *arbitrary*, as some would almost have us suppose; it is the necessary end of the science, if that science have any existence. Just as we are necessarily led to view the surface of the earth in its function of sustaining vegetable life, and the vegetable kingdom in its function of sustaining animal life; so are we led by the very laws of our intelligence to posit the physical benefit of mankind as the

* It is usual in Britain to confine the province of political economy to the *production* of wealth; and this view is correct and convenient, if the name POLITICAL ECONOMY be reserved for the first and simplest embranchment of social science. But as the *distribution* must have its laws, as well as the *production*, those laws require investigation, and a special name must be accorded to this portion of social science, which is, in fact, of greater practical importance than the other.

ultimatum to which all economical arrangements should tend, if they do not depart from the very intention which is the ground and origin of their existence.

But political economy is a mere computation of antecedences and sequences: it tells *what* results follow certain conditions; and, generalizing its facts, it at last arrives at the laws which regulate the physical condition of man, so far as that condition is the consequence of human *action*. The utmost that it can tell is, "what means lead to a certain end;" but being based purely on *observation*, it can never lay on us a *duty*, nor deter us from a *crime*. Even in its ultimatum, it can only say that, if men do not pursue their advantage, they act *irrationally*, but never can it say that they act *criminally*. It computes the mechanism of human action, but never can determine the *end* of human action. *Duty* and *crime* are terms with which it has no concern, and to which it can attach no meaning. It is merely observational, and must confine itself as a science to the generalization of facts, while, when taken as a practical rule of action, its sphere extends no further than the physical well-being of mankind; and the "benefit of the greatest number" is fixed on, not from any idea of moral duty, but merely because that ultimatum exhibits the *greatest quantity*. In no sense is this science one iota more *moral* than astronomy, which furnishes the practical rule of navigation; or geometry, which furnishes the practical rule of mensuration. To confound it with *duty*, is essentially to destroy its character as an inductive science.

In answer to the question, then, "At what sciences are the most advanced nations now in the nineteenth century?" we reply,—

The marks by which we recognize the condition of a science, and its relative perfection, are, —

1st. It must have a definite province.

2d. It must be teachable as a system.

3d. It must be capable of subjective application.

And a science consists of a nomenclature, classification, and reasoning. The genuine criterion of the perfection of a science is, that it is capable of subjective application, and only in so far as it is thus capable can it be considered perfect.

A slight attention to the recent labors of scientific men will convince us that chemistry fulfils the above conditions; that not only have its nomenclature and classification been tolerably well perfected, but that its reasoning is so far advanced as to render it capable of application to the regions that lie beyond it. Here it is only necessary to refer to the researches of Liebig and his fellow-laborers in the region of chemico-physiology.

Vegetable physiology is, and must ever be, *consequent* on chemistry and electricity; and, being logically consequent, must also be chronologically subsequent in the order of its discovery; that is, of its reduction to scientific ordination. If chemistry, therefore, have only been recently rendered capable of subjective application, we must naturally expect that vegetable physiology shall present a less degree of perfection; and that, at all events, some years must elapse before it shall be so completely developed as to change from an object of study to an instrument of operation.

But vegetable physiology, although necessarily posterior to chemistry, and in the present day only

undergoing its process of evolution, is already further advanced than chemistry was one hundred years since. As the various sciences are necessarily antecedent and subsequent to each other, so are the various parts of the same science necessarily antecedent and subsequent; and when we analyze vegetable physiology into its various parts, we find that the earlier portions have already assumed the form of scientific ordination.

Vegetable physiology consists of mechanics, (including architecture, statics, dynamics,) chemistry, and electricity, applied to the objects endowed with vegetable life; and the ultimate object of research is, the explanation of the process by which the functions of life, growth, and propagation are carried on. In the architecture we have the enumeration, nomenclature, and description of the organs; in the mechanics we have their adaptation for the performance of certain functions; and in the chemistry and electricity we have a physical explanation of certain phenomena which take place under the influence of life, but by means of the laws which regulate the world of inorganic matter.

In determining, therefore, the position occupied by vegetable physiology at the present time, we must bear in mind that the portions of that science stand logically in the following order:—

Nomenclature of organs.

Description of organs.

Mechanical functions.

Chemical and Electrical functions.

Of these, the first three are so far advanced, that although *formal* improvements may be expected, yet

the *knowledge* may, for the most part, be said to be obtained; and the question that remains is, rather how that knowledge should be reduced to the most simple and most convenient expression. The fourth is now occupying the attention of many eminent men, and the progress already made is sufficient to assure us, not only that the right track has been discovered, but that ere long the chemistry of vegetation will be so far advanced as to form the instrument of investigation into the chemistry of animal organization. In fact, very considerable progress has already been made in the latter direction.

External vegetable physiology consists of comparative nomenclature of all known plants.

Classification of plants.

Function of plants in the terrestrial economy.

The two former of these are achieved, although probably susceptible of formal improvement. The latter is undergoing a process of evolution.

As we have only proposed to ourselves to indicate the outline of an argument without insisting on its details, we need scarcely advert to the prodigious labor expended on a knowledge of the structure of animal bodies, or to the astonishing accuracy with which some men have made themselves acquainted with anatomy, both human and comparative. Anatomy, as we have already said, is not a *science*; it is merely the nomenclature and *classification* of the science of physiology; and as such it would probably have been considered, had it not received an accidental character from its connection with the medical art. Had anatomy been studied for purely scientific

purposes, (and not, as now, for the purpose of alleviating human suffering, or preventing human dissolution,) its entire subserviency to what is termed physiology would probably have been acknowledged, and it would no more have been called a science than the description of the lines and figures of geometry. It is merely the description of the substantives whose *functions* form the subject of future investigation.

At what point, then, is the present generation in its knowledge of animal physiology?

The distinction we have drawn between internal and external physiology, will enable us to allocate the various portions of zoölogy. Internal physiology discourses of, —

- 1st. The constituent organs of animal bodies.
- 2d. The conditions of those organs.
- 3d. Their function.

And the science presents these under the form of, —

- 1st. Nomenclature and description of the organs.
- 2d. Classification of the organs.
- 3d. Reasoning. That is, the syllogistic statement of a scheme whereby the actually observed phenomena would, when stated in language, follow logically from the premises. One premiss being the expression of a cause, force, or generalized fact; and the other, the expression of the conditions of the organs functioning.

It might, perhaps, be too much to assert that the nomenclature, description, and classification of the organs of animal bodies had arrived at a state of perfection; but these branches have undoubtedly arrived at a state of ordination which is likely to remain permanent, unless, indeed, a general revolution of scientific nomenclature should at some future period

be agreed upon. The *knowledge* is obtained; and when we consider the manner in which a nomenclature necessarily grows out of a mass of the most heterogeneous materials, derived, perhaps, from a multitude of languages, it may fairly be asserted that that knowledge is presented in as perfect a form as could reasonably have been expected.

When we turn to the *functions* of the organs of animal bodies, we find that the principle of *progressive complexity*, which we have assumed as the basis of our argument, still aids us in allocating the various portions of the same science, and enables us to understand how one portion of physiology happens to evolve chronologically before another. Thus geometry is necessarily anterior to optics, and optics necessarily anterior to the physiology of the eye, both logically and chronologically. Again, the general principles of mechanics must first be ascertained before an explanation can be given of the action of the muscles on the bones, and of the motions that result from that action.

But optics can explain only *a portion* of the functions of the eye. The eye contains solid and liquid parts, which not only refract light, but which have a chemical composition. And mechanics can explain only *a portion* of the phenomena of muscular action. And thus, although the *geometry* of vision may be tolerably perfect, and a satisfactory explanation is given of the *result* of muscular action, there is a course of inquiry that lies beyond both optics and mechanics, in which those sciences can afford no information. When the muscular force *is* generated, and acts in a particular direction, its results may be explicable on the same principles that apply to non-

vital forces acting on non-organic portions of matter. But according to what laws is the muscular force itself generated? And, when generated, does it act in any such similar manner to voltaic electricity, as would enable us to conclude that the motion resulted from a galvanic power acting on nervous cords and muscular fibres, as they are shown to be disposed by the scalpel and the microscope?

As we do not pretend, in the slightest degree whatever, to discourse upon *science*, but only on the principles that must pervade the classification of the sciences, and the theory of the order in which they must chronologically evolve, we need only refer to the fact, that within these few years the dynamics of the blood and the chemistry of the blood have been made subjects of special research, and that they are now undergoing their process of evolution and reduction to scientific ordination.*

* Among other labors, we may refer to those of Magendie on the dynamics of the blood, and to those of Andral and Gavarret † on its chemistry. But, in addition to these, we have only to turn over the advertising pages of the medical journals to be convinced that physiology is, as it were, laboring to assume a more definite and more satisfactory form. As straws are said to indicate the direction of the current, so we may infer some notion of the direction in which physiological science is progressing, from the titles of the works that daily issue from the press. Works are now produced whose very titles would have been unintelligible half a century since. Such titles as "Electro-Biology" are at all events *indications*; they show us, however insignificant might be their real merits, that the human mind is directing its efforts towards a region altogether unknown to our ancestors.

† J. L. Gavarret, author of the "*General Principles of Medical Statistics*."

The general principle which we conceive to pervade the evolution of the various portions of physiology is this: "In the same order that the non-organic sciences have themselves been reduced to ordination, will they be applied to the phenomena of animal life."

And in endeavoring to determine the present position of animal physiology, we shall, perhaps, not be far from the truth if we reckon the nomenclature of the organs and the description of the organs to be tolerably complete, the explanation of the mechanical functions to have made very considerable progress, and the chemical and electrical functions to be now attracting a large share of the attention of scientific men.

We now turn for a moment to what we have termed external animal physiology, which consists of

Comparative nomenclature of all known animals.

Comparative description and classification of animals.

Function of animals in the terrestrial economy.

And here, perhaps, it would be unsafe to assert that more has been achieved than the nomenclature; for, although there is no doubt a classification, that classification is open to such serious objections, that naturalists themselves are beginning to acknowledge the necessity of revising it, and constructing it on principles more sound, because more in accordance with the great analogies of nature.

To take one instance, which will suffice for our purpose.

If, among the birds, the first rank be accorded to the birds of prey, (the eagles, vultures, hawks, &c.,) and not to those birds in which the nervous system is most

highly developed, and the manifestation of intelligence most apparent, (the parrots, &c.,) why, on the same principle of classification, is not the first rank among the mammifers accorded to the beasts of prey, (the lions, tigers, wolves, &c.,) which, among quadrupeds, are the undoubted representatives or correlatives of the eagles and vultures ?

If the relative development of the nervous system determine the rank among the mammifers, no good reason can be alleged why it should not also do so among the birds ; and there can be little doubt that the anomaly that now prevails must give way to a more consistent system, which shall take the analogies of nature as its basis, instead of any fanciful notions about the nobility of the eagle.

Were we to hazard an opinion on this head, which we can only do as looking at these subjects from a distance, we might express a conviction that the principles of classification proposed by that amiable and accomplished naturalist, Dr. Kaup of Darmstadt, are those which must ultimately prevail.

Human physiology is the last, the highest, and the most complex of all the physical sciences. It is the termination of man's intellectual labors, so far as regards the universe of matter. It is the ultimatum of material manifestation, the final type of complex arrangement, the summit beyond which we leave the material world, and enter into a new region of thought. Nor is it merely a metaphor to say, that "man is the epitome of the world." *Every* science that precedes human physiology is necessary to the complete understanding of the human frame. That frame has parts

— number is involved; those parts have quantity and extent— algebra and geometry are involved; the body may move or be at rest— dynamics and statics are involved; the motions of solids, liquids, and aeriform fluids are involved; optics, acoustics, chemistry, electricity, and galvanism all play their parts in elucidating the phenomena of the wondrous mechanism. But, granting that human physiology is the last and most complex of all the physical sciences, has man no further region into which he may push his inquiries, and extend the field of intellectual research?

Man has his *functions*— What are their laws?

SECTION II.— DETERMINATION OF THE CHARACTER, POSITION, AND BOUNDARIES OF POLITICAL SCIENCE.

§ I. *General Observations.*— The most simple functions of man, and those which naturally fall to be considered first, are those in which he acts on the external world.

First. Man may act on the physical world that surrounds him. These actions, when systematized, constitute the mechanical arts, chemical arts, &c. Under this head are assembled agriculture, navigation, manufactures, trade, commerce, systems of locomotion, fisheries, mines, &c.; in fact, all those occupations in which man is employéd for the purpose of extracting from the earth the objects he requires, or of distributing or transforming them for his legitimate remuneration.

[Some of the French writers have most appositely termed this "l'exploitation de la terre par l'industrie," in opposition to "l'exploitation de l'homme par l'homme." When such expressions come to be placed in opposition to each other, it needs no prophet to tell us that the present social systems must soon undergo a radical revision.]

Second. Man may act on man.

This he may do either mediately or immediately.

Mediately, when, at the same time that he is engaged in the above occupations, he reacts on his fellow-men through those occupations, either to their benefit or prejudice. *Immediately*, when he acts on his fellow-men by constraint, restraint, compulsion, violence, fraud, or defamation.

The principles involved in man's action on man are included under the term *social science* or *politics*, when those terms are taken in a general signification.

Social science is divided into two embranchments; namely, political economy, the object-noun of which is social utility; and politics proper, the object-noun of which is equity.

The problem of political economy is to discover the laws (generalized facts) which preside over human actions, where there is no direct interference between man and man.

The problem of politics is to discover the laws (principles of the reason) which ought to preside over human actions in the matter of interference.

In both sciences, human actions are the substantives with which we reason. In endeavoring to determine the present position of man in his knowledge of

political economy and politics, we must premise that we here approach the region where *superstition*, and not science, prevails.

Knowledge is credence based on sufficient evidence, and superstition is credence without sufficient evidence.

No truth can be more satisfactorily established by history than that man is gradually emerging from superstition—gradually emancipating himself from those unfounded credences which have, in every department of science, enslaved his intellect and misdirected his actions. It is, too much the practice, however, of this age to indulge in self-adulation, and to imagine fondly, that the light which has begun to dawn has dispelled all the darkness from the atmosphere of knowledge. Men seem to think that, because they can now look rationally at the phenomena of nature, they have read the whole riddle of the universe; that *they* are the wise men; that superstition no longer enfolds *them*; and that, from their high monument of wisdom, they can look back on their credulous fathers, and smile complacently in the vastness of their own superiority.

Great, no doubt, has been the emancipation of mind from religious and natural superstition; but we should, indeed, be sitting down in contented ignorance, were we to imagine that superstition does not now enslave us in the same manner that it enslaved our forefathers, except that her domain has been removed a little farther onward. Superstition has retired just as the sciences have been reduced to ordination—just as they have emerged from the chaos, and been moulded into form by the intellect of man. In the very same order,

and to the very same extent, and at the same chronological period that the sciences have appeared, has superstition gradually retired, and taken her new stand in those fields of thought where the reason of mankind had not yet beheld the divine light of truth. When the mathematical sciences had made some good progress, the physical sciences were yet in the womb of futurity, and their place was occupied by a series of superstitions. These superstitions retired, but retired only gradually as science lit her peaceful lamp in the various chambers of nature. And *now* is it at all difficult to find superstition? to point out the region she still occupies? to show where vast systems of credence are as baseless as the credence of the alchemist, and vast systems of action are founded on the baseless credence?

The whole realm of political science is as yet little better than a superstition; and though humanity is perpetually making convulsive throes to escape from the evils entailed by the erroneous credence, we may rest surely convinced that those evils will never be obliterated until the human intellect has fairly mastered the theory of man's political relations, and reduced that theory to universal application.

Nor do we here refer to any theory which we ourselves may advance. Our views may be true, or they may be false. We, of course, believe them true; but, be they true or false, we lay down the proposition in the most general signification, that the evils that afflict the large masses of the population never *can* be obliterated until man's reason has mastered the theory of man's relation to man, and until he has reduced

the principles of political science to practical realization in the constitution of society.

To observe the manner in which men legislate,—and legislators, be they who they may, are only men,—we should naturally be led to the conclusion, that there was *no truth* and *no falsehood* in political science. How otherwise can we explain the circumstance, that laws are perpetually undergoing a process of change? A law enacted only a few years since, is now found to be incorrect—so bad, in fact, that it must be abolished. In that law, perhaps, the interests of millions were involved; yet, notwithstanding, legislators are allowed to make these vast experiments with the property and the liberties of their fellow-men on no surer ground than *opinion*, which, in the great majority of cases, is mere presumptuous superstition.*

Truth, in fact, has almost as little to do with legislation as it had with alchemy or astrology; and this is the case, whatever may be the real matter of truth. According to law in England, the Episcopalian church is the true church; truth, according to law, is in the Thirty-nine Articles; the bishop is not only a churchman, but a legislator—a member of the supreme Parliament, and a ruler of the state. But in another part of Britain the church of England is not the true church, it is a scandalous hierarchy, because in the northern part of Britain the *Presbyterian* church is the true church; truth, according to law, is in the Confession of Faith; and the bishop, so far from even

* Since the beginning of the present century, there have been passed between *five and six thousand* public acts of Parliament.

being entitled to reverence, is a vile intruder on the equal rights of his brethren. He would not be allowed to address his fellow-Christians from the legal pulpits of the legal church; he is a "dumbe dogge," a small pope, a hireling shepherd; he is, in fact, that incarnation of Presbyterian abhorrence — *a prelate*.

In Ireland, again, (unfortunate Ireland!) Popery — which is, root and branch, totally false in England and Scotland — is partially legally true; and perhaps, by and by, it is going to be *more* true. Not that it can be true in England, because the law cannot allow *that*; but that it may be true in Ireland — or true enough, at all events, for Ireland — as any thing does for Ireland.*

Now, is it any thing else than mere superstition that allows any legislature whatever to establish systems of propositions which are legally true in one part of the kingdom, legally false in another? Whatever is true, it is quite evident that *truth* did not preside at the legislation — that truth was not the basis, the ground, the *reason* of the legislation. But if *truth* did not preside at the legislation, what did preside? Superstition.

Again: God gave the earth to the children of men. Now, is it *true* that the gift of a king (a *man*, with a different name) is a good title to as much land as would support a thousand families; that the legisla-

* "The quantity of specie coined in the reign of James I. was about £5,432,000; of which £3,666,000 was in gold, and £1,765,000 in silver. *It still continued the practice to issue some base money for the use of Ireland.*" — WADE, p 173. Yes, truly; and it has long continued the practice to issue base money for the use of Ireland,

ture (other *men*) should enact a law to secure that land in perpetuity to the descendants of the person who received the gift; that this person and his heirs should be called *proprietors* of that land, and should, by the law, be treated as such; that from *that* portion of the earth's surface all other persons are excluded by the law, save only those who have the permission of the proprietor; that this proprietor may be always absent from that land, and yet that he is to receive from the cultivators of the land *the rent*—that is, the profit that God has graciously been pleased to accord to human industry employed in the cultivation of the soil? Is this *true*, or is it only a mere groundless *superstition* that lies at the bottom of nine tenths of the evils of society? It cannot be *right*, unless there is a principle of *truth* on which the system is based; yet where, either in the study of external nature, or of man, or of revelation, can we find true propositions on which to base so iniquitous a system?

Again: Is it *true* that a deliberative assembly, chosen by a small part of the population, has *a right*—in morals, or religion, or any other *measure* of right and wrong—to determine that the legislators of the country shall be chosen by certain individuals, whose number, at the utmost, does not amount to more than one fourth of the adult male population of the country? Is it *true* that this deliberative assembly has an equitable right to *prevent* the other three fourths of the adult male population from having any voice in the election of those who are to tax their labor? Is it *true* that those three fourths of the adult male population are, in any way whatever, morally bound to obey

a deliberative assembly chosen and elected in this manner? Is this *true*, or is it only a portion of that more general superstition which once pervaded all the physical sciences, but which has now been driven before the advance of knowledge, and obliged to take refuge in the regions of politics and religion?

Again: the present age is one in which we hear much of a "surplus population," a "redundant population," &c., while it seems to be forgotten that the man who can earn his daily bread can never be redundant, while the man who consumes vast revenues, without working for them, must necessarily be so. This redundant population, finding the difficulties and miseries of a residence in their native country more painful than even expatriation and removal to another hemisphere, begin to emigrate to Australia. A Solon of a political economist, theorizing on the terms *labor*, *capital*, *supply*, *demand*, &c., arrives at the conclusion that one square mile of the earth's surface is the exact quantity that should be sold to the emigrant, and that the best of all possible prices for that land is exactly one pound sterling per English statute acre. The governors of this country, convinced of their own ignorance, and happy to listen to a man who can discourse fluently on such mysterious matters as labor and capital, determine to apply the magic formula; and thenceforth no man who cannot purchase one square mile of land, at one pound per English statute acre, is allowed to settle down and earn his livelihood in one vast district of the southern hemisphere. Is it *true*, or is it *false*, that a few men in England have the right to impose such a restriction on the

liberties of mankind? Is any other evidence required than that furnished by the *Wakefield system*, that political economy, in its practical application, is at present only a *superstition*—a mere tissue of the most arbitrary and groundless propositions, not one iota better than the propositions of judicial astrology?

Again: the legislators of Britain (who at that period represented a very small fragment of the population) enacted laws against the supply of food from foreign countries. Millions of pounds sterling were involved in the operation of the laws, and millions of persons were affected in the price of their daily food. Some years later, the population discovered the effect of the enactments, and the governors were obliged to abolish them, because the masses would no longer tolerate their existence. Now, is it *true*, or *false*, that any men, call them what you will, have the right to make these vast experiments? Are not these cases, and many others, exactly similar to the cases in which rulers have attempted to make a true or a false theology,—a true or a false system of astronomy,—or a true or a false system of nature, when they persecuted sorcerers, and devoted the victim to the fagot and the flames?

Again: What is the whole system of criminal legislation now carried into force in Great Britain? What is it but a great *superstition*, an arbitrary superstition, where there is no regulative principle for the intellect to rest upon? Why should one criminal be *finned*, another *imprisoned*, another *transported*, and another *hanged*? Is there any *connection*, either inductive or deductive, between the crimes and the punishments?

Is the allocation of the punishment based upon *any* principle that connects just such a kind, and such a quantity, with the offence? Is not the selection of the punishment *arbitrary*; that is, dependent not on any principle discoverable in nature, but dependent on vague and groundless opinion—that is, *superstition*?

Crimes are the maladies of society, and punishments are the medicines which laws administer for their correction. Now, are the recipes at present in use in politics one atom less arbitrary, less superstitious, or less absurd, than were the recipes of medicine two hundred years since? Could we see things present in the same light that we see things past, we should regard the affected wisdom of legislators and lawyers with the same ridicule and contempt so lavishly bestowed on the quacks, diviners, and necromancers of a former age. Where there is no *truth* to rest upon, there can only be error or superstition.

§ II. *The Province and Position of Political Economy.*—Entering our protest, therefore, that the regions of political economy and politics are at present pervaded by endless *superstitions*, we shall endeavor to point out the position of the present generation in its attempts to evolve those sciences.

First. The object-noun of political economy has been ascertained, and definitions have been attempted of the substantives of the science; that is, attempts have been made to describe and classify the objects with which men must reason when they reason in political economy.

Second. Large masses of facts have been collected

relating to a variety of subjects. These have been collected with more or less accuracy, and arranged with more or less judgment. In some cases, tabulated forms have been produced which leave little or nothing to be desired on the score of accuracy, purity,* and facility of manipulation. In other cases, immense records of facts have been accumulated, of so heterogeneous a character, or involving so many separate considerations, that conclusions altogether incompatible with each other are drawn from them to serve the purposes of the political reasoners.

Third. In some cases, the aid of mathematics has been called in to methodize the facts, and to determine the general value of the inferences that we are entitled to draw from them.

1st. Of the object-noun of political economy.

Every proper science has an object-noun, and the exclusive end and intention of the science is to discover and reduce to logical order the *relations* that exist between the substantives of the science *in* that object-noun. Thus, arithmetic treats of relations *in* number; geometry, of relations *in* space, (position, direction, and extent;) dynamics, of relations *in* force, &c.

Political economy then treats of relations *in* social utility, and we ask, "What are the relations of this, that, and the other action, or system of action, *in* social utility?" The answer to this question belongs exclusively to the science of political economy. [The

* By *purity*, we mean that the facts are strictly *comparable*; that improper facts have been left out.

same action may be judged *in social utility*, or *in equity*; in the former case we are engaged with a question of political economy; in the latter, with a question of politics. Endless ambiguities and discussions arise from confounding the one science with the other.]

2d. We now ask, "With what do we reason? What are the substantives of the science?"

Political economy is entirely and exclusively conversant with *human actions*.

We reason *with human actions in social utility*. Social utility is the *object-noun* of the science, and the forms of human action are the *subject-nouns*, which are to be *named, classed, and reasoned with*.*

Wherever human action is not involved, there is no

* Thus, the cultivation of the earth is *a form* of human action; trading is *a form* of human action; restrictive laws and prohibitory laws, when carried into execution, are *forms* of human action. These *forms* have to be classified; and science is achieved when the classified forms are made to function in a rational scheme—that is, when the premises expressed in language will produce, logically, such consequents as are actually observed to take place in the real world.

In the external world we observe *antecedence, coincidence, and subsequence*, (or antecedent events, coincident events, and subsequent events;) but the mind alone furnishes the idea of *consequence*, (causation,) and, as the stream of time rolls on, with the whole functions of nature going on coincidentally, we require to *observe* what antecedents are invariably followed (and in all circumstances) by certain subsequents, and thus to arrive at particular causes and particular effects. For this, the classification of events is requisite, and when they are arranged into species and genera, they become capable of functioning in a logical scheme, which scheme constitutes science.

political economy. Whatever results from the general action of the laws of the non-human universe, does not belong to political economy. The goodness or badness of a climate, the fertility or non-fertility of the soil, the existence of coal, iron, or other minerals — these in no respect whatever enter the science of political economy, except just in so far as they are affected by *human action*. The fertility of the soil *produced by human industry*, the *production* of iron, the *cultivation, manufacture, and commerce* of cotton, wheat, tea, sugar, sheep, cattle, wool, &c., &c., — all these enter into political economy, because they represent certain *forms of human action*, which have an appreciable value in social utility.

The destruction of all the sheep, for instance, and all the people in a highland district, by a storm or by a dreadful convulsion of the elements, would in no respect enter into the science of political economy. But the abolition of the sheep, and the abolition of the population, by the so-called proprietor, under the sanction of British law, and the conversion of the district into a game desert, *does* enter into political economy; and when we ask the questions, “Is this act socially beneficial or prejudicial?” and, “Are the laws that grant a legal power to perform such acts by force socially beneficial or prejudicial?” we reason in political economy.

These same acts and laws may also be judged of *in equity*; but in that case we have passed from political economy to true politics.

Political economy, then, is the science that treats of human *function*. Where human function is not in-

volved, we are not engaged with political economy. But then there is a limitation on the other hand. Political economy is a *non-moral* science, and in no case can be allowed to pronounce a moral judgment. All that it can ever tell us is, whether certain actions or systems of action are *beneficial*, *indifferent*, or *prejudicial*; and when the terms *right* and *wrong*, (adjectives,) *ought*, &c., are employed, they are used to indicate *correctness* or incorrectness *in social utility*.

Acts of *interference*, whether by law, or merely by the individual, belong properly to the science of politics, but they may also be legitimately judged of through the medium of political economy. In the one mode, however, we reason synthetically, as in geometry; in the other mode we reason empirically, as if we were to infer the general properties of figures from an induction of the actual properties presented by an indefinite multitude of individual figures. The practical difference is this. By treating a question of interference by the rules of equity, we arrive at once at a conclusion; whereas, when it is treated by the rules of utility, it may require many years, many observations, and many disputations as to facts, before a conclusion can be drawn. The *equity* of the slave trade is a question so simple, that few intelligent men could fail to settle it satisfactorily in a few minutes; but the *economy* of the trade would require, and did require, many years to settle it; and even now there are not wanting hundreds who, on *economical* principles, would defend both the trade and the condition of slavery. Although *perfect* knowledge in both sciences would, no doubt, lead to exactly the same practical conclu-

sion, the argument of economy is sometimes set up against the argument of equity. The concise reply to such a mode of proceeding is this, "If equity have any existence at all, its rules are necessarily *imperative*." Deny the *imperative* nature of equity, and you obliterate all morals.*

Now, where there is no *interference* between man and man, no judgment in equity can possibly be pronounced. Where there is no *interference*, (and nothing that enters religion,) economy gives the canon; she holds the balance, and pronounces judgment, because the question belongs to the jurisdiction of her court. But where there is *interference*, we can have a judgment *in equity*; and where we can have a judgment in equity, no economical considerations whatever (even if it were *not* true that the just coincides with the beneficial) can ever relieve man from the imperative obligation. The moment it was admitted that economical considerations should outweigh the judgment in equity, that moment is man's moral nature obliterated, and he becomes an animal a little superior to the orang-outang.

We now turn to the mode in which political economy is usually presented. *Utility* is, no doubt, the object of investigation; but what is its *measure*, what is its criterion, what are the marks by which we know an action to be beneficial or prejudicial?

* It is true, however, that the argument of economy has a far more powerful influence on the world than the argument of equity. Men are not satisfied with the logical determination of right and wrong; they must have a picture as well as a specification; they must have the evils portrayed in all their malignity before they resolutely determine to amend them.

According to some writers, we should imagine that utility was measured according to *the wealth produced*. *Value, labor, capital, wages, profit, rent, &c.*, are the substantives of their science; and the *production of wealth* appears to be the end, the sum and substance, the object of their desires.

We deny, from beginning to end, this view of political economy. It has some truth in it—the beginnings of truth; but such, in the general, is no more the end of political economy, than the determination of the chances in gambling was the end of the calculation of probabilities.

We assert—and we have no doubt whatever that this view will ultimately obtain the suffrages of all—that the welfare of *man* is the end of political economy.

To this it may be replied, that the production of wealth is the *means*; and that all economists intend to include the welfare of man as a matter of course.

We deny the whole theory from beginning to end.

We assert that *the production of man*, and man in a continually higher condition, is the object, the end, the ultimum of the science.

Let us suppose that one thousand families were employed in the cultivation of one hundred thousand acres of land; that they lived, maintained themselves in decent plenty, reared their families in health, industry, honesty, and those manly qualities which, among the agricultural population of Great Britain, have assumed a higher character than in any other portion of the earth's inhabitants. Suppose that this population produce only as much as suffices for the plentiful support of all the individuals. Good. There is not,

on the average of twenty years, any superabundance that can be called accumulated profit.

This population, according to some political economists, would be a most unproductive, most useless portion of society.*

* "In 1709, an application was made to Parliament for an act to divide and enclose the common fields and wastes belonging to the parish of Ropley. This served as an encouragement and example; and applications of the same kind became annually more frequent. It appears that, since that period, very nearly four thousand bills of enclosure have been passed; and it is also well known that, in numerous instances, the same end has been reached without legislative interference, by private agreement among the parties interested. In a word, we have scarcely a doubt that about five thousand parishes (a moiety of the whole territory of England) have been subjected to the operation of these measures in the space of about one hundred and twenty years; and as little (however beneficial the division and consequent improvement of this vast territory may have proved to the owners, and to some other classes) that the change has been a woful one for our peasantry. We believe that the final extinction of the class of small occupiers and crofters has, in almost every instance, followed the division of common-field parishes. Several small farms have been consolidated into one; and the little farmer has been either metamorphosed into a cotton spinner, or, continuing perhaps to occupy his old farm-house without any land attached to it, lingers as a day laborer on the soil which he once rented. Similar in character has been the effect of this change upon the condition of the cottager. Before the division and enclosure of the district, every cottager possessed a common right of some extent—a right, for instance, to turn out a cow, a pig, a few sheep and geese, upon the wastes of the parish: most of them were in possession of small crofts, which supplied the cow with winter fodder; where this did not happen to be the case, the cottager either purchased hay for her keep, or paid for her run in the straw yard of some neighboring farmer. Hence it is clear that, under the above system, not only the little farmer, but also the

We deny the fact. This population has reared and produced *men*.

Suppose, again, the great body of this population should be set to spin cotton, smelt iron, grind cutlery, and weave stockings; that at these occupations, by incessant toil, they should *produce* not only as much as support them, but one half more; according to political economists, these occupations would be incomparably more *profitable* than the agricultural occupations, and consequently much better for society.

We deny the fact, and scout the inference. The production of *man*, and of man in his best condition, is the physical ultimatum of the earth; and any system whatever that sacrifices the workman to the work—the man who produces the wealth to the wealth produced—is a monstrous system of misdirected intention, based on a blasphemy against man's spiritual nature.

The whole system of modern manufacture, with its factory slavery; its gaunt and sallow faces; its

humblest cottager, drew a very considerable portion of his subsistence directly from the land. His cow furnished him with what is invaluable to a laborer—a store of milk in the summer months; his pig, fattened upon the common and with the refuse vegetables of his garden, supplied him with bacon for his winter consumption; and there were poultry besides. It has been very much the fashion to decry the advantages which accrued from the enjoyment of common rights; but to him who has, and who fortunately wants, but little, a trifle is of importance. This *trifle* amounted, probably to half the subsistence of the man's family.

'And buirdly chiields and clever hizzies
Were bred in sic a way as this is.'

Quart. Rev. July, 1829.

half-clad hunger; its female degradation; its abortions and rickety children; its dens of pestilence and abomination; its ignorance, brutality, and drunkenness; its vice, in all the hideous forms of infidelity, hopeless poverty, and mad despair, — these, and, if it were possible, worse than these, are the sure fruits of making man the workman of mammon, instead of making wealth the servant of humanity for the relief of man's estate.

The day is not far distant when the *labor* of England will hold her court of justice; let those who may await the sentence of the tribunal.

That system of political economy which makes *wealth*, and not *man*, the ultimatum, is based on a monstrous fallacy — on a fallacy so slavish and so detestable, that the wonder is, how accomplished and personally amiable men can be found as its abettors.

The fallacy is, in taking *the rents of the landlords*, and *the profits of the capitalists*, as the measures of good and evil, instead of taking the *condition of the cultivators*, and *the condition of the laborers*, (the many,) as the sure index of the character of a system.

Whatever tends to *debase man*, to make him physically, intellectually, or morally a lower being, is *bad*, however much or however little the wealth produced may be.* The wealth is not the stable element; it

* The *distribution* of wealth is a question of incomparably more importance than even its *production*. This appears a paradox. It is not so, however. Place man on the earth, and it is his *nature* to produce wealth. Hunger and want will impel him; and as his intellect becomes more and more enlightened, and his ingenuity

is an accidental, and by no means the most important, adjunct. *Man* is the stable element. *His* condition is the standard; *his* improvement is a good; *his* deterioration is an evil. And this, independently of all other considerations. All other considerations are secondary, dependent, subsidiary to the great intention. Man is not useful as he produces wealth, but wealth is useful as it sustains man, ameliorates his condition, improves his capacities, gives opportunities for his further cultivation, and aids his progress in the great scheme of human regeneration.

Such views, then, of political economy as make wealth the ultimatum, (and this wealth, be it always remembered, is the wealth of the land owner, the mill owner, the iron master, &c., and not the wealth of the

becomes greater under the influence of the enlightened intellect, his arrangements will be more complex, more far-sighted, more independent of any sudden shocks or derangements that might accrue from accident. Great advantage, of course, attends the study of the best *mode* of producing wealth. In the *distribution*, however, another circumstance has to be taken into consideration. All history proves man to be a *fallen* creature. No theory of human nature can stand for a moment, that does not admit man's fallen condition. Such theories invariably lead to endless contradictions, because they cannot explain the facts and phases of human manifestation. Now man as a *fallen creature*, though necessarily impelled to produce wealth, more or less, is also *tempted to commit injustice*. The strong individual appropriates more than his equitable share at the expense of the weak individual; and all privileged classes are merely classes of individuals who have obtained more land, or more power, or more license than *equitably* could have been assigned to them. The laws of *distribution* are of incomparably more practical importance than the laws of production, and the public mind will not allow many years to elapse without bringing them to vehement discussion.

multitude of human laborers,) are merely *the beginnings* of the science of political economy. This science, like every other, must pass through its stages; it must have its errors, its superstitions, its partial truths, its truths misunderstood, before it comes forth as a system over which man has no power of control, but which he must contemplate as a system of truth designed by the Creator of the world for the instruction of his intellect, and the improvement of his condition.

Political economy is now struggling to assume a position among the sciences. It is daily growing, daily assuming a more definite form, and daily shaking off those questions that do not belong to it, although so intimately allied with it that they are sure to occur, over and over again, to its cultivators.

That it is a science in the same sense in which chemistry is a science, no person can for a moment maintain. But so much has already been done, that any day might see it transformed by the hand of some master, and presented to the world in the aspect of a teachable branch of knowledge, capable of application to the great problems of legislation.

At the same time we must remark, that the *natural* science of political economy has labored under the immense disadvantage of collecting facts which were not the result of nature's operations, but which were, in a great measure, the result of human legislation, which varied from time to time, and from country to country. The statistics of the corn trade, for instance, and consequently the statistics of the price of corn throughout Britain, were encumbered with sliding

scales, fixed duties, and all the other concomitants which the aristocratic rulers of the country have invented for the purpose of taxing labor instead of land. Now, nature has no sliding scales to-day, and fixed duties to-morrow. She acts harmoniously; and the study of her facts is not disturbed by the consideration of causes which may vary indefinitely. Had matter gravitated towards matter according to a sliding scale at one period, and according to a fixed scale at another, and according to no scale at all at a third, it is at all events questionable whether even Newton would have been able to unravel the intricacy of her laws. Consequently we must regard the labors of political economists with lenity, nor must we demand from them the same unity of credence which we expect from the chemist, the anatomist, or the physiologist, because a disturbing force of *variable* character has interfered with the objects of their investigation. At a future period, there can be no doubt that political economy will assume exactly the same form and ordination as the other sciences, and that the economist will, to a great extent, drive from the field both the demagogue and the legislator who makes laws on *opinion*.

Before leaving the subject of political economy, however, we have one remark to offer. God has given to man, and to the world, a certain constitution. By the laws which God has established for the government of the world, certain consequences follow certain antecedents. All human laws whatever are attempts to alter the *natural* arrangement, and to substitute some other consequent, which, according to

the ordinary course of nature, would not have followed. It is therefore evident that man, in making laws, must have the most clear and perfectly justifying *reason* for so doing; or otherwise he is attempting to controvert the arrangements of the Almighty, and to substitute *human* arrangements for those that are *divine*. Many of the evils of society are mainly to be traced to the disturbing influence which human laws have exercised on the natural arrangements of Providence.

On the conveyance of the productions of one country to another, for instance, God has placed certain restrictions. Distance must be overcome, storms must be encountered, and risks of various kinds must be incurred. Suppose that the whole of the *natural* risks amount to one fifth of the cost price of the articles. [God, in giving man ingenuity, has given him a power, not of diminishing distance or abolishing storms, but of continually improving the means of transport, and thereby diminishing the natural risk. But let us suppose that, at a given period, the risk did amount to a fifth of the cost price of the article.]

Now, what has man done? Has he accepted the conditions under which God allowed him to exercise his ingenuity? Has he thankfully taken the good, and endeavored to diminish its cost as much as the circumstances of the earth allow? Or has he, on the contrary, taken the conditions such as they were presented in nature, and vastly increased that part of the liability which it was man's constant interest to diminish? According to the laws of nature, (or of God, the author of nature,) the condition annexed to the supply of the foreign goods was the payment of one fifth of

the cost; but man, by restrictive laws, customs, duties, &c., increases the cost of supply to two fifths, or a half, or a whole, or perhaps double, the cost price of the articles.*

We are fully aware that, to many, this mode of viewing restrictive laws will appear, at all events, irrelevant; at the same time, there can be little doubt that, so long as restrictive laws of this character are allowed to exist, man must *suffer*. We do not say that the persons who make the laws will suffer, that *they* will be poorer, or that they will reap the inconvenience of the arrangements. *Their* pecuniary interests are often diametrically opposed to the welfare of the great body of the population. But so long as any legislators whatever are allowed to originate restrictions, and thereby vastly to increase the cost of those natural productions which the population requires, the great body of the inhabitants of a country must be *in a*

* The mode in which the taxation of articles of consumption operates, is thus set forth by the Liverpool Financial Reform Association:—

	<i>s. d.</i>
Cost of tea, per pound, - - - -	1 0
Add profit, 25 per cent., - - - -	0 3
Duty, per pound, - - - -	2 2½
Add profit on the duty, - - - -	0 6½
Price to consumer, instead of 1s. 3d., - -	4 0

Those who are interested in the *facts* of politics (and who is not?) will find the best account of the present political condition of Britain in Wade's "Unreformed Abuses in Church and State." London: E. Wilson. Price 2s. 6d. This is, perhaps, the best exposition of the fruits of aristocratic government that has issued from the press.

worse condition than Providence intended, in a worse condition than they would have been had there been no such laws, and in a worse condition than they would have been had the arrangements of nature been left to themselves, and not interfered with by the enactments of the legislators.

There is the greatest possible difference between taking advantage of the laws of nature, and *originating* laws. It is not man's office to originate laws. God has made the laws, and given man an intellect to *discover* and *apply* them. As well may man make laws in the physical sciences, or in theology, as in political economy. It is true he may make laws and enforce them; but what he never *can* do is, to make the operation of those laws beneficial to the world. This is beyond his power; and, though the laws may be for the pecuniary advantage of the privileged classes of a country, they are necessarily followed by a concomitant series of evils, which bear on the masses of the population.

The great truth which political economy will ultimately teach is this: "That God has constituted nature aright; that it is man's interest to take advantage of the arrangements of nature according to the laws which God has established in the world; that all human laws originating in man are prejudicial arrangements, which interfere with the course of nature; that all such laws ought universally to be abolished, so that man may have free scope to extract the maximum of benefit from the earth." Social arrangements for the benefit of all are not laws — they are adaptations of the laws of nature. These are requisite for society;

and to these arrangements, legislation, in its economical aspect, ought to be exclusively confined. When men persecute each other on account of their religious tenets, (either by positive infliction or by exclusion from civil rights,) they *make* laws — they *originate* laws; when they make it a *crime* to kill a wild animal, they originate laws; when they tax the population for the support of a national creed and national ceremonial, they originate laws; when they allow the king to grant fifty or a hundred thousand acres of the nation's land to an individual, they originate laws. There are no such laws as these in nature; no such laws in reason; no such laws in Scripture. They are mere human inventions, having no truth to rest upon; they are the productions of man during the era of superstition.

But, on the contrary, when men make light-houses for the protection of maritime commerce — public harbors for the safety of ships, seamen, and cargoes — when they make a police to watch — when they pave, light, and clean towns — when they make roads and arrangements for communication — when they support such national defences as are judged requisite at any given time — when they support judges and other officers to administer the laws of justice — when they do these, and many other similar acts, at the common expense, and *enforce* the payment, they do not make *laws*. They make only such arrangements, based on the laws of nature or equity, as are deemed fitting at a given period; they take advantage of the world, such as they find it, and endeavor to evolve from it a greater amount of good than they could do individu-

ally, were there no such social arrangements. Men may make laws, if they will; but what they cannot do is, to make good to follow them.

§ III. *The Province and Position of Politics Proper.*

— From political economy we turn to politics. Here we approach the argument that a millennium, or reign of justice on the earth, is a *natural* event; that it belongs to the course of human evolution; that it is *computable* on the very same principles that men employ to compute other events; that it may be *inferred* from the past history of human progression, which gives us the actual line of progress, and from the logical ordination of the sciences, which gives us the abstract line of progress.

First, then, we have to determine the *position* of politics in the scheme of classification. Before doing so, however, we must remark that *no* science of politics, whatever be its form, or whatever be its matter, can hope to meet with impartial investigation. Whatever may be the real system of truth, (and a truth there must be somewhere,) that system cannot fail to controvert the opinions of multitudes, and to be favorable or unfavorable to the pecuniary interests of multitudes. A few there may be who are able to look calmly; but the minds of the vast majority are occupied by habitual prepossessions, which, in spite of every effort of the will, prevent the intellect from shaking off its fetters. What they have been accustomed to, or one short step beyond what they have been accustomed to, is the extent of their intellectual horizon. All beyond is a fabulous region of mysterious portent —

an *Ultima Thule*, whose thick waters are unnavigable — a land of darkness, which perhaps some of our far-off descendants may possibly visit, but which *we* can never hope to explore.

Admit the fact of human progression, however, (nor can it reasonably be denied,*) and all the objections, and all the difficulties connected with the habitual credence of a present generation, vanish into air. Let political truth be what it may, it cannot receive general adoption at *any* period. It must grow; it must be suggested, misunderstood, denied, discussed, adopted in part, rejected in part, re-discussed, further adopted, and so on. Were any generation of men (constituted as men now are, and manifesting similar tendencies to what may every where be observed) to continue to live on instead of being replaced by successive generations, it appears highly probable that the progression of man would be for the most part arrested, or, at all events, it would be much less rapid than at present. In general, men form their opinions young, and adhere to them for the remainder of their lives. *New* intellect must be brought forward, with its elasticity, its inquisitive scepticism, and its ardent desire to form a system

* It may be necessary distinctly to reiterate, that by *human progression* we do not mean the progression of man's *nature*, but the progression of man's *knowledge*, and the progression of his systematic arrangements. We are well aware that there is a doctrine which teaches the progressive improvement of human nature. And even this latter doctrine appears to be *so far* correct, that the higher sentiments of human nature come more and more into general action the more men depart from barbarism. But that any amount of natural improvement will make man other than a fallen creature, is out of the question.

satisfactory to itself. It also, in time, fixes its credence, and a new generation is required to continue the onward progress, and to pioneer the way into new regions of thought. Truths, which the last generation regarded as wild romances, or as destructive instigations of the devil, are by the next adopted in sober earnest, and beheld as links in the vast chain of natural revelation,* which, century after century, goes on unfolding itself.

Doubts, disputes, denials, and diversity of opinion, therefore, are of little importance. They are natural; they must come. They are the modes in which man

* We use the term *natural revelation* intentionally, not for the purpose of putting science on an equality with Scripture revelation, but for the purpose of redeeming it from sensational degradation. The grand question of philosophy is, whether the material world furnishes only a summation of sensual impressions, or whether it is really and truly a revelation. That is, can we, or can we not, see through material phenomena into a region which is not appreciable by sense? If we say *no*, we are sceptics; if *yes*, we are idealists, or (a much better name) *intellectualists*. To put the question in a clear light, we ask, "Is the material world a final object, which conveys only sensual impression?" or, "Is the material world *a book*, that affords sensual impression, (the letters, figures, pages, &c.,) and which, *over and above the sensual impression*, conveys an *intellectual meaning intended by the Author?*" A dog, looking at a book, *sees* the same that a man sees; but he understands not the *intellectual meaning* intended to be conveyed to the reader by the aid of the symbols. Now, is the universe an object *final*, or *a book*? This is the great question of philosophy. If we admit it to be a book, as St. Paul does, (Rom. i. 20,) we thereby admit science to be truly *a revelation*. Even if the question were doubtful, which we do not believe, we esteem St. Paul's declaration a settlement of it, as here St. Paul has pronounced divine judgment on a question of philosophy.

expresses his ignorance, and frequently the means he uses to acquire knowledge and determine truth. Where there is diversity of opinion, there must be ignorance on one side or on both; and bold would be the man who, in politics, should assert that he had so completely mastered all truth, that all other men ought to come over to his side. And yet there must be a truth somewhere; and, as knowledge does not admit of diversity of opinion, if ever man can have a system of politics other than empirical, other than superstitious, diversity of opinion must disappear from politics, just as it has disappeared from the sciences which man has already mastered.

First, of the position of politics as a science.

- 1st. Man may act on the external world of matter, and we may consider the laws of such actions without taking into consideration the reflex effect on man.
- 2d. We take into consideration the reflex effects on man, and in them we find the laws of political economy.*
- 3d. Man may act on man *directly*, by interference. The laws which prohibit, limit, or regulate these actions of interference, constitute the science of politics.

* Political economy may have a restricted or an extended signification. It may mean an exposition of the laws according to which man creates or produces wealth. In this sense it is the science of *value*. Or it may mean an exposition of the laws which regulate social welfare, including the *distribution* of wealth, the public health, the public education, &c. In this sense it is the science of *social utility*, of which the production of wealth is only

We here proceed according to a regular progression, beginning at the most simple forms of human action, and passing to those which are more and more complex.

Politics has to do exclusively with the relations between men, and to determine the principles that should regulate their actions towards each other. Where *interference* is not concerned, there is no question in politics. This, then, is the anterior limitation of the science—that where there is no interference between man and man, there is no question of politics.

We have, then, to determine the posterior boundary—that which separates it from any science that might lie beyond it.

This posterior limit is likely, from the prevalence of socialist and communist doctrines, to become the great desideratum of political theory. Those doctrines, whatever may be the contempt heaped on them in England, are far more generally diffused than most Englishmen are aware of. They are now revolutionizing Europe; and no one can predict the extent of the changes that must follow them, if once they gain the complete mastery of the public mind. Instead of railing at them, however, it is much more profitable to endeavor to understand them, and to seize the fallacy on which they are based. Those doctrines contain a profound truth; and more than this, they are the convulsive cries of man's spiritual

the first and simplest embranchment. The economists of England have strenuously adhered to the first meaning; but their place must soon be taken by men of a different stamp, who take a wider range of investigation.

nature, seeking after a better and a holier world than is found in the present condition of society. It is *true* that men are brethren—the children of one Father; it is *true* that universal benevolence is a virtue; it is *true* that man ought not to seek his own advantage at the expense of his fellow; it is *true* that in the present system of society there are stupendous abuses which cannot be justified; and it is also true that socialism and communism are based on fallacies, although the above truths are ostensibly at the bottom of those systems.

There is a true communism and a false communism. Christianity itself teaches us that men are brethren; and no dogmas that have ever been uttered are more communist than some precepts of the New Testament. It is a fact, also, be it *explained* as it may, that the early Christians were *de facto* communists,—that they held all things in common, and that no man called any thing his own. These very doctrines have revived in our day, and they are now playing havoc with the institutions of Europe. They are revived *in the world of politics*, however, and not in the world of religion; and, as a phenomenon in the history of man, this circumstance is well worthy of attention.

All that we have here to do with communism is to point out the fallacy on which it rests, when advanced, as it is, into the region of politics.* This fallacy will

* Of course, we speak here only of that communism that would obliterate private property altogether. The abolition of private property *in land*, and the restitution of the soil to the state, is an

be found the moment we can determine the posterior limitation of the science of politics. And if that posterior limitation cannot be determined, if it cannot be settled satisfactorily by the fairest principles of reason, then no man is entitled to say that communism may not, after all, be the correct theory of politics; and though he may asseverate as he will, or rail, or abuse, he has no right to do so till he can point out the line of demarcation that separates political questions from those that lie altogether beyond the sphere of politics. Nor would any thing that could be said be of much avail to stem the torrent of credence that has set in. Stem it we cannot; but it may be possible to give it a right direction.

Political relations are *not* relations of fraternity. Love, charity, benevolence, and generosity have nothing whatever to do with politics. These substantives, and the principles of action to which they give rise, lie *beyond* the region of politics. This they do *necessarily*—just as necessarily as light and sound, optics and acoustics, lie necessarily *beyond* the region of geometry. Unless this truth is fairly apprehended, and unless the line of demarcation between politics and the regions that lie beyond it is logically determined and clearly perceived, there is a continual danger of sliding imperceptibly into socialism. Whatever may be true, or whatever may be false, in socialism, (using that term in the *most unobjectionable* sense—

entirely different question. Every political state is a communist association; and its common property, the taxation, must be taken either from *land* or *labor*. In Britain, the common property, *the revenue*, already exceeds the rental of the soil.

Christian socialism, for instance,) the principles of *equity* must *first* be taken into consideration before we can, by any possibility, proceed to the consideration of those higher principles of action which may come into play, when once the principles of justice are acknowledged and carried into general operation.

This question is, perhaps practically, the most important in modern politics. Insurgents let loose on the world, with vague ideas of fraternity in their heads, with the courage of enthusiasm in their hearts, and with bayonets in their hands, are, at all events, formidable expositors of doctrine. Their *energy* is exactly what the continent of Europe has so long required; but their *ignorance* may transform what would otherwise have been a most useful reformation into a terrible hurricane of vengeance, and a blind exercise of destructive power. Now that the theorist and the orator can raise armed millions, the game of politics has assumed a new character. Theories are no longer barren speculations, nor is oratory mere declamation. It is, therefore, of the *first* importance that the most careful, impartial, and honest endeavor should be made to perfect the theory of politics — to base first on the immutable foundations of justice — to satisfy the *reason* before setting the passions in a flame — to evolve principles which can be calmly and soberly maintained by the *intellect*, before they are given as rules of action to enthusiastic populations, ready to march in any direction that is plausibly pointed out as the right one.

We have no intention, however, to attempt the correction of wrong theories. Wrong theories may

be supplanted, but it is questionable whether they are ever corrected. The development of the *right* theory is the great object. It will do the work if once it can be finally cleared of logical objection. Men want political truth, and they are making desperate efforts to obtain it; and obtain it they will, ultimately, there can be no possible doubt.

Political relations, so far from being relations of fraternity, or of love, or of any of those sentiments that teach us to bear or to *forbear*, or to give or to *forgive*, are relations of equity. They are relations of *justice*, which *gives* nothing, and *forgives* nothing. They are *jural* relations, and political society is a *jural* society.*

The moment this truth is forgotten, the door is opened for the wildest and most impracticable schemes. We have, in fact, broken down the barriers of *reason*, and admitted a flood of wild imagination. While, on the other hand, we repudiate every thing that assumes the form of *authority*, (as dispensing with reason;) so, on the other hand, must we as carefully deny admission to any propositions whatever

* This truth has been clearly apprehended, and very distinctly announced, by Francis Lieber, in his able "Manual of Political Ethics." [London: William Smith, Fleet Street.] That work is well worthy the perusal of those who take an interest in political science. It is far from being a formal treatise, but a most admirable preparation for the gradual introduction of scientific form. "The state, I said, is founded on the relations of right; it is a *jural* society, as a church is a religious society, or an assurance company a financial association. The idea of the just, and the action founded on this idea, called *justice*, is the broad foundation and great object of the state." — P. 160.

which cannot show a *rational* foundation, because they pretend to derive from the higher and more expansive sentiments of the heart. Nothing can be more delusive, nothing more certainly dangerous. Justice is stable, permanent, and strictly regulative. Its rules must determine the form of society, a form which may at all times be *enforced*. And if, as is the case in all known countries, that form shall have been departed from, then *force* may be legitimately used for its restoration.

The moment, however, that we attempt to substitute the relations of benevolence for those of justice, both the scales and the sword fall from the hands of the image. Benevolence can regulate nothing, and enforce nothing. First let me know what is *mine*, and then inculcate the duties and the pleasures of benevolence. But if *nothing* is mine, then is there not only no *justice*, but *no possibility of benevolence*; and those who advocate the absolute abolition of property, would do well to consider that the moment property is abolished, that moment is the practice of benevolence (such, at all events, as involves the objects of property) abolished also. The foundation, therefore, of political society on benevolence is suicidal; the only possibility of benevolence being the admission that something is mine (service or property) which I may lawfully give, lawfully withhold, but which I may choose to give if I please, when actuated by benevolence.*

* The question, whether there ought to be any property at all, is essentially distinguished from the question, *What* ought to be property, and *whose* property ought it to be? The abolition of

Love, benevolence, charity, fraternity, therefore, cannot enter a system of politics. No human society could be founded on them that attempts to regulate the distribution of natural property, and the allocation of that increased value which is created by the labor of individuals. Love may, to a certain extent, reign in a family; but in a state composed of a multitude of independent (although social) individuals, each producing according to his skill, energy, perseverance, and accidental opportunities, *justice* must be the regulative principle, without which the society falls either under the hand of tyranny, or falls into the equally destructive condition of anarchy and confusion.

slavery is a question of the destruction of property. Destroy the *property*, and the slave is a freeman. This circumstance shows that there is nothing so very alarming in the terrible phrase, "destruction of property." It is one question, whether there ought to be property in the abstract; and another and a very different question, whether the present distribution, enforced by law, is the correct one. For instance, Does the county of Sutherland belong to one man, and can he exclude all the rest of the inhabitants, except from the sea-beach and the king's highway? The law says so. Now, suppose the nation were to revise these laws, and to affirm that the *cultivators*, from time immemorial, had quite as good a right to cultivate, by prescription, as the landlord to receive rent for which he does not, and never did, labor. Suppose the nation were to go further in their revision, and to say, The king's grants of former times, or any arrangements of former times, do not deprive us of *our* right to our native soil. Suppose questions of this kind to occur. These are all questions of the "destruction of property!" but yet they are essentially different from the *abolition* of property. The *abolition* of property is a chimera; but the revision, and, to a very large extent, the destruction—that is, the transference—is a tolerable certainty. [Some, perhaps, might prefer the term intolerable.]

We posit, therefore, that political society is a society whose essence, end, and intention is to exhibit, in realization, the principles of equity or justice. And that benevolence has nothing whatever to do with political society, *as such*, may be proven by the following consideration:—

We can conceive that *intellect* should exist, separated from sentiment or passion. Let us suppose a nation of *intellectual* beings, of pure intelligences. It is evident that these might *contemplate* and *reason*, and that they might attain to *truth*, but that *action* is impossible for them, further than the mere action of the intellect. Let us now endow them with the power of action, with *will*, passions, and with the sentiment of *justice*, but without the sentiment of love or benevolence. It is evident that they would be able to perceive, and to carry into practice, the rules of equity for the regulation of their conduct. They would be able to determine that one member had infringed the rights of another; they would be able to enforce restitution where an injustice had been committed; but they would be unable even to comprehend what benevolence was, and the *giving* of property would be absolutely unknown and unintelligible. This society, nevertheless, would be a *political* society, fully and completely. Without even the thought of benevolence, they could carry justice into universal operation, and weigh acts with the utmost impartiality; and also they could carry out the laws of justice with the most scrupulous exactness, neither abating an atom nor superadding an atom. Political society, therefore, could exist, and be regulated by the most

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strict rules of justice, even where there was not the idea or the sentiment of benevolence; and consequently benevolence is not the basis of political society, and ought not to be taken into consideration when we profess to reason in politics. It lies *beyond* politics, and falls to be considered when the laws of justice have been fully and completely determined.

Although, however, benevolence has nothing to do with *politics*, it has much to do with *man*. And as it *does* lie beyond politics, its laws, whatever they are, or wherever they may be derived from, will fall to be considered at some period or other. Towards them the world is progressing, and *after* a reign of justice there will fall, in necessary order, a reign of benevolence. This is logically necessary. *When* such a happy period may come, or whether it may come in this world, is another question. But that it follows as logically as animal physiology follows vegetable physiology, we believe to be perfectly clear. In former ages, when love and war were esteemed the highest pursuits of man by the ignorant and semi-barbarous, an age of political economy, like the present, would have been looked upon with the most unmeasured contempt as to its character, and the most unmeasured scepticism as to the probability of its occurrence. From a reign of political economy, however, to a reign of justice, there is incomparably less distance than from a reign of barbarous power to a reign of political economy. May we not learn from this fact to expand our minds, and to anticipate, with bright hope, that the phases of human evolution, passing upwards through the *sentiments of man*, and exhibiting those

sentiments one after another as they are of a higher and a higher character, shall at last present man as realizing the *highest* principles of his nature, and exhibiting in the outward figure of society the manifestation of those inward principles which make man a denizen of a spiritual world, and link him with the unseen region of light, and love, and immortality?

But if politics be the science of justice, and justice does not admit the idea of benevolence, that idea being necessarily posterior to justice, what is the radical distinction between justice and benevolence, and where is the line of demarcation that separates them?

That line of demarcation is found in the distinction between the *negative* and the *positive*. All the rules of justice are radically negative or restrictive, and present themselves in the form, "Thou shalt *not* do." All the rules of benevolence are positive or expansive, and present themselves under the form, "Thou shalt do, or thou oughtest to do."

Certain difficulties of *language* here present themselves, as they do wherever the theory of positive and negative is involved. A negative proposition may present itself with the same valid signification under the *form* of a positive proposition, and a positive proposition may present itself under the form of a negative proposition. This is universal. It applies no more to politics than it does to logic or mathematics; and though in those sciences it may cause little practical difficulty, in politics it may be made the basis of much unnecessary misunderstanding.

A very simple consideration, however, will place in a clear enough light the difference between the nega-

tive character of justice, and the positive character of benevolence.

If all men were socially passive, and did not in any wise interfere with each other, there would be the perfection of justice, while there might be the total absence of benevolence.

No rule of justice can ever *originate* an interference. All interference based on justice is *consequential*; that is, the consequence of a prior act of interference, which requires to be corrected. All primary interference, contrary to the will of the person interfered with, (he being of sound mind, sober, &c.,) is an injustice; and though injustice is usually made to imply also some matter of detriment, pain, or loss, yet this detriment is not its *essential* character. The essential character of injustice consists in the forcible interference of one man with another; nor is any man justified in constraining another to receive even a benefit (or what nine hundred and ninety men out of a thousand would pronounce a benefit) *against his will*. The essential character of injustice is, the overbearing of one man's will by another man's force or fraud. And no rule or principle of equity can ever *originate* such an interference.

The whole scheme of justice, therefore, is essentially and radically restrictive, and all its *positive* rules, or rules which justify or command interference, will be found to consist of those *which justify the restoration of things to that condition in which they would have been, had there been no interference*. That is, whenever the negative state of non-interference has been departed from, and the equilibrium of equity destroyed,

justice furnishes rules for *positive* interference, whereby the negative state may be restored, and the equilibrium of equity reëstablished. But this in no wise affects the assertion, that the principles of justice, and the scheme of the science, are entirely *restrictive*; because, let all society be in the negative state of non-interference, and it would remain so forever, were the rules of justice attended to.

Benevolence, on the contrary, supposes that men shall be socially *active*; not that they shall interfere with each other without consent, but that they shall take a constant interest in each other's welfare, and be ready to offer the helping hand of sympathy when sorrows fall upon their brethren. Benevolence cannot *infringe* justice; it only superadds more than justice could require.

Such a condition of society, then, as would be compatible with the perfection of justice, might exclude benevolence altogether. Consequently, justice and benevolence are radically distinguished from each other; and politics, which is the science of justice, is independent of benevolence.

Here, then, we learn the posterior limit of the science of politics.

Where there is no question of interference between man and man, there is no question of politics. This is the anterior limit—that which separates it from all that comes before it; from political economy, the physical sciences, and the mathematical sciences.

And the posterior limit is found in the fact, that the science is confined exclusively to the exhibition of the laws relating to such interference as is consequent on

a departure from the state of non-interference, and to the exhibition of the laws (intuitions of the reason) which prohibit all primary interference. [The latter, of course, come logically first in the exposition of the science.]

Having, then, determined the limits of the science of politics, we affirm (from the preceding data) that its position is immediately after the science of political economy, and that it is followed by the laws of benevolence, wherever these may be derived from.