

**UNIVERSAL ATTRACTION ITS
RELATION TO THE CHEMICAL
ELEMENTS: THE KEY TO A
CONSISTENT PHILOSOPHY**

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Universal Attraction Its Relation to the Chemical Elements: The Key to a Consistent Philosophy
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ELEMENTS

THE KEY TO A CONSISTENT PHILOSOPHY

BY

W. H. SHARP

Nature and Nature's laws lay hid in night:
God said Let Newton be! and all was light.

POPE.

Except perhaps the *dark* lines in its spectrum!

W. H. S.

C.

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P R E F A C E.

If Nature had told Newton as much as she has since told those who regard him as her infallible interpreter, he would, I believe, have declared even more forcibly than he did that her first law is order.

It is about 200 years since his "Principia" appeared, and chemistry and electricity have since then as sciences been born into the world.

Newton was concerned with the study of material bodies and their attractive force—gravitation. Chemistry is concerned with the minute atoms into which those material bodies are supposed to be capable of being divided, and their attractive force—affinity.

I shall try to explain what the distinction is between these forces, but in the meantime let me say that, though we might have expected Nature's law of attraction would be universal in its principle, Newton's law of so-called universal attraction is not universal in principle, inasmuch as it requires to be replaced or supplemented by other laws devised to suit the phenomena of sciences not known in his time. And although chemistry and physical science declare the beautiful order of all the arrangements they make of the elementary atoms, yet, strange as it may appear, gravitation, chemistry, and the physical sciences all purchase their order at the terrible cost of assuming elementary disorder as regards the atoms which Nature gives them to work with. Philosophers innumerable

have speculated upon these atoms and the ties that bind them together. A right understanding of them is of vital importance to every science, and therefore indirectly affects the welfare of all humanity.

We are told at this present time that the atoms used by Nature are of about 65 different kinds, and that if they are of equal weights they are of the oddest sizes, and if, as is generally assumed, of equal sizes, Nature has made them of the oddest possible weights. Using one mould for all she is supposed to have compressed 16 units of matter into it to make the oxygen atom, 197 into it for the platinum atom, 19 for fluorine, 118 for tin, 207 for lead, only 1 for hydrogen, $87\frac{1}{2}$ for strontium, $27\frac{2}{3}$ for aluminium, and $39\frac{1}{10}$ for potassium, and so on; and as these have not been subdivided, they are labelled as if to warn us not to look inside—*Atoms*, which means, as you know, indivisible portions of matter.

I am confident it is a libel upon Nature to say she made such condensed masses, if for no other reason than that she would have conducted the compression with more rhyme or reason if there had been any such compression required, which, it appears to me, there was not.

With the reader's permission I shall try to show these supposed atomic aggregates in a better light.

The points I intend to bring before you are these :—

1. That gravitation being measured by mass, mass measured by weight, and weight dependent upon first knowing the values of mass and gravitation, we presently argue of them in a circle, so far as the law of gravitation itself is concerned.

2. That mass is the most important term in the equation of Newton's law, and that chemistry suggests a value for it which enables us to limit the operation of that law to its own proper province, and unite affinity and gravitation by

means of a higher all-comprehensive law founded upon the principles of universal sympathy and selective absorption.

3. That gravitation is propagated by wave motion, and that the earth has a gravitic field of force differing from that of a magnet chiefly in regard to the heterogeneity of the included waves.

4. That the atomic weights are expressions of the relation of regular periodic rates of motion of atomic masses to the resultant rate of motion of earth's constituents.

5. That there is no more necessity for separate laws of gravity and affinity than there is for separate laws to account for the forces exercised by a magnet, first, in attracting a body from a distance, and secondly, in retaining the body once they are in contact.

6. That the condensed atom is a logical absurdity, and that not only does the earth move, but its component atoms also move, and their rates of motion are in all probability infinitely more significant than its motion as a whole.

I might say what I have to say in fewer words were I addressing only those who are conversant with universal science. On the other hand I might extend these pages almost indefinitely were I to attempt to describe or even suggest all the details which have led me to the conclusions I respectfully lay before you, or the countless deductions that they give rise to. I am deeply conscious of the infinite importance of the task essayed, and my utter inability to do it justice. I fully realise the inconveniences which must attach to departure from the beaten track, and that the inertia of scientific opinion is not to be easily, if at all, overcome by anything I or anyone else can say, so long as it may seem to imply anything anti-Newtonian.

Newton undoubtedly deserves the gratitude and respect of

all men for his carefully conducted experiments and able mathematical analysis, which have enabled us to attain to most marvellous accuracy with regard to the motions of the heavenly bodies. I entertain the most profound respect for him, although as will be seen by the following pages it is in my opinion necessary to draw a line somewhere, and I would draw it where respect merges into abject homage, and belief in his having been inspired 200 years ago to write as it were upon tables of stone a law, which was to be a complete and sufficient revelation regarding the estimation of matter, and universal attractive force for all time.

As it will be objected, and rightly so, that my theory is to some extent based upon assumption, I shall before commencing upon it call your attention to the fact that the law I discuss is based upon some of the most remarkable assumptions that ever were made. Still I am aware that in a scientific sense it might for long have been truly said, and never perhaps more truly than at present—

“Whom the gods wish to destroy they first make”—

to doubt the infallibility of Newton.

The spectroscope has shown us there is more in light than Newton knew of, even though light be synonymous with Newton, and I try to show there may be more in gravitation than was dreamt of in his philosophy.

If annihilation be the penalty of my temerity, I am happy to know that no one else will be even remotely involved in its consequences.

If scientific progress always depends upon blind unquestioning acceptance of that which is supposed to be beyond question, if it depends upon lazily committing oneself to be carried forward with the swift current of prejudice

and received opinion, I shall leave that progress to others. In attempting to swim against that stream I essay the harder task, and trust that since I do so not out of obstinacy or bravado, but in search of truth, I may receive for my intentions' sake that patient consideration of my suggestions which their style scarcely deserves, but which the results they lead up to, will in the future assuredly *compel*.

I seek not to end the law of our scientific Moses, but rather to show that though presently bound up with the interests of its prophets it may possibly be replaced by a higher all-embracing dispensation suited to the necessities of the Gentile sciences.

Addressing myself firstly to the favoured nation of physical science, I assume a mutual knowledge of physical and chemical facts up to the present time, and the first demand will naturally be a sign—an experiment. Signs innumerable have already been given. Presently I rely upon (1) the signs we have in the law itself of its own incompleteness ; (2) the signs recorded in the literature of science.

Those who refer to Galileo's experiment and say what I suggest assumes the opposite result, which it does not, may admit the assumption to be infinitely more reasonable than the assumptions (1) of perpetual rectilinear motion of actual matter ; (2) of the existence of space unoccupied by a resisting medium ; and (3) of the uniformity of the earth's action upon equal masses of matter without regard to their chemical differences and atomic motions, all which, with others, underlie the Newtonian laws of motion and his law of gravitation which I am to discuss.

Did anyone ever see or know to exist otherwise than as a mental abstraction, space unoccupied by matter in its ordinary sense, or ether, a term used for matter in its extraordinary

sense, viz., that which leaves it open to be conjured with as either matter or motion at the pleasure of those who use it? If there was nothing—no ether—in the space through which the celestial bodies appear to move, how could Newton ever have known of their existence? If ether is not matter of exceeding tenuity and mobility, how can it be shown to be mere motion which implies change of position of matter, and which, if matter is not, has itself no existence?

Now we are certified that every particle in motion would continue to move perpetually onward in a straight line unless compelled by impressed forces to depart from that line. But we do not exist in mental abstraction surrounded by space wherein is nothing; we exist in a universe, a space real, which appears filled even to its most distant and infinitesimal subdivisions with *something*, and in that universe celestial and other bodies all move. Newton's assumption amounts apparently to this: If the concrete were moving in the abstract, perpetual motion would result if no force interfered. I do not know that; but if Newton says so, we have, some may think, no alternative but to believe it.

But taking Newton's statement as a kinematic proposition relating to abstract matter, motion, and space, and admitting it to be true, it is expedient, before applying the deductions from it to their supposed concrete equivalents in the form of a dynamic proposition, that we carefully examine the factors, check their co-efficients, and know their values and the effect of difference of conditions, before we proceed to use them in our calculations. This hitherto has not been done, and above all, I submit it has not been recognised that entirely different conditions exist in actual space to those which suffice at present for the abstract conception of it.

The first law of motion considered as a basis of dynamics