

of matter, is the atom matter in its ultimate form?" What is *beyond* the atom? It is not possible that the atom is made up of definite entities?

Here is where the physicist takes up the challenge of Truth. Formulating theories and discovering natural laws by means of experimental facts, he builds up from them the Truth as we recognize it concerning things material: the truth which the ancient philosophers attempted to discover by means of thought and mind alone. Still we find that all the stupendous and wonderful discoveries have been made thru *research*. We know now that the atom is not in itself a complete whole but that it consists of least of two forms of matter. They have found that the atom is composed of a central nucleus with one or more electrified particles surrounding it. This central nucleus bears a minute positive charge of electricity, while the smaller particles known as electrons, bear small charges of negative electricity.

Suppose we had the means of separating out the individual molecules from a glass of water and labeling them so that we might recognize them again. Suppose then we emptied the glass into the oceans. After millions of years had elapsed allowing the water in our tumbler to mix thoroughly and uniformly with that of the seven seas, suppose we come back and took at random a fresh glass of water from the ocean. We would find in it not less than one thousand of our labelled molecules. That is to say, the glass of water is to the individual molecules as the combined oceans of a thousand globes would be to a glass of water.

An atom it must be remembered is not a compact, tight grain. The actual space or displacement of the nucleus and several electrons of an atom compared with the space inclosed by the orbits or positions of the electrons is almost negligible. In fact, if we were to magnify the diameter of the atom to the length of a mile the electrons would have a diameter of five feet each and the nucleus would be the size of a walnut. Although the nucleus is much the smaller, it contains the greater mass for the electron weighs only one-eighteen hundredth as much as the lightest atom. If the electrons are