ELECTRICITY.

Electricity.—This is found to be a property of all bodies, manifested as a force much in the same manner as gravity or any other property possessed by matter. It is believed to be of the same nature as heat, light, magnetism, gravity, chemical and vital action. Each of these properties of matter if distinct may be called natural forces, inherent in everthing animate and inanimate, and may, by using proper appliances, be elicited in either form. For example, electricity may be elicited by friction, or chemical action, the two most usual modes, when desired to employ its force in any peculiar operation; but heat will also elicit it, and so will magnetism. In short, this natural force may be called into action in any way we please, and can be made to exhibit itself in form. These forces were long considered distinct, and are still so considered by many, although each can be converted into the other at pleasure without addition and without subtraction, consequenly must be one and the same. They have been called fluids, of extreme tenuity, it is true, but it is more than doubtful if they have any corporeal existence whatever, apart from other matter. Certain phenomena presented by matter in general, are classed as electrical, others as magnetic, others as heat, &c., &c.; it is only by this division into classes, that a knowledge of either manifestation can be satisfactorily explained or understood. When one body is rubbed by another, one or other of them is more heated than the other, one has acquired more electricity than the other, and so of the other modifications of this force.

There cannot be two electricities any more than two lights, positive and negative indicate either an excess or deficiency of the electric force, although no one uses the terms positive or negative light. The reason of this is that we have a word which represents negative light, which is darkness; and so with gravity, weight signifies the possession of that quality, while levity signifies the reverse; but positive and negative are used as applied to electric phenomena by those who are aware of the absurdity, because we have no term which expresses the total or partial want of electrical excitement. Electricity when elicited by mechanical means is termed mechanical or frictional electricity; that by chemical means is termed galvanism, or voltaic electricity; by heat, thermo-electricity; or by magnetism, magneto-electricity; while that emanating from animals is termed animal electricity, and is exemplified in the ray, the torpedo, and gynotus, perhaps, in a greater degree than in any other animals.

There are other terms applied to different states of the electric force, which it would be well to understand: *quantity* and *intensity*. These terms are extremely difficult to explain, but perhaps some idea of their meaning may be given by comparing the force itself to a stream of water. The term quantity may be easily understood if we suppose that a pint of water can only dissolve a given weight of salt, no matter how slow it moves, or how fast; by increasing the quantity of water a greater weight of salt is dissolved in the same time, which quantity is not increased by any increase of velocity the water may have, though the velocity may be so much increased as to wash much more away than it dissolves. Now the term *quantity* is applied to the electricity to indicate its working power as in the case of dissolving the salt, while the term intensity is applied to the increased force it gets which enables it to wash away the salt without dissolving it. A small quantity of water can dissolve only a small weight of salt, but its force may be so increased by the declivity of its channel, that it can wash a large quantity away, while it has no power to dissolve more of it than while its motion was slow: so a given *quantity* of electricity will decompose a given weight of salt by an electrolysis, while no increase in its intensity will cause