

of energy in a form other than heat; by this means the loss of energy which accompanies combination has been frequently measured.

The process, however, leads us further, for it is possible to arrive by its help at an estimation of what has been termed "chemical affinity;" it is of the same nature as electric potential. The reason for this statement is as follows:—

It has been mentioned that energy is stored up; when a gas is compressed the amount of energy stored will obviously depend on the mass of the gas and on the rise of pressure. Energy can also be stored by the raising of a weight above the surface of the earth; here again the amount of energy depends on the mass or the weight of the body raised and the distance through which it is raised. In the case of heat, the two components of that form of energy are temperature and a quantity analogous to specific heat. This case requires a little further consideration. The amount of heat absorbed by a piece of any particular metal, say copper, for heat, obviously depends on the mass of the copper, on the specific heat of the copper, and on the temperature through which it is raised; if the mass be doubled, the amount of heat which that copper will absorb on being raised through the same interval of temperature will be twice the original amount; if the mass remain the same and the interval of temperature be doubled, the amount of heat will again be doubled. By choosing another metal of which the specific heat is twice that of copper, the heat absorbed by a weight equal to that of the piece of copper, if the second metal is heated through the same interval of temperature, will be doubled. We see, therefore, that heat energy may also be regarded as compounded of two factors for unit mass:—

- (1) The specific heat of the substance.
- (2) The interval of temperature through which it is raised.