another of the great generalizations of modern times. Whilst energy cannot be destroyed, in every transformation which takes place there is always some energy degraded from a higher to a lower form, and this process of degradation will go on until the total energy in the universe is in the form of uniformly diffused heat, after which no further transformation can be made. This principle is known as the dissipation, or better as the degradation of energy.

The principal divisions of our subject are dynamics or the science of force, heat, light, sound, electricity and magnetism. Under the term dynamics we treat of what may be called the forms of visible energy, such, *e.g.*, as the energy of motion of a projectile or other moving mass, (take that of a ball projected from the cannon's mouth, the destructive effects of which are too well known); of the energy of position of a head of water, (a fine example of this is seen at Lake of the Mountain where the energy of position of a fine head of water is taken advantage of by the proprietor, Mr. Wilson, to drive his machinery by means of turbine wheels to which the power is directly led); of the energy of a mass of compressed air or other gas (it is only necessary to mention the power of doing work contained in the compressed steam in a boiler.) Under the head of dynamics we might also include those more recondite forces known as the molecular forces, adhesion, crystalline force, diffusive force etc.; whilst under heat, light, sound, electricity, and magnetism are discussed the various forms of invisible energy. To enumerate in detail the various advances made in these several parts of our subject in modern times would in the circumstances be to me an impossible task. A few words may, however, be not uninteresting. In dynamics there is, perhaps, nothing since the publication of Newton's Principia, which has so much stimulated the study of the science of dynamics as the well-known work of two Scotch Professors—Thomson and Tait's Natural Philosophy. Almost every book on dynamics which has appeared since that work has been influenced by it. The advances made in this subject are more or less of a mathematical character, and as such are of the greatest importance in their applications. In the science of heat not only have important advances been made in our knowledge of the nature of heat, and wrong theories given up, but laws and data of the greatest practical importance have been discovered. Chief amongst the latter is the determination *of the mechanical equivalent of heat.* It is indeed a triumph ofscience to be able to say that the heat required to raise the temperature of a pound of water by 1° C. would, if properly applied, be able to overcome the weight of the same water through a distance of 420 feet, or that if the same water were allowed to fall in vacuo through the same height and all its energy of motion used to heat it, that its temperature would be increased by 1° C. It may interest you to know a physical fact of some importance which comes under the subject of heat, and which only within the last year has been proved in the physical laboratory of the University of Edinburgh. To the inhabitants of a land of snow and ice like this it is probably well-known that the freezing point of water or melting point of ice is lowered by pressure, a fact predicted from theory more than thirty years ago. That if water *e.g.* were subjected to a pressure of 133 atmospheres instead of 1, as it is under ordinary circumstances, its freezing point instead of being 0° C. would be $-1°$ C. *i.e.*, 1 degree below the ordinary freezing point. It is this lowering of the freezing point under pressure which explains to us the