ders of the vegetable kingdom; Geology, which treats of the crust of our own globe, and tells us of its various changes in the past; Chemistry, which analyzes for us the various kinds of matter and repeats the old lesson that we are but dust, ; and Astronomy, which revels in the starry sphere around us, have all grown such vast subjects both in the amount of knowledge they embrace and in the importance of their practical applications that each can well command the almost undivided attention of its votaries. As such important branches of the parent stem have one by one taken root for themselves, it becomes difficult to define exactly the field which is now investigated under the name of physics. A definition, perhaps, which, as well as any other can convey to us an idea of what we mean by the term in modern times is this: Physics is the science of energy. By energy we mean capacity to do work. Work, let me remark, in the scientific sense does not mean only useful work, which it does in a popular sense. When a boy *e.g.* throws a stone and breaks a pane of glass, or when a boiler explodes, it will be taught in the class of physics that work has been done in either case, although in another class-room the same phenomena might come under the term mischief rather than work. By work in a scientific sense we mean the overcoming of resistance through space, and the amount of work done is measured conjointly by the amount of resistance overcome and the distance through which it is overcome. The above definition of physics has been suggested by the comparatively recent discovery of the great foundation of modern physics, viz., the Conservation of Energy. Perhaps no law, not even excepting the great law of universal gravitation, has been richer in results than this important generalization. The conservation of energy is that principle which asserts that the total energy in the universe is a constant quantity, and the various changes which go on around us are merely transformations of one form of energy into another. The no less important principle of the indestructibility of mass, which forms the foundation of modern chemistry, has, in like manner, taught us that however great and many are the changes in the forms and other properties of matter which are constantly taking place, there is one great law to which all such changes are subservient, viz., that the total mass remains unchanged. To make what is meant by the Conservation of Energy a little clearer to you, allow me to take a particular case. Heat, you are aware, inasmuch as it possesses the capacity of driving engines and through them of doing work of various kinds, such as transporting us over land or ocean, is a form of energy. Now our principal source of heat is the sun, and however paradoxical it may appear to you at first sight, I can show you that it is really the heat of the sun that drives our boats across the ocean, whether they be driven by wind or steam. Without considering what becomes of all the heat of the sun you will readily admit that a portion of it comes to our globe. This portion is used in different ways. Part goes to heat the earth's surface, and thence to a great extent is radiated into space. Another part evaporates the waters of the earth, which rise in the form of steam and thereafter condense in the forms of clouds which again fall as rain to form rivers to be borne again to the ocean. Another part is spent in heating the atmosphere around us, and the unequal heating in different parts of our globe is the principal cause of the winds which drive our sailing vessels across the seas. This is a transformation, then, of the energy of heat into that of the visible motion of matter, or, as it is