bonic acid gas---which is formed by the falling together of carbon and oxygen. These atoms thus in close union resemble our lead weight while resting on the earth: but I can wind up the weight and prepare it for another fall, and so these atoms can be wound up. separated from each other, and thus enabled to repeat the process of combination. In the building of plants carbonic acid is the material from which the carbon of the plant is derived : and the solar beam is the agent which tears the atoms asunder. setting the oxygen free, and allowing the carbon to aggregate in woody fibre: Let the solar rays fall upon a surface of sand ; the sand is heated, and finally radiates away as much heat as it receives : let the same beams fall upon a forest, the quantity of heat given back is less than the forest receives, for the energy of a portion of the sunbeams is invested in building up the trees, i the manner indicated. Without the sun the reduction of the carbonic acid cannot be effected, and an amount of sunlight is consumed exactly equivalent to the molecular work done. Thus trees are formed; thus the cotton, on which Mr. Bazley discoursed last Friday, is formed. I ignite this cotton, and it flames; the oxygen again unites with its beloved carbon; but an amount of heat equal to that which you see produced by its combustion was sacrificed by the sun to form that bit of cotton.

But we cannot stop at vegetable life, for this is the source, mediate or immediate, of all animal life. The sun severs the carbon from its oxygen; the animal consumes the vegetable thus formed, and in its arteries a reunion of the severed elements takes place, and produces animal heat. Thus, strictly speaking, the process of building a vegetable is one of winding up; the process of building an animal is one of running down. The warmth of our bodies, and every mechanical energy which we exert, trace their lineage directly to the sun. The fight of a pair of pugilists, the motion of an army, or the lifting of his own body up mountain slopes by an Alpine climber, are all cases of mechanical energy drawn from the sun. Not, therefore, in a poetical, but in a purely mechanical sense, are we children of the sun. Without food we should soon oxidise our own bodies. A man weighing 150 lbs. has sixty-four lbs, of muscle; but these, when dried, reduce themselves to fifteen lbs. During an ordinary day's work; for eighty days, this mass of muscle would be wholly oxidised. Special organs which do more work would be more quickly oxidised : the heart, for example, if entirely unsustained, would be