

the water and the atmosphere. The sprig of mint was exposed to the light of the sun for twelve days consecutively; at the end of each day the carbonic acid was seen to diminish in quantity, the water rising in the jar to supply the place of what was lost, and at the same time the plant exhaled a quantity of oxygen, exactly equal to that of the carbonic acid which had disappeared. A similar sprig of mint, placed in a jar of the same size, full of distilled water, but without having access to carbonic acid, gave out no oxygen gas, and soon perished. When, in another experiment conducted by means of the same apparatus as was used in the first, oxygen gas was substituted in the first jar instead of carbonic acid gas, no gas was disengaged in the other jar, which contained a sprig of mint. It is evident, therefore, that the oxygen gas obtained from the mint in the first experiment was derived from the decomposition, by the leaves of the mint, of the carbonic acid, which the plant had absorbed from the water.

Solar light is an essential agent in effecting this chemical change; for it is never found to take place at night, nor while the plant is kept in the dark. The experiments of Sennebier would tend to show that the violet, or most refrangible of the solar rays have the greatest power in determining this decomposition of carbonic acid; but the experiments are of so delicate a nature, that this result requires to be confirmed by a more rigid investigation, before it can be admitted as satisfactorily established.

That the carbon resulting from this decomposition of carbonic acid is retained by the plant, has been amply proved by the experiments of M. Théodore de Saussure, who found that this process is attended with a sensible increase in the quantity of carbon which the plant had previously contained.

It is in the green substance of the leaves alone that this process is conducted: a process, which, from the strong analogy that it bears to a similar function in animals, may be considered as the respiration of vegetables. The effect ap-