

phorus, and sulphur. The hydrogen unites with the oxygen to form water, with the nitrogen to form ammonia, with the sulphur, phosphorus and carbon to form sulphureted, phosphureted and carbureted hydrogen gases. The oxygen also unites with the carbon to form carbonic anhydride. In course of time the ammonia is oxidized into nitrous and nitric acids, and water; the sulphureted hydrogen into sulphurous and sulphuric acids, and water; the phosphureted hydrogen into phosphoric acid and water; and the carbureted hydrogen into carbonic anhydride and water.

Physical Aspects of Putrefaction.—A delicate film usually at first appears on the surface of the (animal) fluid, which, seen by the microscope, consists of millions of motionless opaque specks—size, from $\frac{1}{40000}$ of an inch and less. These are embryonal bacteria in a vertical position. A few hours later, countless myriads of free swimming organisms are seen, accompanied by fetor and turbidity. In from nine to twelve months the specific gravity of the fluid—at first perhaps about 1.6—is at zero, or at most 1.1. Life, odor and haze are all but extinct, and the fluid gives no response to the tests for albumen—in short putrefaction is expended.

2d. THE ALLEGED CAUSES OF PUTREFACTION.—In regard to these there are two schools of opinion. One holds that bacteria and their allies are the likelier cause, of which, perhaps, the ablest exponent in this country is Sanderson. In a lecture published in the *British Medical Journal*, on the 16th of January last, at page 71, he states what is now well known, and what I think was first enunciated by Pasteur, "That bacteria, like plants, do not require albuminous compounds for building up their protoplasm; that ammonia is sufficient to supply them with nitrogen; and therefore," he says, "it is more than probable that in septic processes they derive their nitrogen and carbon, not from the albuminous compounds themselves, but from their ultimate products. This being the case," he continues, "we must regard bacterial life, so far as it consists of the building up of new protoplasm, as a process consequent on putrefaction; for disintegration must have proceeded to the production of ammonia before new integration could take place." But while admitting this, he adds, "It is not rendered more or less probable that bacteria are the efficient cause of putrefaction; there is not the shadow of any objection to the assumption that on the one hand bacteria derive material for the integration of their protoplasm from the products of disintegration of the soil in which they flourish,