propagated from this to the particles of food, under certain conditions, sech as a certain temperature, and, as it now appears, the presence of a free acid, which is phosphoric or lactic, orboth. Besides the gastric juice, the only other substances em. ployed in digestion is the oxygen which is introduced into the stomach with the The chyme saliva, which, from its viscidity, incloses a large quantity of air. then leaves the stomach, and gradually passes into the state of chyle, which resembles blood, except in colour, being already alkaline, not acid like the chyme. By means of the circulation, oxygen is conveyed in the actual blood to every part of the body. This oxygen acting on the tissues destined to undergo change, The . produces a metamorphosis by which new soluble compounds are formed. tissues thus destroyed are replaced by the new matter derived from the food Meantime, those of the products of metamorphosis which contain the principal parts of the carbon, are seperated from the venous blood in the liver, and yield the bile ; while the nitrogen accumulates, and is separated from the arterial blood in the kidneys in the form of urea or uric acid.

"The blood has another important function to perform, namely, to convey for excretion to the lungs the carbonic acid formed in the extreme vessels or cells in all parts of the body. There is reason to believe that the globules of blood possess the property of ab-orbing oxygen in the lungs, when they become arterial, and thus convey this oxygen to all parts. The globules then give up the oxygen to the particles of the tissues undergoing change, and in its stead carbonic acid is taken up, and the blood becomes venous. It is not known what chemical compound in blood absorbs and carries the oxygen, but it is by some conjectured to be a compound of iron analogous to the protoxide. It is certain that air is indispensable to the blood, and it is remarkable that sulphuretted hydrogen and hydrocyanic acid both instantly destroy the power of the blood to perform its compounds both act on protoxide, protocloride, and other analogous compounds of iron, immediately depriving them of their characteristic power of acting on oxygen.

"With regard to the carbonic acid which is produced in all parts of the body in the continual metamorphosis of the tissues, Enderlin has proved that blood contains no carbonates whatever; and Liebig has since recently pointed out that the required properties exist in a still higher degree in the phosphate of soda, which does exist in the blood, and appears to be altogether indispensable to its existence. No salt known is so well adapted for this function. It is truly remarkable that, while both phosphate of soda and phosphate of potash exist in the food, the former alone should occur in the blood; and this is especially wonderful when we consider that the juice of the fle-h, which is only separated from the blood by various thin membranes, permeable to liquids by endosmose and exosmose, contain much phosphate of potash, and little or no phosphate of soda. It is evident that the vessels or cells must possess in their peculiar membranes a power of secrection, or of allowing some salts to pass in one direction only, and others in the opposite.

There can be no doubt that the function of the acid salt, the phosphate of potash, in the juice of the flesh, and apparently also in the gastric juice, is as important as that of phosphate of soda in the blood. Probably a part of that function is to insure the constant acidity of their fluids, as phosphate of soda does the custant and essential alkalinity of the blood, in which the power of abording and giving out carbonic acid—in other words, respiration—depends. And we see too, that if this be so, the phosphate of potash, of the juice of the flesh, and of the gastric juice, cannot be replaced, as far as its functions are concerned, by phosphate of soda.

Another probable function of the substances which give acidity to the juice of