Berthelot—The French Chemist.

The most remarkable scientific event of modern times is the publication of a treatise on chemistry, proceeding on the same plan in organic chemistry as has been adopted for a century past in mineral chemistry; that is, forming organic substances synthetically by combining their elements by the aid of chemical forces only. The author who has performed demonstrations by this method is Berthelot, who has been occupied with organic synthesis since he first devoted himself to chemistry. Berthelot is not a vitalist; he is convinced that "we may undertake to form, *de novo*, all the substances which have been developed from the origin of things, and to form them under the same conditions, by virtue of the same laws and by means of the same forces which nature employs for their formation." Let us hasten to add a distinction upon which Berthelot properly insists and which it is necessary to recognize between organs and the matter of which they are composed. "No chemist pretends to form in his laboratory a leaf, a flower, a fruit or a muscle; these questions relate to physiology;" and it was by not observing this distinction that it was possible to form that school of medicine of which mention was made in my last communication, and which referred everything to vital force. This distinction being admitted, and calling to mind the synthesis recently effected, such as the direct preparation of C^4 H^4 from carbon and hydrogen, and alcohol from the union of C^4 H^4 and water, we may understand the possibillity of performing for organic chemistry what has been done for mineral chemistry, and to give to it a basis independent of the phenomena of life.—*Silliman's Journal.*

The Color of Water.

Dr. Tyndall has shown, by a series of beautiful and conclusive experiments, that water has a decided color —that even in small thicknesses it is not the colorless substance it is usually imagined to be. When seen through a glass full of the liquid, of course it appears without color, but if looked at through a stratum of fifteen fest its color is very evident. The following is Dr. Tyndall's arrangement of the experiment for showing this to a large audience. A tin tube, fifteen feet long and about three inches in diameter, is placed horizontally on a stand, and half filled with water. The tube being about half filled with water, and the image upon the screen being inverted by the lens, the upper air space in the tube is seen in the lower part of the image, which is quite colorless; whilst the upper portion, illuminated by the rays which pass through the stratum of water, is of a greenish blue color. The color varies from a pure green up to a blue, according to the purity or otherwise of the water. Thus it is evident that the color of water is very appreciable; for, in a stratum of fifteen feet, a very considerable amount is exhibited, and thus there is no difficulty in comprehending the fact that, in looking through a deeper stratum, such as is seen in the Swiss lakes and in the water which we have around our own shores, this color of water makes itself very perceptible.—*Scientific American.*

Tanning Statistics.

In a communication to the *Shoe and Leather Reporter*, J. M. Kiersted, jun., states that, during the operation of tanning, conducted for six years at Mongaup, Pa., the average quantity of leather made with one cord of hemlock bark was 145 lbs., and the average cost for tanning 1 lb., was 5c. 92m. The cost of the bark per cord was $3.05. During these six years 92,522 hides were tanned from which 2,988,464 lbs. of leather were made. There were 20,547 cords of hemlock bark used. The leeches for extracting the tannic acid of the bark are heated with steam, and the spent bark is burned for fuel. The expense of tanning with hemlock is continually increasing, as the bark is becoming scarce and the price advancing.

Composition of the Human Body.

Not only does food supply the daily waste of the human body, but, as the body increases in size from birth to adult age, it is supplied with materials for this increase by the aid of food. In order, therefore, to understand the value of food from its composition, it is necessary to know the composition of the human body. Just as any other compound substance can be submitted to chemical analysis and the elements of which it consists ascertained, so can the composition of the human body be discovered. Such analyses of course become difficult in proportion to the complication of the body analysed, and only an approach to the true quantities in which the elements exist can be expected.

The following are the elements and their quantities entering into the composition of a human body weighing 11 stones or 154 pounds:

ULTIMATE ELEMENTS OF THE HUMAN BODY.

	lbs.	oz.	gr.
1. *Oxygen*, a gas. The quantity contained in the body would occupy a space equal to 750 cubic feet	111	0	0
2. *Hydrogen*, a gas. The lightest body in nature. The quantity present would occupy about 3,000 cubic feet	14	0	0
3. *Carbon*, a solid. When obtained from animals it is called animal charcoal	21	0	0
4. *Nitrogen*, a gas. It would occupy, when free, about 20 cubic feet	3	8	0
5. *Phosphorus*, a solid. This substance is so inflammable that it can only be kept in water	1	12	190
6. *Calcium*, a solid. The metallic base of lime, which has not yet been obtained in sufficient quantity to be employed in the arts. It is about the density of aluminium	2	0	0
7. *Sulphur*, a solid. A well known substance. It unites with hydrogen, forming sulphuretted hydrogen, which gives the unpleasant smell to decomposing animal and vegetable matter	0	2	219
8. *Fluorine*, a gas. This substance has not been separated in such a manner as to permit of an examination of its properties, and cannot be exhibited. It is found united with calcium in the bones	0	2	0
9. *Chlorine*, a gas. When combined with sodium it forms common salt	0	2	47
10. *Sodium*, a metal. It is so light that it floats on water, and is kept in naphtha to prevent its oxidation	0	2	116
11. *Iron*, a metal. In small quantities it is necessary to the health of the body	0	0	100
12. *Potassium*, a metal. Like sodium it floats on water, and burns with a flame when placed on it	0	0	290
13. *Magnesium*, a metal. Combined with oxygen it forms magnesia	0	0	12
14. *Silicon*, a metallic substance. With oxygen it forms silex or silica. It enters into the composition of the teeth and hair..	0	0	2
	154	0	0

Other elements have been found in the body, as copper and manganese, but these are probably accidental.

These elements, when combined together, form a set of compound bodies called "proximate principles," out of which the tissues and fluids of the body are formed.