

by lime, soda, by ammonia, the formation of which is determined by the foregoing bases, by dilute sulphuric and lactic acids, &c.—*L'Institut*, 26th November.

*Synthesis of Carburets of Hydrogen.** By M. BERTHELOT.

1. The action of a mixture of sulphuret of carbon and sulphuretted or phosphoretted hydrogen upon copper at a dull red heat, produces hydrogen, marsh gas, C^2H^4 , a considerable quantity of olefiant gas C^4H^4 , and a trace of naphthaline.

The proportion of olefiant gas may be rendered more considerable by the action of a mixture of sulphuret of carbon, marsh gas, and carbonic oxide on iron. In these circumstances, the proportion of olefiant gas formed may be such that its carbon will be equal to one-sixteenth of the carbon of the sulphuret decomposed.

The marsh gas formed in these experiments could be isolated by the use of solvents. The olefiant gas was collected in bromine, and disengaged in a state of purity from the bromine compound by a process which will be presently indicated; this olefiant gas was afterwards converted into crystallized sulphovinate of baryta and characteristic benzoic ether.

Thus the synthesis of alcohol by means of the simple bodies of which it consists may be regarded as an accomplished fact, for sulphuret of carbon is obtained by the direct union of carbon and sulphur.

2. In the dry distillation of formiate of baryta, carburetted hydrogen gas, olefiant gas, C^4H^4 , and propylene, C^6H^6 , are formed. Hence, it follows that these two carburets and the corresponding alcohols may be obtained by complete synthesis; for I have shown, on the one hand, that the formiates may be prepared by means of oxide of carbon, and on the other, that the preceding carburets may be converted into the corresponding alcohols by the intervention of sulphuric acid or of the hydracids.†

3. If carbonic oxide and purified marsh gas be passed together into a tube heated to dull redness, a small quantity of propylene, C^6H^6 , is obtained. Marsh gas alone does not furnish anything of the kind under the same conditions.

4. In the dry distillation of acetate of soda, olefiant gas, C^4H^4 (in very small quantity), propylene, C^6H^6 , butylene, C^8H^8 , and a little amylene, $C^{10}H^{10}$, are formed. The carbon contained in these various carburets may rise to one-twentieth of the total carbon contained in the acetate. It will be observed that the acetates are prepared simply by means of the alcohol derived from the olefiant gas which is formed in the preceding reaction.

5. The various carburets just referred to were condensed in bromine, and studied separately after being disengaged in a pure state by the following process. The bromine compound is heated to about $482^\circ F.$, in a hermetically-sealed tube, with copper, water, and iodide of potassium. By

* From the *Lond. Chem. Gaz.*, No. 335.

† Propylene combines directly with muriatic, hydrobromic, and hydriodic acids, forming the corresponding ethers.

this process, olefiant gas, propylene, &c., may easily be regenerated from their bromides. If the copper be omitted, the hydrurets of the carburets of hydrogen are obtained; thus the bromide of olefiant gas, $C^4 H^4 Br^2$, furnishes the carburet $C^4 H^6$, and the bromide of propylene, $C^6 H^6 Br^2$, gives the carburet $C^6 H^6$. This is a very general process of inverse substitution.

6. From the preceding facts, and the relations which exist between the carburets of hydrogen and the alcohols on the one hand, and the alcohols and the other organic compounds on the other, we may regard the complete synthesis of a great number of organic compounds as an accomplished fact.—*Comptes Rendus*, July 28, 1856, p. 236.

FRANKLIN INSTITUTE.

Proceedings of the Stated Monthly Meeting, December 18th, 1856.

B. Howard Rand, President, pro tem., in the chair.

Isaac B. Garrigues, Recording Secretary.

The minutes of the last meeting were read and approved.

Letters were read from the Royal Society of London, and the Royal Institution, London.

Donations to the Library were presented from the Commissioners of Patents; The Society of Arts, Manufactures, &c.; The Zoological Society, London; The Royal Irish Academy, Dublin; The Ecole Imperiale des Mines, Paris; K. K. Geologischen Reichsanstalt, Vienna; Hon. R. Brodhead, United States Senate; The Smithsonian Institution; Hon. Commissioner of Patents, and Thomas U. Walter, Esq., Washington City, D. C.; The Governor of Pennsylvania; The American Institute, City of New York; The Union College, Schenectady, New York; Messrs. Charles E. Smith, D. and E. Parrish, Philip Price, Henry Quig, and Professors Jno. F. Frazer, and J. A. Kirkpatrick, Philadelphia.

The Periodicals received in exchange for the Journal of the Institute, were laid on the table.

The Treasurer's statement of receipts and payments for November was read.

The Board of Managers and Standing Committees reported their minutes.

The Committee on Exhibitions presented so much of their report on the late Exhibition as refers to specimens of De Laines manufactured by the Manchester Print Works, New Hampshire, for which they recommend the award of a Gold Medal, and also,

To the specimens of De Laines manufactured by the Hamilton Woolen Co., Southbridge, Mass., and the specimens of Chemicals by Powers & Weightman, of Philadelphia, for which they recommend the awards of the Recall Gold Medals.

The Chairman also read the report on the Chandeliers, Lamps, &c., by Cornelius & Co., of Philadelphia.

On motion the awards were made in accordance with the report.

Seventy-six resignations of membership in the Institute, were read and accepted.