

**On the Heat Disengaged by Combining Carbonic Oxide with Other Bodies**, M. BERTHELOT.—Carbonic oxide is studied in reference to its combination with oxygen, chlorine and sulphur.

**On the Specific Heat and Heat of Fusion of Gallium**, BERTHELOT.—An ingot of 34 grammes was experimented with. The specific heat of liquid gallium is 0.0802; of the solid, 0.089. The heat of fusion may be determined by plunging some crystals into the melted gallium. The mass immediately crystallized, and the evolved heat was measured at 13°, and it is sensibly the same between 0° and 30°; the mean was + 19.11 units. The atomic weight, as determined by L. Boisbaudran, is 69.9, hence we have the products,  $69.9 \times .0802 = 5.59$  for the liquid, and  $69.9 \times .079 = 5.52$  for the solid. These numbers, it will be noticed, agree well with the determinations of aluminum and glucinum already made.

**Reciprocal Displacement between Weak Acids**, BERTHELOT.—Two weak acids in contact with a base, cause a decomposition, this being regulated by the partial state of decomposition of each of the two salts considered separately, which depends in turn on the proportion of water and of the corresponding acid. When a salt of such an acid comes in contact with an acid opposed to it, decomposition by water takes place in proportion as the quantity of the base existing free in the solution, is saturated by the other acid; and that to just such an extent as there is equilibrium between the two salts and the water which tends to decompose each of them. The total thermic effect is then the resultant of these two phenomena, namely: a disengagement of heat due to the combination of the acids with the free base (chemical energy), and an absorption of heat due to the decomposition produced by solution.

**On the Rotatory Power of Styrolene**, BERTHELOT.—Some confusion seems to result from the indiscriminate use of styrol as applied to the volatile oil, and to the purified hydrocarbon  $C_{16}H_8$ . Care should be exercised to distinguish this latter, which, of itself, has a definite rotatory power as styrolene.

*Idem*, No. 6.

**On the Determination of Total Nitrogen in Fertilizers**, A. RÉMONT.

**Manufacture of Crystallized Chromate of Baryta**, LEON BOURGEOIS.—The method consists in melting together two equivalents of chloride of barium with one equivalent of potassic chromate, and one equivalent of sodic chromate, and cooling slowly, and finally