XI.—On the Distillation and Boiling Point of Glycerin.

By THOMAS BOLAS.

It is well known that when glycerin, subjected to the ordinary atmospheric pressure, is heated so much as to cause ebullition, it is more or less rapidly decomposed; and that almost the whole of the glycerin operated on may be decomposed by repeated distillation. This decomposition may, however, be entirely prevented by a reduction of the pressure in the apparatus employed to 12—50 mm.

The boiling-point of glycerin was determined by effecting the distillation in a long-necked flask, having a supplementary neck attached at right angles to the principal one. In the principal neck the thermometer was fixed by the aid of a caoutchouc cork, while the smaller neck was connected in a similar manner with a two-necked receiver. The glycerin, together with a few fragments of tobacco-pipe (this latter being required to prevent the bumping which would otherwise occur), being placed in the retort-flask, the receiver was connected with a Sprengel's mercurial pump and a manometer, the caoutchouc joints being made air-tight with glycerin in the usual way. Unless the glycerin distilled had been dehydrated by previous distillation in a vacuum, the first portion of the distillate consisted principally of water; afterwards, when the glycerin in a pure state came over, the temperature indicated by the thermometer was $179\cdot5^{\circ}\text{C}$. At this time the pressure on the liquid was 12·5 mm., a pressure nearly corresponding to the tension of aqueous vapour at the temperature of the receiver.

A determination of the carbon and hydrogen in the glycerin distilled as above, was made, the oxidant employed being copper oxide, followed by oxygen gas.

I. 4281 grm. substance gave 6102 grm. CO_2 and 3439 grm. H_2O .

	Theory.		Found.
			I.
C_3	36	39·1	38·9
H_8	8	8·7	8·9
O_3	48	52·2	—
	92	100·0	

Under a pressure of 50 mm., glycerin distils, without change, at about 210°C .

Glycerin dehydrated by distillation absorbs water from the atmosphere to the extent of about 50 per cent. of its weight. The amount absorbed is, as might be expected, very variable.