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PAPERS READ BEFORE THE CHEMICAL SOCIETY.

I.—*Preliminary Notice on the Oils of Wormwood and Citronella.*

By C. R. A. WRIGHT, D.Sc.

A QUANTITY of pure oil of wormwood (obtained from Dr. Septimus Piesse) being submitted to distillation, the greater part passed over at a temperature close upon 200° , a portion of blue oily product being obtained at a higher temperature (the *azulene* of Piesse and *cœruleïn* of Gladstone), and also a small quantity of substance boiling below 190° , and apparently containing a terpene.

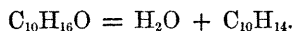
The portion boiling at 200° — 205° has been shown by Leblanc to be indicated by the formula $C_{10}H_{16}O$, whence Gladstone has termed the substance *absinthol*. It hence appears that this substance is isomeric with the myristicol found to exist in nutmeg oil and in camphor; and as each of these bodies breaks up into water and cymene when treated with dehydrating agents (*e.g.*, zinc chloride, phosphorus sulphide, &c.), the action of these bodies on absinthol was examined.

When absinthol was heated with phosphorus pentasulphide, a moderately energetic action was perceived, and a colourless liquid distilled over; this was poured back into the retort when the action had ceased, and the whole kept very gently boiling for half-an-hour. On distillation, a quantity of hydrocarbon passed over at 170° — 180° . The thermometer then rose rapidly, and a yellowish liquid distilled at 230° and upwards, the sum of the two distillates representing about 35 or 40 per cent. of the absinthol used, and the first being about half as much again as the second.

The hydrocarbon was found to boil at close upon 176° after treat-

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ment with sulphuric acid and distillation over sodium. On analysis it appeared to be *cymene*, formed by the reaction



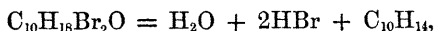
The oxidation-products of this *cymene* are now undergoing investigation, in order to decide whether this hydrocarbon is identical with the *cymene* now known to be obtainable from many other sources.

Zinc chloride seems to act similarly, water, *cymene*, and a resinous body being formed.

The liquid of higher boiling point appears to consist mainly of *thiocymene* or *cymyl-sulphydrate*, apparently identical with that recently obtained by Flesch from the products of the action of phosphorus sulphide on camphor. The boiling point of the pure substance lies close to 235° , and it corresponds in all respects with the thiocymene described by Flesch, especially in the production of a mercury salt crystallisable from hot alcohol, and a silver salt only slightly soluble in hot alcohol. The properties of this body are undergoing further examination.

The reason for publishing this notice is the appearance of a paper by Beilstein and Kupffer (*Deut. Chem. Ges. Ber.*, vi, 1183) a few days ago, wherein the authors state that by the action of phosphorus sulphide on absinthol, *cymene* results, from which a sulpho-acid can be prepared, giving salts identical with those similarly obtained from the *cymene* of cummin oil and that of camphor.

When oil of citronella is distilled, the main constituent seems to be an unstable body of formula $\text{C}_{10}\text{H}_{18}\text{O}$ (Gladstone found $\text{C}_{10}\text{H}_{16}\text{O}$. Not improbably essential oils vary in composition according to the climate, soil, &c.). The action of dehydrating agents on this oil seems to give rise, not to *cymene*, but to a terpene. By careful addition of two proportions of bromine, a product is obtained which on heating splits up thus:—



the resulting *cymene* being apparently identical with that already known.

It is proposed also to examine the oil of cajeput, borneol, and other substances of formula $\text{C}_{10}\text{H}_{18}\text{O}$ in the same way.