soluble in benzole, chloroform, ether and alcohol, insoluble in bisulphide of carbon. It could not be crystallized from any one of these solvents, nor sublimed without decomposition.

Finally, after many unsuccessful trials, the following method was found to afford the xylidine-acrolein in a state of purity. Instead of distilling the acrolein directly into the xylidine, the acrolein in slight excess was added to an alcoholic solution of the latter body. The mixture was then digested for several hours upon a water-bath, until the smell of acrolein had almost entirely disappeared. The resulting mass, which was of a dark red color and extremely sticky, was freed as far as possible from the surrounding liquid, and boiled a number of hours with water. The longer it was boiled with water the less sticky it became, until finally it could be broken into small lumps and removed from the flask. These lumps were then pulverized in a mortar, returned to the flask and boiled with alcohol under a return cooler. This second boiling with alcohol had the result of taking out a large amount of the coloring-matter, but at the same time of making the mass sticky as before. The boiling with water and afterwards with alcohol had therefore to be repeated alternately many times, until at last a product was obtained quite insoluble in alcohol, and which was left hard and brittle after boiling with that solvent.

The purified body, which was of a reddish-yellow color, could not be made to crystallize from any solvent, nor did it yield crystallizable derivatives. As before stated, bromine enters into combination with it with great energy. Nitric acid converts it into a pastry mass that cannot be sublimed or crystallized.

The analysis gave N 8.49 per cent., (theoretical 8.8 per cent.) and showed that the substance was xylidine-acrolein, found according to the equation.

$$C_{18}H_{13}N = C_8H_{11}N + C_3H_4O - H_2O$$

ŒNANTHOL-ANILINE, ŒNANTHOL-XYLIDINE AND ŒNANTHOL-NAPHTHYLAMINE.

By Albert R. Leeds.

Œnanthol was prepared from castor oil by heating the oil in partial vacuo at a temperature of about 150°. The flask containing the castor oil was connected with a Liebig's condenser. As the volatile substances were distilled off they were condensed and

collected in a receiver connected with a Bunsen pump. The œnanthol was purified by subjecting the distillate to a second distillation and collecting that portion that came over at 154°. After two or three such treatments the œnanthol was obtained in a state of purity sufficient for the purposes contemplated in this article.

In preparing the following compounds molecular proportions were in each case used. 70 grms. of œnanthol and 57 grms. of aniline were gradually mixed together. The mixture became very hot ; the temperature rising from 27° to 89°. The resulting liquid mass is very mobile, much more so than either aniline or œnanthol.

In making the œnanthol-xylidine 70 grms. of œnanthol were added to 74 grms. of xylidine. The temperature rose from 27° to 85°, and the resulting product was also extremely mobile.

70 grms. of œnanthol were poured on to 88 grms. of naphthylamine.

The latter melted very rapidly and after combination had taken place the temperature of the liquid had risen to 75°.

All the three compounds were heated on the water bath under the return cooler for six hours to ensure complete combination. At the end of that time the flasks containing the three portions were removed and small portions taken from each which were subjected to distillation. The distillate in each case consisted of an uncombined base and some product of decomposition. The method of purification by distillation was thus far abandoned.

It was next found that the substances could not be purified by any solvent, since the œnanthol-aniline, œnanthol-xylidine, and œnanthol-napthylamine are as soluble in alcohol, ether, benzol, chloroform and carbon bisulphide, as their respective bases.

Eventually the most suitable process proved to be the following : Each of the three compounds was dissolved in about 150 grms. of glacial acetic acid and heated several hours on the water bath to ensure complete combination between the acetic acid and the excess of the bases aniline, xylidine, and napthylamine. When the bases were completely changed into their respective acetates, a large excess of water was added which threw down the œnanthol-aniline, etc., while the acetates remained in solution. The percipitated substances were thoroughly washed with water until every trace of acetic acid had disappeared. The three compounds were then dried at a temperature of 100°.

A portion of each of the three compounds was preserved for analysis while the rest was subjected to distillation.

The œnanthol-aniline as finally purified is a reddish-colored mobile liquid, having an agreeable ethereal odor, which resembles neither aniline or œnanthol. Its analysis yielded C 75.10 per cent., H 10.28 per cent., corresponding to the formula,

$C_{13} H_2 NO = C_6 H_5 N C_7 H_{14} O$, in which

C is 75.36 per cent., and H 10.14 per cent.

The œnanthol-xylidine closely resembles œnanthol-aniline in appearance and smell. Its formula was found to be

$C_{15} H_{25} NO = C_8 H_{11} N C_7 H_{14} O$.

	Found.	Calculated.
C	76.94	76.59
H	10.00	10.64
N	5.93	5.96

The œnanthol-naphthylamine resembles the two preceding compounds in its appearance and properties, but was still more pronounced in its ethereal odor, which resembled that of pineapple.

Its formula is $C_{17} H_{23} NO = C_{10} H_9 N C_7 H_{14} O$.

	Found.	Calculated.
C	79.03 per cent.	79.38 per cent.
H	9.50 "	8.95 "

It will be noted that all these compounds formed synthetically by the direct union of one molecule of œnanthol with one molecule of the aromatic base, no water being eliminated, have a correspondingly elevated heat of combination. They are stable bodies, and were capable of sublimation, with only partial decomposition. The sublimates were not crystalline, and were identical in physical and chemical properties with the original substances, yielding on analysis the same formulæ.

SOLID RESIDUE FROM THE DISTILLATION OF CASTOR OIL IN VACUO.

By Albert R. Leeds.

In making œnanthol from castor oil there is always left in the flask a highly elastic, sticky substance, which was first investigated by Staněk (*Jour. Pr. Chem.*, Vol. 63, p. 138.) Although Staněk's results have never been accepted as conclusive, yet no one has reinvestigated the nature of this body, for which reasons I was induced to make the following research.