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end. At last we think we have succeeded by making use of the diformate of s-divinyl glycol, a compound which may be prepared by heating this glycol for a short time with formic acid.

By fractionating in vacuo, the diformate is obtained as a colourless liquid which at a pressure of 20 mm. boils at 109° and has a sp. gr. of 1.0747 at 11° . A determination of the formic acid (by saponification) gave the amount required for diformate.

In a communication about to follow, the hydrocarbon prepared from the diformate and the method of its preparation will be fully described.

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Chemistry. — “*The occurrence of β -amyrine acetate in some varieties of gutta percha*”. By Prof. P. VAN ROMBURGH and N. H. COHEN.

(Communicated in the meeting of November 25, 1905).

Last year, a compound melting at 234° was found by one of us (v. R.) in the gutta percha of *Payena Leerii*¹⁾ of which it could be stated that it is *not* identical with lupeol cinnamate, which occurs in many varieties of gutta percha; the quantity was then too small for further research. Since then a little more of that product was prepared so that it could be proved that on treatment with alcoholic potash it yields acetic acid and an alcohol melting at 195° .

In these Proc. of June 25, 1905 p. 137 it was stated that the same product has been found by one of us (C.) in the “djelutung” derived from the juice of varieties of *Dyera*. The identity was shown by a comparison of the melting points and by melting point determinations of mixtures of the two substances.

A sufficient quantity was now at disposal to determine the nature of the compound.

In the first place, the substance was recrystallised a few times and finally obtained in beautiful, long, hard needles which melted at 235° (corr. m. p. 240° — 241°).

On analysis (combustion with lead chromate) the following results were obtained:

Calculated for $C_{32}H_{52}O_2$			
C	81.96, 82.08.	C	82.06
H	11.24, 11.27.	H	11.11

The compound was found to be dextrorotatory. For the specific rotatory power in a chloroform solution $[\alpha]_D = 81^{\circ}.1$ was found.

As stated above, the substance melting at 235° when boiled with

¹⁾ B. B. 37 (1904) S. 3443.

alcoholic potash yields acetic acid, which was converted into the silver salt. A silver determination gave 64.2 %, theory 64.67 %.

The alcohol formed on saponification was a colorless substance crystallising in long, thin needles and melting at 195° (corr. m. p. 197°—197.5°).

The elementary analysis (with lead chromate) gave:

		Calculated for $C_{10}H_{10}O$.
C	84.27, 84.12, 84.32	84.50
H	11.97, 11.91, 11.99	11.76

This alcohol has also a dextrorotatory power. In a chloroform solution it has $[\alpha]_D = 88^\circ$, and in a benzene solution $[\alpha]_D = 98^\circ$.

On treatment with benzoyl chloride and pyridine, the alcohol readily yields a benzoate which crystallises in beautiful rectangular little plates and melts at 230° (corr. m. p. 234°—235°).

After perusing the literature, it now appeared that the alcohol melting at 195° is identical with β -amyrine which occurs in elemi resin and has been investigated and described with great care by VESTERBERG ¹⁾. Not only do the melting points of the alcohol obtained from Payena Leerii-gutta percha and "djelutung", of the acetate and the benzoate agree perfectly with the melting points determined by VESTERBERG for β -amyrine and its acetate and benzoate, but in addition the values found for the specific rotatory power of the alcohol from "djelutung" and its acetate differ so little from those which he states for β -amyrine and its acetate ²⁾ that the difference may be safely ascribed to experimental errors caused by working with dilute solutions.

β -Amyrine has also been found afterwards by TSCHIRCH ³⁾ in the resin of Protium Carana. It is stated, however, to differ from the common β -amyrine by being optically inactive, which seems somewhat strange. It should be remarked, however, that the cinnamic ester of lupeol described by TSCHIRCH ⁴⁾ about the same period under the name of crystal-albane was also declared to be inactive, although we have found this substance having a decided dextrorotatory power. A further investigation is therefore a desideratum.

MAREK ⁵⁾ has obtained from the milky juice of *Asclepias syriaca* a substance melting at 232°—233°, the melting point of which could be raised by repeated crystallisation to 239°—240°. Its analysis led

¹⁾ B. B. 20 (1887) S. 1242; 23 (1890) S. 3196.

²⁾ VESTERBERG states for β -amyrine (in benzene) $[\alpha]_D = 99^\circ.81$.
for the acetate (in benzene) $[\alpha]_D = 78^\circ.6$.

³⁾ Arch. d. Pharm. 241 S. 149.

⁴⁾ Ibid 241 S. 483.

⁵⁾ Journ. prakt. Chem. Bd. 68 (1903) S. 385 and 449.

to the formula $C_{32}H_{52}O_2$ and on saponification it yielded acetic acid and an alcohol melting at 192° — 193° having the formula $C_{30}H_{50}O$. The benzoate from the alcohol melted at 229° — 230° .

It can hardly be doubted that MAREK has been working with the acetic ester of β -amyrine. Fortunately, he has not given a name to the product isolated by him, and hence, has not unnecessarily increased the already existing confusion.

Undoubtedly, the enormous number of substances said to be obtained from different resins and milky juices will, on closer investigation, be reduced to a more modest number and it will often be shown that pure substances described by different names are one and the same, but could not be identified owing to incomplete description. In other cases, names may have been given wrongly to mixtures or impure substances.

Although it may seem superfluous, it is as well to again point out how necessary it is, when investigating a natural product, to purify the components as completely as possible, to fully describe the properties and particularly to introduce no new names unless one feels certain of really dealing with a new product.

A short time ago, TSCHIRCH¹⁾ communicated the results of an investigation of the components of Balata. From this was isolated a crystallised substance called α -balalbane melting at 231° , the analysis of which led to the formula $C_{27}H_{42}O_2$.

(found C 81.19 H 10.38. calculated C 81.32 H 10.64).

No acids were found by TSCHIRCH on saponification with alcoholic potash as he only looked for crystallised acids²⁾. This made one of us (C.) think that Balata might perhaps also contain acetic esters and that the α -balalbane might be identical with β -amyrine acetate.

It was not difficult to isolate by TSCHIRCH's method the product melting at 231° .

By repeated recrystallisation from acetone, the melting point rose to 235° . On saponification, acetic acid was obtained, also an alcohol melting at 195° . Ester and alcohol mixed, respectively, with β -amyrine acetate and β -amyrine gave no lowering of the melting point, so that α -balalbane is nothing else but β -amyrine acetate; the name α -balalbane may, therefore, be struck out.

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¹⁾ Ann. d. Pharm. 243 (1905) S. 358.

²⁾ TSCHIRCH comes to the conclusion that there exist gutta perchas which yield no cinnamic acid on treatment with alcoholic potash, but I have demonstrated this fact previously (B. B. 37 S. 3434), (v. R.).