These results therefore confirm the results of Tschesche and Knick obtained with dianhydrouzarigenin. The "dimethylphenanthrene" previously obtained from strophanthidin was apparently the product of too rapid initial heating of the reaction mixture. It is probable that this material consisted of a mixture of the above hydrocarbon $C_{18}H_{16}$ and dimethylphenanthrene. Only the latter yields a characteristic oxidation product with chromic acid.

Since the formation of the hydrocarbon $C_{18}H_{16}$ appears to be a characteristic degradation product of the sterol skeleton and there is no evidence at hand to show that it is the result of extensive rearrangement, the ring system of the cardiac aglucones appears to be built on the same general plan as that of the sterols and the bile acids. This conclusion must, however be substantiated by other means.

Its relationship to the results of other work which has been in progress in our laboratory will be discussed elsewhere. A study of the dehydrogenation of certain derivatives of strophanthidin and the further investigation of the higher melting crystalline dehydrogenation products of strophanthidin itself are in progress.

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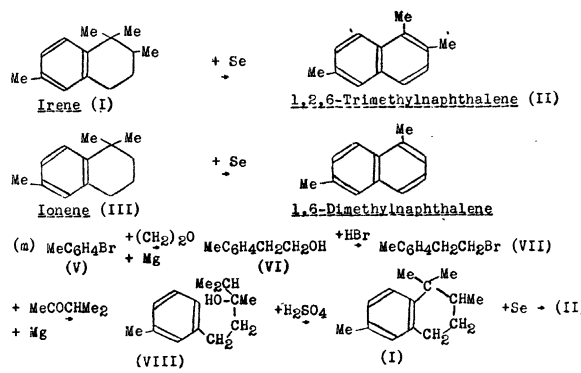
THE SYNTHESIS OF 1, 1, 2, 6-TETRAMETHYLTETRALIN AND THE CONSTITUTION OF IRENE

IN a recent article by Ruzicka, Seidel and Schinz,[1] these skilful investigators deduce for irene, the hydrocarbon obtained by dehydration of the orris perfume irone, the constitution shown in Formula I. One of the strong arguments for the correctness of this deduction is the fact that when irene is heated with selenium, the product is the 1, 2, 6-trimethylnaphthalene (II).

We have already reported[2] from our laboratories the synthesis of the analogously constituted ionene (III), from the violet perfume ionone. As shown by Ruzicka and Rudolph,[3] the action of selenium upon ionene yields 1, 6-dimethylnaphthalene (IV).

We have now succeeded in synthesizing this 1, 1, 2, 6-tetramethyltetralin, by the following steps:

Synthesis of 1,1,2,6-Tetramethyltetralin



m-Bromotoluene (V) was condensed with ethylene oxide and magnesium to the *beta*-(*m*-tolyl) ethyl alcohol (VI), which yielded the corresponding bromide (VII) when treated with HBr. This bromide, subjected to a Grignard reaction with methyl isopropyl ketone, gave the desired tertiary alcohol (VIII). Heated with sulfuric acid, this alcohol lost water, with formation first presumably of the olefin (as we showed in the synthesis of ionene) which then promptly isomerized to the tetramethyltetralin (I). When this synthetic tetralin was heated with selenium, the product was a trimethylnaphthalene identical with the 1, 2, 6-trimethylnaphthalene (II) noted by Ruzicka, Seidel and Schinz.[1]

Our products (B. and A.) compared with theirs (R., S. and S.) as follows:

	R., S. and S.	B. and A.
Irene, b.p. at 10 mm.	119–123°	120–125°
" , $n^{20}D$	1.521	1.511
1, 2, 6-Trimethylnaphthalene picrate, m.p.	122–123°	121–122°
1, 2, 6-Trimethylnaphthalene styphnate, m.p.	150–151°	150°

This synthetic irene is now being studied further, to ascertain whether or not its chemical properties check with those recorded by Ruzicka, Seidel and Schinz for the irene prepared by them from irone.

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[1] Ruzicka, Seidel and Schinz, *Helv. Chim. Acta*, 16: 1143, 1933.

[2] Bogert, SCIENCE, n.s., 76: 1977, 475, Nov. 18, 1932. Full details will appear in the April, 1934, issue of *Jour. Am. Chem. Soc.*

[3] Ruzicka and Rudolph, *Helv. Chim. Acta*, 10: 918, 1927.

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