

water (3 l.), and finally decomposed with solid sodium carbonate to regenerate the ketone. This was isolated by filtration, washed with water and very dilute acid, dried, and recrystallized from benzene. 5-Phthalimido-2-tetralone, 105 g., 63% yield, was obtained as colorless prisms, m.p. 200–202°. These crystals tenaciously retained traces of the benzene solvent. The analytical sample was recrystallized from a mixture of chloroform and methanol as colorless needles, m.p. 202–204°.

Anal. Calcd. for $C_{18}H_{13}O_3N$: C, 74.21; H, 4.50; N, 4.81. Found: C, 74.48; H, 4.35; N, 4.64.

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(4) In this sequence, the period of refluxing for conversion of the phthalamic acid to the phthalimide is not critical, but the time required for cleavage of the enol ether is. The acetic acid solution may be refluxed indefinitely beyond the 2 hour period suggested without impairment of yield. For the aqueous hydrochloric acid treatment, however, the yield of 5-phthalimido-2-tetralone falls off fairly rapidly with periods appreciably more than 2 minutes, and with shorter periods cleavage of the enol ether is not complete.

The Mesomorphic State. Phototropy of *p-n*-Nonoxybenzalphenylhydrazone and *p-n*-Decyloxybenzalphenylhydrazone

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It is well known that a large number of organic compounds are mesomorphic in character. Even though it is not the purpose of this report to emphasize that the phenylhydrazones described here are mesomorphic, it might be mentioned that no phenylhydrazones with this property appear to have been described in the literature previously. An extensive review of the structure and the properties of the mesomorphic state may be found in a recent article by Brown and Shaw.¹

Phototropic character of a number of both inorganic and organic compounds is also well established. Marckwald² gave the name "phototropy" to the phenomenon in which a solid changes color when exposed to light but reverts to its original color in the dark. Chalkley³ reviewed the subject of phototropy a number of years ago. A number of phenylhydrazones have been described in the literature as phototropic and those described before 1928 are cited in Chalkley's review.³ Gheorghiu and Matei⁴ found the α -phenylhydrazones of 1-benzylidene-2-propanone, 1-benzylidene-2-pentanone, and 4-methyl-1-piperonylidene-2-pentanone are all phototropic but these compounds were not

described as mesomorphic in character. Matei⁵ reported the phototropic character of the α -phenylhydrazones of 1-benzylidene-2-butanone and of 1-benzylidene-2-pentanone but they were not described as showing mesomorphism.

The purpose of this preliminary report is to record two compounds which exhibit the properties of both mesomorphism and phototropism. No such compounds appear to have been described in the literature previously.

In the progress of research on the mesomorphic properties of a series of phenylhydrazones, it was found that *p-n*-nonyoxybenzalhydrazone and *p-n*-decyloxybenzalphenylhydrazone both exhibit phototropy and mesomorphism. *p-n*-Nonyoxybenzalphenylhydrazone has a crystalline-nematic point of 94–95° and a nematic-liquid point at 97–98°. It gives white flakes on crystallization from ethanol; these white flakes turn pink on exposure to direct sunlight. The compound was recrystallized from ethanol until it showed constant transition points.

Anal. Calcd. for $C_{22}H_{30}ON_2$: C, 78.06; H, 8.93. Found: C, 77.86; H, 8.72.

The color change from white to pink is rapid, taking place in less than five minutes. The reverse process, pink to white, takes place in about two hours. *p-n*-Decyloxybenzalphenylhydrazone crystallizes from ethanol to give white flakes which turn red on exposure to sunlight; the reverse process also takes place but is much slower than the rate of excitation. The time change on color transitions for this compound are comparable to those of *p-n*-nonyoxybenzalphenylhydrazone. *p-n*-Decyloxybenzalphenylhydrazone has a crystalline-nematic point of 91–92° and a nematic-liquid point of 93–94°. The compound was recrystallized from ethanol until it showed constant transition points.

Anal. Calcd. for $C_{23}H_{32}ON_2$: C, 78.36, H, 9.15. Found: C, 78.11; H, 9.02.

The phototropic process for both compounds can be repeated again and again. No study has been made whether or not the compounds fatigue.

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Action of Grignard Reagents on Triphenylacetyl Chloride

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In an attempt to prepare methyl trityl ketone by the addition of methylmagnesium iodide to

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