

Some Interesting Phenomena at the Solid-Liquid Transition of Colloidal Stearic Acid

STEARIC ACID sols (prepared by the addition of an alcoholic solution of the substance into boiling water) are found to exhibit, on standing, the phenomenon of "Schlierung" in a striking manner. In the course of an investigation it was observed (K.S.R. and K.S.G.D.) that the Schlieren effect disappeared sharply on heating and reappeared in the cold, on standing. Ultra-microscopic examination revealed that the rod-like particles of colloidal stearic acid changed to spherical ones on heating and resumed their original shape in the cold (on standing). These observations afford a most convincing line of evidence to show that the Schlierung phenomenon is caused by the non-spherical shape of the particles. Further work with purified sols [(Late) M. P. V. Iyer and K.S.G.D.] revealed the following facts:—(a) the change occurs in the neighbourhood of the melting-point of stearic acid ($66.8^{\circ}\text{C.} \pm 0.2^{\circ}\text{C.}$), (b) there is an inflection at the same temperature, in the conductivity-temperature curve of the sol and (c) there are sharp changes (as revealed by preliminary measurements) in the intensity and depolarisation of the light scattered by the particles at the same temperature. Details of these investigations as well as the subsequent work done on the subject will shortly be published elsewhere.

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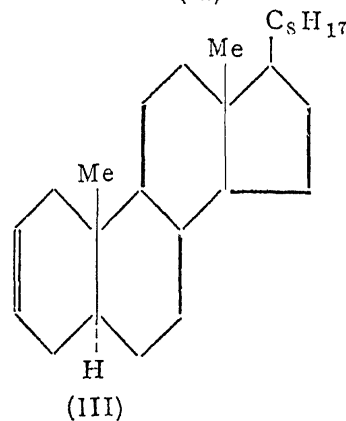
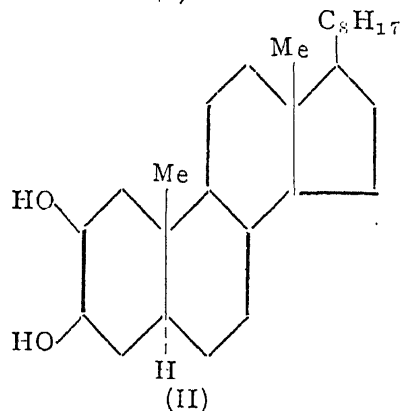
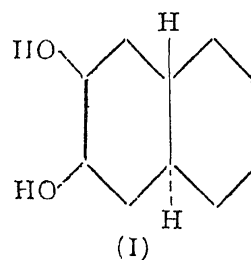
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The Configuration of the C_3 Hydroxyl Group in the Digitonin Precipitable Steroids

THERE are many indirect evidences to indicate that the C_3 hydroxyl group in the steroids which precipitate with digitonin, is *cis* to the C_{10} -methyl group.^{1,2} A direct and absolute proof for this appeared to be obtainable by extending our studies on the stereochemistry of

the 2:3-dihydroxy *trans* decalins (I)³ to the 2:3-dihydroxy cholestanes (II) which can exist in four stereoisomeric forms (the isomerism herein concerned being due only to the two hydroxyl groups attached to C_2 and C_3), of which in one the hydroxyl groups are in the *trans* and in the rest in the *cis* positions. So, starting from neocholestene (Δ^2 -cholestene III)⁴ and also 2:3-diketocholestane,⁵ by adopting the same methods as in the synthesis of the 2:3-dihydroxy *trans* decalins,³ we attempted the synthesis of the four 2:3-dihydroxy cholestanes. Recently, Marker and Plambeck⁶ have reported the synthesis of a 2:3-dihydroxycholestane (II), m.p. 201° , by the oxidation of Δ^2 -cholestene (III) with hydrogen peroxide and



similarly 2-hydroxyandrosterone and 2:3:17-trihydroxyandrostane also from Δ^2 -androstene-17 and androstenol-17 respectively, all these new hydroxyl compounds, as a class, not precipitating with digitonin. Since we are not