

in water, $\Delta\zeta$ is the greater the higher the concentration (c) of the alcohol and that for isomolecular solutions of different alcohols $\Delta\zeta$ is the greater the higher the molecular weight. The surface tension-concentration curves were of the same type as generally encountered in aqueous solutions, that is, ζ falls most rapidly at small concentrations. For dilute solutions (c less than 0.1 mol./lit.) $\Delta\zeta/c = F$ can be regarded as constant and the following table gives the F -values for the different alcohols:

Alcohol	F
Ethyl	(1.6)
Propyl	3.4
Butyl	6.5
Amyl	9.6
Hexyl	12.8
Octyl	18.8
Decyl	25.2
Dodecyl	31.0

While in aqueous solutions F progresses geometrically as we ascend the homologous series, we find here a regularity of a less pronounced character, namely, from propylalcohol onwards the F -values form an arithmetical progression as do the molecular weights. Thus while in aqueous solutions F_{n+1}/F_n is a constant (generally 3), we find here $F_{n+1} - F_n = \text{constant} = 3$.

The fact that F_{n+1}/F_n approaches the value 1 as we move up the series indicates that the influence of the additional CH_2 -group upon the surface energy becomes the smaller as the hydrocarbon-chain becomes longer.

It remains to be seen whether in other cases where the solutes have much smaller surface tensions than the solvent similar relationships will be found.

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Rate of Absorption of Oxygen by Sodium Sulphite Solution

DURING the course of some measurements on the rate of absorption of gaseous oxygen by aqueous sodium sulphite solution, it was found that, under certain conditions, stirring the liquid beneath the surface without in any way agitating the latter *decreased* the rate of absorption below that of the unstirred liquid.

The apparatus used consisted essentially of a glass tube into the bottom of which a glass rod was sealed to act as a pivot for a glass stirrer below the liquid surface. This stirrer was hollow and contained iron wire so that it could be moved, by means of a magnetic field rotated externally, without breaking the liquid surface at any point. The other end of the tube was connected to a manometer. This portion was constructed in triplicate to ensure adequate control, and provision was made whereby the whole apparatus could be exhausted and the gas to be used admitted as required, each tube then being connected separately to its particular manometer.

Two tubes of approximately normal sodium sulphite solution were compared; each of these contained similar stirrers but only one of them was stirred (care being taken not to agitate the liquid-gas surface). After the initial rapid absorption, when the rate had become constant and after applying corrections, it was found that the rate of gas absorption by the solution the bulk of which was stirred was in general 48 per cent *less* than the rate at which the gas was absorbed by the unstirred liquid.

A systematic study of this phenomenon is being undertaken, and it is hoped to publish some of the results of the investigation shortly.

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Enolization of Oxycholesterilene

$\Delta_{5:6}$ -UNSATURATED sterols may be converted to the 7-dehydro compounds by the method of Windaus, Lettré and Schenck¹. An alternative route, which is being examined in these laboratories, lies in the enolization of 7-ketocholesterol (I).

Acetylation of (I) resulted in the removal of the C_3 -hydroxyl, oxycholesterilene and the acetate of oxycholesterilene being obtained. The latter compound (II) had m.p. 90° - 92° , $[\alpha]_D - 222^\circ$, $[\alpha]_{5461} - 283^\circ$ (found: C, 82.0; H, 10.9. Calc. for $\text{C}_{28}\text{H}_{44}\text{O}_2$: C, 82.1; H, 10.4 per cent). Unless a shifting of the double bonds has taken place, this compound (II) will have the structure shown in

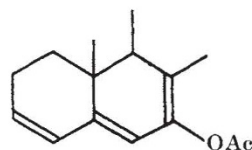


FIG. 1.

Fig. 1. Its ultra-violet absorption spectrum has been examined by Dr. R. K. Callow, who reports that it is consistent with this formula. In view of the mobility of the ergosterol ring system, however, the product m.p. 90° - 92° may be contaminated with an isomeride.

This point is at present under investigation. Methods for the preparation of $\Delta_{5:6:7:8}$ -cholesta-diene-3:7-diolacetate are being examined and the results will shortly be published elsewhere.

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¹ *Ann.*, 520, 98 (1935).

Bilateral Gynandromorphism in Feathers

LILLIE and Juhn¹ suggested that the reactivity to oestrone sometimes manifested only on one side of a feather depends upon a low growth-rate of the tissue at the time, which rate they considered may be different on the two sides. These original views were immediately criticized by other workers^{2,3}. They seem to have been greatly modified in exhaustive papers by Fraps and Juhn⁴; but it does not appear that the senior author has abandoned them.

Greenwood and Blyth⁵ have shown that asymmetrically coloured feathers may be produced in the Brown Leghorn capon by the intra-dermal injection of small doses of oestrone. I have sectioned the bases of six asymmetrically marked feathers obtained in this way in which the rachis was substantially straight and the barbs on each side of a similar length. I have counted in a section the barbs cut on each side and compared the lengths of the two halves of the collar. The side of the feather which had reacted most to oestrone corresponded with the larger side of the germ and had therefore on the concrescence theory presumably grown more slowly (as required by the theory of Lillie and Juhn) in two