Upon compression, the pressure may rise to so high as 25 dynes per centimetre, while the potential drops to − 200 mv. Both surface potential and surface pressure return to their equilibrium values in half an hour, the surface pressure falling very rapidly, due to solution of the compressed film, to a value of 6 dynes per cm., in two minutes. This is again in accordance with expectations, since Harkins and Fischer found that a highly compressed film of lauric acid lowers the surface potential about 80 mv. more than that of a dilute film.

These results indicate that (1) the time element is very important in the determination of surface tension of solutions of surface-active materials, (2) determinations of surface potentials by dynamic methods (such as Kenrick's jet method) are unsuited for examination of solutions of materials such as these which require considerable time for equilibrium in the surface.

The work is being continued on solutions of undecylic acid.

The results obtained by Bouhet[4] by an optical method may be mentioned as further evidence that sweeping a solution of a higher fatty acid removes the adsorbed film, the swept surface then having the *physical properties of a pure water surface.*

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[1] Doss, *Current Sci.*, **4**, 405 (1935).
[2] McBain and Wilson, private communication, and *J. Amer. Chem. Soc.*, **58**, 379 (1936).
[3] *J. Chem. Phys.*, **1**, 852 (1933).
[4] *Ann. Phys.*, x, **15**, 5 (1931).

Dissociation Pressure of Copper Sulphate Pentadeuterate

J. R. PARTINGTON and K. Stratton[1] have found by a tensimetric method the dissociation pressure of copper sulphate pentadeuterate to be 6·655 mm. Hg at 25° C., and 9·285 mm. Hg at 30° C. One of us, in collaboration with H. Perpérot[2], has constructed a tensimeter by means of which he ascertained in a preliminary experiment that the dissociation pressure of copper sulphate pentadeuterate is lower than that of the pentahydrate. Continuing this research, we have modified the original tensimeter so that the pressures are now measured by means of an ordinary shortened manometer instead of a differential one, the new results being as follows :

°C.	20	30	40	50	60
mm. Hg	4·4	9·9	21·0	42·1	80·9

For 25° the value of 6·5 mm. Hg is found by interpolation.

The pressures obtained are in good accord with those measured by Partington and Stratton, giving in addition a wider range of temperature. The value published in collaboration with H. Perpérot[2], which is mentioned by F. T. Miles, R. W. Shearman and Alan W. C. Menzies[3], was not intended to be exact, as is seen from the fact that it was rounded off to whole units and mentioned only in passing in a paper describing the apparatus, and is decidedly a little too low, whereas the measurements of Miles, Shearman and Menzies lead, on the contrary, to dissociation pressures a little too high, if we understand these authors rightly.

The aim of the communication published with H. Perpérot was not to give a precise value of the dissociation pressure of copper sulphate pentadeuterate, but to show only that this pressure is lower than that of the pentahydrate, which is corroborated by experiments of the authors quoted.

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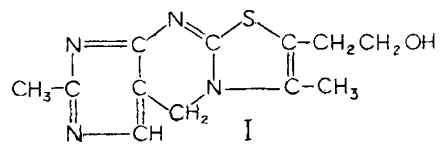
[1] NATURE, **137**, 1075 (1936).
[2] *J. Phys. et le Rad.*, vii. **6**, 439 (1935).
[3] NATURE, **138**, 121 (1936).

Synthesis of Thiochrome

THE formation of thiochrome by oxidation of aneurin (vitamin B_1) with alkaline potassium ferricyanide was first reported in these columns[1]. Continuation of our synthetic work[2] has resulted in the synthesis of thiochrome. 2-Methyl-4-chloro-5-chloromethylpyrimidine, synthesized from 2-methyl-4-hydroxypyrimidine-5-acetic ester, was condensed with 2-amino-4-methyl-5-β-hydroxyethylthiazole. The condensation product (I) proved to be identical with thiochrome prepared from aneurin ; the melting point of both substances was the same (225°–226°) and the melting point of the mixture showed no depression.



I

The intense blue fluorescence shown by thiochrome appears to be a property of the condensed ring system present in the molecule, for we have prepared other compounds of this type, all of which have a similar fluorescence. This synthesis affords independent proof of the structure of aneurin, the synthesis of which has just been reported by Williams and Cline[3].

Full details of the work will be published elsewhere.

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[1] Barger, Bergel and Todd, NATURE, **136**, 259 (1935).
[2] Bergel and Todd, *ibid.*, **138**, 76 (1936).
[3] *J. Amer. Chem. Soc.*, **58**, 1504 (1936).

The Amylase System of Rice Grain during Ripening and Germination

THE formation and properties of α- and β-amylases in germinating grains have been frequently studied by many investigators. Some workers[1] believe that dormant grains contain only β-amylase which increases during germination, while α-amylase appears only during sprouting. Others[2] consider that the increase in amylolytic activity during germination is not a fresh enzyme formation, but is due to an activation by an activator of organic nature,