substances interacting weakly or not at all with cholesterol monolayers will lyse red cells strongly if their pressures are greater than 34 dynes. The strong hæmolytic activity previously reported for sodium taurocholate can now be ascribed to the lowering of the surface tension of solutions of the substance by surface-active impurities. The sigmoid time-dilution curves occasionally reported are interpreted as being caused by the zone of minimum surface tension produced by such impurities in solutions of micelle-forming surface-active substances[5].

B. A. Pethica

Department of Pharmacology,
Medical School,
University, Birmingham, 15.

J. H. Schulman

Department of Colloid Science,
Free School Lane,
Cambridge.

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Flattening of Meniscus between Water and Organic Solvents

We have recently been carrying out experiments on the diffusion of solutes across the interface between water and organic solvents, using an optical method. In a cylindrical glass cell (2·4 cm. diameter) the meniscus is about 0·7 cm. deep, convex towards the water. This curvature would complicate the interpretation of diffusion measurements and would give a region on the organic solvent side where beams of light could not pass through undisturbed. If the tube is greasy, the meniscus is inverted.

It has been found possible to flatten this interface by a preliminary exposure of the inside of the tube to the vapours of 'Teddol', a preparation of the type Me_3SiF, which is strongly adsorbed on to the glass. A complete film would render the surface hydrophobic and give an inverted meniscus; but a suitably limited application gives a contact angle of 90°. In practice, it has been found more convenient to give a thorough treatment with 'Teddol' and then partially remove the film with a household metal polish on a test-tube brush. At intervals during the polishing the type of meniscus can be observed, until it is practically plane. When the interface is then formed, a very slight pressure on the liquid on one side or the other allows the final fine adjustment to a plane. With this technique it has been possible to cut down the gap in the light transmitted across the cell to less than 0·1 mm.

The surface formed is reasonably permanent, for the tube only needs re-treating at intervals of several months. It was shown that the optical properties of the tube were unaffected.

A. F. H. Ward
L. H. Brooks

Faculty of Technology,
University, Manchester.

April 25.

Stabilization of Oxidative Phosphorylation in Heart-Muscle Sarcosomes

Freshly prepared suspensions of the granular components of heart-muscle (sarcosomes[1], interstitial granules[2] or mitochondria[3]) are able to oxidize a number of intermediary metabolites, and to couple this oxidation with the synthesis of adenosine triphosphate from adenosine diphosphate and inorganic phosphate (oxidative phosphorylation)[4,5]. In agreement with the experience of other workers using preparations from different tissues, it has been found that the heart-muscle sarcosomes rapidly lose their ability to carry out oxidative phosphorylation, especially at temperatures above 0° C. Such aged preparations oxidize succinate at practically unimpaired rate, but the accompanying phosphorylation is lost. The ability to oxidize α-ketoglutarate is lost to about the same extent as the phosphorylation associated with this oxidation, so that the P : O ratio (the number of atoms of inorganic phosphate esterified per atom of oxygen consumed) is not greatly affected. The lability of rat heart sarcosomes is indicated by the following percentages of inactivation of the α-ketoglutaric oxidase system (the enzyme complex required for the aerobic oxidation of α-ketoglutarate to succinate): 10 min. standing at 15·5° C., 52 per cent inactivation; 15 min. at 25° C., 94 per cent inactivation. Cat preparations are somewhat more stable (15 min. standing at 25° C., 71 per cent inactivation).

These measurements were carried out with granules washed with isotonic phosphate-saline (0·135 *M* potassium chloride, 0·02 *M* phosphate, *p*H 7·4) and suspended in the same medium without further addition. The α-ketoglutaric oxidase system is much more stable in the presence of the reaction mixture used in oxidative phosphorylation experiments, the composition of which is given in the description to the accompanying graph. With cat heart sarcosomes, oxygen uptake and phosphorylation are maintained, under these conditions, at a uniform rate for 30 min. at 25° C.[5]. With rat heart preparations, on the other hand, the rate of oxygen uptake markedly declined after 15–20 min (see curve 1 of accompanying graph).

Since calcium is known to have a destructive effect on the morphology of sea urchin granules[6] and has also been shown to inhibit oxidative phosphorylation[7], the effect of the calcium-chelating agent, ethylenediaminetetracetate[8] (versene), was tried. Versene was found to protect, to a marked degree, the sarcosomal preparations from the morphological changes which occurred on standing. The accompanying graph (curves 2–4) shows that, in concentrations between 10^{-4} *M* and 2×10^{-3} *M*, it completely prevented the loss of activity of the α-ketoglutaric oxidase system which occurred with rat heart preparations even in the presence of the reaction mixture.

Versene, in higher concentrations, has an even more striking effect if it is added to the sarcosomal suspension during a preliminary incubation period before the preparation is added to the reaction mixture. For example, rat sarcosomes incubated for 15 min. at 25° C. in the absence of versene oxidized α-ketoglutarate at only 6 per cent of the rate of a control not given any preliminary incubation; both preparations were added to a reaction mixture containing 0·002 *M* versene. After incubation under the same conditions in the presence of 0·01 *M* versene, the preparation oxidized α-ketoglutarate at a rate