(*c* and *d* above). The fact that soaps penetrate Ascaris slowly, if at all, even under the optimal conditions for penetration by hexyl resorcinol, would appear to discount the latter; but the whole question is necessarily complex and warrants a more detailed discussion than space permits here.

The results outlined above, to be detailed in a forthcoming publication, emphasize the importance of 'complex' formation in biological activity, as shown earlier by Schulman and Rideal[1] in their study of hæmolysis and agglutination.

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Formation of Aluminium Hydride Layers on Aluminium

SCHULLER and his co-workers[1,2] have shown, from spectroscopic studies by the hollow-cathode technique, that hydrogen molecules forming the aluminium hydride bands come from the metal itself. I had come to a similar but more definite conclusion some time earlier, and had observed that hydrogen molecules formed a layer of aluminium hydride spaced between the well-known aluminium oxide layer at the surface and metallic aluminium underneath.

The following is an account of my recent experiments. An aluminium plate as cut from ordinary sheet aluminium and a carbon rod formed the electrodes and potassium hydroxide solution the electrolyte. The carbon rod was kept in the solution and afterwards the aluminium electrode was quickly introduced and the ensuing voltages noted. In one set of observations, when a normal solution of potassium hydroxide was used, the voltage immediately came to 0·8, rose to 1·254 in two minutes and a half, fell to 1·2 in three minutes and a half, and then remained constant except for a small decrease due to polarization.

The voltages of 0·8 and 1·2 clearly correspond to aluminium oxide and pure aluminium respectively, measured with respect, of course, to carbon, the latter voltage appearing when all the upper layers have been consumed by chemical action. The voltage 1·254 is then due to a layer which is neither of the two. On the theory of oxidation-reduction potentials, or even on prior considerations, it is clear that the layer must be a compound of aluminium of a more reducing character than aluminium.

It is presumably aluminium hydride. The following observations confirm the above findings. The cathode giving 1·2 volts, corresponding to the state of pure aluminium, was taken out, dried with a cloth with nearly uniform pressure, exposed to air and was re-inserted in the cell. The nature and magnitude of voltages obtained depended upon time of exposure to air and are given in the accompanying table.

Time of exposure	Succeeding voltages
1 minute	1·22 → 1·2
5 minutes	1·23 → 1·2
15 ,,	0·9 → 1·238 → 1·2
35 ,,	0·85 → 1·247 → 1·2

The results clearly show the process of formation of the two layers and that the new layer is formed first, the oxide layer forming some time between 5 and 15 minutes of exposure.

If the plate on exposure was also washed with water and then dried with a cloth, the layers were formed much more quickly, which of course shows the deterrent action of the film of potassium hydroxide retained on the aluminium electrode in the absence of washing, in delaying the formation of the layer in virtue of its chemical activity.

In the present method, the lower layers are brought to the surface by the chemical destruction of the upper, which are then shown by their potentials.

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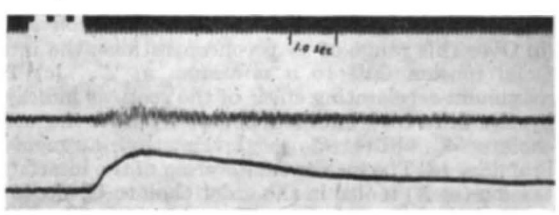
Application of Adenosine Triphosphate and Related Compounds to Mammalian Striated and Smooth Muscle

IN a former note[1] an account was given of the stimulating effect of adenosine triphosphate and related substances on the isolated striated frog muscle fibre. When adenosine triphosphate is applied to *striated mammalian muscle* (m. tib. ant. of the decerebrated cat) by close arterial injection[2] in amounts of 0·05–0·53 mgm. per gm. muscle ($1·46–14·6 \times 10^{-6}$ mol./ml. = $0·1–1·0 \times 10^{-6}$ mol./gm. muscle) a rapid, tetanic contraction is released which is accompanied by interfering electrical activity (see accompanying record). Threshold dose and mechanical response are identical in non-curarized and curarized preparations, the effect of total curarization being insured by inexcitability of the sciatic nerve towards maximal stimuli and by insensitiveness of the muscle to intra-arterial injection of 50 μgm. acetylcholine. Intra-arterial injection of 5 μgm. acetylcholine after previous treatment of the non-curarized preparation with adenosine triphosphate releases a mechanical response with a considerably longer duration and higher tension than the same dose of acetylcholine does to a muscle without previous application of adenosine triphosphate.



MECHANICAL RESPONSE AND ACTION POTENTIALS OF M. TIBIALIS ANT. (CAT) AFTER CLOSE ARTERIAL INJECTION OF $0·6 \times 10^{-6}$ MOL. ADENOSINE TRIPHOSPHATE PER GM. MUSCLE.