confined to that organ, for an elevated citrate-level was also found in the diaphragm. These results suggest some interference with carbohydrate oxidation during the shock state.

Little can be said, at the present time, concerning the mechanism of the effect. The magnesium salt of adenosinetriphosphate was used in these experiments; but there was no accumulation of citrate after the injection of molecular equivalent amounts of magnesium chloride. Nucleotide shock is accompanied by the liberation of adrenaline[4,5], and attempts were made to reproduce the effectby the subcutaneous injection of adrenaline hydrochloride (0·1 mgm. per 100 gm. body-weight). This had no effect on the citrate concentration in the kidney, examined 1 hr. after the injection, although the blood-levels of lactate and pyruvate at this time were of the same order as those found at a similar time after the injection of adenosinetriphosphate[5]. Although the adenosinetriphosphate effect could not be reproduced by injection of adrenaline, adenosinetriphosphate did not cause any increase in the citrate-level in the kidney when given to rats deprived of their adrenal medullæ (see table). Since the carbohydrate stores of the body are not mobilized in adenosinetriphosphate shock in the medullectomized rat, it would seem that the block in metabolism is only evident when large amounts of carbohydrate are passing through the metabolic cycle.

We think that these results may help to elucidate the mechanism of adenosinetriphosphate shock and, perhaps, of other forms as well; although striking changes in the concentration of citrate in the kidney have not, as yet, been found in tourniquet shock in rats.

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Isolation of Octadecan-1 : 18-diol from Spanish Broom

An examination of the non-saponifiable fraction of the absolute from Spanish broom (*Spartium junceum* L.) by chromatography on alumina has led to the isolation of a fraction which is retained tenaciously by the adsorbent. The fraction was recovered by extraction of the alumina with hot ethanol. Purification readily gave octadecan-1 : 18-diol, melting point 99° (found : C, 75·5; H, 13·2; active H, 0·6; calc. for $C_{18}H_{38}O_2$: C, 75·5; H, 13·3; active H, 0·7 per cent). Octadecan-1 : 18-diol, melting point 99°, was synthesized by the reduction of diethyl octadecan-1 : 18-dioate with lithium aluminium hydride[1], and a comparison of the synthetic and natural diols and of the corresponding diacetates and *bis*dinitrobenzoates established their identity. Confirmation of the nature of the natural product was obtained by its oxidation with chromic acid, which gave octadecan-1 : 18-dioic acid.

A number of higher straight-chain aliphatic compounds in which the terminal carbon atoms carry functional groups have been isolated from natural sources. Several long-chain αω-dicarboxylic acids have been obtained from Japan wax[2], and sabinic acid (12-hydroxylauric acid) and juniperic acid (16-hydroxypalmitic acid) have been isolated from conifer waxes[3]. The natural occurrence of long-chain aliphatic αω-diols has not previously been reported.

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Ultra-violet Absorption of Reduced Phosphomolybdate

Estimation of phosphate with molybdate in the presence of a reducing agent is a well-established colorimetric method. Using excess of phosphomolybdate, reducing substances can also be estimated. This method was used by Briggs[1] for hydroquinone and by Neuberger[2] for homogentisic acid.

We have sought a quantitative micro method for the estimation of homogentisic acid. With Neuberger's method, the blue colour given by the small amounts handled was too faint to permit accurate estimation. However, these solutions were found to have a much higher absorption in the ultra-violet region. This is illustrated in Fig. 1, showing the absorption curve (*a*) for a solution (4 ml.) containing the following : homogentisic acid (50 μgm.); potassium dihydrogen phosphate (0·3 ml. 1 per cent) and ammonium molybdate (0·3 ml. of 5 per cent in 5 *N* sulphuric acid). Measurements were carried out in 1-cm. quartz cells in a Unicam spectrophotometer, Model *S.P.*500, and solutions were allowed to stand for one hour before measurement. The curve shows a maximum at 355 mμ, and absorptions measured at this wave-length were proportional to the quantity of homogentisic acid, as shown in Fig. 2 (curve *a*).

This method has been used successfully for the estimation of 20–50 μgm. homogentisic acid in urines, after chromatography on paper and extraction of the separated homogentisic acid[3]. No doubt the method is applicable to other substances which will reduce phosphomolybdate, provided that the oxidation

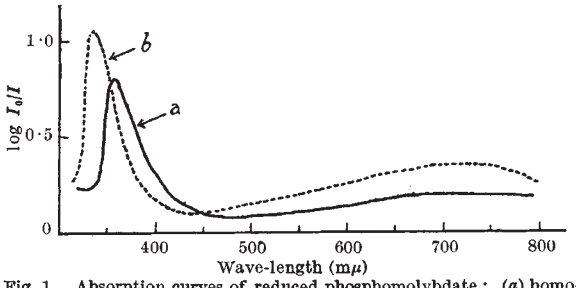

Fig. 1. Absorption curves of reduced phosphomolybdate : (*a*) homogentisic acid (50 μgm.) + phosphate + molybdate (total vol., 4 ml.); (*b*) Potassium dihydrogen phosphate (40 μgm.) + hydroquinone or ascorbic acid + molybdate (total vol., 4 ml.).