readily outlined, and will be described elsewhere.

The efficiency of the redox pump. Franck and Mayer (*11*) in their theoretical development of the "osmotic diffusion pump" found that under the most favorable conditions there would be about a 30% efficiency, and a concentrating power of about 1.3 times, higher concentration ratios being possible with a layered series.

For the active secretion of H ions by the redox pump it will be seen from the above treatment that the immediate efficiency can approach 100%. Insofar as the electrons must be carried to some final acceptor, free energy may be lost in this process, and the overall efficiency much reduced. At the same time, the energy change involved in the further passage of the electrons could be negligible or utilized in another but quite different system.

Apart from its possible very high efficiency, the most attractive feature of the "redox pump" is the fact that the active carrier and the energy source are one and the same system.

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Effect of Aureomycin on the Respiration of Normal Rat Liver Homogenates

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Recently Loomis (*1*) published a note to the effect that aureomycin specifically depresses phosphorylation without inhibiting respiration of normal mitochondria. Concurrently a study of the effect of aureomycin on enzyme systems of whole rat liver homogenates was in progress in this laboratory. In the course of this study it was found that the addition or omission of certain components in the basal medium of the system profoundly influenced the oxygen consumption in the presence of aureomycin. The basal medium used was essentially that of Pardee and Potter (*2*), with minor changes.

The most marked effect was caused by the omission of citrate from the medium (Fig. 1). Without citrate

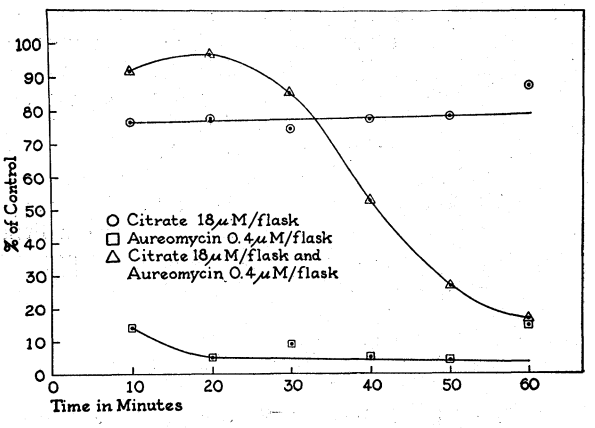

FIG. 1. Inhibition of respiration of rat liver homogenates by aureomycin.

in the presence of aureomycin, respiration is virtually brought to a halt within the first 10 min of the incubation. By contrast in the presence of citrate, the rate of oxygen consumption does not start to decline until after 30 or more min of incubation. An additional 30 min must elapse before the oxygen uptake approaches the level of the citrate-free aureomycin preparation.

This suggests that a possible mode of action of aureomycin may be through blocking some part of the Krebs cycle. Studies to determine the probable sites of action are in progress in this laboratory.

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A Synthesis of 2-Desoxy-D-Ribose[1]

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Recently we synthesized the 2-desoxy-D-ribose by the following route: Glucose → calcium gluconate → D-arabinose → D-acetobromoarabinose → D-diacetylarabinal → D-arabinal → 2-desoxy-D-ribose.

2-Desoxy-D-ribose.—D-arabinal was prepared according to Karrer and Becker (*1*), mp 81°.

$$[\alpha]_D^{22^\circ} = \frac{+3.92^\circ \times 100}{1 \times 2} = +196^\circ \text{ (in water)}.$$

1.1 g of crystalline D-arabinal was dissolved in 18.3 ml of ice-cold 1.0 *N* sulfuric acid, and the solution was allowed to stand at 0°. It gradually became faintly yellow, and after 2½ hr a faint turbidity occurred, accompanied by a flocculent precipitate. At this time the solution was soon neutralized with barium hydroxide and finally with barium carbonate. After removing the precipitate and barium carbonate, the clear and less colored filtrate was concentrated to a thick syrup under reduced pressure without heating.

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