scrutiny before any noteworthy importance can be attributed to them. One such point is concerned with the properties of isotopic molecules. For example, we have had occasion to prepare the deuteroxyl counterpart of *n*-butyl alcohol. The deuterated compound has indistinguishably the same odor as the original alcohol, although, of course, the infrared spectra differ to some extent as a result of the substitution. The spectra of odorless ordinary water and odorless heavy water, it is well known, are quite dissimilar. We suspect that no evidence has been found, or is likely to be found, that the odor of any isotopically substituted molecule differs from that of its ordinary counterpart.

On the other hand, there is some evidence that *d*- and *l*- forms of a few optical isomers have different odors (J. von Braun and W. Kaiser. *Ber.*, 1923, 56B, 2268; J. von Braun and E. Anton. *Ber.*, 1927, 60B, 2438). Here the infrared spectra (or Raman) are identical (barring the effect of polarized radiation, presumably not to be considered in the question at issue). Clearly, a difference in odor between optical isomers must be explained by some effect other than infrared absorption.

These two points would seem to offer an insoluble contradiction to any sort of infrared radiation theories concerning (at least) the human olfactory sense.

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The Curare-like Action of Thiamine

Demole (*Kongressber. XVI, Int. physiol. Kongr.*, 1938, 19) and Pick and Unna (*J. Pharm. exp. Therap.*, 1945, 83, 59) mention the curare-like action of thiamine in frogs and rats. The present preliminary paper presents additional evidence for the curare-like action of thiamine.

Thiamine hydrochloride,[1] by rapid intravenous injection of 50 mg/kg or more into dogs, causes respiratory paralysis, hypotension, bradycardia, and vasodilation, all of which eventually disappear if artificial respiration is maintained (J. A. Smith, *et al. Fed. Proc.*, 1947, 6, 204; 1948, 7, 116; *J. Pharm. exp. Therap.*, 1948, 93, 294).

Fig. 1 shows that D-tubocurarine,[1] in doses of 1–2 units/kg, produces effects closely resembling those of thiamine (150 mg/kg). The vasomotor action of D-tubocurarine, however, has not yet been investigated fully. The figure also shows the results of experiments in which the sciatic nerve was isolated and stimulated and the resulting contraction of the toe recorded. It is seen that both D-tubocurarine and thiamine stop the contractions resulting from stimulation of the nerve. (The muscle was still responsive to direct stimulation.) These results are typical of substances having curare-like action.

Intocostrin[1] (2 units/cc) and thiamine hydrochloride (5% solution) were injected into the ventral lymph sac of frogs. The sciatic nerve and gastrocnemius muscle were exposed. It was found that intocostrin (80 units/kg) and thiamine (2,000 mg/kg) prevent the contraction of the muscle when the nerve is stimulated without decreasing the contraction on direct stimulation.

Thus, except for the dosage, the effects produced by curare preparations are like those produced by thiamine under the conditions of these experiments.

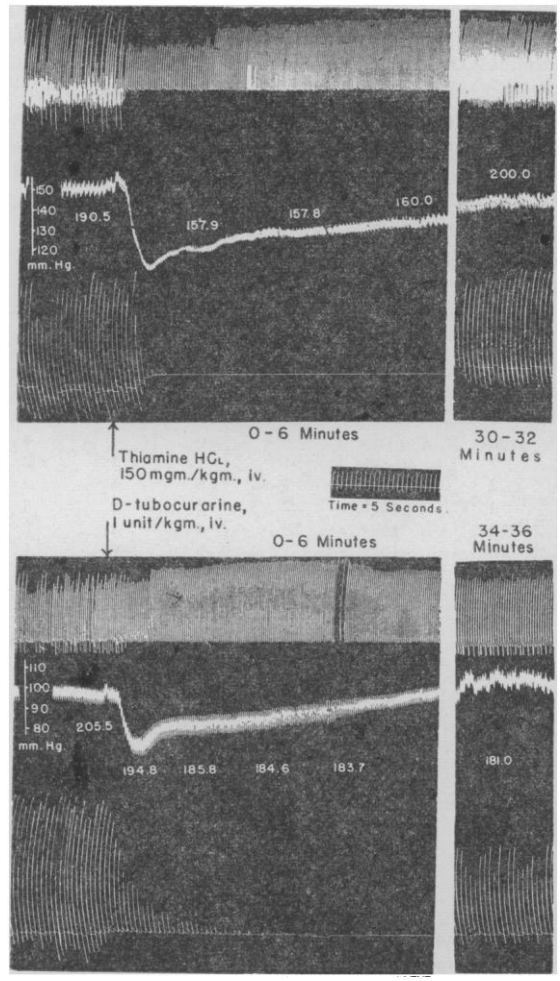

FIG. 1. Effects of intravenous injection of thiamine hydrochloride and D-tubocurarine into dog. Upper recording—respiration. Natural respiration is superimposed on artificial respiration. Middle recording—blood pressure. The heart rate is shown by the numbers along the blood-pressure curve. Lower recording—muscle response recorded from the toe when the sciatic nerve was stimulated at 5-sec intervals throughout the experiment.

The curare-like action of thiamine probably explains many of the results previously obtained by us with thiamine hydrochloride (*J. Pharm. exp. Therap.*, 1948, 93, 294) and by Haley with other thiamine salts (*Proc. Soc. exp. Biol. Med.*, 1948, 68, 153).

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[1] Thiamine hydrochloride was supplied to us by the Upjohn Company, Kalamazoo, Michigan; D-tubocurarine and intocostrin, by E. R. Squibb and Sons, New York.