reservoir filled with mercury or with toluene and mercury. The upper part is shown in Fig. 2. The apparatus is filled by introducing mercury at A until it reaches the level of Plug C. Plug C is inserted and the filling continued until the mercury is slightly above the seat of Plug B, which is then inserted. No air should be left entrapped between the plugs. Mercury should be present above the two plugs when closed to serve as a seal. This makes unnecessary the use of any lubricant on the plugs. A water pump is connected at D. The thermoregulator is heated to the required temperature, vacuum is applied, and the stem of the plug under the rubber cap E is lifted, without removing the rubber cap, until the platinum wire[1] just makes contact with the mercury surface in the constriction at F and the pump is disconnected. The regulator is then ready for use. The writer has most frequently used a stopcock instead of the plug C, which is more convenient. The lubricant at the stopcock does not seem to affect the efficiency of the apparatus.

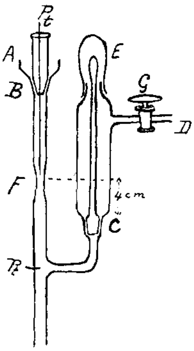

Fig 2.—Thermoregulator.

The advantages of the thermoregulator are a contact in vacuum between wire and mercury and ease of filling and cleaning.

Thanks are due to W. B. Symonds for making the apparatus according to sketch.

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Sodium Hyponitrite.—Sodium hyponitrite has been prepared more easily, from more readily available materials, and with a slightly better yield than previously reported by Jones and the author.[1]

Three and twenty-six hundredths g. of hydroxylammonium chloride was dissolved in the least possible amount of absolute ethanol. After cooling to —5°, slightly more than the calculated amount of sodium dissolved in the least amount of absolute ethanol was added. The sodium chloride was collected on a Büchner funnel and washed several times with absolute ethanol. To the filtrate was added 110 cc. of absolute ether and 3.24 g. of sodium dissolved in the least amount of absolute ethanol. The solution was cooled to —5° and twice the calculated amount of either

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[1] Attention may also be drawn to the article by Beaver and Beaver, who have devised an efficient method for preventing sparking [*Ind. Eng. Chem.*, **15**, 359 (1923)].

[1] Jones and Scott, This Journal, **46**, 2175 (1924).

amyl nitrite or propyl nitrite was added. After the solution had stood in a freezing mixture for one hour, the sodium hyponitrite was collected on a Büchner funnel. It was washed several times with absolute ethanol, then with absolute ether, and finally dried in a vacuum over sulfuric acid; yield, 0.69 g., or 13.9%.

The salt is not hygroscopic and will remain perfectly dry when exposed to the air in an open vessel for several days.

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CATALYTIC OXIDATION EFFECTS THAT RESEMBLE THE SPECIFIC DYNAMIC EFFECT[1]

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By a rational extension of earlier experiments on the catalysis of the oxidation of butyric acid and of glucose, results were obtained that show analogies to physiological data on specific dynamic action, as developed by Lusk and others.[2] The results obtained indicate that this effect is a true chemical catalysis and that its foundations are now capable of being investigated *in vitro*. Results on catalysis with hydroxy acids and with amino acids are given in this paper.

1. Oxidative Catalysis with Hydroxy Acids

Previous experiments showed that ammonium hydroxide catalyzes the oxidation of butyric acid with hydrogen peroxide, while sodium and potassium hydroxides do not.[3] This peculiarly specific action of ammonia suggested that perhaps substituted ammonias would also display this catalytic property. Experiments with glycine, which is one of the most abundant substituted ammonias present in living organisms, showed that they do. Additional experiments were then made with glycine, ammonium glycolate and potassium or sodium glycolate. All three compounds proved to be strongly catalytic for the oxidation of butyric acid. In fact the alkali glycolate appeared to be a little more strongly catalytic than either of the other two compounds. These results were surprising at first, since they indicate that when glycine is deaminized and ammonia

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[1] These experiments were completed about five years ago while the author was a member of the Otho S. A. Sprague Memorial Institute, Chicago, Illinois, and are now published in this incomplete form because the writer may not have opportunity to pursue the subject again for some time.

[2] Lusk, "The Elements of the Science of Nutrition," W. B. Saunders, Philadelphia, 1919.

[3] Witzemann, *J. Biol. Chem.*, **49**, 123 (1921).