of the iodine from the smoke. The smoke may be passed through a number of wash bottles and not catch all the solid particles. The method of passing it between a hot and cold tube is somewhat cumbersome. The Cottrell precipitator described by Harold C. Webber[1] was found to be effective provided that the smoke did not pass through it too rapidly. The apparatus was simplified in that the beaker was dispensed with, the side arms put on at right angles and a platinum wire was fastened in the center of the precipitated tube by passing it through rubber stoppers at the two ends of the tube and attaching it to one of the secondary binding posts of the Ford spark coil. A split brass tube was clamped around the outside of the lead glass precipitating tube and attached to the other secondary terminal of the coil (the common or ground terminal). In burning a pound or more of foodstuff it is necessary to have a battery of these precipitators or make the tube much longer. The smoke sticks to the platinum wires and they are withdrawn and coiled around a silica rod and burned in a small combustion tube to free the iodine.

3030

Composition of rats on low magnesium diet.

GRACE MEDES. (Introduced by J. F. McClendon).

[*From the Laboratory of Physiological Chemistry, University of Minnesota, Minneapolis, Minn.*]

Three rats were fed on diets of purified casein, glucose (cerelose) and cod liver oil, with a salt mixture of NaCl, $CaCO_3$, K_2HPO_4 and $Fe_2(SO_4)_3$. Analysis of the ash of samples of these diets showed that they contained 1.2 mg. magnesium per 100 gm. of diet. The rats were kept on the diets 20, 20 and 100 days respectively. The ash of the rats contained 23, 14 and 31 mg. magnesium, or 0.030, 0.029 and 0.026 per cent of their respective body weights. The corresponding control rats contained 24, 15 and 36 mg., which was .039, .043 and .037 per cent

[1] Webber, H. C., *J. Ind. and Eng. Chem.*, 1924, xvi, 1241.

of their respective body weights. Estimating that rat No. 3, which weighed 52 gm. at the beginning of the experiment, contained about .040 per cent magnesium, or 21 mg. magnesium, it gained approximately 10 mg. During the same period, it ate about 1000 gm. diet, containing 12 mg. It must, therefore, have absorbed and retained nearly all the magnesium it received. This is in marked contrast to its inability to utilize all of the Ca and P of a diet, even when they are present in inadequate amounts.

3031

A report on the preparation of pneumococcic antitoxin.

W. P. LARSON.

[*From the Department of Bacteriology and Immunology, University of Minnesota, Minneapolis, Minn.*]

In the present paper I wish to make a brief report of results obtained in an effort to produce a pneumococcic antitoxin. This work is the outgrowth of our observation that bacterial toxins are rendered non-toxic by soaps of some of the unsaturated fatty acids, particularly sodium ricinoleate, and that the antigenic properties of such detoxified toxins remain unimpaired. We have further called attention to the fact that pneumococci, streptococci and certain other micro-organisms are either killed in a short time in aqueous solutions of sodium ricinoleate, or lose their powers to infect. Larson and Nelson[1] showed further that there is a rapid development of agglutinins in rabbits against both pneumococci and streptococci following the injection of soaped cultures of these organisms.

Ten cc. or more of a virulent broth culture of soaped pneumococci may be injected intraperitoneally into rabbits without causing an infection. Agglutinins appear in the blood stream as early as 24 hours following such injections. This observation led us to attempt to produce an antipneumococcic serum by this method. Pneumococci of various types were passed through a series of mice in order to increase their virulence as much as pos-

[1] Larson, W. P., and Nelson, E., PROC. SOC. EXP. BIOL. AND MED., 1925, xxii, 357.