

finally disappears under these conditions. His method is not applicable to cerebrospinal fluid.

In contrast to the use of human complement the use of guinea-pig's serum does not possess one of the disadvantages enumerated. The quantity of complement is always uniform and definite. The human complement does not affect the reaction, because the amount present is too trifling to be of any influence. It is possible moreover to employ for the tests an old specimen of blood, dried or moist, by my method, since guinea-pig's complement is used. Unlike Tschernogubow's the present method enables one to repeat the test in case of need.

Before leaving the subject I would like to point out certain advantages from the technical standpoint of the method which I recommend. The quantity of patient's serum¹ required for the test is only two *capillary* drops (one for each of the two tubes) and no preliminary inactivation at 56° C. is necessary. The hemolytic indicator is readily prepared from the patient or a normal person by mixing the blood with physiological salt solution in the ratio of one drop of the blood to 4 c.c. of the saline solution, 1 c.c. of such suspension being used for each tube. The antigen, complement and amboceptor can be used either in liquid or in dried form. This latter, as prepared on filter paper slips, can be preserved permanently under ordinary conditions at room temperature and be employed in place of the corresponding liquid reagents. In this simple form the test should have a wide application to the sero-diagnosis of syphilis and as a measure and control of the efficient treatment of the disease.

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On nitrogenous metabolism in chronic nephritis.

By D. MANSON, L. KRISTELLER and P. A. LEVENE.

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The present work represents the results of observations on the character of the nitrogenous metabolism in a patient who was

¹ In case of cerebrospinal fluid use 0.2 c.c. for each tube.

placed on a diet containing a sufficient supply of calories and a limited proportion of protein, so that his kidneys could readily remove the end products of catabolism. That the capacity of the kidneys were not overtaxed may be concluded from the fact that the patient remained practically in nitrogenous equilibrium for four months. On this patient it was attempted to establish whether or not the abnormal, as v. Noorden termed it "bizarre" nitrogen elimination observed in course of nephritis is conditioned exclusively by faults of elimination.

CONCLUSIONS.

1. The elimination-capacity of the kidneys of the patient was established by placing the patient on a diet containing a low proportion of protein and a sufficient supply of calories. To this standard diet varying quantities of urea were added, and the rate of the nitrogen output was measured. The output of nitrogen on the standard diet was generally about 5.5 gm. and the addition of 1.5 to 5.0 gm. of nitrogen in form of urea caused a rise in the output never exceeding 6.25 gm. Thus it was concluded that an intake of nitrogen below 7.0 gm. was the most suitable for the condition of our patient.

2. Comparing the rate of elimination of nitrogen after the administration of glycine, alanine, asparagine, with that after administration of urea, one notes a slower rate after the administration of the first two acids, and an equal rate after administration of asparagine (probably owing to the presence of an acid amid group in the molecule).

3. After administration of excessive protein in addition to the standard diet, one notes a much lower rate of nitrogen elimination than one should expect to find in a normal man, on the basis of the work of Falta.

4. Of the total nitrogen removed by our patient in excess over that on the standard diet, 80 per cent. was in form of urea, while in normal man, as calculated from the tables of Folin, the proportion of urea varies between 90 and 100 per cent.; in a normal dog the proportion is always 100 per cent.

5. On the basis of these observations it was concluded that in our patient the rate of conversion of protein into simple nitrogenous substances and into urea is below the normal.

6. The patient remained for four months in a condition of nitrogenous equilibrium, and otherwise in good health, on a diet containing about 6.5 grm. of nitrogen and 3,000 calories, which were ultimately reduced to 2,500 calories to prevent a constant gain in weight.

38 (376)

The formation of gluconic acid by the olive-tubercle organism and the function of oxidation in some microorganisms.

By **CARL L. ALSBERG.**

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The olive-tubercle organism, *Bacterium savastanoi*, recently described by Erwin F. Smith,¹ when grown in the presence of glucose and an excess of calcium carbonate, converts the greater part of the glucose into calcium gluconate. The amount of energy liberated thereby is exceedingly great in comparison to the weight of the organisms. This is to be explained by the fact that the energy requirements of microorganisms are very much greater than those of higher forms, partly because of the disproportion between the body surface and the body volume of microorganisms, and partly because microorganisms exist in a medium which is an excellent conductor of heat.

39 (377)

On the fertilizing and cytolytic effect of soap.

By **JACQUES LOEB.**

[From the Physiological Laboratory of the University of California.]

It has been shown by experiments on the eggs of sea-urchins, starfish, and annelids that the artificial membrane formation is the act which causes the unfertilized egg to develop. The agencies which cause the artificial membrane formation, as a rule, injure the egg. For the eggs of the starfish and certain other annelids

¹Erwin F. Smith: Recent Studies of the Olive-Tubercle Organism. U. S. Department of Agriculture, Bureau of Plant Industry, Bulletin No. 131, Part IV, Washington, 1908.