

the bacterial cell may be deduced from the assumption that such proteins were coagulated by the heating of the vaccine in the process of manufacture and also by the fact that the supernatant filtrate used in this experiment gave a barely perceptible biuret reaction, and it contained only 0.5 mg. of nitrogen per 100 cc. as compared with 29.3 mg. nitrogen per 100 cc. of the whole vaccine. A more extensive immunological and chemical study of the water soluble antigen of the typhoid bacillus will be reported at a later date.

After the described experiment had been performed the interesting study by Nichols and Stimmel² appeared reporting the production in guinea pigs of some active immunity against infection with the "mutton" strain of *B. aertrycke* by injections of the supernatant fluid of T. A. B. vaccine. This finding lends further support to the theory that the immunizing agent of bacterial vaccines is a water soluble substance which is simpler in character than the proteins of the cell.

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Toxicity of atropin on rats.

By DAVID I. MACHT.

[*From the Pharmacological Laboratory, Johns Hopkins University, Baltimore, Md.*]

According to most textbooks of Pharmacology, the rat is very resistant to the effects of atropin. Wilberg¹ in an original monograph on the subject of the toxicity of atropin for various animals states that on subcutaneous injection the fatal dose of atropin for rats is 0.75 gm. per kilo weight while a dose of 0.70 gm. per kilo may be followed by recovery. On intraperitoneal injection the same author states that the fatal dose for rats is

² Nichols, H. J., and Stimmel, C. O., *J. Exp. Med.*, 1923, xxxviii, 283.

¹ Wilberg, *Biochem. Z.*, 1914, lxvi, 389.

0.6 gm. per kilo weight while the animal may recover from 0.5 gm. per kilo. In connection with experiments on the belladonna alkaloids on the behavior of rats, published elsewhere, the author found that rats are extremely sensitive to atropin so far as toxic effects on the brain are concerned. Thus it was found that 1 mg. of atropin sulfate was very toxic for a rat weighing 150 gm. as indicated by its behavior in the circular maze and its neuromuscular responses. It was found that the smallest dose of atropin sulfate which produced a deterioration in the cerebro-spinal responses of rats was 0.05 mg. per 150 gm. weight of animal. It is thus evident that while the absolute lethal dose of atropin for rats may be very great as stated by other authors, the dose required to impair certain physiological functions is very small. Fuller details appear elsewhere.¹

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The feeding of odd carbon fatty acid fats to diabetic patients.

By MAX KAHN.

[From the Department of Laboratories, Beth Israel Hospital,
New York City.]

This artificially prepared fat (glyceryl ester of margaric acid) is absorbed to the extent of ninety-five per cent. If a psychologic distaste for it is not induced in the patient by the physician (who thinks it his duty to warn the patient of the supposed non-palatability of the fat), the patient will have little trouble in partaking of this artificial food. An experience with very many patients has convinced the author that all patients can easily develop a liking for this food. It may be administered with hot coffee or rubbed up with butter milk.

It has been found that the administration of this fat to phlorhizinized dogs causes a marked increase in the glucose

¹ Macht, D. I., *J. Pharm. and Exp. Ther.*, 1923, xxii, 25.