

to ascertain whether this protecting action is due to the protein or to native antitoxin. It was learned that the protective action of normal horse serum precipitated by alcohol is much less than that of untreated horse serum; that the globulin (alcohol treated) fraction of horse serum protein is more effective than the albumin fraction similarly treated; that the nonalcohol treated globulin fraction of 1 cc of normal horse serum will protect against several fatal doses of diphtheria antitoxin, while the alcohol-free albumin fraction furnishes no protection; that no protective action against diphtheria toxin was observed when egg white, milk and guinea-pig and rabbit serum were used, and that 1 cc of normal horse serum when injected subcutaneously into a guinea-pig will protect against a fatal dose of tetanus toxin. From this evidence the authors believe that the protective action of normal horse serum against soluble toxin is due to natural antitoxin in the serum and not to the effect of the nonspecific protein.

**An Experimental Study of the Effects of Protein Injections upon Infections.**—In view of the results which have been reported relative to the favorable influence of protein injections upon various infections and the practical absence of unfavorable comment, Kross (*Jour. Med. Research*, 1922, 43, 29) conducted three series of experiments in order to test the effect of protein therapy upon certain infective processes in animals. Accordingly, white rats were inoculated with mouse typhoid bacilli, a general peritonitis was produced in rats, rabbits and guinea-pigs by soiling the peritoneum with their own gastric or intestinal contents and rabbits were injected intratracheally with a virulent broth culture of *Pneumococcus I*. The protein was administered by subcutaneous, intraperitoneal and intracardial methods in different groups and consisted of 1 cc of a 1 per cent solution of nucleinic acid. It was found that the protein did not increase the resistance of the animals to any of the infections experimentally produced. The treated animals could not overcome the infection any better than the untreated ones. Moreover, the protein inoculation seemed to reduce the vitality of the animals and the danger of death from anaphylactic shock was "such as to stamp this method of treatment as actually threatening great potential harm."

**Frequency of *Bacillus Influenza* in the Nose and Throat in Acute Lobar Pneumonia.**—STILLMAN (*Jour. Exper. Med.*, 1922, 35, 7) reports the incidence of *Bacillus influenzae* and *pneumococcus* in the noses and throats of patients with acute lobar pneumonia and refers to the frequency of the former organism in cultures recovered from normal individuals. The throat cultures were obtained by passing cotton swabs over the posterior pharyngeal wall and the nasal cultures by passing cotton swabs through a sterile speculum into the nares. The swabs were inoculated on freshly poured oleate hemoglobin plates and on fresh blood-agar plates. In 31 cases of pneumonia 18 (58 per cent) showed influenza bacilli in the throat and from 35 pneumonia patients, the same organism was isolated from the nose on 9 occasions (23 per cent). In certain other cases, influenza bacilli were encountered in the sputum when they were not found in the nasal or pharyngeal cultures, so that among the entire 35 cases, influenza bacilli were isolated from at

least one of these three sources in 30 or 85 per cent of cases. Of 1077 normal individuals *Bacillus influenzae* was found in the throats in 30 per cent. Whereas pneumococci were rarely encountered in the nose cultures of normal persons, they were demonstrated in 15 of the 35 cases of lobar pneumonia, the majority of which were found to be the same type as the organisms in the lung lesions as shown by sputum determination. The influenza bacilli encountered in this work were of various types. The author states that the exact significance of these findings is at the present time not clear.

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## HYGIENE AND PUBLIC HEALTH

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UNDER THE CHARGE OF

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**Carbon Tetrachloride: A Drug Proposed for the Removal of Hookworms, With Special Reference to its Toxicity for Monkeys when Given by Stomach Tube in Repeated Doses.**—LAKE (*Public Health Reports*, 1922, 37, 1123) reports on experiments on monkeys designed to determine the effect of carbon tetrachloride which is coming into use as a treatment for hookworm infestation. The results are summarized as follows: (1) Four monkeys received carbon tetrachloride by stomach tube in amounts of 1, 2, 3, and 5 cc respectively, at intervals of two to three days, over a period of from thirty to forty-one days, the total number of doses varying from 12 to 16. (2) No symptoms of importance were shown by the monkeys during this period. (3) The two monkeys receiving the larger doses were subsequently used for the testing of suspected poliomyelitis virus and died of brain abscess. In each case gross and microscopic examination of the important organs failed to show any changes indicative of an exogenous poisoning. (4) The doses received by the monkeys at each treatment were from 10 to 40 times greater in cubic centimeters per kilogram of body weight than the dose mentioned by Hall as that indicated for man, and these doses were repeated from 12 to 16 times. From the data at hand we must conclude that carbon tetrachloride by stomach has a very low toxicity for monkeys and that it is probable that man may safely be given considerably higher doses than the ones suggested by Hall, and that it might be safe to repeat the dosage several times at proper intervals (one week). Finally, in view of the unusually promising results that carbon tetrachloride has given as an anthelmintic for hookworms in