There were only 25 instances of an excretion of 15 to 20 mg.; 11 of these were of constipated subjects, 14 of the patients who had good daily defecations. The remaining determinations were all under 15 mg. and about 300 of these were less than 5 mg.

The intestinal flora of many of these patients was transformed from the putrefactive to the aciduric type and frequently the fecal counts showed a transplantation of 95 per cent *B. acidophilus*. The indican excretion continued variable, however, no correlation being observed between that and the intestinal flora.

The titratable acidity, determined by Folin's method, was found to vary with the *B. acidophilus* preparations. Various preparations were used as previously described by Kopeloff[2] There was a distinct rise in the acidity when *B. acidophilus* milk was taken, and an even more conspicuous increase when lactose was added. This indicates the need of caution in feeding large amounts to individuals who may already have a tendency towards acidosis.

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Immunity results obtained in school children with diphtheria toxoid (modified toxin) and with 1/10 L+ mixtures of toxin-antitoxin.

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Excellent immunity results obtained with 3 L+ mixtures of toxin-antitoxin, which were originally underneutralized but had become on standing neutral for the guinea pig, indicated that the toxoid into which the free or slightly bound toxin had been changed was effective as an immunizing agent. Dissociation of the mixture into toxin and antitoxin is probably not of much importance as a factor in active immunization since mixtures that are overneutralized or just neutral when freshly prepared do not give good immunity results. Three doses of a freshly diluted toxin were found to immunize only 33 to 41 per cent of susceptible children, while three doses for a dilution of an old,

[2] Kopeloff, N., *J. Am. Med. Assn.*, 1923, lxxx, 602.

deteriorated toxin, of which 1.0 cc. caused paralysis in the guinea pig, immunized 70 per cent of children. The value of toxoid for immunization purposes has been confirmed by using modified diphtheria toxin, treated by the addition of 0.1 per cent formalin according to the suggestion of Glenny and Hopkins.

In four schools in which a preparation of toxoid has been used the following very significant results were obtained at the end of three months:

Public Schools	Toxoid			Children retested		
	Dilution	Per cent in dilution	Amount injected	Total	Schick negative	Per cent negative
103 Man.	1:20	5.0	1 cc.	112	94	84.0
83 Man.	1:14	7.5	1 cc.	67	66	98.5
19 Man.	1:14	7.5	1 cc.	122	120	98.3
14 Man.	1:14	7.5	1 cc.	100	98	98.0

The toxoid was made from a diphtheria toxin which at the time of preparation had an M.L.D. of 0.001 cc. Two years later the M.L.D. was 0.01 cc. and the L+ 0.32 cc. 0.1 per cent formalin was added (1 cc. commercial formalin to 1000 cc. of toxin) and the preparation kept in the thermostat for five weeks. At the end of this time the M.L.D. had dropped to 1.5 cc. and the L+ to 3.5 cc. The toxoid was diluted 1 part in 20 parts of saline (5 per cent) for P. S. No. 103 and 1 in 14 (7.5 per cent) for P. S. Nos. 83, 19, and 14. In other schools that are being retested now the dilution of the toxoid was 1 in 10 (10 per cent). *It is interesting to note that toxoid acted as a very efficient immunizing agent even when the free toxin in each dose was less than* 1/30 *M.L.D.* The toxoid was prepared by Dr. Banzhaf of the Research Laboratory, who has obtained similar immunity results by the injection of guinea pigs with this preparation.

The local reactions after the intramuscular injections of the diluted toxoid were only slight. As we would expect from the character of the preparation there was very little free toxin action and most of the local reaction after the injections was due to the protein content of the diluted toxoid. This was verified by noting the slightly more marked local effects in positive-combined Schick reactors. Only a few children showed slight constitutional symptoms. The local reactions were no more marked than after the use of the new 1/10 L+ mixtures. The immu-

nity results were very good and compared favorably with those noted after the use of 1/10 L+ mixtures..

1/10 L+ mixtures of toxin-antitoxin have given successful immunity results in from 80 to 95 per cent of injected school children. *At the Schick retest many of these children show a moderate to marked pseudo-reaction.* This indicates the necessity of always making a control test when the Schick retest is made to check up on the immunity results. Mixtures containing 1/10 L+ lose some of their immunizing efficiency on standing at icebox temperature for several months. In judging the immunity results after injections of toxin-antitoxin we have to consider not only the special mixture, but also the individual group of children treated and the period of time elapsed after the injections.

The time factor in the Schick retest is especially important. More than 50 per cent of those who were found to be still susceptible at the end of three to six months gave a negative Schick reaction when retested one year later without having received further injections of toxin-antitoxin.

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The significance of the pseudoreaction in the Dick test and methods used for its identification.

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Pseudoreactions due to the autolyzed streptococcus protein and other protein constituents of the toxin broth test fluid have an important bearing in the interpretation of the Dick reaction. Of 589 children tested in one of the public schools 459 were found to be immune. Of these, 190 or 41.4 per cent gave a pseudoreaction. Of the 130 susceptible children, 45 or 34.6 per cent gave a combined positive and pseudo reaction. Of another group of 950 children, who received the Dick test in two institutions, 686 were found to be immune. Of these, 232 or 33.8 per cent gave a pseudoreaction. Of the 264 non-immunes, 90 or 34.0 per cent gave a combined reaction. In children under 5