period. They lost an average of four pounds. They increased this average loss during the next two months and ten days to six pounds. There was no noticeable alteration in the pulmonary conditions.

All the cases took three pints of milk a day. The special cases, one quart of "reactor" milk and one pint of pasteurized milk. The controls, three pints of pasteurized milk.

The "reactor" milk contained less butter fat than the pasteurized milk. The use of this raw "reactor" milk, judging by its action upon two cases of adult pulmonary tuberculosis, is probably contraindicated in dysentery and hemorrhage. This dysentery case proved fatal. It was used in one far advanced case of adult pulmonary tuberculosis and apparently agreed ith her, although her weight remained unchanged.

We mixed diphtheria antitoxine with milk for the purpose of determining by analogy if the tuberculous antibodies when present in milk, would be destroyed by pasteurization. These mixtures after having been heated were tested with toxin, in order to determine whether any destruction of antibody had taken place. We found that the antitoxine was not materially affected by heating at 60° C. for 20 minutes. Certain milks we have tested showed the presence of some natural substance or antibody which neutralized diphtheria toxine. I wish to thank Mr. E. J. Banzhaf for his aid in making these antitoxine tests.

23 (1087)

## Anaphylatoxin and the mechanism of anaphylaxis.

By RICHARD WEIL.

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Precipitin is identical with the antibody effective in passive sensitization. This is demonstrated by injecting a guinea-pig with the precipitate formed by a mixture of horse serum with the serum of a rabbit immunized thereto. This guinea-pig, if tested after an interval of three days by the intravenous injection of horse serum, presents a violent, at times a fatal anaphylactic response.

If the precipitating antibody is heated at 72° for one half hour, it loses its precipitating functions, but retains its sensitizing power, though somewhat diminished. Such heated precipitin, sometimes described as "precipitinoid," is known to retain its combining power with antigen. One may conclude, therefore, that the combining power, but not the precipitating power, of antibody is essential in anaphylaxis.

Precipitating antibody heated at 72° for one half hour has lost its capacity to bind complement in the presence of antigen. However, it still retains its sensitizing value. These facts are illustrated by the following experiment.

The serum of a rabbit, immunized to crystallized egg albumen, is diluted with three volumes of salt solution. Part of this diluted serum is heated at 56° for one half hour to destroy complement, and part of it is heated at 72° for one half hour to destroy the precipitating function. In the following table the amounts of diluted serum employed are reduced to correspond to the amount of serum therein contained. The method employed is that of complement fixation.

COMPLEMENT FIXATION TEST.

| | 1 | 2 | 3 | 4 | 5 | 6 | Precipitation. | |
|---|---|---|---|---|---|---|---|---|
| S. 56° | 0.5 | 0.5 | .... | .... | .... | .... | 0.5 | .... |
| S. 72° | .... | .... | 0.5 | 0.5 | .... | .... | .... | 0.5 |
| Salt solution | .... | .... | .... | .... | .... | 0.5 | .... | .... |
| Cryst. egg alb | 0.001 | .... | 0.001 | .... | 0.001 | .... | 0.001 | 0.001 |
| G. P. comp | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.05 | .... | .... |
| Precipitation | | | | | | | ++ | − |

After incubation for one hour, one c.c. of well-sensitized cells was added to each of the tubes. Hemolysis was complete in tubes 2 to 6 after one half hour, but had not even begun in 1. On the following day tube 1 showed slight hemolysis. The test was made with the usual additional controls. The result shows that the serum heated at 72° does not bind complement. The precipitation reaction shows that it does not precipitate. A series of normal guinea-pigs were injected with graded amounts of the same heated serums used in the above experiment, and were injected two days later with egg albumen to test for passive sensitization. Serum heated at 72° sensitized in amounts of 0.3

c.c. Serum heated at 56° in amounts of 0.2 c.c. The same results were obtained when horse serum and the serum of a rabbit immunized thereto were used as antigen and antibody.

Hence we may conclude that complement plays no role in the anaphylactic reaction. Inasmuch as complement is essential to the production of anaphylatoxin, this is equivalent to saying that anaphylatoxin plays no rôle in anaphylaxis.

24 (1088)

## The isolation of a toxic substance from the blood of uremic patients.

By NELLIS B. FOSTER, M.D.

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The analyses of bloods from cases of uremia have yielded a substance which is toxic. Control analyses of bloods from a wide variety of conditions not associated with uremia failed to discover a similar substance. Guinea-pigs were used as the test animal and enough material can be recovered from 200 c.c. of uremic blood to cause death. The isolation of the substance was effected by a combination of several methods in current use for the separation of animal bases.

25 (1089)

## The possible association of diabetes mellitus and splenohepatomegaly, Goucher; report of a case.

By J. R. WILLIAMS and M. DRESBACH.

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The following case, which we have recently had under observation, is of clinical and scientific interest because of the evidence it presents of the coexistence of diabetes mellitus and splenohepatomegaly, Goucher.

The history, in brief, is as follows: Patient, male, single;