typical experiment a sample of serum lost nearly 90% of its original activity upon dialysis for 4 days under the same experimental conditions, while a control sample lost only 25% of its activity during storage for the same period. It will be noted from the results of the present experiments that both the total loss and the rate of loss of complement activity in the dialyzed serum is in each case substantially identical with that of the undialyzed control serum. It is upon this evidence that the conclusion is drawn that none of the components of complement are removed from the serum by dialysis against 1.0 N NaCl. The loss of complementary activity obtained by allowing serum to remain in the cold for long periods of time may be explained upon the basis of oxidation alone, or other factors, since neither complement nor any of its parts is dialyzable through a cellophane membrane against 1.0 N NaCl solution in the cold. In additional experiments, little loss of activity was obtained in dialyzing against cold 1.0 N NaCl solution complement which had been purified by a fractional precipitation method which will be reported in a subsequent paper. Dialysis in this case has been allowed to proceed for periods as long as 10 days.

Summary. Dialysis against 1.0 N NaCl at 4.5°C does not remove a dialyzable component from the guinea-pig complement. The gradual loss of activity noted may be accounted for on the basis of changes within the protein-molecule.

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Butter Fat in Dermatitis-Producing Diets.

HOWARD A. SCHNEIDER. (Introduced by D. D. Van Slyke.)

*From the Department of Biochemistry, College of Agriculture, University of Wisconsin, Madison, Wis.**

Butter fat has been revealed both as a curative agent[1] for rat dermatitis and also as a component (9%) of a dermatitis-producing diet.[2] The curative property was demonstrated by a daily supplement of 500 mg of fresh butter fat, a quantity approximately equal

* Present address: Hospital of the Rockefeller Institute for Medical Research, New York.

1 Schneider, H. A., Ascham, J. K., Platz, B. R., and Steenbock, H., *J. Nutr.*, 1939, **18**, 99.

2 György, P., *Biochem. J.*, 1935, **29**, 741.

to the amount consumed by the rat when the butter fat is incorporated in the diet at a level of 9%. Butter fat is thus placed in the peculiar position of being an anti-dermatitis agent when fed as a supplement, and of failing to exhibit this property when mixed with the diet. This anomalous rôle of butter fat was clarified by the following experiments. These indicate that the mixing of butter fat in the diet may result in a destruction of the anti-dermatitis potency of the former when the mixed diet is allowed to stand in contact with the air for periods of time usually met with in the laboratory production of rat dermatitis.

Experimental. The diet used had the following composition. Glucose 68, casein (alcohol extracted) 18, salts 4, cod liver oil 1, butter fat 9. In addition each rat received the following daily supplements: 5 μg calciferol and 10 μg beta carotene in 1 drop of the liquid fraction of hydrogenated coconut oil, plus 20μg riboflavin and 10 μg thiamin chloride hydrochloride in 1 drop of N/50 acetic acid. The diet, apart from vitamin supplements, was fed in two forms, "fresh" and "rancid." The "fresh" diet was made up weekly, previously prepared but unused quantities being discarded, and was stored in a refrigerator between feedings. The "rancid" diet was made up one month before use and was stored for that period, open to the air, in a warm room. When used the "rancid" diet had the characteristic odor of rancidity (Peroxide No. of ether extracted fat was 131). Diets were fed daily and uneaten portions discarded.

The rats used were 35-40 g weanlings specially prepared[3] on a diet low in anti-dermatitis factors. When 3 rats were fed the "rancid" diet they developed a florid dermatitis in 6 weeks. Three rats fed the "fresh" diet failed to develop any symptoms of dermatitis even after 15 weeks. When the rats which had developed dermatitis on the "rancid" diet were changed to the "fresh" diet, the dermatitis was cured in three weeks. When the experiment was repeated with the same number of animals using the paired feeding method the results were the same. The differences thus observed could not be attributed to differences in consumption of the diets.

Summary. The anti-dermatitis action of fresh butter fat has been confirmed.

Destruction of the anti-dermatitis potency of butter fat has been demonstrated in a diet in which the butter fat was allowed to become rancid.

[3] Quackenbush, F. W., Platz, B. R., and Steenbock, H., *J. Nutr.* 1939, **17**, 115.