

A complete study of the properties of this protein substance, which we have named *dento-mucoid*, is now in progress. We have already learned that it remains in teeth during the process of their acid decalcification. It is extractable, from decalcified teeth, with dilute alkalin solutions. It is precipitated, from such alkalin extracts, by mineral acids such as hydrochloric. It is an acid protein that forms colloidal salts. It yields reducing substance similar to glucosamin after acidic hydrolysis.

All of these studies are in progress, together with inquiries into the effects, on dentition in successive generations of albino rats, of treatment with thyroid, of unbalanced diets, and of toxic malnutrition.

110 (1288)

#### **Diet and renal activity in tartrate nephritis.**

By WILLIAM SALANT and A. M. SWANSON.

[*From the Pharmacological Laboratory, Bureau of Chemistry, Washington, D. C.*]

The subject of the experiments were rabbits that were fed oats or young carrots. Tartrate was administered to these animals either by mouth or subcutaneously, and the effect of the single dose as well as of repeated doses on renal activity studied by means of phenolsulphonephthalein. The following is a resumé of the results obtained.

1. When tartrate was given by mouth to rabbits on a diet of oats large doses were required to inhibit the elimination of phenolsulphonephthalein. The effects produced with medium doses were very moderate. Recovery was observed in all cases.

2. Even small doses of sodium tartrate injected subcutaneously into rabbits on a diet of oats caused a very pronounced inhibition of the elimination of dye. Considerable improvement occurred after 3 to 5 days, but complete recovery of function was never observed.

3. Evidence of disturbance of the renal function was seldom obtained with much larger doses of sodium tartrate when injected subcutaneously into rabbits on a diet of fresh young carrots. Large doses showed a decrease of functional activity within a few

hours after injection, but tests made one or more days later indicated considerable improvement, and in some cases, recovery.

4. After the subcutaneous injection of sodium tartrate into rabbits on a diet of oats the time of appearance of the phenol-sulphonaphthalein injected was shorter and the duration of the elimination longer than in rabbits which had been receiving carrots.

5. When sodium tartrate was injected subcutaneously in gradually increasing amounts, no impairment of renal function was observed even with very large doses (4 and 6 grams per kilo) if the diet consisted of carrots exclusively, but the efficiency of the kidney was markedly decreased if oats alone were fed, although the amounts of tartrate administered was only one fourth or one sixth of that given to rabbits on a diet of carrots.

### III (1289)

#### **Experiments with an isomer of caffein.**

By **WILLIAM SALANT** and **HELENE CONNET**.

*[From the Pharmacological Laboratory, Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C.]*

Physiological tests were made with 1 : 7 : 9-trimethyl-2 : 8-dioxy-purine. Its action was in every respect weaker than that of caffein. The toxicity was about one tenth that of caffein, the minimum fatal dose of 1 : 7 : 9-trimethyl-2 : 8-dioxy-purine for frogs being 4.0 to 4.5 grams per kilo. Renal activity as shown by experiments on rabbits, was only moderately stimulated in some cases and was very feeble in others although large doses were given intravenously. Perfusion experiments on the isolated frog heart indicated that an increase in force of cardiac action without altering the frequency may be caused by concentrations of 0.1 and 0.2 per cent. in Ringer's solution, but this effect was never very pronounced.

Prepared and kindly donated to this laboratory by Dr. C. O. Johns of this Bureau.