of the drug, the treated mice died and pneumococci were recovered from the heart-blood and peritoneal exudate.

5. Complete bactericidal action was not demonstrated.

6. It would seem that sulfapyridine may owe its beneficial effect in pneumococcal infections to its bacteriostatic action which may permit antibodies to be formed by the body or to be acquired passively, or allow the inhibited organisms to be disposed of by phagocytosis at the normal rate.

10703 P

Conversion of Methionine to Cystine: Experiments with Radioactive Sulfur (S^{35}).*

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A considerable amount of evidence pointing to the idea that methionine, when fed, may be converted into cystine in the animal organism has been brought forth.[1] Further evidence in support of this concept is afforded by the present experiments in which it is shown that cystine containing the radioactive sulfur isotope (S^{35}) was isolated from rats that were fed methionine containing S^{35}.

The methionine was synthesized from sulfur that contained S^{35} by a modification of the procedure described by Patterson and du Vigneaud.[2] † It was administered to young rats that were maintained on a low cystine diet. Animals 20 and 24 received 0.15% of the S^{35}-containing methionine daily in their diet, while rat 22 was given daily 15 mg of the same methionine subcutaneously. Rats 32, 34, and 37, maintained on the same basic diet, were fed 0.15% of ordinary methionine daily plus 0.10% of sodium sulfate that contained

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1 Womack, M., Kammerer, K. S., and Rose, W. C., *J. Biol. Chem.*, 1937, **121**, 403; Brand, E., Cahill, G. F., and Harris, M. M., *J. Biol. Chem.*, 1935, **109**, 69; Dawbarn, M. C., *Austr. J. Exp. Biol. Med. Sci.*, 1938, **16**, 159; Beach, E. F., and White, A., *J. Biol. Chem.*, 1939, **127**, 87.

2 Patterson, W. I., and du Vigneaud, V., *J. Biol. Chem.*, 1935, **111**, 393.

† The radioactive sulfur was kindly furnished by the Radiation Laboratory of the University.

radioactive sulfur. The radioactivity of the sodium sulfate was about ⅔ of that of the methionine.

After a period of 5 weeks, cystine was isolated from the hair, skin, or the whole carcass of the animals by hydrolysis of the protein, precipitation of the cystine as the cuprous mercaptide, and purification by reprecipitation. The amino acid was finally obtained in pure crystalline form. It was then converted into barium sulfate.

The radioactivities of the barium sulfate samples were kindly measured by Dr. W. F. Libbey with the aid of the screen wall Geiger counter.

The cystine isolated from the hair of rats 20 and 22, the skin of rat 20, and the whole carcass of rat 24 contained radioactive sulfur. The radioactivity of the cystine isolated from the whole carcasses of rats 32, 34, and 37 was zero within the error of measurement.

The data show that some of the S^{35} contained in the methionine appeared in the protein cystine of the experimental animals. None of the radioactive sulfur contained in the sodium sulfate was found in the form of cystine.

The use of the sulfur isotope, S^{35}, affords a convenient method of studying sulfur metabolism in animals. Further work in this field is in progress.

10704 P

Effect of Choleic Acid of Vitamin K on Prothrombin Levels of Bile Fistula Rats.*

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Abundant evidence[1] is now available that administration of vitamin K to vitamin K-deficient chicks and to bile fistula animals leads to an increase in the prothrombin level and a decreased clotting time of the blood. Administration of deoxycholic acid is necessary to insure absorption of the antihemorrhagic factor when it is given orally to bile fistula animals.

It was suggested by one of us[1] that, since vitamin K combines with

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1 Schmidt, C. L. A., *Pac. Coast Med.*, 1938, **5**, 7.