could not be taken and thus comparisons of the normal with the tetanic samples were impossible.

From the comparison in the result it is clear that after guanidine administration the phosphorus is markedly increased, in some cases five times above the normal. The calcium shows no marked change, though there is a tendency for it to decrease as the phosphate increases. In normal conditions, rabbits with albumin in the urine show a rather higher content of phosphate than those which have no albumin.

In consideration of the above experiments we may say that the phosphate content of the serum in guanidine tetany is markedly increased, but that the reduction of calcium is rather doubtful. The small number of experiments does not warrant a decision on this important phenomenon. The experiments are being continued and further results will be reported later.

196 (1374)

An oxidation product of creatine.

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Mercuric acetate in watery solution oxidizes creatine to α-methylguanidoglyoxylic acid ($NH_2.C(:NH).N(CH_3)CO.COOH$). This compound, which was isolated in pure form, evidently precedes methylguanidine oxalate which was obtained by Dessaignes[1] many years ago by heating creatine with mercuric oxide. Dakin[2] obtained glyoxylic acid upon oxidizing creatine with hydrogen peroxide. The stages of oxidation of creatine may, therefore, be expressed as follows:

$$NH_2.C(:NH).N(CH_3).CH_2COOH \xrightarrow{O} NH_2.C(:NH).N(CH_3).CHOH.COOH \xrightarrow{O}$$

$$NH_2.C(:NH).N(CH_3).CO.COOH \xrightarrow{H_2O} NH_2C(:NH).NH(CH_3).COOH.COOH$$

[1] Dessaignes, M., *Compt. rend. Acad.*, 1854, XXXVIII, 839.

[2] Dakin, H. D., *J. Biol. Chem.*, 1905–06, I, 271.

In the well-known Engeland[1] process for the separation of the bases of muscle extract, precipitation with mercuric chloride and sodium acetate is used. After several days the precipitate is collected and heated with dilute hydrochloric acid, then decomposed with hydrogen sulphide. Under these conditions the possibility of creatine oxidation, hydrolysis of the resulting compound and liberation of methylguanidine, must be considered.

197 (1375)

Concerning carnosine and its synthesis.

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The chemical configuration of the muscle extractive, carnosine, has been determined in two ways: (1) By deamination with nitrous acid, hydrolysis of the resulting deaminocarnosine and isolation of one of the cleavage products. (2) By its synthesis.

The hydrolysis of deaminocarnosine gave a 70 per cent. yield of histidine.

The synthesis was effected by the interaction of beta iodopropionyl chloride and histidine, followed by amination of the resulting product. The analyses, optical rotation, melting point and crystal form of the synthetic and natural products were identical. A mixture of both substances gave the same melting point as either component.

It is evident that beta alanyl-histidine correctly expresses the constitution of carnosine.

Carnosine is not hydrolyzed by muscle or liver extract.

[1] Engeland, R., *Z. Unters. Nahr. Genussmittel*, 1908, XVI, 658.