

SCIENTIFIC PROCEEDINGS.

ABSTRACTS OF COMMUNICATIONS.

One hundred and thirty-sixth meeting.

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President Jackson in the chair.

85 (2317)

Varieties of protein as factors in hippuric acid production.

By FRANK A. CSONKA (by invitation.)

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Parker and Lusk were the first to point out the importance of the total N and hippuric acid ratio. Wiechowsky and Magnus-Levy observed a higher ratio than 4.7, which exists when the glycine in the body protein is utilized in the formation of hippuric acid, and they interpreted this increased ratio to a synthetic formation of glycine. There is no doubt that glycine is synthesized in the animal body. The new-born baby, for instance, lives on practically a glycine-free diet and yet increases its weight, and the newly developed tissue contains four per cent glycine which is not supplied by the food. On the other hand, if glycine synthesis plays an all-important rôle in hippuric acid formation when benzoic acid is administered, then we should not find any difference in the hippuric acid elimination when the protein supplied contains preformed glycine. The toxic effect noted after large quantities of benzoic acid are fed should occur always when a certain dosage is administered, that is, after the rate of glycine synthesis has reached its maximum and the amount produced is insufficient to counteract the toxic effect of benzoic acid. Our results do not confirm these theoretical arguments.

The hippuric acid elimination when casein, together with large quantities of benzoic acid, is given to a pig is practically identical

with that when benzoate is given during starvation. Under like conditions the administration of meat protein results in a small increase in hippuric acid formation, while administration of gelatin, with its content of 25 per cent of glycine, causes a marked increase in the output of the substance.

When the pig was under the influence of benzoic acid certain reducing substances were eliminated in the urine, which were determined quantitatively, using Benedict's method for sugar. It was found that the quantity is largest when casein is the food given and smallest when gelatin is given, pointing to an inverse relation to the preformed glycine content of the protein ingested. The separation and identification of these glycuronates is being attempted. There is undoubtedly an increased N elimination when benzoic acid is administered, which supports the conclusion of those investigators who claim that an elevated protein metabolism follows its ingestion.

86 (2318)

Some cardio-vascular changes accompanying insulin hypoglycemia.

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It is evident from perfusion experiments on an isolated mammalian heart that this organ can functionate for several hours on its own stores of energy. Locke and Rosenheim¹ showed that the addition of glucose to the perfusion fluid produces a beneficial and sustaining effect upon the heart and that in turn this substance appeared to be actually utilized. More recently Hepburn and Latchford² have observed an increase in the sugar utilization of the isolated heart of over threefold when the pancreatic hormone was added to the perfusion fluid. These consid-

¹ Locke and Rosenheim, *J. Physiol.*, 1904, xiv, 31.

² Hepburn and Latchford, *Am. J. Physiol.*, 1922, lxii, 177.