ested in the pathology of hypertension, showed no significant departure from the normal.

Throughout the experiment the animal's blood urea level was followed at weekly intervals. There was no change. Dr. David Rytand made repeated examinations of the urine without discovering significant changes.

Conclusion. The systolic blood pressure of a dog was maintained at an elevated level 8 hours a day, 6 days a week, for 5½ months without producing any lasting effect on the resting level.

9245 P

Synthesis of Octopine (Pectenine).

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The compound isolated by Moore and Wilson[1] from Pecten muscle and called pectenine by them is probably identical with octopine previously isolated by Morizawa.[2] The arguments in favor of this statement will be given in a forthcoming publication.

Octopine was characterized by Moore and Wilson and, on evidence which was not quite complete, they concluded that the compound is probably arginine, the α-amino group of which is attached to the α-carbon atom of propionic acid. In order to confirm this conclusion a synthesis has been carried out as follows[3]: d-arginine methyl ester dihydrochloride was treated with the ethyl ester of d-l, α-bromopropionic acid in absolute ethyl alcohol containing a little zinc dust and potassium iodide. Two equivalents of sodium ethylate were added at once and another equivalent added during the early part of the period of boiling which was continued for 24 hours. The esters were hydrolyzed with acid and the material was precipitated by silver and baryta. After decomposing the precipitate, the small amount of arginine was removed with flavianic acid and a picrate was obtained from the filtrate after extraction of the flavianic acid.

The recrystallized picrate melted with decomposition at 219°.

1 Moore, E., and Wilson, D. W., *J. Biol. Chem.*, 1934, **105**, lxiii; *Am. J. Med. Sci.*, 1935, **190**, 143; *J. Biol. Chem.*, 1936, **114**, lxxi.

2 Morizawa, K., *Acta Scholæ Med. Kioto*, 1927, **9**, 285.

3 Ruzicka, L., and Fornasir, V., *Helv. Chim. Acta*, 1920, **3**, 806.

Octopine picrate melted at 224° and a mixed melting point was 219° (all uncorr.). The new picrate when analyzed by the Jorpes modification of the Sakaguchi method gave 97% of the expected color when octopine was used as a standard. The color given by the new picrate with the Sakaguchi reagents was identical with the purple color given by octopine. Picric acid analysis yielded the following results: Calculated for $C_9H_{18}N_4O_4.C_6H_3N_3O_7$ 48.20%, found 48.31%. The compound showed no free amino nitrogen with the Van Slyke method. The specific rotation, after removal of the picric acid, was +10° while the specific rotation of natural octopine is +20°. The free compound was crystallized from water by adding alcohol. The synthetic material melted at 257-60°; octopine melted at 266-68° and a mixture melted at 264-67° (uncorrected. All melted with gas evolution). The pH of dilute water solutions of both the synthetic and natural compounds was about 6.4. These results suggest that we have prepared partially inactive octopine. We plan to treat d-arginine with optically active bromopropionic acid.

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Quantitative Assay of Insulin Effect.

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In the post-absorptive state the constancy of the blood sugar level is an expression of a well-maintained balance between glycogenolysis and the withdrawal of sugar from the blood stream. The fall of the blood sugar level subsequent to an injection of insulin is regarded as the result of an inhibition of the glycogenolytic process, the withdrawal of blood sugar going on unaltered.[1, 2, 3] The degree to which the blood sugar is lowered is not in direct proportion to the insulin dosage.[4] One may increase the insulin dosage considerably in the lower and higher ranges with little or no increase in the degree of blood sugar depression. The effect of the larger dose expresses

[1] Issekutz, B. von, *Biochem. Z.*, 1927, **147**, 264; **148**, 283.

[2] Sahyum, N., and Luck, J. M., *J. Biol. Chem.*, 1929, **85**, 1.

[3] Cori, G. T., Cori, C. F., and Buchwald, K. W., *Am. J. Physiol.*, 1930, **93**, 273.

[4] Scott, E. L., and Dotti, Louis B., *Arch. Int. Med.*, 1932, **50**, 511.