phenaceturic acid up to this time was found only on one instance and the amount was insufficient for analysis. The melting point of 154.5–155 is two degrees higher than the melting point cited in the literature. The acid is relatively soluble in alcohol, ethylacetate and warm water but insoluble in ether, benzol and cold water. On boiling with conc. HCl, the acid split up into its two components *p*-hydroxyphenylacetic acid and glycocoll. The analysis of the compound agrees with the theoretical values for carbon, hydrogen and nitrogen.

The process of metabolism in the organisms of the monkey in regard to *p*-hydroxybenzoic acid and *p*-hydroxyphenylacetic acid is comparable to that found in lower animals and unlike that found in man. In man, the *p*-hydroxybenzoic acid is combined with gloycocoll and excreted as *p*-hydroxyhippuric acid, while in the lower animals, the acid after ingestion is excreted uncombined in the urine.

p-hydroxyphenylacetic acid on the contrary is found free in the urine of man after ingestion and combined with gylcocoll in the urine of animals.

5 (1380)

Influence of mere opening the abdomen, of state of shock, and of subsequent section of sciatic nerve upon the blood flow from the femoral vein in cats.

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From a series of experiments performed for the purpose of solving a certain problem in shock, a few definite facts were selected to be put on record. The following results were obtained from experiments on fourteen cats. The rate of the blood flow from the femoral vein shortly before opening the abdomen was taken as the unit, *i. e.*, 100 per cent. The figures indicate the time required for the flow of the same amount of blood, and hence express an inverse ratio to the rate; *e.g.*, 200 per cent. indicates that the rate was half as fast.

Influence of opening the abdomen.—The average time of flow from the femoral vein shortly after opening the abdomen in the fourteen cats is 136 per cent., that is, an average decrease of 36 per cent. in the rate. A decrease in rate of flow occurred in every experiment but one. The maximum decrease (in one cat) was 84 per cent. This result means that after the mere exposure of the abdominal viscera (before any change in volume and composition of the blood could have taken place) a slowing of the flow from the extremities takes place. In interpreting this fact the statement of H. Fischer, the first writer on shock from a physiological point of view, is worth considering, namely, that a certain degree of engorgement of the veins of the abdominal viscera can be observed immediately after opening the abdomen. This occurrence may be the cause of the slowing of the flow from the veins of the extremities. As far as we know these facts have not been observed or discussed by any experimental or surgical writers. It may be mentioned that there was a variable but generally a moderate fall of blood pressure immediately after opening the abdomen; but there was no definite proportion between the fall of blood pressure and the decrease in the rate of flow.

The rate of blood flow in shock.[1]—When the blood pressure had fallen to about 70 mm. of mercury, the animals were considered in shock; in the majority of cases it fell to 60 mm. or less; the lowest pressure reached was 30 mm. In every cat the blood flow in shock was slower than just after opening the abdomen. On the average it was 301 per cent. of the original. The decrease in the rate of flow seemed in a general way to follow the degree of fall of blood pressure, but was not absolutely proportional.

Influence of cutting the sciatic nerve upon blood flow in shock.—After section of the sciatic nerve the rate of blood flow increased markedly in eleven cats, slightly in two and in one there was a slight decrease. The average increase over the flow in shock was about one third, that is, the time of flow decreased from 301 to 196 per cent., but the average rate was still only about half as

[1] In the present series of experiments the blood obtained from the femoral vein was mixed with a small amount of sodium citrate and reinjected through the jugular vein. Hemorrhage therefore was not a factor in the production of shock in these experiments.

fast as the original flow (100 per cent.). In five cats the flow became as fast (or even faster) as immediately after opening the abdomen; and in one of these five the flow was as fast as the original. The blood pressure rose slightly on section of the nerve in eleven cats. The remaining three were those in which there was little or no increase in flow.

The fact that in these experiments the blood flow after section of the sciatic nerve in shock is usually far below normal, and never above normal, certainly does not support the assumption, now current, that vaso-constriction is greater in shock than in normal conditions of the animal.

6 (1381)

Experimental studies of plant pigments.

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This communication was confined to a report on studies of (*a*) *flavones*, a group of yellow pigments, characterized by the production, in their solutions, of intense yellowish-brown color on the addition of ammonia, and of (*b*) *anthocyanins*, a group of red, violet, or blue pigments, which, in solution, change to bluish-green on the addition of alkali, and pink on the addition of acid.

These pigments were obtained from tulips: flavone, from "*La Reine*"; anthocyanin, from "*Crimson King.*" Both varieties of flowers were collected at the N. Y. Botanical Garden through the courtesy of Dr. A. B. Stout.

The chemical relationship of flavones and anthocyanins.—Wheldale and others believe that flavone is convertible into anthocyanin by *oxidation.* The Armstrongs regard this conversion as due to processes of oxidation *and* reduction. Combes and Willstätter consider that *reduction alone* effects the change. The results of our own experiments accord with the view of the latter investigators. We find that active ("nascent") hydrogen reduces flavone to anthocyanin. The latter can be further reduced