degeneration of the cervical sympathetic nerves did not prevent the edema.

Localization of the edema in the head and neck is not connected with an increased concentration of paraphenylenediamin in these regions, since quantitative estimations of the paraphenylenediamin in the saliva and edematous fluid showed the concentration to be less or no greater than that in the blood plasma.

The results with various concentrations of paraphenylenediamin (base and acid salt) on swelling of gelatin in aqueous solutions and of muscle in serum *in vitro* were negative indicating that the edema is not the result of change in the physical state of the tissue colloids by the paraphenylenediamin directly.

The edematous fluids in two rabbits gave P_H values of 6.86 and 6.95, while those of the blood were 7.1 and 7.2 respectively. In another animal, which received nicotin, the P_H of the edematous fluid was the same as that of the blood (*i. e.,* 7.3).

Paraphenylenediamin hydrochlorid oxidized by lead peroxide failed to produce edema. Hence, it appears that the oxidation products (quinondiimin, etc.) are not concerned in the edema.

The study is being continued.

244 (2204)

Increased number and clumping of thrombocytes (platelets) in pigeons produced by agents causing anaphylactoid reactions.

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A variety of agents, previously reported by Hanzlik and Karsner cause anaphylactoid reactions when injected intravenously. With many of these emboli and thrombi composed of red blood corpuscles, fibrin and platelets are demonstrable in the lungs, and hemagglutination occurs *in vitro.* These changes together with the alterations in chemical composition of the blood recently demonstrated in this laboratory, are regarded as objective evidences of disturbances in important physical and chemical equilibria in the fluids and tissues of the organism, and as being of fundamental importance in the explanation of reactions from a variety of agents. The present report is a sum-

mary of the effects of different agents upon the thrombocytes (platelets) in pigeons.

For differentiation, the modified Nocht stain described by Hastings[1] was used and for counting, a modification of the cresyl violet stain of Buckman and Hallisey.[2] All agents were injected intravenously at body temperature into the wing veins and blood was obtained from superficial veins of the legs.

The following agents, which cause anaphylactoid symptoms in guinea pigs, pulmonary emboli and thrombi, and hemagglutination *in vitro*, produced increases in number and clumping of thrombocytes in pigeons; peptone, agar-sol gel, toxified agar, Congo red, collargol, charcoal, kaolin, colloidal iron, colloidal arsenic, 50 per. cent. acetic acid and 6 per cent. acacia. Histamin, tannin and arsphenamin (in small dosage) produced doubtful or no changes in the thrombocytes, but sections of lungs and livers showed marked clumping of erythrocytes from these agents.

Histological examinations of the lungs, liver, spleen and kidneys of all animals showed congestion and thrombosis after the majority of the agents that were injected. In a few cases marked hemorrhages were found. The majority of these agents caused definite symptoms, ranging from shivering, crouching, and increase in respiration to death.

On the other hand, the withdrawal of blood alone, and the injection of 0.85 per cent. sodium chloride (as control) produced no symptoms and no demonstrable changes in the thrombocytes; and histologically, the changes were slight or absent.

245 (2205)

The inorganic constituents of human saliva.

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There is a growing opinion that many of the pathological conditions of the oral cavity (caries, pyorrhea, etc.) are the result of faulty diets. The acceptance of this assumption makes it nec-

[1] Johns Hopkins Hospital Bull., 1904, 122.

[2] *J. Am. Med. Assoc.*, 1921, lxxvi, 427.