in the blood in 2 experiments and also in the lymph in one of these. The identification of histamine was based upon the presence in extracts made by Code's[5] method for the determination of histamine, of a physiologically active substance which lowered the blood pressure of the atropinized cat, contracted the guinea pig intestine, and was inactivated by diazotized sulfanilic acid. The amounts of histamine determined in the 2 positive experiments were inadequate to account for the degree of the vascular reactions, and as there were no significant quantities of histamine detected in 3 experiments, it is our belief that histamine plays only a contributory and subsidiary rôle in the vascular effects of intravenously injected venom.

Conclusions. The observation of Feldberg and Kellaway, that crotalin may liberate histamine from perfused tissues is confirmed by showing that it may also liberate histamine when injected intravenously into an intact animal. Preliminary studies indicate that the amount of histamine liberated is inadequate to account for the degree of the vascular reaction produced and that it therefore plays a contributory and subsidiary rôle to the total effect of the venom.

9705 P

Effects of Alizarine Red S Injections on the Teeth and Bones of *Macacus rhesus* Monkey.*

I. SCHOUR AND M. M. HOFFMAN.

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Seventeen *Macacus rhesus* monkeys of mixed or adult dentition, ranging in age from 1½ to 7 years,[1] were given multiple intravenous, intraperitoneal or subcutaneous injections of 5-10 cc. of 2% Alizarine Red S (Sodium Sulphalizarate) of color index 1034 (Coleman and Bell Company) at 5- to 30-day intervals. The time between the last injection and death ranged from 3 hours to 125 days. The dosage ranged from 40 to 60.5 mg. per kilo.

[5] Code, C. F., *J. Physiol.*, 1937, **89**, 257.

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[1] Schultz, A. H., *Am. J. Phys. Anthrop.*, 1935, **19**, 489.

For each injection a distinct red ring was observed in the dentin and the bone that were forming and calcifying at the time.[2] This effect was immediate, as indicated in the animals sacrificed within a few hours after the last injection. In 6 animals 4 months elapsed between the first injection and death. This long survival did not alter the staining reaction.

Measurement of the distances between successive rings indicated the amount of apposition during the corresponding intervals. The rate of apposition of dentin based on 1164 measurements made chiefly in the ground sections of bicuspids and molars ranged from 1.6 to 5.6 μ per 24 hours. This range may be explained on the basis of a growth gradient with its maximum at the cusp and along the outer dentinal surface and its minimum apically and toward the pulp. Alizarine lines were also found in the cementum. Definite staining effects could be recognized macroscopically in the jaws and long bones.

Subcutaneous administrations were found to be complicated by a sloughing of the tissues at the site of injection. Intravenous injections gave sharper effects than intraperitoneal injections of the same dose. However, thrombosis of the veins at or near the site of injections occurred frequently. The intraperitoneal injections were as effective as the intravenous ones when the dosage was increased to 10 cc.

Preliminary experiments on rats show that intraperitoneal injections of 1 cc. of a sterile isotonic 2% solution of Alizarine Red S altered with isotonic sodium hydroxide to take effect in mammalian blood give sharp effects with little or no toxic complications and no superficial lesions. It is suggested that the preparation of an alizarine solution which would also impart radiopaque lines in the calcifying tissue would be very useful in experimental investigations.

9706

Polypneic Panting in Anesthetized Cats.

H. W. MAGOUN. (Introduced by S. W. Ranson.)

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In a recent series of experiments a region of the cat's brain was found which responded to local heating by acceleration of respira-

[2] Schour, I., PROC. SOC. EXP. BIOL. AND MED., 1936, **34**, 140.