fact that hemorrhages occur into the heart muscle, thus increasing its mass by the addition of whole blood or corpuscles. In this case the water content would not be expected to change greatly. Nevertheless if whole blood or corpuscles account for the increase in heart mass the error introduced in the fat analysis is minimized because the total fat content of the corpuscles is high. No way has been found to measure accurately the extent of the error which may be introduced by the occurrence of edema or interstitial hemorrhage. It seems unlikely that these factors could account for the whole difference observed. Even if it were responsible for a half of the observed difference there would remain a substantial probability that fat was also burned. The results are presented as an evidence that fat is utilized by the actively metabolizing heart muscle, recognizing that they do not constitute positive proof because of the possibility that a part of the decline in fat content may be only apparent, due to cardiac edema.

9839

Digitalis and Coronary Blood Flow.

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Considerable work has been done in an effort to evaluate the effect of digitalis on coronary blood flow. A wide variety of methods have been employed and the results on the whole have been contradictory. Gilbert and Fenn[1] have reviewed the pertinent literature which preceded their report. These workers, after an extensive series of acute experiments in which they studied the effect of a number of preparations of digitalis on the outflow from the coronary sinus of the dog by use of the Morawitz cannula, concluded that digitalis preparations may exert a vasoconstrictor action on the coronary arteries.

The use of the Morawitz cannula requires deep anesthesia, an open thorax and artificial respiration; consequently, the period of observation is necessarily relatively brief. For a number of years

[1] Gilbert, N. C., and Fenn, G. K., *Arch. Int. Med.*, 1932, **50**, 668.

we have been studying coronary blood flow in the trained animal.[2] It has been possible to measure the blood flow in one of the coronary arteries of the dog as often as desired, and in some experiments for as long as 2 weeks. Formerly we used the thermostromuhr method of Rein, but recently we have employed the method described by Baldes and Herrick,[3] which makes use of a direct current heater. We have, therefore, been able to digitalize animals by divided doses in a manner comparable to the clinical method and at the same time observe the effect on the coronary blood flow.

Seven dogs were prepared for these experiments. They were trained to lie quietly and subsequently the thermostromuhr unit was placed on the circumflex branch of the left coronary artery under general anesthesia and with sterile technic as described in a previous paper.[2] Three of the animals fulfilled the following requirements sufficiently well to permit their use in this study: 1. The body temperature and pulse rate of the dog must have remained within normal limits for at least 24 hours following the operation. 2. The coronary blood flow must have remained relatively constant for a like period. 3. Prior to injection of the drug the dog must have taken food without hesitation and behaved in all respects like a relatively healthy dog. Since the results of the experiments were comparable, the data on only one of the animals are given.

The coronary blood flow of a dog weighing 16 kg. was observed intermittently for a period of 9 days. Successive doses of digitalis (digiglusin, Lilly) were given intramuscularly which, according to clinical standards, should have been more than sufficient to digitalize the animal.

In addition to observing the blood flow, the blood pressure (Hamilton technic[4]) was observed and electrocardiograms (Fig. 1) were taken both before and after operation. Two days after operation digitalization was begun. One cat unit of digiglusin was given intramuscularly at each injection. The first dose was given at 10:00 a. m., the second at 4:57 p. m. The following day another injection was given at 11:15 a. m. The drug was not given on the fourth but the injections were resumed on the fifth postoperative day when an injection was given in the morning and another in the afternoon. On the sixth day following operation the sixth and last

2 Essex, H. E., Herrick, J. F., Baldes, E. J., and Mann, F. C., *Am. J. Physiol.*, 1936, **117**, 271.

3 Baldes, E. J., and Herrick, J. F., PROC. SOC. EXP. BIOL. AND MED., 1937, **37**, 432.

4 Hamilton, W. F., Brewer, George, and Brotman, Irving, *Am. J. Physiol.*, 1934, **107**, 427.

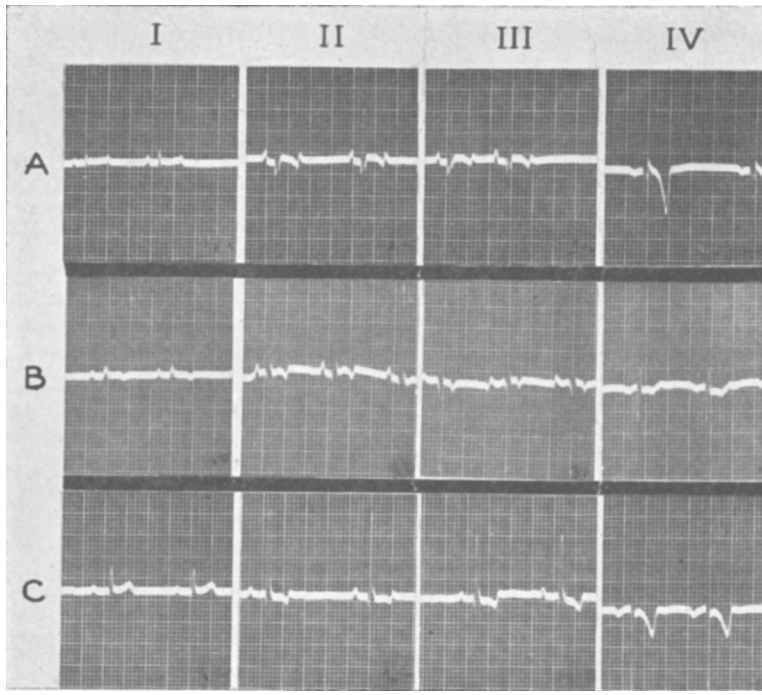

FIG. 1.
Electrocardiograms taken: A, 8 days before operation, and B, one day, and C, 7 days, following operation.

Judging by all the criteria employed, which consisted of observations of the electrocardiograms, blood pressure and rectal temperature, the condition of the dog was as close an approximation to normal as we have seen in the large series of animals that we have used in our experiments on coronary blood flow. As another indication of the splendid condition of the animal the unit was removed on the fourteenth postoperative day and an uneventful recovery followed.

On the basis of this series of observations it can be stated that digitalization with the form of the drug employed by us did not significantly change the blood flow in the circumflex branch of the left coronary artery of the dog (Fig. 2). An investigation of the effect of certain digitalis glucosides on coronary flow was recently

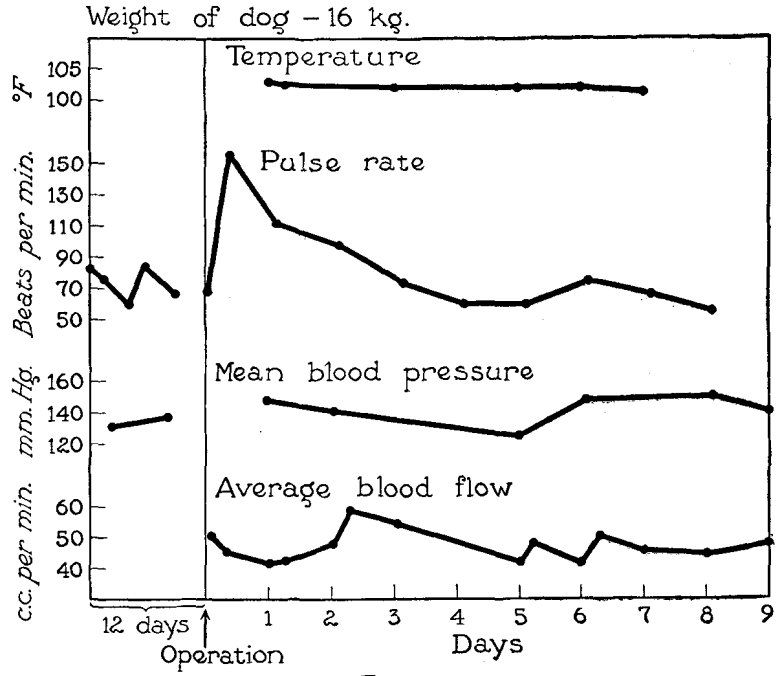

FIG. 2.

Summary of data on rectal temperature, pulse rate, blood pressure and blood flow. Six cat units of digiglusin were given from the second to the sixth post-operative day.

completed in collaboration with Dr. Maurice B. Visscher. The results, which are comparable to those reported here, will appear elsewhere.

9840

Failure of Sulfanilamide to Prevent Hemolysis, Fibrinolysis, and Production of Erythrogenic Toxin by Hemolytic Streptococci *in vitro*.

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The mode of action of sulfanilamide in hemolytic-streptococcal infections is still unexplained. The bacteriostatic effect, which can

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