It is evident, therefore, that the characteristic reactions in erythrocyte anaphylaxis do not depend upon hepatic function, but are presumably due to immediate humoral or vaso-motor reactions.

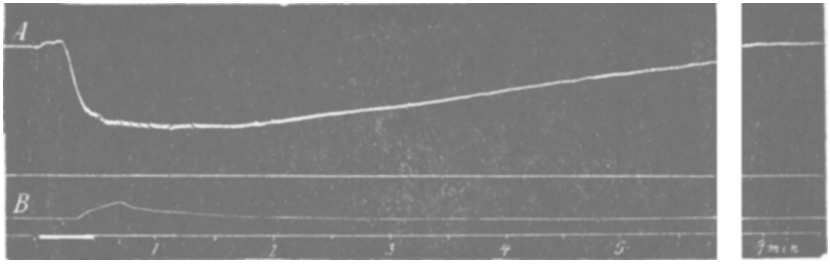

FIG. 1. *Erythrocyte Anaphylaxis in Dogs.*

A, changes in arterial blood pressure (upper base line). B, changes in the tone of the partially inflated urinary bladder, intracystic pressure (lower base line). Heavy base line, intravenous injection 2 cc. 50 per cent corpuscle suspension (Ringer's solution) per kilogram of body weight.

The above tracing represents the maximum reaction we have thus far obtained in canine erythrocyte anaphylaxis, corresponding roughly with the transcent clinical symptoms reported by Kritschewsky and Friede.[1]

[1] Kritchewsky, I. L., and Friede, K. A., *Centralbl. f. Bakt.*, Abt. 1, 1925, xcvi, 56.

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Effect on Electrocardiogram of Opening Thorax and Inserting Optical Manometers into Aorta and Pulmonary Artery.

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Recently Weinmann and Katz[1] investigated the relation of the T wave to the asynchronous ending of right and left systole. To do this the chest was opened and optical manometers were inserted into the aorta and pulmonary artery. The objection might be raised that such procedures are sufficiently abnormal to make the electrocardiogram noticeably different, and therefore not comparable with the normal. The present report deals with the effect of such procedures on the electrocardiogram.

Meek and Wilson[2] made a comparison of the electrocardiogram

in the open and closed chested dog and came to the following conclusions: "Electrocardiograms from animals with an open chest are also usually normal. By this we mean that the waves are all apparent and of the usual form. Only two variations are common. R3 is often notched and the T wave is apt to be negative or diphasic, conditions which may appear in the dog under almost any operative procedure." The present investigation substantiates these facts in general, although differing in some of the details.

In 7 dogs the standard electrocardiograms, Leads I, II and III, taken with the animal on its back under morphine and chloretone anesthesia, were compared with these three identical leads obtained after the chest was opened. A typical set of records is shown in Fig. 1. In a second series of 7 animals similar electrocardiograms,

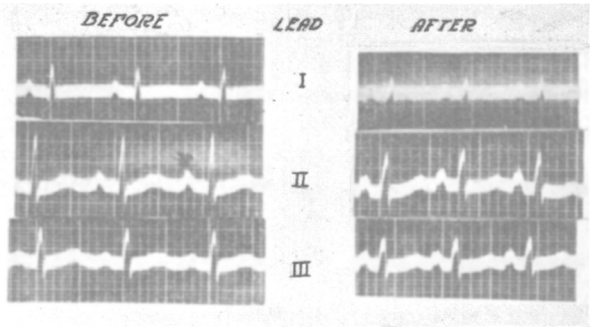

FIG. 1.

½ natural size. Standard Leads I, II and III of the electrocardiogram before and after opening chest. Time in 0.04 second.

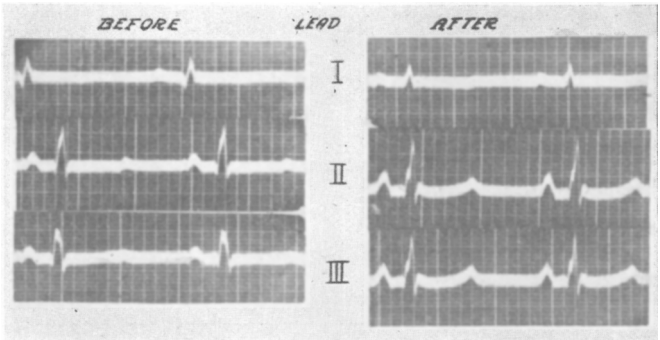

FIG. 2.

½ natural size. Standard Leads I, II and III of the electrocardiogram before and after chest opened and optical manometers inserted into the aorta and pulmonary artery. Time in 0.04 second.

Leads I, II and III, taken before the chest was opened were compared with those taken after the chest was opened and the manometers inserted into the aorta and pulmonary artery. Fig. 2 shows a typical set of such records.

An inspection of these figures reveals how little the electrocardiograms are changed. The heart rate was increased by these procedures in most cases, as in Figs. 1 and 2, but in others it remained unchanged or even decreased. No prolongation of the P-R interval was observed. The R and S deflections of the initial complex, as a rule, decreased in height in all three leads, as in Fig. 1. In several instances there was no change or, as in Fig. 2, an increase in amplitude. The splitting of R in Leads II and III of this figure occurred only in this case. The duration of QRS was not increased in any instance. In one case a decrease was observed. The changes in the gradient of the two limbs of R in Fig. 1 were the usual changes observed.

The T wave changes were not consistent. Sometimes an increase in height occurred, as in Fig. 2, and sometimes a decrease was noted, as in Fig. 1. Occasionally no change was present. The duration increased in some instances (*cf.* Fig. 2); decreased in others (*cf.* Fig. 1); or remained unchanged. On the whole, there was a tendency for the wave to become more "negative", that is, an upright T wave became inverted or its height decreased and a negative wave became deeper. There were a number of exceptions, however, such as Fig. 2. In one instance an inverted T wave became upright after the manometers had been inserted. In only two cases, one of which is shown in Fig. 2, could the changes in the electrocardiograms be ascribed to a lateral shifting in the electrical axis.

To what extent these changes can be attributed to a shifting in the electrical axis in an antero-posterior plane, to changes in the order of excitation of various fractions, to variations in the duration of electrical stress in these fractions, and to the decrease in electrical conducting material following the operation, cannot be determined at present.

The changes in any event are so small as to permit one to apply the results obtained in open chested animals with manometers in the aorta and pulmonary artery to animals not so operated.

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[1] Katz, L. N., and Weinmann, S. F., *Am. J. Physiol.*, 1927, in press.

[2] Meek, W. J., and Wilson, A., *Arch. Int. Med.*, 1925, xxxvi, 617.