The skin-test data presented in Table I indicate that the isoelectric point of Dick toxin lies between pH 7.0 and pH 7.5. Judging from the nitrogen content of the anode and cathode samples, however, the reversal in electrical charge occurs between pH 8.0 and pH 7.5. This anomaly is explained by the results of a series of identical experiments run with broth alone (Table II). Here it is apparent

TABLE II.
Electrophoresis of Broth without Toxin.

pH	Hours current passed	E.M.F.	Milliamps.	Nitrogen content. Mg./cc. of agar extract.	
				Anode sample	Cathode sample
5.25	24	70	5.5	0.042	0.091
6.0	24	70	5.2	0.061	0.130
7.0	24	65	7.0	0.042	0.160
7.5	25	66	4.8	0.040	0.138
8.0	24	65	6.0	0.118	0.056
9.0	26	65	10.5	0.161	0.038

that the shift in nitrogen values takes place between pH 8.0 and pH 7.5 and it is probably the migration of non-toxic, nitrogen-containing compounds normally present in broth that causes the difference noted above. The control series in Table I is of interest in that it demonstrates the resistance of Dick toxin (in relatively high concentration) to changes in C_{H^+} from pH 5.0 to pH 10.0.

Since we were not working with a pure toxin but with a toxin-broth mixture we have no reason to suppose that the determined isoelectric range is that of the toxin itself. There is the possibility that the toxin exists in physical or chemical combination with some broth constituent and that it is this aggregate which migrates in the electric field. Such a micella may well have quite a different isoelectric point from that of the pure toxin.

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Antemortem Basopenia as an Index of Resistance.

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In a recent study of rabbit's blood[1] it was shown that the basophile level before inoculation seemed to bear some relation to the course of infection with *Treponema pallidum* and it was suggested

[1] Casey, A. E., PROC. SOC. EXP. BIOL. AND MED., 1929, xxvi, 670.

that the basophile count might be used as an index of the resistance of the rabbit to this disease. During the same period (1927-28-29) blood counts were made upon 44 rabbits within 10 days before death, and it was found that all except 3 had both an absolute and relative basopenia. This agreed with the previous association of low blood basophiles with low resistance and high blood basophiles with high resistance. The rabbits were the fatal cases in the groups used for diverse experiments in which antemortem counts were made and represent approximately 20% of the total number of animals used. 32 of the 44 died from the effects of a transplantable neoplasm and the remaining 12 from other causes. 8 of the 44 animals were killed when in a dying condition; the rest were found dead.

The differential counts were made with the neutral red supravital technic upon blood taken from a marginal ear vein. In all examina-

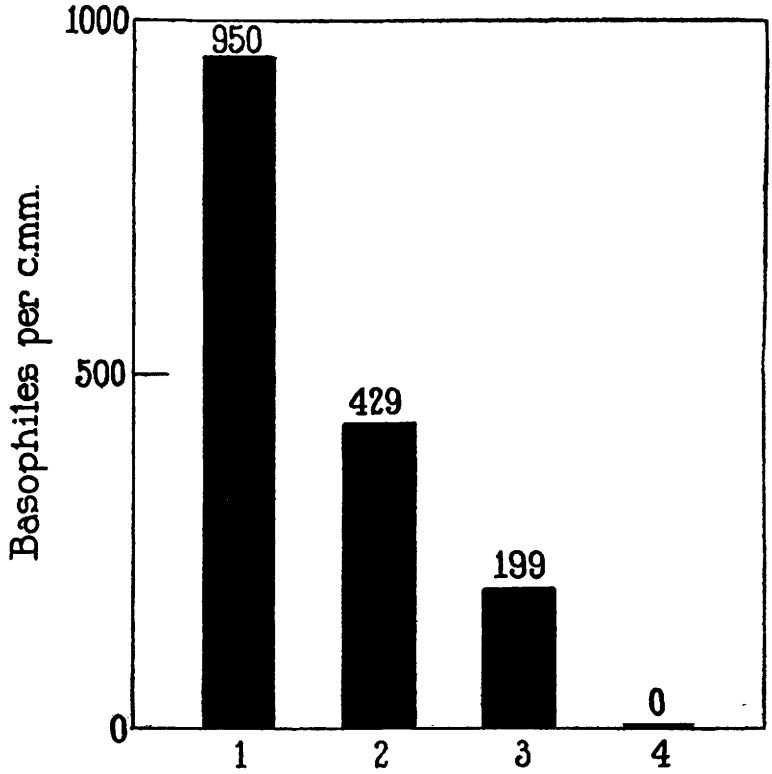

FIG. 1. Normal Contrasted with Antemortem Basophile Level.

1. Average level of basophiles in 174 normal rabbits during the same period.
2. Average level of basophiles in 32 tumor rabbits within 10 days before death.
3. Average antemortem level of basophiles in 12 rabbits dying of other causes.
4. Absence of basophiles 5 minutes after death in 2 tumor rabbits.

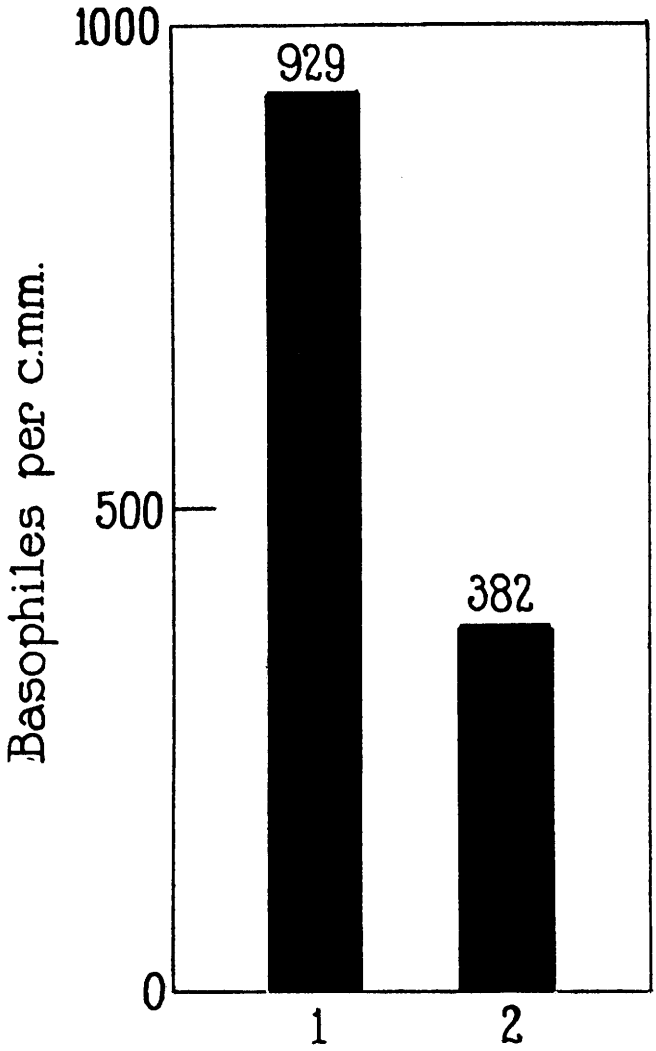

FIG. 2. Comparison of Preinoculation and Antemortem Basophile Levels.
1. Before inoculation. 2. Before death.

tions at least 100 cells were counted. In the instance of the postmortem counts made on 2 tumor animals 5 minutes after death, the blood was taken from the heart and 400 white cells counted in the first animal and 600 in the second. Total white counts were made at the same time as the differential. Most examinations were made at regular intervals and the time between the last count and the animals' death varied from one to 10 days with an average of 2.3 days.

The average basophile count of 950[2] per cmm. of blood obtained from 1110 counts upon 174 normal animals during the same period

is used as a basis for comparing the results of the antemortem counts (Fig. 1). In the 44 animals within 10 days prior to death, the blood basophiles averaged 366 per cmm. The average antemortem count of the 32 animals which died from tumor was 429 per cmm. and in those dying from other causes was 199 cmm. of blood. In the case of the 2 rabbits in which the blood was examined 5 minutes after death, no basophiles were found in counting 1000 white cells. This, of course, can not be considered sufficient proof of the absence of basophiles in the blood of rabbits found dead from disease conditions but merely an indication of a trend.

From an examination of Figure 1 alone, it might be argued that the 44 animals under consideration had had a basopenia before inoculation and that it was not a condition incident to the period before death. The preinoculation counts of 19 of these rabbits, 18 of which were inoculated with tumor, showed an average level of 929 basophiles per cmm. as determined from an average of 10 counts for each animal (Fig. 2). The antemortem basophile level based upon the average of all counts made within 10 days of death (1 to 4 counts) was found to be 382 basophiles per cmm. (Fig. 2), demonstrating that there was actually a reduction in the blood basophiles before death. In this group of 19 rabbits only one had an antemortem basophile level of more than 600 basophiles per cmm.

It must not be interpreted, however, that basopenia necessarily indicates impending death because a low basophile count of comparable degree does occur under other circumstances. But from these observations and those previously reported, it would appear that the condition is associated with a state of low resistance. The exact relation of basopenia to the state of low resistance, whether of a causal or a merely concomitant nature, is not known.

[2] Pearce, L., and Casey, A. E., Studies in the Blood Cytology of the Rabbit. I. Blood Counts in Normal Rabbits. In press.