

Figure 2-25. Absolute basophil numbers in blood of chickens inoculated with 1×10^3 , 5×10^3 and 1×10^4 oocysts compared to uninfected controls.

Legend: (——) Uninfected chickens.

(.....) Chickens inoculated with 1×10^3 oocysts.

(---) Chickens inoculated with 5×10^3 oocysts.

(---) Chickens inoculated with 1×10^4 oocysts.

S = significantly different from controls ($P < 0.05$).

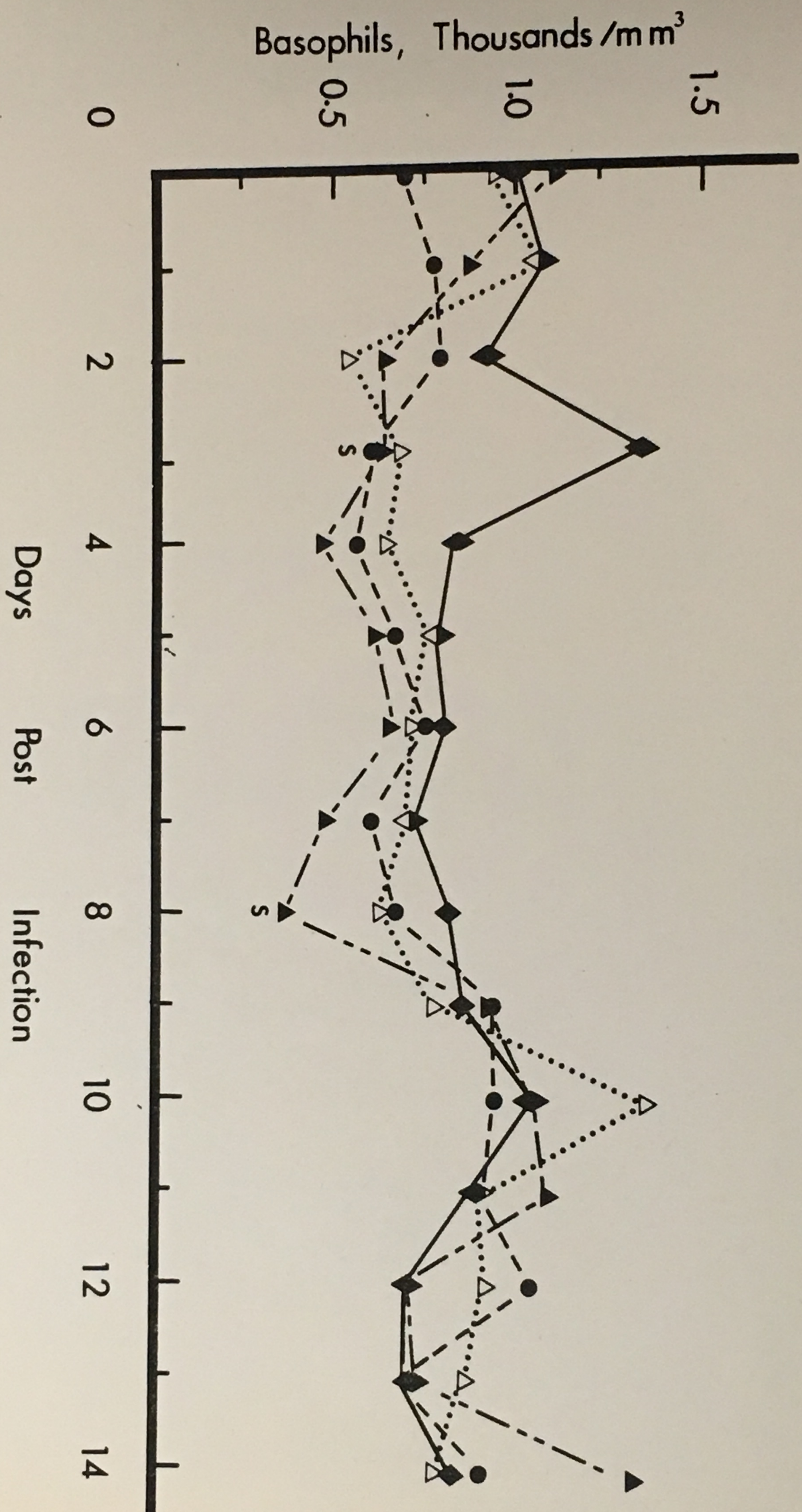


Figure 2-26. Separation of chicken peritoneal heterophils on discontinuous Percoll gradient. H, heterophil; M, mononuclear cells.

Figure 2-27. Double immunodiffusion test. Absorbed (s_2) and unabsorbed (s) pooled antiheterophil sera tested against chicken serum (cs); chicken plasma (cp); bursa (br); thymus (th); macrophage (m); and heterophil (h) antigens.

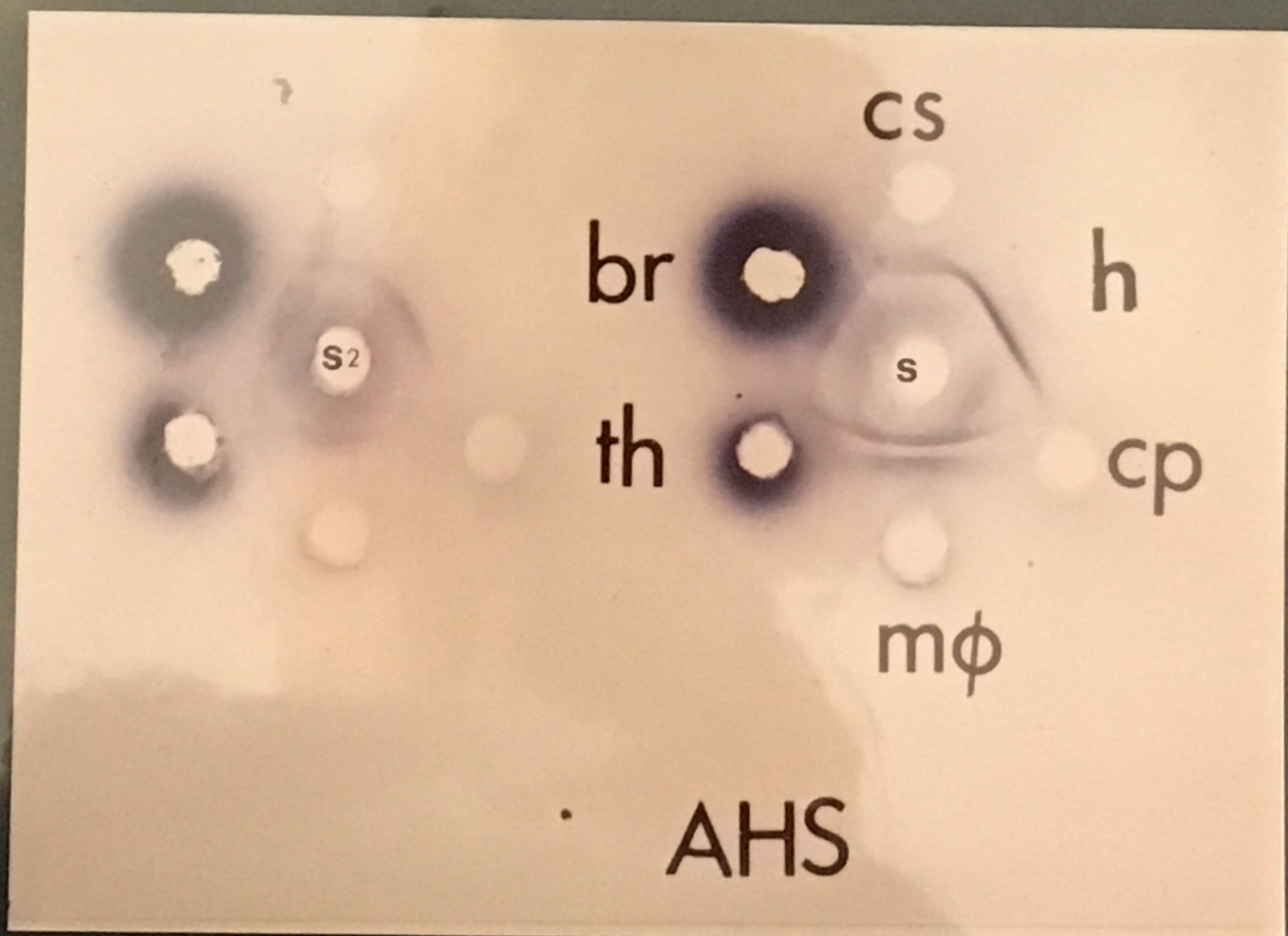
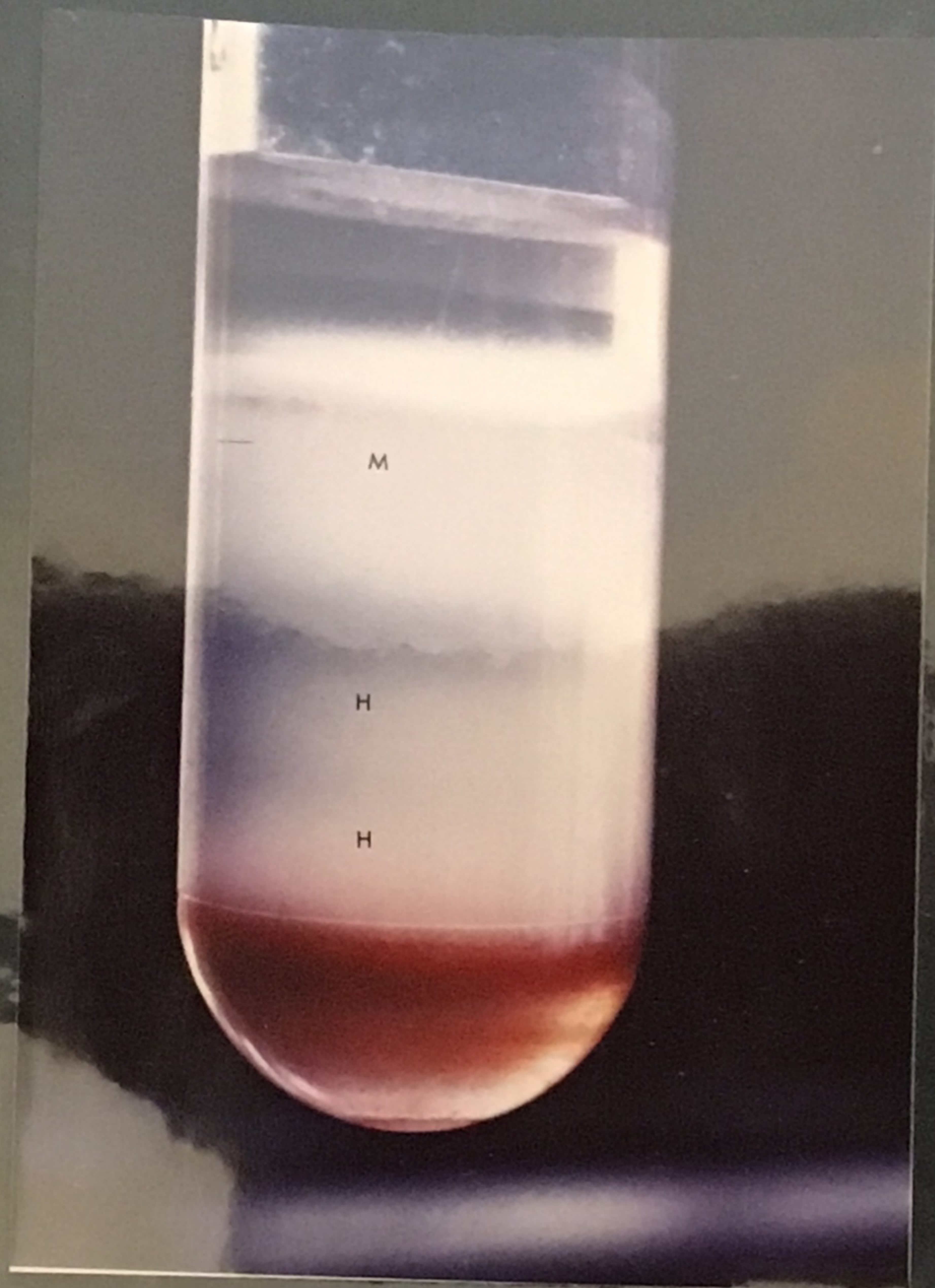


Figure 2-28. Absolute heterophil numbers in blood of chickens injected intraperitoneally with 3 ml of absorbed antiheterophil and normal rabbit sera (Experiment 1).
Legend: (——) Antiheterophil serum (n=4)
(.....) Normal rabbit serum (n=4).

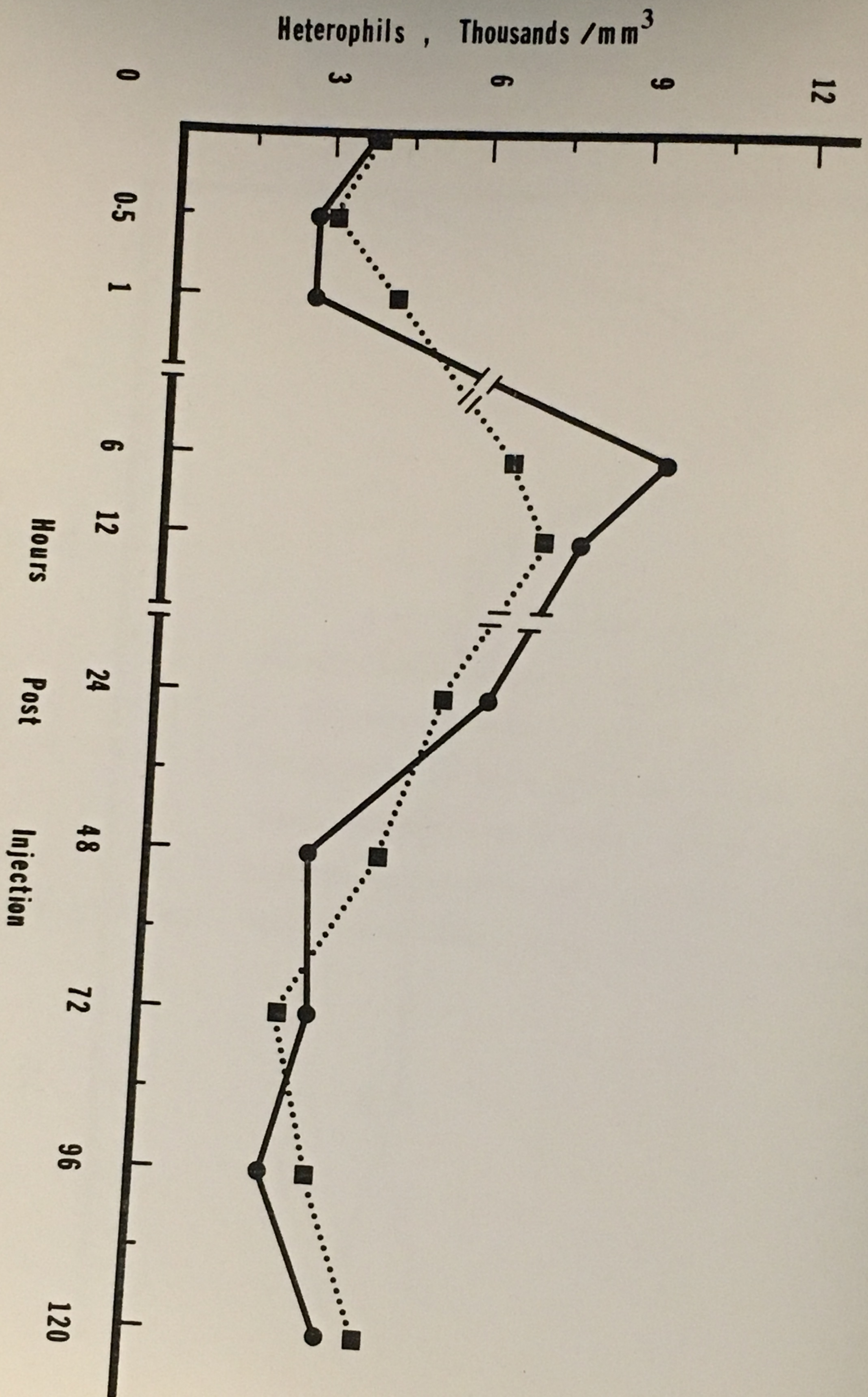
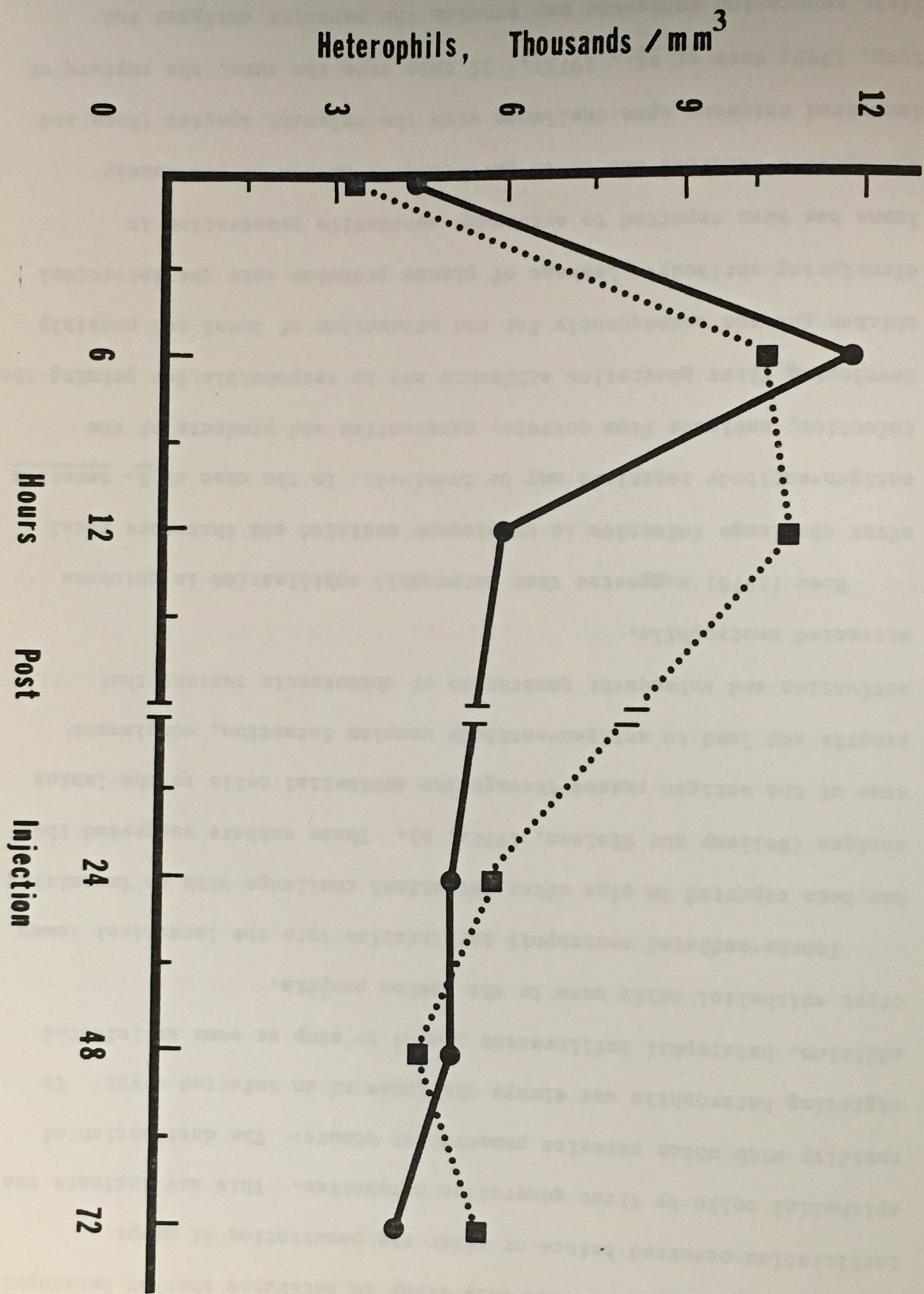


Figure 2-29. Absolute heterophil numbers in blood of chickens injected intravenously with 2 ml anti-heterophil serum and normal rabbit serum. One ml of fresh rabbit serum was given with these sera as a source of complement (Experiment 3).

Legend: (—) Antiheterophil serum (n=4).

(.....) Normal rabbit serum (n=4).



DISCUSSION

It was not possible from this study to determine whether heterophil infiltration occurred before or after the penetration of crypt epithelial cells by first generation merozoites. This may indicate the rapidity with which parasite penetration occurs. The destination of migrating heterophils was always the lumen of an infected crypt. In addition, heterophil infiltration seemed to stop as soon as infected crypt epithelial cells were in the lamina propria.

Immune-mediated neutrophil infiltration into the intestinal lumen has been reported in pigs after intestinal challenge with an immunizing antigen (Bellamy and Nielsen, 1974a, b). These authors suggested that some of the antigen passed through the epithelial cells to the lamina propria and lead to antigen-antibody complex formation, complement activation and subsequent generation of chemotactic factors that attracted neutrophils.

Rose (1978) suggested that heterophil mobilization in chickens after challenge infection is complement mediated and therefore local antigen-antibody reactions may be involved. In the case of E. necatrix infection, antigens from oocysts, sporozoites and products of the developing first generation schizonts may be responsible for priming the chicken gut and consequently for the production of local and possibly circulating antibody. Leakage of plasma proteins into the intestinal lumen has been reported to accompany sporozoite penetration in susceptible chickens and to be particularly marked in previously immunized chickens upon challenge with the relevant species (Rose and Long, 1969; Rose et al., 1975). If this were the case, the rupture of first generation schizonts may provide the parasite antigens and