

ence was exhibited between groups I and II, while group III was higher ($P < .01$) than group IV. The values for all yearling heifers observed during the initial bleeding and first two 28-day periods were higher ($P < .01$) than those obtained during the subsequent periods.

The overall decline in hematocrit for the two-year-old heifers during the entire experiment was 4.4, 5.6, 8.5, and 11.1 percent for groups I through IV, respectively (Table 8). However, statistical analysis indicated that while there was a significant difference between the hematocrit levels of groups II and IV ($P < .01$), there were no differences among groups I, II, and III and among groups I, III, and IV. There was a decrease ($P < .01$) in hematocrit values with periods as the experiment continued.

Hematocrit levels of yearling and two-year-old heifers in groups IV declined 13 and 11 percent, respectively, during the trial. These decreases were larger than the 5 percent reported by Kehar and Murty (21) with cattle, probably because the experiments reported herein lasted longer.

Inorganic Calcium and Phosphorus.—Calcium and phosphorus in the blood plasma were determined at three times during the experiment in both the yearling and two-year-old heifers. There were no significant dietary or period differences, and all values were within the normal range (Table 9). Thus, it is evident that the mineral requirements of the heifers were amply met, and that response in gains, reproduction, and blood was due to differences in protein intake rather than mineral deficiencies.

Liver Protein.—On a wet weight basis, yearling heifers in group I and II had larger ($P < .01$) amounts of protein in their livers at slaughter than groups III and IV (Table 8). Likewise, two-year-old heifers of groups I and II had a higher ($P < .05$) liver protein content than heifers in group IV. The animals having the lowest liver protein also had the lowest hemoglobin and serum protein.

Erythrocytes and Leukocytes.—The two-year-old heifers in groups I, II, III, and IV showed an absolute decline in erythrocytes of 0.20, 0.40, 1.60, and 1.50 million per cubic millimeter, respectively, as calculated from Table 10. Group II had a higher ($P < .01$) erythrocyte count than groups I and IV; whereas the differences between groups II and III as well as I, III, and IV were not significant. The data from all heifers showed a decrease ($P < .01$) in cell count as the experiment progressed. The decline in erythrocytes, which followed the decrease in hemo-