

INFLUENCE OF BREED

The mean hemoglobin content of the blood of the hens of various breeds is shown in Table 1. In Table 2 are shown the mean differences in hemoglobin content by breeds, the probable errors of the mean differences and the ratios of mean differences to probable errors. The mean differences by breed are uncorrected for age and age at maturity. It will be noted that all the differences are statistically significant.

TABLE 2

DIFFERENCES BY BREED IN THE MEAN HEMOGLOBIN CONTENT OF THE BLOOD OF HENS

	Rhode Island Red hens			White Plymouth Rock hens		
	Mean Hb difference	P.E.	Ratio	Mean Hb difference	P.E.	Ratio
	gm per 100 cc			gm per 100 cc		
White Leghorn						
hens	0.9	0.12	7+	0.5	0.12	4+
Rhode Island Red						
hens				0.4	0.11	3+

When the mean differences shown in Table 2 are corrected for age and age at maturity, they are still found to be significant.

INFLUENCE OF AGE

The hemoglobin content of the blood of chicks is between six and seven gm per 100 cc.³ Evidently at this period in the life of the chicken age has a considerable influence on the hemoglobin content of the blood.

The mean hemoglobin content of the blood of White Leghorn pullets ranging in age from about four to six months is 11.4 ± 0.7 gm per 100 cc. The mean of White Leghorn hens is 12.8 ± 1.0 gm per 100 cc (Table 1). The difference is 1.4 ± 0.12 gm per 100 cc, which is highly significant. The data also furnish information on the influence of age on the hemoglobin content of the blood of hens. The mean age of all hens was 658 ± 10 days; the mean hemoglobin content of the blood, 12.3 ± 0.1 gm per 100 cc. The correlation between age and hemoglobin was found to be 0.21. The number of hens included in this study is approximately 300. With a number as large as this a correlation coefficient of 0.21 is, according to Fisher's tables,² highly significant.

³ E. B. Hart, C. A. Elvehjem, A. R. Kemmerer and J. G. Halpin, *Poultry Sci.*, 9: 92-101, 1930.

CORRELATION BETWEEN SEASON AND HEMOGLOBIN CONTENT

There is a wide-spread popular belief that the blood of animals is "thicker" in the winter than in the summer. Furthermore, there is a good deal of evidence⁴ tending to show that external heat causes a dilution of the blood. The present data are suggestive in this connection, in that they indicate that with the approach of winter the hemoglobin content of the blood increased significantly. Thus the mean date of the hemoglobin determinations in hens was 39.4 ± 0.25 weeks after January 1, that is, the second week of October; and the correlation between the date of determination (season) and the hemoglobin content of the blood was found to be 0.20.

CORRELATION BETWEEN AGE AT MATURITY AND HEMOGLOBIN CONTENT

The mean age of all hens at maturity (date of laying first egg) was 207 ± 2.0 days. The correlation between age at maturity and the hemoglobin content of the blood was found to be -0.16, which also is highly significant.

CORRELATION BETWEEN SPRING EGG PRODUCTION AND HEMOGLOBIN CONTENT

Since spring egg production is a part of yearly egg production, these show a high positive correlation. Therefore a determination of the correlation between spring egg production and the hemoglobin content of the blood would give information about the correlation between the annual egg production and hemoglobin.

The mean production of all hens for the spring of 1929 was 59 ± 1.0 eggs. The correlation between spring egg production and the hemoglobin content of the blood was found to be 0.08, which is not significant.

H. H. DUKES,

L. H. SCHWARTZ,

DEPARTMENT OF VETERINARY INVESTIGATION

A. E. BRANDT

DEPARTMENT OF MATHEMATICS,

IOWA STATE COLLEGE

BOOKS RECEIVED

- BROTEMARKLE, ROBERT A. *Clinical Psychology*. Pp. xxi + 409. University of Pennsylvania Press.
- JOHNSON, DOUGLAS. *Stream Sculpture on the Atlantic Slope*. Pp. xxii + 142. 21 figures. Columbia University Press. \$3.25.
- MICHALSKI, S., Editor. *Science and Letters in Poland*. Vol. XIV. Pp. x + 404. Institute for the Promotion of Science and Letters in Poland, Warsaw.
- PRATT, CARROLL C. *The Meaning of Music*. Pp. viii + 253. McGraw-Hill. \$2.00.
- ROBERTSON, T. BRAILSFORD. *The Spirit of Research*. Pp. xvi + 210. Preece & Sons, Adelaide.
- ⁴ H. G. Barbour, *Physiol. Rev.*, 1: 295-326, 1921.