

From the data presented in the table it appears that higher production is correlated very definitely with higher percentages of increase in egg-weight. The maximum group-production (147) occurred in those hens whose mean increase in egg-weight was above 13 per cent. in the "10-egg test." Selecting above 10 per cent. gave seven birds whose mean production was 143 eggs. Selecting above 6 per cent. gave 12 hens whose mean production was 139 eggs. On the other hand selecting the hens which gave a decrease in egg-weight (" < 0 per cent.," in the table), gave five hens with a mean production of only 108.

The superiority of the "10-egg test" in establishing the correlation with numerical production in this instance clearly brings the testing of egg-production of hens into the same class with testing milk-production of dairy cows, in which case Gavin and also Wilson have pointed out that under suitable conditions the one day test may be of greater value than the seven-day, the 30-day or the year test.

With these points openly in mind, and only with the purpose of stimulating further investigation and discussion, the author presents the following brief summary of his results with a single flock as expressing a biological fact which, if later proved to be of general application, may take its place as a fundamental law of production in the domestic fowl:

The innate egg-producing ability of a hen is manifested, not only by the number of eggs laid within a year, or within some longer or shorter period of time, but also by the degree of increase or of decrease in the mean weight of her eggs, when this increase or decrease (calculated as a percentage-increase or percentage-decrease) is measured at those periods of laying (the vernal and autumnal maxima) characterized by the markedly increased laying of the flock; and on this basis, groups of hens characterized by higher producing ability can be differentiated as accurately as, and more easily than by other known means.

The validity of this proposed law of pro-

duction is supported by detailed evidence in an article to appear in *The American Naturalist*.

PHILIP HADLEY

R. I. AGRICULTURAL EXPERIMENT STATION

SOCIETIES AND ACADEMIES

THE NATIONAL ACADEMY OF SCIENCES

The program of scientific sessions of the meeting held in Washington on April 28, 29 and 30, was as follows:

MONDAY, APRIL 28

Morning Session

ALFRED G. MAYOR: The age of the fringing reef of Tutuila, American Samoa.

CHARLES D. WALCOTT: Seaweeds and sponges of the Middle Cambrian.

ROBERT G. AITKEN: The spectra of the visual binary stars.

GEORGE E. HALE, F. ELLERMAN, S. B. NICHOLSON and A. H. JOY: The magnetic polarity of sun spots.

WALTER S. ADAMS and A. H. JOY: The motions in space of some stars of high radial velocity.

WALTER S. ADAMS and G. STRÖMBERG: The use of spectroscopic method for determining the parallaxes of the brighter stars.

ADRIAAN VAN MAANEN (introduced by George E. Hale): Evidence of stream-motion afforded by the faint stars in the Orion nebula.

GRAHAM LUSK and H. V. ATKINSON: The production of fat from protein after giving meat in large quantity to a dog.

WILLIAM S. HALSTED: End-to-end anastomosis of the intestine—experimental study.

ROBERT M. YERKES (introduced by George E. Hale): Psychological examining in the United States Army.

Afternoon Session

FREDERICK H. SEARES (introduced by George E. Hale): Relation between color and luminosity for stars of the same spectral type.

FREDERICK H. SEARES, A. VAN MAANEN and F. ELLERMAN (introduced by George E. Hale): Deviations of the sun's general magnetic field from that of a uniformly magnetized sphere.

W. W. CAMPBELL: The solar corona.

HERBERT E. GREGORY (introduced by W. M. Davis): Plans for exploration of the Pacific.

FRANCIS G. BENEDICT, W. R. MILES and ALICE JOHNSON: The temperature of the human skin.

S. J. MELTZER and M. WOLLSTEIN: The influence of degeneration of a vagus nerve upon the development of pneumonia.

Demonstration of war research problems at the National Bureau of Standards.

Evening Session

William Ellery Hale Lecture, by James Henry Breasted, professor of Egyptology and Oriental history, University of Chicago. Subject: *The origin of civilization—from the old stone age to the dawn of civilization.*

Reception to members and guests at the United States National Museum, National Gallery of Art.

TUESDAY, APRIL 29

Morning Session

EDWIN H. HALL: The effect of great pressure on the electric conductivity and thermo-electric properties of metals.

EDWIN H. HALL: Comments on the results of Bridgman's experiments.

CHARLES LANE POOR (introduced by J. S. Ames): Line of position computer.

IRVING LANGMUIR: The arrangement of electrons in atoms and molecules.

HENRY F. OSBORN: Paleomastodon, the ancestor of the long-jawed mastodons only.

HENRY F. OSBORN: Seventeenth skeletons of *Moropus*: probable habits of this animal.

THOMAS B. OSBORNE and ALFRED J. WAKEMAN: The preparation of vitamine-free proteins.

ARTHUR G. WEBSTER: Tentative results in interior ballistics.

ARTHUR G. WEBSTER: Tentative results in elastic hysteresis.

Afternoon Session

EDWIN H. HALL: Thermal conduction in metals, from the standpoint of dual electric conduction.

EDWIN H. HALL: The thermo-electric equation $P = T \, dV/dT$ once more.

A. O. LEUSCHNER and SOPHIA H. LEVY: Perturbations of minor planets discovered by James C. Watson: (104) Clymene (106), Dione (168), Sibylla (175), Andromache. Read by title.

ARTHUR G. WEBSTER: The most perfect tuning fork.

ARTHUR G. WEBSTER: Angle of repose of wet sand.

EDWARD KASNER: Geometry of the wave equation.

C. G. ABBOT: Rotating projectiles from smooth-bore guns (illustrated).

C. G. ABBOT: Means for measuring the speed of projectiles in flight (illustrated).

C. G. ABBOT: Recent simultaneous measurements of the solar constant of radiation at Mount Wilson, California, and Calama, Chile (illustrated).

JOHN C. MERRIAM: Human remains from the Pleistocene of Rancho La Brea (illustrated).

William Ellery Hale Lecture, by James Henry Breasted, professor of Egyptology and Oriental history, University of Chicago. Subject: *The origin of civilization—the earliest civilization and its transition to Europe.*

WEDNESDAY, APRIL 30

Afternoon Session

Joint session National Academy of Sciences with National Research Council.

GEORGE E. HALE: The past work and future plans of the National Research Council.

JOHN C. MERRIAM: The Division of General Relations, Section on Relations with Educational Institutions and State Committees.

R. A. MILLIKAN: The Division of Physics, Mathematics, Astronomy and Geophysics.

DAYTON C. MILLER: Pressures and velocities, internal and external, due to the discharge of large guns.

E. W. WASHBURN: The Division of Chemistry and Chemical Technology.

A. A. NOYES: Nitrate investigations.

WHITMAN CROSS: The Division of Geology and Geography.

R. G. HUSSEY: The Division of Medicine and Related Sciences.

R. M. YERKES: Psychology in relation to the war.

C. E. MCCLUNG: The Division of Agriculture, Botany, Forestry, Zoology and Fisheries.

G. H. CLEVENGER: The Division of Engineering.

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