SCIENTIFIC PROCEEDINGS.

ABSTRACTS OF COMMUNICATIONS.

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President Calkins in the chair.

69 (1444)

The results of selection with a Cladocera pure line (clone).

By ARTHUR M. BANTA.

[*From the Station for Experimental Evolution,*
Cold Spring Harbor, N. Y.]

The writer has studied the effects of long-continued selection upon several parthenogenetic pure lines (clones) of three species of *Cladocera*, using their reactiveness to light as a basis for selection. In most of the lines the results, though suggestive, are inconclusive; or there is clearly no effect of selection; or (in two lines) the results even suggest slight differences in the reverse of an effect of selection. But with one line of *Simocephalus vetulus*, line 757, the result of selection is pronounced and convincing. This line was subjected to selection for a period of 54 months covering 181 generations of descent. In the final ten generations the strain selected for greater reactiveness to light had a reaction time less than one third as large as that for the strain of the same line selected for reduced reactiveness to light.

For the sake of obtaining averages showing less fluctuation than the average reaction times by single broods the data for each strain was averaged by two-month periods of the experiment (each period including the data for all the individuals tested in making the selections for six to eight generations).

For the first two-month period of the experiment the averages for the two strains coincide. But in the next period there is a divergence, the plus showing a greater reactiveness by a small margin. In successive two-month periods this divergence is in general increased. There are considerable fluctuations in the curves as are indicated by the facts,—that for two two-month periods, nineteen months after the experiment was begun, the minus strain was actually the more reactive of the two; and that during three other later two-month periods the mean for the minus strain approached that for the plus strain. But in general the means indicate increasing divergence in mean reaction time throughout the main portion of the experiment until for the last nine months the mean for the plus strain was just half that for the minus strain and during the last three months it was less than one third that for the minus strain.

It can be stated with assurance that with this material there is little, *if any*, relation between vigor and reactiveness to light and that in line 757 the effect of selection was not due to changes in the relative vigor of the two strains.

70 (1445)

Exhibit showing the results of selection for a new Buff Race.

By C. B. DAVENPORT.

[*From the Laboratory for Experimental Evolution, Cold Spring Harbor, N. Y.*]

A self-colored race of poultry was first produced in China about 1,500 years ago. All buff races of poultry have been derived from this Chinese race, the Buff Cochin. An attempt has been made to create a uniform buff race out of the Jungle Fowl. In 1907 a Jungle Fowl was crossed with a White Leghorn. This gave offspring in which the red of the Jungle Fowl appeared on a white ground, the black of the Jungle Fowl being hypostatic to the white. The birds showing largest amount of red were selected for breeding. During the first two years no progress was made but after that more highly colored red males and more