

sider methods by which the acquisitive instinct in children may be diverted by encouragement and suggestion so as to prove the stimulus for the higher forms of intellect.

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#### LINKAGE IN POULTRY

Two genes each of which is sex-linked must obviously be completely linked in the gametogenesis of the sex which is heterozygous for the sex gene. On Morgan's theory of inheritance they should also be partially linked in the homozygous sex, as in the female of *Drosophila*. I therefore decided to test for linkage between two well-known sex-linked genes of poultry, namely B, whose presence causes barring of melanic feathers, and S, which by inhibiting yellow pigmentation, converts "gold" into "silver" hackle feathers. A Brown Leghorn cock of composition bs/bs was therefore mated to Barred Plymouth Rock hens of composition BS. Their male children were of composition BS/bs. These were mated to bs Brown Leghorn hens, and have so far produced:

- 30 Barred silver BS/bs ♂ and BS ♀
- 17 Unbarred silver bs/bs ♂ and bs ♀
- 10 Barred gold Bs/bs ♂ and Bs ♀
- 21 Unbarred gold bs/bs ♂ and bs ♀

This corresponds to a series of spermatozoa 30 BS, 17 bS, 10 Bs, 21 bs, or 27 cross-overs out of 78. The cross-over value is therefore 34.6 per cent. with a probable error of 3.6 per cent., that is to say there is undoubtedly linkage. The numbers of barred and unbarred are practically equal, but there is a 50 per cent. excess of silver over gold, perhaps due to selective mortality.

The experiment is being continued, and it is hoped next year to obtain repulsion as well as coupling. If Pearl is correct in his view that one of the genes for high egg-laying is carried in the sex-chromosome, the economic importance of mapping it is considerable. For example if the locus of the egg-laying gene  $L_2$  lies between those of B and S, then if B and S have been transferred together from a race of high-laying power to one of low-laying power, we shall know without further testing that, ex-

cept in the rare cases of double crossing-over,  $L_2$  has been transferred with them.

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#### METEOROLOGISCHE ZEITSCHRIFT

IN a letter received from Professor V. Conrad, the recently elected secretary of the