exhibiting the phenomenon of "cross-over", presumably for the reason that there is no homologous chromosome into which the character in question may be transferred, while in the corresponding female in which the sex-chromosomes are paired, such "cross overs" or separations of the coupled characters do occasionally occur.

Various problems and hypotheses relating to fertility and sterility are discussed in chapter VII, and the last chapter takes up certain special cases of sex-inheritance, considering in particular, various modifications of the sex-ratios. The author holds that disturbances in the sex-ratios give no proper basis for the formulation of far-reaching conclusions in regard to sex-determination itself. In the final section sex-inheritance in man is considered and it is shown that both cytological and genetic evidence point to the probability that in man the female is homozygous and the male heterozygous.

In public lectures it is impossible to give a large number of references to the literature, but the author has made up this necessary defect by presenting a bibliography including 475 titles which will be valuable to those who wish to go more deeply into any particular phase of the subject. When bibliographies become so extensive it is not fair to expect that they shall be complete. One important omission noted in the present case is the work of von Winiwarter[1]) whose studies on human cytology are prominently presented in the text, but not included in the bibliography.

G. H. Shull.

Y. Tanaka. A study of Mendelian factors in the Silkworm, Bombyx Mori. Journ. Coll. Agric., Tohoku Imp. University, Sapporo, Japan Vol. V. Pt. IV. 1913. p. 91—113. — Gametic Coupling and Repulsion in Silkworms. Ibid. Vol. V. Pt. V. 1913. p. 115—148.

In the first of these papers the author analyses the Mendelian factor for the larval and cocoon-colours of silkworms. In larval markings he finds factors for striping, zebra-pattern, "moricaud", and normal pattern; the absence of all of these gives plain. The first three are epistatic over normal pattern. The factors tor cocooncolours are yellow, the absence of which gives recessive white, and an inhibiting factor which gives dominant white. In the second paper he gives examples of gametic coupling and repulsion, e. g. if normal white is paired with plain yellow, the gametes produced by the F_1 individual are of two sorts only, all bearing **Ny** or **nY**. He similarly finds 'repulsion between striping and yellowness, and between striping and normal colour, when introduced from different parents. In a case in which a striped yellow was crossed with a normal white, there appeared to be partial coupling (in about the ratio of 7 : 1) between striping and yellowness, but it is noticed that partial repulsion between normal and yellow would bring about the same result; when however the heterozygous striped yellows (**Ss Yy**) were mated among themselves, the result indicated 7 : 1 coupling between **S** and **Y**. In another case in the same stock complete coupling between **S** and **Y** was observed; an individual of constitution **Ss Yy** was mated with **ssyy**, and the offspring were 215 striped yellow, (Ss Yy) 188 normal white (ssyy). In one experiment there were indications of coupling in the ratio of about 7 : 1 between the "moricaud" factor and yellow.

L. Doncaster.

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[1]) H. von Winiwarter, Etudes sur la spermatogénèse humaine. Arch. de Biol. **27**, 1912.