NOTE ON MENDELIAN HEREDITY IN COTTON.

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Experiments carried out at Ghizeh during 1905 and 1906 shew that the cotton plant follows Mendel's laws of gametic segregation in certain of its characters.

The initial stages of the work were devoted to gathering evidence as to the gametic constitution of the field crop as grown in Egypt. It was found that the individuals of any variety varied extensively except in regard to lint colour. In fact it is doubtful whether any pure types are in cultivation in the country.

An analysis of the offspring of single plants has shown that cross-fertilisation takes place to a certain extent under field conditions and the accumulated effect of this has been to convert the crop into a mass of hybrids. A weed cotton is also present in the crop. This is readily removable by selecting but it would be difficult to eradicate the splitting forms arising from natural crosses with the cultivated varieties.

F. 2 generations of a number of natural crosses have been analysed in respect of their seed characters with results which show that long lint is completely dominant over short. In crosses between distinct types of cottons such as Uplands and Egyptians the lint of the first picked bolls of the F. 1 plants is greater than that of the dominant parent, but in the bolls which ripen later it has the same length as that parent. A similar fluctuation of lint length occurs in cottons grown in a favourable environment, longer lint being found in the bolls of the first picking, whilst in the later various lengths may be found on different seeds even from the same boll. The same cottons grown under less favourable conditions produce lint of a uniform length. Between these extremes the difference may be as much as 12 %.

The inheritance of the colour of the flowers appears to be more complex, and the details of this have still to be investigated. From the evidence obtained at present there is a great probability that time of ripening is a Mendelian character, and if this proves to be the case it should be practicable to check the ravages due to the attacks of the boll-worm (*Earias Insulana*) by raising early maturing varieties.

The breeding of pure types suitable to the needs of the manufacturer and the cultivator will possibly prove a little difficult, owing to the fact that many of the characters of economic importance are dominant.