ATTEMPTS TO OVERCOME THE CROSSABILITY BARRIER BETWEEN GOSSYPIUM SPECIES. II. *G. THURBERI* TOD X *G. ANOMALUM* WAWRA PEYR.

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Since emasculation is a mutilating process it creates unnatural conditions thus interfering with the normal physiological processes within the emasculated flower. Apart from genetic incompatibility this may be a cause of flower shedding.

This situation is much more pronounced in the *Gossypium* crosses where emasculation involves the removal of staminal column along with the petals, leaving the carpel exposed. Some *Gossypium* species, namely, *G. thurberi* are so susceptible to the removal of corolla that they are shed soon after their pollination.

In this short communication are reported the results obtained in trying to prevent the flower drop following pollination by means of improved techniques.

Method and observation

In the course of study of anthesis of *G. thurberi*, it was noticed that the bursting of anthers took place 2 to 3 hours following the opening of a flower and in a few, there was no bursting at all under local climatic conditions. Advantage was therefore taken of this fact and the emasculation of flowers was made after they had opened. It was further observed that when the open flower was emasculated, the portion of staminal column covering the ovary could be easily separated from the membranous layer of tissues adhering to the ovarian wall and the style. When emasculation was done using a close mature flower bud, the ovarian membrane usually peeled out and if this happened crossing invariably failed.

A survey of literature (Ganesan, 1941; Harland 1939; Sanders 1961 and Skovsted, 1937), on interspecific hybridization in *Gossypium* as well as personal communication from Prof. Meta Brown showed that crosses seldom succeed in the *thurberi-anomalum* combination with *thurberi* as female. It was therefore decided to use the technique described above, namely, emasculation of freshly opened *thurberi* flowers and then effect pollination. The adoption of this technique resulted in an unexpected good percentage of fruit set with well developed seeds as shown in table I.

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TABLE I

Results of the cross, *G. thurberi* (female) x *G. anomalum*

Parents		No. of crosses	No. of fruit harvested	Percentage of harvest	Total no. of good seeds	Average seeds per fruit	No. of seeds germinated	Percentage of germination	No. of adult plants
Female	Male								
G. thurberi	*G. anomalum*	93	15	16.1	97	6.46	21	21.6	19

In all, 93 open flowers were emasculated and pollinated with the pollen of *G. anomalum*. The percentage of fruit harvested was 16.1 and the total number of apparently good seeds in 15 bolls was 97, the average number of seeds per boll being 6.4. Out of 97 seeds, 21 germinated and 19 reached maturity. The hybrids however did not set seed and proved to be sterile. There was no selfed progeny in the F_1.

The above results clearly indicate that the application of improved technique could easily break the initial crossing barrier between *G. thurberi* as female and *G. anomalum*.

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