GLANDLESS BOLL IN UPLAND COTTON
AND ITS USE IN THE STUDY
OF NATURAL CROSSING

GLANDLESS boll is described as the complete absence of oil glands in the bolls of upland cotton Gossypium hirsutum L. The stem, hypocotyl, and petiole were later found to be without oil glands. The glandless condition of the hypocotyl was pointed out to the writer by Stephens. The leaves and bractioles of the glandless mutation, however, have as many oil glands per unit area as is found in the corresponding parts of normal plants. The appearance of glandless boll plants is otherwise similar to normal plants. Also, the lint and seed characteristics of glandless boll are comparable to that of normal boll cotton.

Oil glands are an important taxonomic character useful in the classification of cotton and cotton relatives. The inheritance of oil glands has been reported in G. barbadense by Smith, and by Peebles and Smith. These workers found a variation in the number of glands between an aberrant type having a barbadense background and a normal variety of this species. In the boll structure the oil glands of the aberrant type were found to be so deeply imbedded in the tissue that the surface was smooth rather than pitted. There is, however, no indication that this aberrant oil gland condition as reported in G. barbadense is in any way related to the glandless mutation of G. hirsutum of the present study.

A near glandless condition exists in the Hopi moencopi, a wild Arizona cotton belonging to the punctatum variety of G. hirsutum L. The hypocotyl and stems, however are normally pitted with oil glands. The writer has been unable to isolate a line of this cotton with bolls that are completely free of oil glands.

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1 Rec. for publication May 24, 1954.
2 Stephens, S. G. Personal communication to the writer.