ually confined for oviposition in screen-capped gallon jars wth 900 ml of moistened, sterilized sand. The jars were kept in a rearing room at 25∓ 1°C, 16L:8D and tended daily for 1 week. Each afternoon the sand was removed from the jars and fresh sand substituted. Eggs were extracted by washing, placed on moist sand in petri dishes in the rearing room, and examined at 2-3 day intervals for embryological development and hatch. Two days after the initial hatch in each dish, all nymphs were counted and removed. In each dish no more hatch occurred for at least 3 weeks. The unhatched eggs were in the second phase of embryological development as outlined by A.D. Lees (The Physiology of Diapause in Arthropods, 1955) and were scored as diapause eggs (Fig. 1, Table 1).

TABLE 1. COMPARISON OF 5 FEMALES OF *Gryllus firmus* AS TO FECUNDITY AND PROPORTIONS OF DIAPAUSE AND NONDIAPAUSE EGGS.

| | Number of eggs | | Percent of surviving eggs | | |
|---|---|---|---|---|---|
| Female no. | Total laid | Dead prior to 1st hatch | Non-diapause | Diapause | Missing* (therefore unclassified) |
| 1 | 554 | 46 | 67 | 23 | 11 |
| 2 | 517 | 64 | 68 | 13 | 19 |
| 3 | 439 | 38 | 77 | 18 | 5 |
| 4 | 538 | 37 | 75 | 15 | 10 |
| 5 | 438 | 3 | 81 | 7 | 12 |
| Total | 2531 | 188 | 73 | 15 | 12 |

*Eggs present at first hatch but unaccounted for when hatching and diapause eggs were subsequently counted.

*Gryllus firmus* females collected in October in Gainesville lay both diapause and nondiapause eggs daily; the proportions vary from day to day (Fig. 1) and from female to female (Table 1).

We refrigerated half of the diapause eggs at 4.5∓ 1°C for 3 days and then returned them to the rearing room. Control eggs were held in the rearing room at 25∓ 1°C. Both treated and control eggs were examined after 1 week. The cold-treated eggs had reached the third phase of embryological development (main organ systems differentiated) while the control eggs had not. Fall-laid eggs that require exposure to low temperatures before they are competent to develop rapidly at high temperatures will hatch in the spring rather than during warm weather in the fall. ROHANI IBRAHIM AND THOMAS J. WALKER, Department of Entomology and Nematology, University of Florida, Gainesville, FL 32611.

MAXILLAE OF THE MOLE CRICKETS, *SCAPTERISCUS ACLETUS* REHN AND HEBARD AND *S. VICINUS* SCUDDER (ORTHOPTERA: GRYLLOTALPIDAE): A NEW MEANS OF IDENTIFICATION—(*Note*). Two mole cricket species, *Scapteriscus acletus* Rehn and Hebard and *S. vicinus* Scudder, damage turf, pastures, vegetable and truck crops in Florida and other southeastern states. Characters commonly used to identify

and separate these species are foreleg structure and pronotal markings (Blatchley 1920. Nature Publ. Co., Indianapolis. 784 p.; Hayslip 1943. Fla. Ent. 26(3): 33-46). However, pronotal patterns, especially among nymphal instars, may be variable and unreliable for use in identification. An additional morphological character to verify species determination and identify specimens which have parts of, or all of, their forelegs missing is described.

While examining nymphal and adult feeding habits, morphological differences were noted between maxillary laciniae of *S. vicinus* and *S. acletus*. *Scapteriscus vicinus* laciniae bear 2 distinct apical, tooth-like processes (Fig. 1, a-c) called "laciniadentes" by Crampton (1923. J. New York Ent. Soc. 77-107). Conversely, distal ends of *S. acletus* laciniae terminate in a single laciniadente (Fig. 1, d-f). Near the apical end of laciniae in 1st instar *S. acletus*, however, is a process protruding from the mesal margin (Fig. 1d) but it is not pointed apically as in *S. vicinus*. This projection has not been observed in later instars nor adults and may be a vestigial process of phylogenetic significance.

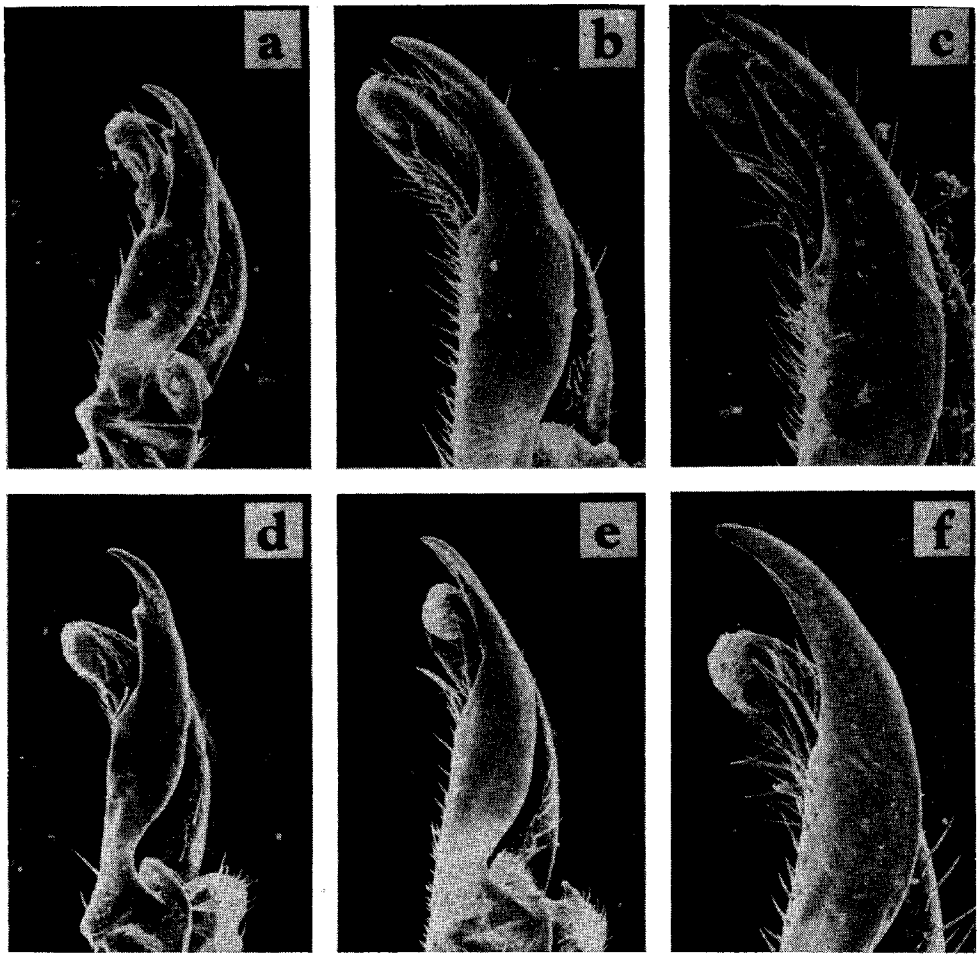


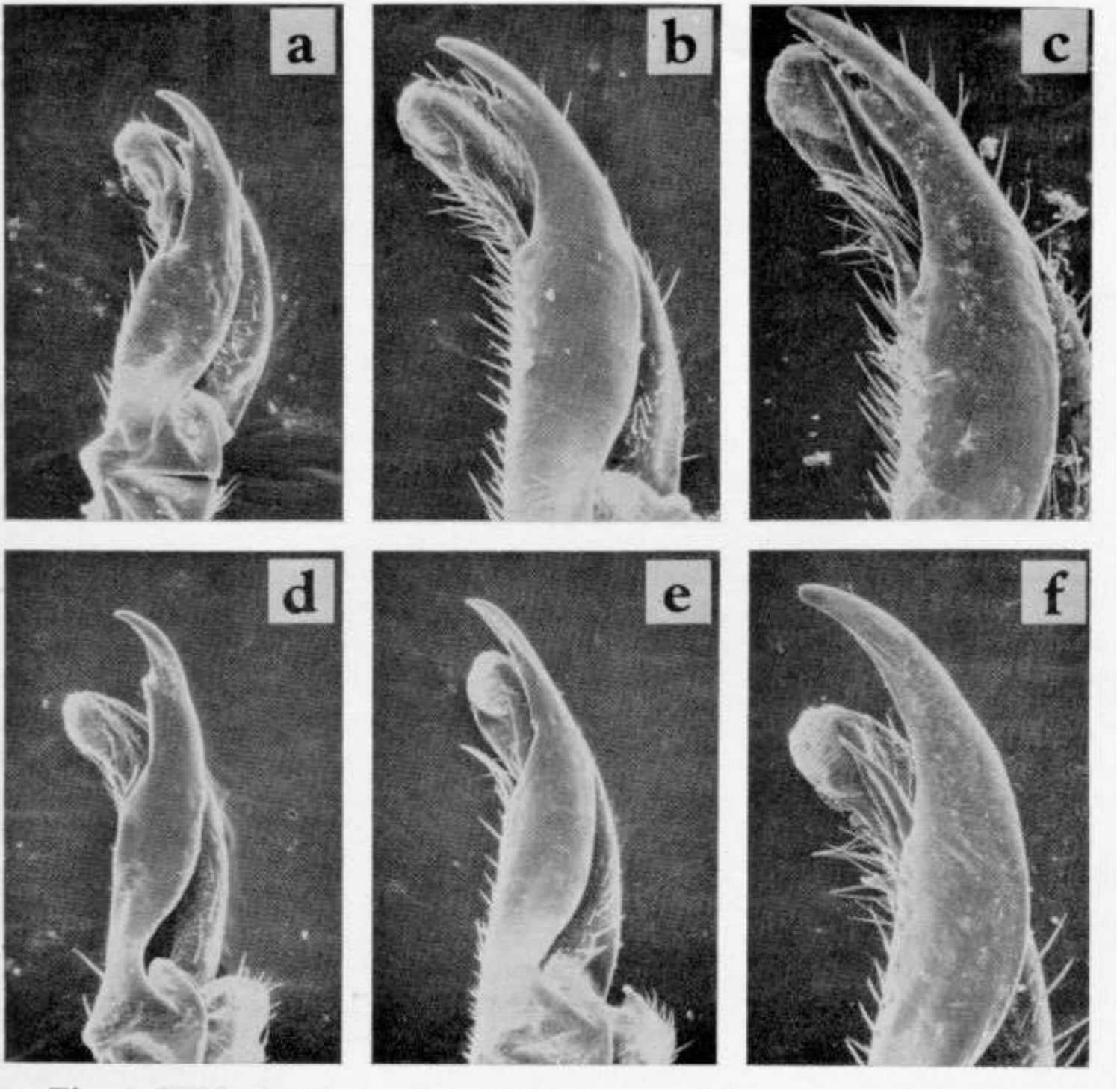

Fig. 1. SEM of mole cricket laciniae: (a-c) *Scapteriscus vicinus* 1st instar (x110), mid-instar (x55), adult (x55), respectively; (d-f) *S. acletus* 1st instar (x110), mid-instar (x55), adult (x55), respectively.

Scudder (1869. Mem. Peabody Acad. Sci. 1: 1-28) published the most recent comprehensive taxonomic key to *Scapteriscus* spp. but made no use of maxillary features. David A. Nickle, U.S.D.A. Systematics Laboratory, currently is revising this group; maxillary structure may be useful in separating other species as well.—E. L. MATHENY, JR., AND R. L. KEPNER, Department of Entomology and Nematology, University of Florida, Gainesville, 32611.

THE EFFECT OF WAXY ENDOSPERM CORN ON RESISTANCE TO THE MAIZE WEEVIL—(*Note*). Chemical constituents of the corn, *Zea mays* L., kernel have been reported (F. S. McCain and W. G. Eden. 1965. Crop and Soils 17: 27-8.) to have an influence on kernel resistance to attack by the rice weevil, *Sitophilus oryzae* (L.). Morales (1975. Philippine Agric. 58: 280-6.) and Villacis et al. (1972. Rev. Peruana Ent. Agr. 15: 147-52.) concluded that opaque-2 corns seemed to be more effective in meeting the nutritional requirements of the maize weevil (*Sitophilus zeamais* Motschulsky) than other corn types.

Waxy endosperm corns have been used as chromosome markers in genetic studies of resistance to the corn earworm, *Heliothis zea* (Boddie) (D. S. Robertson and E. V. Walter. 1963. J. Hered. 54: 267-72.). In addition to being useful as a genetic marking device, some waxy types have been shown to be very susceptible to earworm damage; consequently, they are useful also as a susceptible check or topcross parent (N. W. Widstrom and B. R. Wiseman. 1973. J. Hered. 64: 83-6.). The influence of waxy endosperm on resistance to maize weevil must be known if similar genetic markers and testers are to be used in maize weevil resistance studies. Schoonhoven et al. (1972. Ent. Soc. of Amer., N. Cent. Br. Proc. 27: 108-10.) have demonstrated the importance of pericarp in relation to endosperm tissue in conditioning kernel resistance to the maize weevil. Since isogenic lines are well suited for illustrating the influence of endosperm apart from the pericarp, we chose 10 waxy lines for which isogenic non-waxy starch counterparts were available (Widstrom et al. 1975. Crop Sci. 15: 890) for testing in the present study. Our purpose was to determine the importance of the waxy endosperm character in conditioning seed resistance to maize weevil injury relative to other resistance factors.

Each of the 10 waxy inbreds (GT201wx through GT210wx) and their starchy counterparts were selfed. Isogenic pairs were also reciprocally crossed so that four 100-g lots of seed were available for testing within each inbred group, with each group being composed of lots with 0, 1, 2, and 3 doses of the waxy endosperm gene. Standard procedures, described by Widstrom et al. (1978. J. Econ. Ent. 71: 901-3.), were used to equilibrate and evaluate 5 replications of each sample. Results from data recorded on percentage weight loss/sample and number of weevil progeny produced/sample were identical; therefore, only percentage weight loss data will be discussed. Percentage weight losses varied significantly ($P = 0.01$) among inbreds, ranging from 11.5% for Mp464 to 27.0% for GT112, indicating that substantial differences also exist among these inbreds for resistance due to pericarp and factors other than waxy endosperm, because all inbred groups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