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## MODIFIED RIKER INSECT MOUNT FOR USE IN TEACHING

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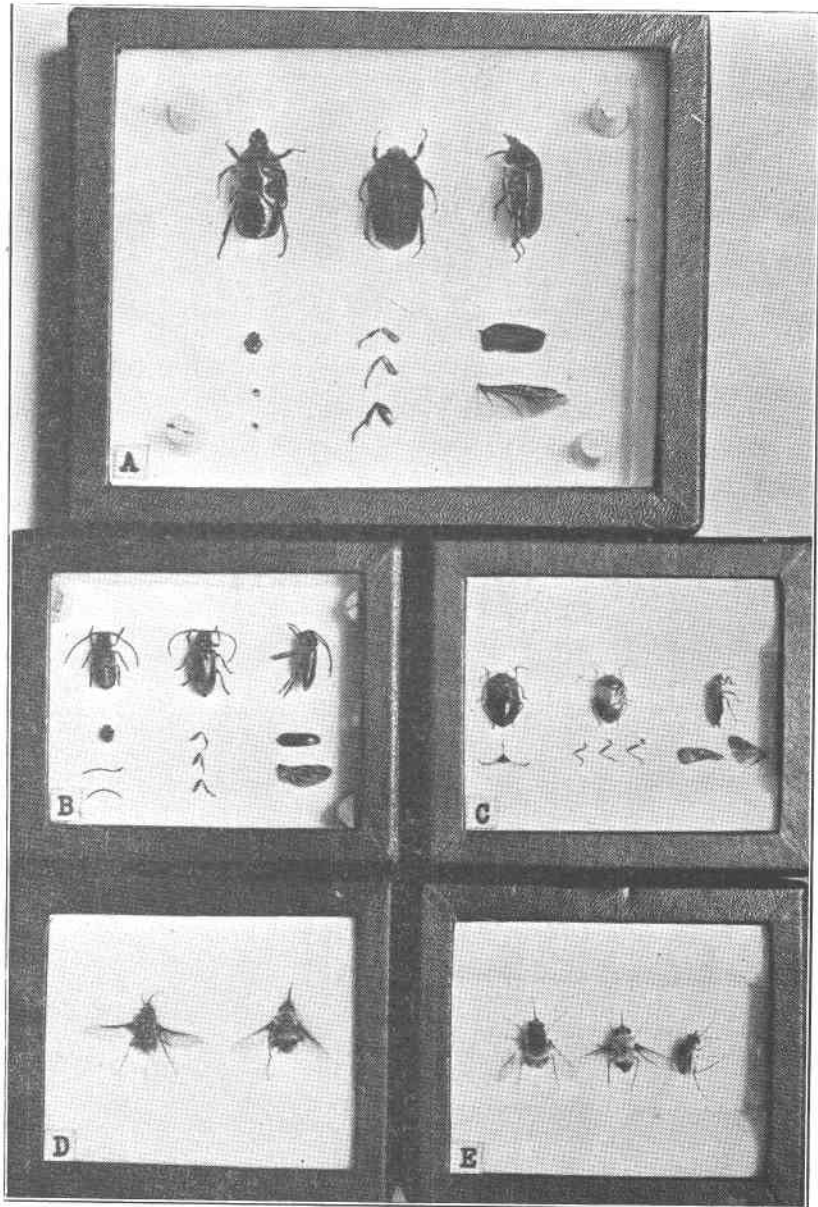
Effective instruction in entomology requires, among other things, that the student have the opportunity to see and examine to his satisfaction the insects dealt with in the course. This statement applies not only to courses in systematic and taxonomic entomology but to introductory courses and to such courses as field crop insects, truck and garden insects, stored product insects, fruit and nut insects, household insects, forest insects, medical entomology and the like. Surely, the instruction is seriously deficient where the student's acquaintance with the insects is limited to what he may hear in a lecture, or read or see in illustrations in a book.

An insect mount for teaching use should meet several specifications. It should be a mount that can be used year after year without becoming broken or otherwise mutilated. It should be convenient to handle during study and to store when not in use. The insect should be posed in a natural, life-like manner, with the appendages symmetrically arranged and in correct perspective. Thus mounted, the insect is properly displayed for photographing, for drawing and for passing appreciation or discriminating study. Where taxonomy and specific characters of identification are concerned in the course, all the parts mentioned in keys or descriptions should be displayed so that they can be readily seen by the student. To fulfill this requirement, it may be desirable to have specimens posed in dorsal view, in side view, and in ventral view. In addition, it may be desirable to have the wings, legs, antennae or other distinguishing parts displayed separately in the same mount.

The conventional Riker mount is easy to make but it does not adequately meet the requirements above indicated. The insect is imbedded in cotton and, therefore, is not displayed in a natural pose nor in normal perspective. Most of the body is hidden in the cotton and such parts as are exposed to sight can be viewed only from one direction. The appendages become pressed out of natural shape under the glass cover. The glass becomes fogged by volatile substances given off by the body and as a result it must be cleaned periodically. Legs, antennae, wings and other parts mounted separately on the cotton adhere to the glass and become displaced and sometimes broken when the glass is removed for cleaning. On the other hand, the insect and parts are held securely in place and the mount withstands rough handling without the specimens becoming broken or displaced.

The modified Riker mount (Plate XV) in use at the University of California at Los Angeles is described as follows: The insects and parts are fastened with a suitable glue to a section of glass, and a cork of suitable length is glued to each corner of the glass. A portion of the cotton is removed from the Riker box, the section of glass is pressed upon the remaining portion and is held in place by the pressure of the glass cover upon the four corks. Where the mounts are to be used for instruction in systematics and taxonomy, three insects are mounted on each section of glass, displaying dorsal, lateral, and ventral views. The wings, legs and antennae from one side of the body of a fourth insect are mounted. Where desirable, the head of the fourth insect is mounted to give a

## PLATE XV.



Showing four modified Riker mounts (A, B, C, E) and one conventional type Riker mount (D). The two mounts at the bottom show the same species of bombyliid fly in a conventional mount (D) and in the modified mount (E).

full view of the front aspect. The corks are long enough to keep the insect from touching the glass cover. The technique of making the mount is described as follows: The freshly killed or fully relaxed insect is placed on a piece of balsa wood. Where the dorsal aspect is to be shown, the legs and antennae are arranged in their natural positions and are held by pins until they have thoroughly dried. Where the lateral and ventral aspects are to be shown, the appendages are arranged so as to be readily visible and are held by pins until they have thoroughly dried. The specimens may be dried quickly in an oven. When dry the insect is held with a fine-pointed, flexible forceps and a copious quantity of glue is applied to the portion of the body that is to rest upon the glass section. The insect is then held correctly oriented and placed directly down in the desired position on the glass. It is pressed gently to cause the glue to make a good contact with the glass. Lantern slide covers are used as glass sections with Rikers 4" x 5" in size, and when cut in half they serve with Rikers 1½" x 3" in size.

Insects in this type of mount can be studied with real satisfaction under a wide-field microscope. All aspects can be seen except that facing the glass section. To focus more directly upon lateral and terminal aspects, the mount can be tipped. In this way a given part can be viewed from different directions. The insect is far enough away from the cover so that the glass does not become fogged by emanations from the body. Owing to this fact the cover may be sealed with lantern slide binding tape and the Riker is thereby permanently protected against the entrance of dermestids. As compared with the conventional Riker mount, this modified mount has two shortcomings. Much more time and skill are required in making the mount than are required in making the conventional mount. The latter may be dropped to the floor without serious damage resulting to the specimen. However, the modified mounts in use at the University of California at Los Angeles have stood routine usage without damage. Care should be exercised to apply an ample amount of glue to the body and to get the insect on the glass before the glue has dried or become encrusted. A glue that tends to crystallize or become brittle is unsatisfactory. The actone-cellulose or amyacetate-cellulose type of glue has been found to be satisfactory. The particular trade products used are "Ambroid liquid cement" and "Arrowhead liquid cement."

The two mounts of a bombyliid shown at the bottom of Plate XV present a comparison of the conventional Riker mount (D) and the modified mount (E). In making the former, the fully relaxed flies were arranged on the cotton. The legs were outstretched but became pressed out of normal shape and partly concealed in the cotton when the cover was applied. In removing the cover to clean the fogged inner surface, the legs became broken and the pieces were lost, or became buried in the cotton.

In the systematic part of the introductory course in entomology, the student is required to study and classify, with the aid of keys, insects that are representative of the more important families of every order. The laboratory accommodates twenty-four students, there being six benches, each seating four students. For every species studied, there are six Riker mounts identically alike, one mount for each bench. At the beginning of an exercise several Rikers, representative of a corresponding number of families, are placed on each bench. Every student at the bench studies each Riker. Following the exercise the Rikers are assembled in sets of six, and placed in storage. In making up the Riker mounts in sets of six, a layout of the position of the different views and parts is first made on a piece of paper the size of the glass section on which the insects are to be glued. The glass section is placed on the layout, and the insects and parts are superimposed in their respective positions.