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THE PREPARATION OF BEETLES FOR THE MICROSCOPE.

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Twenty-five years ago the use of the compound microscope in the study of beetles was comparatively uncommon, nearly all collectors being satisfied to do what they could with a hand lens and to take the rest on trust, sending the majority of their smaller captures to some "authority" whose word must necessarily be law. There is now a decided and growing tendency in America to break away from the traditional method of obtaining names, and this feeling is reflected in several letters received from correspondents asking information on matters of technic. The accompanying notes are offered as an outline which may be followed at light expense by any one who has access to a microscope, and while no originality is claimed for the processes, they are presented in this form in hope that they may benefit some student who has not the privilege of studying under professional supervision, and who is without manuals on microscopical methods. While capable of extension and modification in many directions, the plan here outlined suffices for all ordinary study of external structures so far as they concern the present-day classification of Coleoptera. Larvæ may be prepared in the same way.

Such structures as those pertaining to the sclerites of the ventral surface, the main points of sculpture and vestiture, the insertion and general form of the antennæ, and even the shape and armature of the mentum may be made out with comparatively little difficulty in all but the smallest beetles by any one who has a good hand lens and who will take pains to compare these structures as illustrated by a few identified forms with those he desires to investigate. In other words, progress should be from the known to the unknown rather than the taking up of the latter as a distinct proposition. Ordinarily the parts requiring investigation under high power are the legs and antennæ of small species, with the aim of determining accurately the number and proportions of the joints, the extent of ankylosis, and so on; the mouth-parts of even the larger