To check these field observations, 23 oyster drills and three moon snails were placed together in a laboratory aquarium. At the end of 4 mo, one moon snail and one oyster drill were alive. The other two moon snails and 22 drills had been eaten by the moon snail(s).

It is possible that some cases of drill death previously attributed to cannibalism were cases of moon snail predation.

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Reference

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Brochosomes and Leafhoppers

Brochosomes (Gr. βρόχος, mesh of a net; σῶμα, body) are hollow spheroids varying in diameter from 240 to 600 mμ which, because of a fixed arrangement of high and low electron-scattering areas, appear as netted bodies. They are found on the wings, wing scales, and hairs of many insects [G. S. Tulloch and J. E. Shapiro, *Bull. Brooklyn Ent. Soc.* **48** (3), 57 (1953)]. Their regular occurrence on a large number of leafhoppers representing several species from widely separated areas in the United States suggested that the brochosome-leafhopper association was not a casual one. Further studies dealing with the geographic range of this relationship are reported here along with data obtained by following the development of one species of leafhopper from egg to adult.

Leafhoppers were obtained from many sources throughout the world and prepared for examination under the electron microscope in the following manner. Wings were removed and placed in a drop of water on Formvar-filmed 200-mesh screening and allowed to dry at room temperature. By this technique, the wing is flattened and fixed to the film and some of the brochosomes, which are easily dislodged, are pulled to the periphery of the drop of water and there become fixed to the clear film. As a result of this survey, leafhoppers positive for brochosomes have been recorded from the United States, Mexico, Panama, Cuba, Jamaica, Peru, Belgian Congo, India, Pakistan, and China. Thus far, not a single leafhopper, regardless of its geographic origin, has been found free of brochosomes. Although material from Europe and Australia has not been examined, there is good indication from the available data of the universal nature of the brochosome-leafhopper association.

Other studies have been concerned with the presence or absence of brochosomes in the egg and in the several instars found in the development of the aster leafhopper, *Macrosteles divisus,* obtained from a laboratory colony. The eggs were removed from the host-plant tissues and from the female, macerated in a drop of water, and allowed to dry on the Formvar film. Since the early instars lack wings or wing pads, body fluids were utilized by employing the smear technique. For the older instars, the wings were mounted directly on the Formvar. Examination of these preparations under the electron microscope revealed that (i) eggs removed from the female as well as those dissected from plant tissues 1 and 8 days following deposition were negative; (ii) all specimens from the different instars, prepared either from body fluids or wing surfaces, were positive, although the body fluid material (instars I and II) gave a smaller brochosomal yield than the wings of the later instars.

The close association of brochosomes and leafhoppers both geographically and developmentally indicates that this relationship is not fortuitous. The presence of brochosomes in the body fluids suggests that they may be metabolic derivatives which reach the surface of the body through the pore canals.

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Limitations of the Symmetry Criteria for Optical Inactivity and Resolvability

Renewed interest in the subject of optical inactivity (*1*) has stimulated the present inquiry into the generality of symmetry criteria.

The criteria employed for predicting optical activity or nonactivity from a knowledge of the structure of a compound have evolved, in the historical sense, from Pasteur's original broad recognition of molecular dissymmetry, through Le Bel and van't Hoff's somewhat more restrictive theory of the asymmetric carbon atom, to the presently accepted view that from symmetry properties of the molecule alone one may be able to predict resolvability or the lack thereof (*2*). These views, in their modern context, may be stated briefly as follows.

Given the structural formula of a compound and some understanding of the energy barriers restricting bond distortion, it may be supposed that each molecule in the statistically significant aggregate is capable of assuming a number of reasonable conformations which, through bond rotation and distortion, are mutually interconvertible. In all cases so far considered, without exception, there exists at least one conformation (the "symmetry conformation") that possesses reflection symmetry—mirror-axes, for example, point, plane, or four n-fold alternating axis of symmetry; this conformation can be superimposed on its mirror image by the application of symmetry operations alone. The remaining dissymetric conformations are evenly distributed between nonsuperimposable enanti-