

## MINUTE SHELLS - Part 1

by Bert Draper

Probably every collector of shells has soon come to the realization that many of the small shells he or she finds are not just very small juveniles of much larger species. Within the Molluscan fauna of our Pacific West Coast, there are more species of small to minute mollusks than there are of those which grow larger. This is based on the selection of an arbitrary size of ten millimeters (about 3/8ths of an inch) as the dividing line between large and minute species. This poses some problems as certain species normally are under ten millimeters at mature growth, but occasionally grow larger. Also there are some genera in which all species on our Coast are under ten millimeters except one or two that exceed that size slightly. In my collection of minute shells I have included these exceptions.

Of course many juvenile shells of species which grow much larger than ten millimeters will be found, and the problem of recognizing these shells is often a difficult one. Quite often these juveniles appear quite different from the mature shells of their same species. A study of the early whorls of larger shells such as the Turrids, Murexes, Fusinus, Cones, and Bubbles will give some clues as to what their juveniles should look like. Establishing growth series of the more plentiful species of these groups will prove helpful in learning how to separate the juveniles of larger species from the true minute shells.

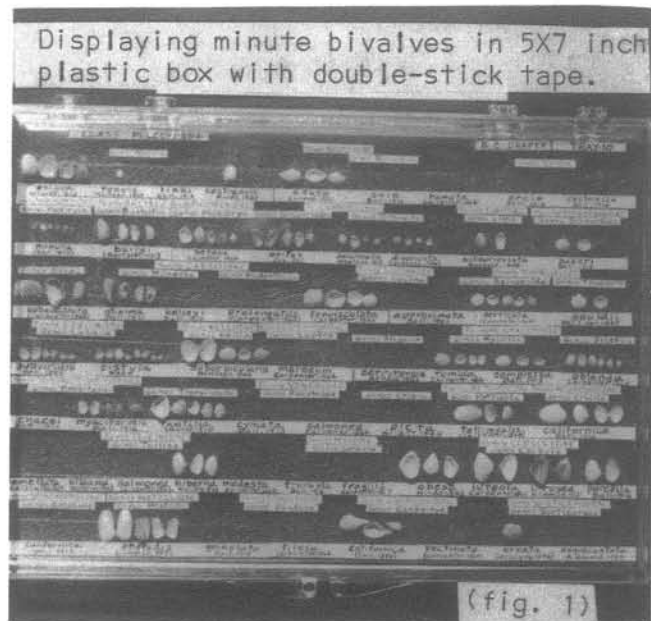
Of the approximately 82 families of Gastropods, about half include from one to many species of minute mollusks. A number of these families, at least on our West Coast, include only minute species, such as Rissoidae, Vitrinellidae, Cerithiopsidae, and Pyramidellidae. In Pelecypoda, at least 26

families out of 56 on our Coast include minute species. There are also several minute species in Scaphapoda, and quite a few in Polyplacophora (the Chitons).

This then brings us to a point of decision: whether to include the minute shells with the larger shells in the accepted taxonomic order, or to keep them as a separate part of our collection. The latter method I have adopted and I will discuss further how I have done this.

My first consideration was to keep them in the same taxonomic order as my larger shells. I am using the same order as Dr. James McLean used in his book, MARINE SHELLS OF SOUTHERN CALIFORNIA. For study and comparison purposes I have prepared a series of flat 5 by 7 inch clear plastic boxes with spaces provided for all species I have been able to find information on from our West Coast and which normally do not exceed ten millimeters in size. By placing strips of double-stick clear plastic tape across the entire inside bottom of the flat boxes, I am able to set the tiny shells in their proper places and remove them for study as desired. I use strips of self-adhesive labels and print the names and data with a crow-quill pen and India ink. The photo (fig. 1) shows my Pelecypod tray.

For the balance of my minute Shell Collection I am using 1 by 1 inch and 1 by 2 inch clear plastic boxes with double-stick tape, a separate box for each species from each location. On all of these plastic boxes I attach a layer of eighth-inch thick Art Foam in a contrasting color, using a narrow strip of transparent tape along the hinge edge of the box. This permits the colored foam to be swung back to look at the under side of the shells through the box. To keep these small



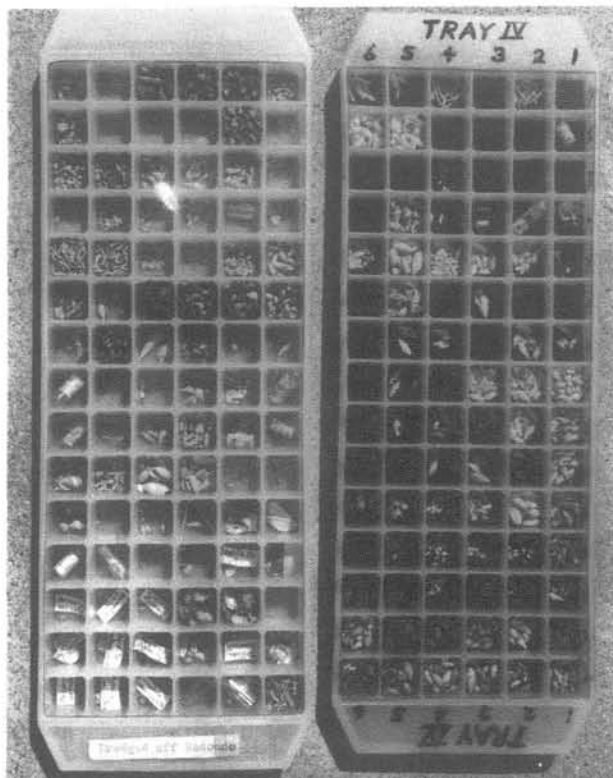
boxes in an orderly arrangement, shallow cardboard boxes can be used to hold related species as shown in one photo (fig. 2). This also shows how a seven-inch recording tape box can be used for the same purpose as well as a means of safely transporting the small boxes of shells.

For storage of minute shells, several methods are possible. The small plastic boxes serve quite well for loose storage of small shells, or to hold small capsules with the tiniest shells being placed in them for safety. Small plastic bags may also be used, especially the self-sealing type, but there is more danger of crushing the tiny shells. For larger quantities of surplus shells from a single locality, I use plastic half-inch ice cube trays, as shown in one photo (fig. 3). A piece of clear rigid plastic can be cut just large enough to fit tightly over the tray to keep the shells from falling out. Some people use the small plastic boxes with plastic foam inside to hold the shells in place, but I find this makes removal of shells for study rather treacherous as the shells are often flipped by the springy foam when you start to pick them up or place them back. Use of double-stick tape permits the shells to be studied under a microscope without removing them, simply

by placing the opened box under the scope. Some very delicate minute shells may be crushed when trying to remove them from the sticky tape. It is better to place them in the smallest size capsules, then put the capsules on the sticky tape. Some Museums use micromounts for keeping the tiny shells safely. (fig. 4). These can be opened by pushing the plastic window out of the mount with a pair of pointed tweezers. Such mounts can be purchased from scientific supply companies.

Identification of the minute Shells is often not an easy matter. Many of the better known species can be quickly identified from the figures and descriptions in such books as Dr. McLean's MARINE SHELLS OF SOUTHERN CALIFORNIA, Percy Morris' 2nd Edition of the FIELD GUIDE TO SHELLS OF THE PACIFIC COAST AND HAWAII, and Tucker Abbott's AMERICAN SEASHELLS. But when a shell cannot be found in any of these



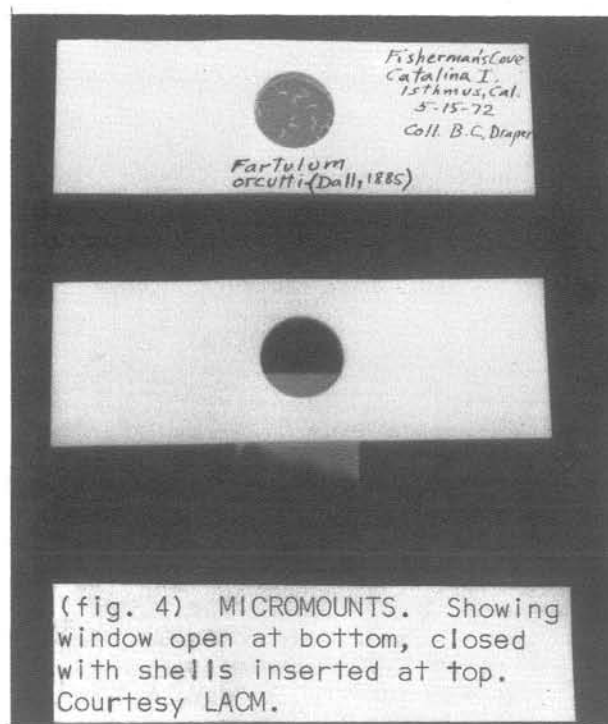


(fig. 3) Surplus minute shells stored in half-inch ice cube trays.

books it may be much more difficult to get a dependable identification. Dr. Myra Keen's 2nd Edition of SEA SHELLS OF TROPICAL WEST AMERICA lists all known Panamic species of minute shells and figures of typical shells of each genus are given. This may help to find the correct genus if the shell in question is in a genus that is found in the Panamic Province. But to pin it down to the correct species may require considerable research. Ida Oldroyd's MARINE SHELLS OF THE WEST COAST OF NORTH AMERICA may be very helpful, but is quite out of date on family and generic names, and only gives figures of part of the shells listed. Ida Oldroyd simply provided copies of the type descriptions and such figures of the shells as she was able to locate. She does give English translations of those descriptions that are in Latin or other tongues, although sometimes they leave quite a bit to be desired.

Much work must still be done on most of the families and genera of minute shells. Few have been reviewed

and updated since the first third of this century, and in the light of the greatly increased number of specimens now available for study among the collections of just our West Coast area, many changes will need to be made in the identifications of our minute shells, as fast as workers can find time to do the research and study necessary. A good example of what I mean is the work done by Eugene Coan and Barry Roth on the Marginellidae. This is one of the few families for which good up-to-date information is available. Several other families are being worked on at the present time but it will be several years before a truly comprehensive book on West Coast Shells from North of the Panamic Province will be possible, if all of the minute species are properly included. Comprehensive coverage of the Panamic minute shells is, in all probability, even farther in the future.



(fig. 4) MICROMOUNTS. Showing window open at bottom, closed with shells inserted at top. Courtesy LACM.

In Part 2 I will discuss the sorting of minute shells from grunge, their handling and cleaning, and a bit on the use of photography in the study and identification of minute shells.

(Photos by Bert Draper)