

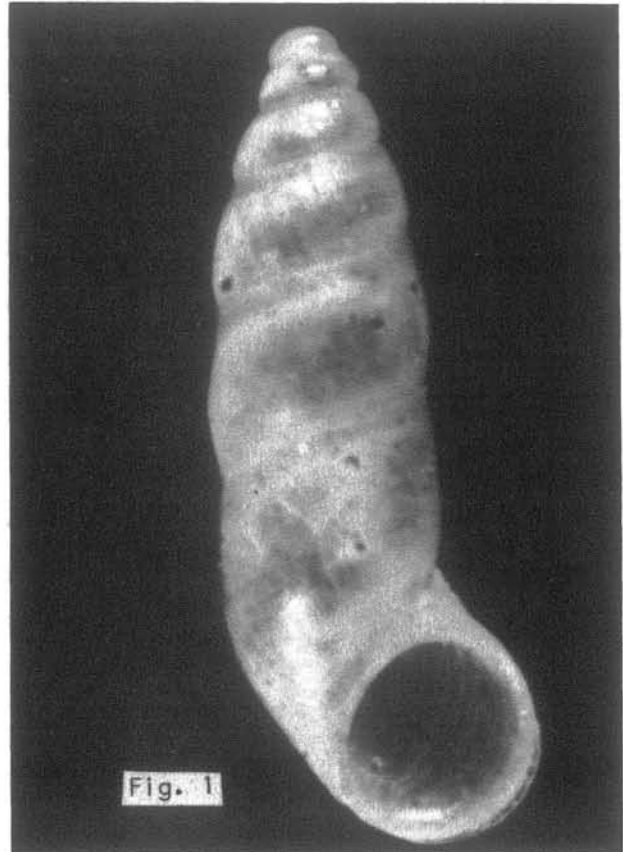
## MINUTE SHELLS - Part 6

by Bert Draper

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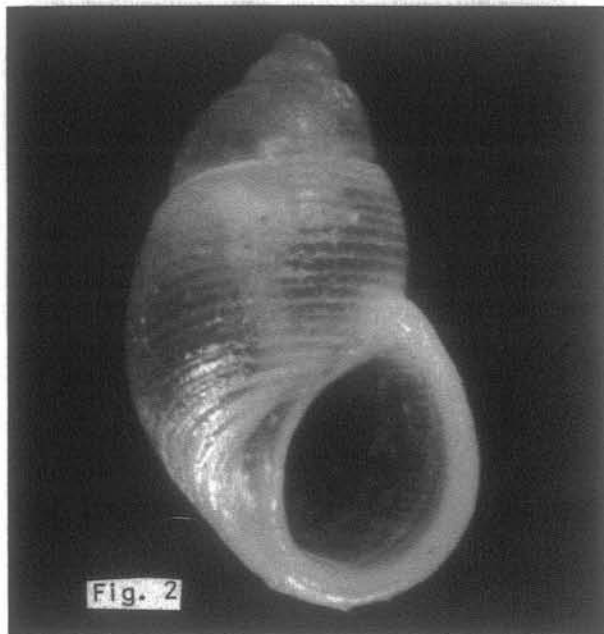
Three genera of the family Rissoiidae were discussed in Part 5. Several additional genera of this family are also represented in the eastern Pacific. The genus *Anabrathron* Frauenfeld, 1867 is represented by one or two species living in cold waters off Alaska down to Vancouver Island, Canada. These minute mollusks have a white shell with one or two spiral keels and an aperture similar to *Alvinia*. Another genus, *Nannoteretispira* Habe, 1961 is represented by a single species, *N. kelseyi* (Bartsch, 1911). This species has a tiny shell, less than 2 mm in length. It is found over a wide range, all the way from the Galapagos Islands of Ecuador to southern California. Their minute size (they can usually be found only with a microscope) may account for their being so seldom represented in collections. Figure 1 shows their shape and features quite well. Their color is bluish or grayish white, almost transparent.

The genus *Cingula* Fleming, 1828 is represented by at least ten species, all but two of which have been described from Alaska and Canada. These are quite small smooth shells with a round aperture set well out from the body of the shell and with a complete lip or peritreme around the aperture. The color ranges from blue-white through yellow to dark horn color. A somewhat larger species, *C. montereyensis* Bartsch, 1912 was named for shells found off Monterey, California. The shells are rather slender but with well rounded whorls, reach at least 4 mm in length and are light brown with lighter color inside the aperture. One other species, *C. californica* Tryon, is said to have been taken from San Francisco Bay and from San Pedro, California, but this dark horn-colored shell has not shown up in any recent material so far as I know.



*Nannoteretispira kelseyi* (Bartsch, 1911)  
Lunada Bay, Palos Verdes, Calif. 1967.  
Legit. Bert Draper. Length 1.8 mm.

A closely related genus, *Onoba* H. & A. Adams, 1852 is shown with two species listed in Myra Keen's "Sea Shells of Tropical West America", but little appears to be known of these two species. Another genus, *Rissoella* J.E. Gray, 1847 is no better known. It was formerly known as *Jeffreysia* Forbes & Hanley, 1850. Seven species have been assigned to this genus; two are questionable. Figure 2 shows one *Rissoella* shell which I found in the Los Angeles County Museum collection. Although I am unable to identify it as to specific name, it does show the typical *Rissoella* characters. These shells



*Rissoella* species from Punta Ancon, Ecuador. From L. A. Co. Museum Coll. Legit. J. McLean, March 1973. Length 2 mm.

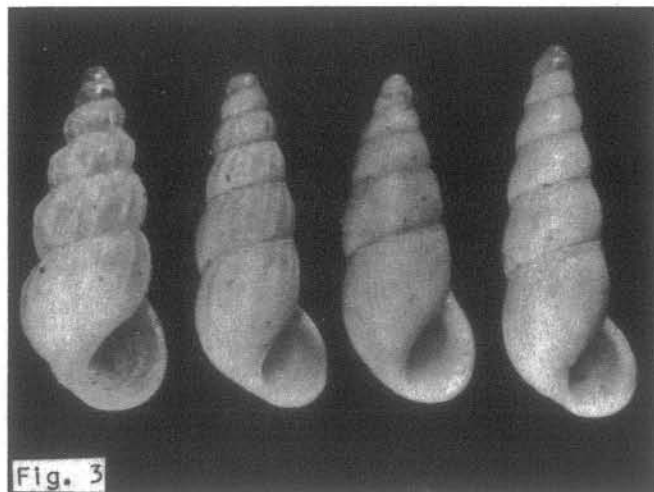
seem to fall between the genera *Alvinia* and *Barleeia* in shape and sculpture.

The genus *Rissoina* Orbigny, 1840 is certainly much better known and represented than the previous five genera. Myra Keen's book places this genus in the family Rissoinidae, while James McClean placed it in Rissoidae. Regardless of which family it belongs to, it has over fifty species which have been described from the eastern Pacific and these have been divided into at least four subgenera by some authors. Eventually when someone does a thorough study on this genus, I believe a considerable number of the names will go into synonymy, reducing the total number of valid species accordingly. While many of the *Rissoina* are quite variable in their sculpture and shape, there is also noticeable variation between adults and juveniles all leading to possible duplication of names.

As to distribution, *Rissoina* species are found along the entire Pacific coastline, with the greatest concentration to the south. One species *R. newcombei* Dall, 1897, is found only in cold waters, from Vancouver to Al-

aska. It is a tiny species, seldom over 3 mm in length, yellowish-white in color, with many fine, slightly curved axial ridges, about 40 on the final whorl. Every fourth or fifth ridge is stronger and lighter in color. This species resembles one of our southern California species, *R. bakeri* Bartsch, 1902 except that *R. newcombei* has flatter whorls and a few more axial ridges.

Figure 3 shows four of the five small species found along the southern California coast. They are *R. bakeri*; *R. californica* Bartsch, 1915; *R. coronadoensis* Bartsch, 1915; and *R. dalli* Bartsch, 1915. Although they all appear to be quite similar, closer study will show differences in shape of the whorls, type of axial sculpture and thickness of the outer lip. The fifth of our smaller species is *R. cleo* Bartsch, 1915, which resembles *R. californica* in size and shape, but its axial ribs are more numerous and more closely spaced.



Four small species of So. Calif. *Rissoina* from Coll. of Bert Draper. Left to right - *R. bakeri* Bartsch 1902; *R. californica* Bartsch, 1915; *R. coronadoensis* Bartsch 1915; and *R. dalli* Bartsch, 1915. All from San Pedro Calif. area. Collected 1960-1964. Length of largest shell 3.6 mm.

One other species is found along the southern California coast as well as Outer Baja California. *Rissoina kelseyi* Dall & Bartsch, 1902, is shown in Figure 4. The shells of this spe-

cies have axial and spiral sculpturing but only the spiral grooves continue on the latter whorls. This is different from any other species of *Rissoina* on our coast, so it is possible that this species should be placed in a different genus. The color is yellow to rosy flesh color and the operculum is dark reddish-brown. In size this is the largest species north of the Gulf, attaining a length of up to 6.5 mm.

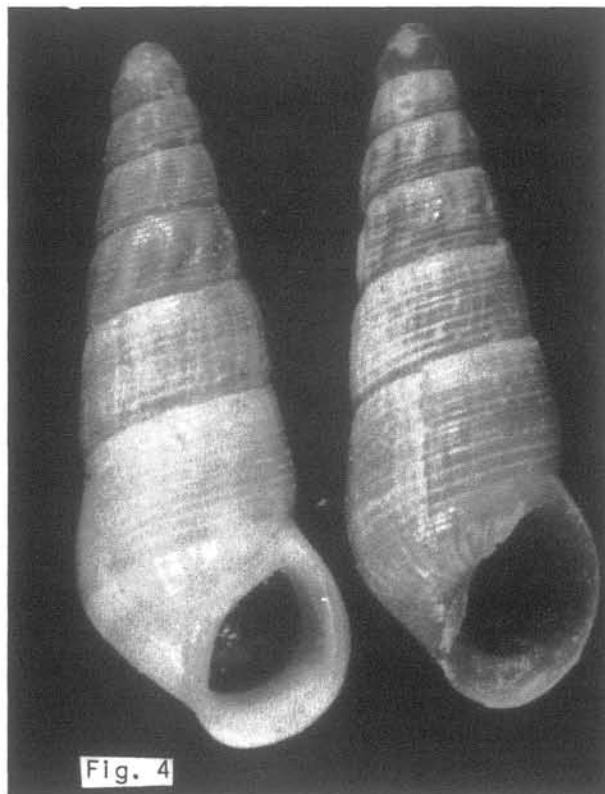


Fig. 4

*Rissoina kelseyi* Dall & Bartsch, 1902. Collected by Emery Chace, at Malaga Cove, Palos Verdes, Calif. 1935, now in collection of Bert Draper. Length 6 mm.

In the Panamic Province the genus *Rissoina* is much more extensively represented. No less than 44 species have been named and these have been divided into four subgenera. After examining many hundreds of these shells from many locations of our tropical Pacific waters, I am of the belief that quite a few of these named species have two or more names, and much work is needed

to clear up the status of this genus. For example, the shells that Menke named *R. stricta* in 1850 appear to be the same as those C.B. Adams called *R. fortis* in 1852 and Bartsch called *R. mazatlanica* in 1915. A Mexican form, *R. gisna* Bartsch, 1915 appears to be the same species as *R. io* from the Galapagos Islands which he described in the same bulletin.

Figure 5 shows *R. stricta* Menke, 1850; *R. gisna*; *R. dina* Bartsch, 1915; and *R. firmata* C.B. Adams, 1852. This latter species is somewhat smaller than the other three and has fewer more widely-spaced axial ribs. In addition, a spiral sculpture of many fine grooves extends over the entire shell, while the spiral grooves of the other three species are limited mainly to the lower part of each whorl. The next photograph (Fig. 6) shows an enlarged view of *R. firmata* illustrating most of the characteristics including its semi-transparency.

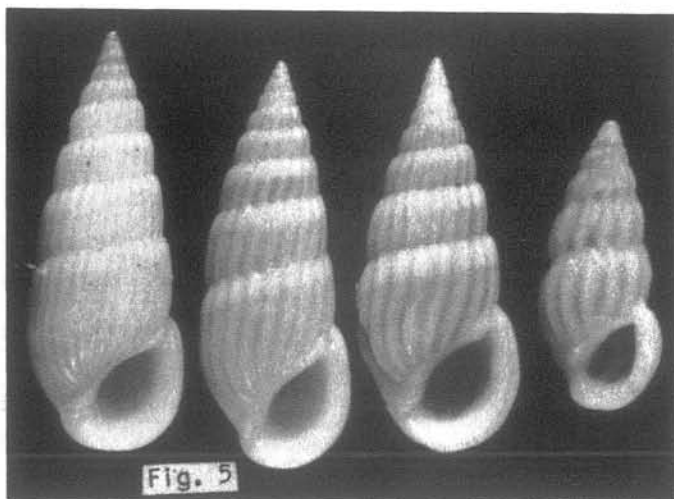
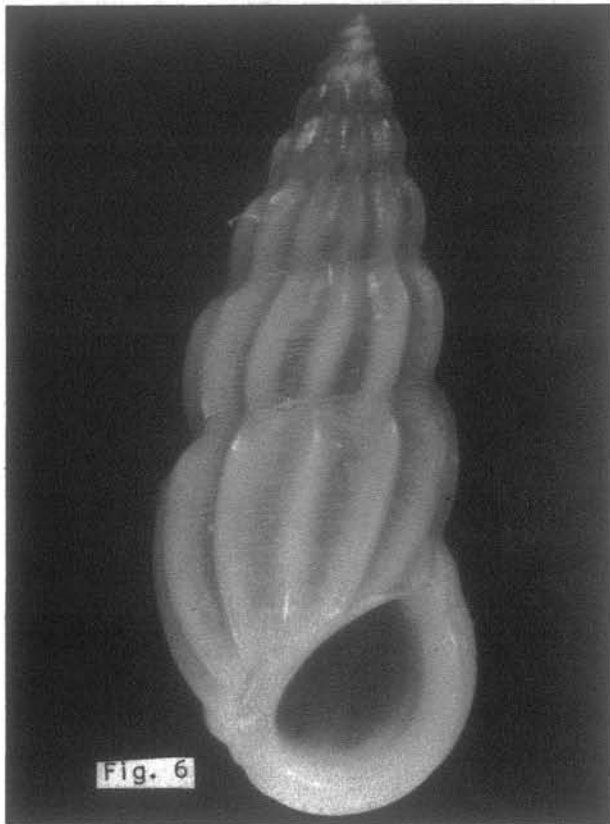


Fig. 5

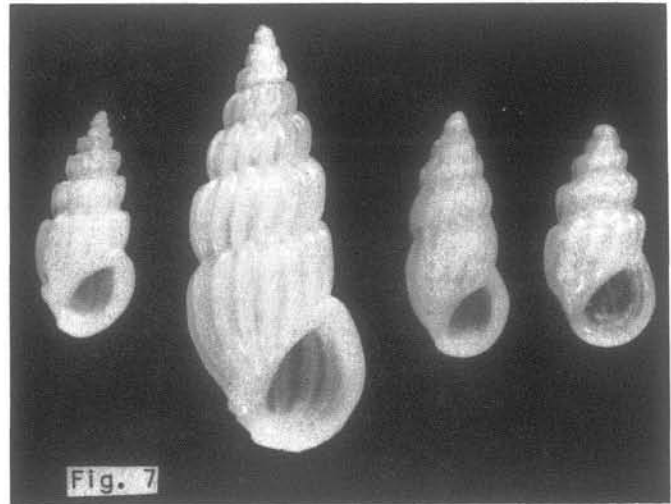
Four of larger species of Panamic *Rissoina* Left to right - *R. stricta* Menke, 1850, from Punta Penasco, Son. Mex. E. P. Chace *R. gisna* Bartsch, 1915, from Guaymas, Mex., Ruth French; *R. dina* Bartsch, 1915, from Galapagos Is., Ellen Brennan; and *R. firmata* C.B. Adams, 1852, from Guaymas, Mex., R. French. All from the collection of Bert Draper. Largest shell 7 mm.



*Rissoina firmata* C.B.Adams, 1852, from Cabo Pulmo, Baja Calif. Legit. J. McLean, 1966. Coll. of L.A. Co. Museum. Length 4.6 mm.

The photograph (Fig. 7) of some of the smaller species of Panamic *Rissoina* shows *R. signae* Bartsch, 1915, a beautiful minute species which turns up in grunge anywhere from the upper Gulf of California to the Galapagos Islands and northern Peru; *R. burragei* Bartsch, 1915, a little larger than the other three and similar to *R. firmata* except for the lack of any spiral sculpture; *R. clandestina* C. B. Adams, 1852 which resembles *R. mexicana* Bartsch, 1915 and *R. woodwardi* Carpenter, 1857; and *R. porteri* Baker, Hanna & Strong, 1930, a very tiny species from the Galapagos Islands.

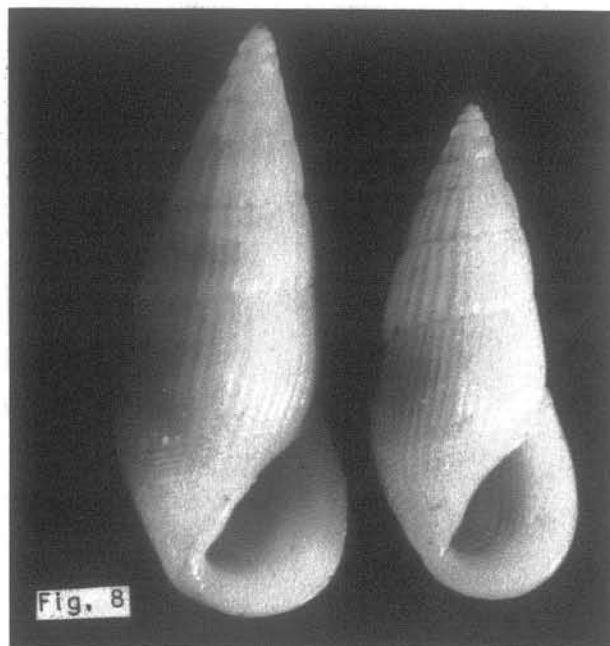
Among the larger species of Panamic *Rissoina* there is a group of species which have much finer axial sculpture with 40 or more closely spaced axial ribs on the final whorls. Five such species are *R. adamsi*, *R. bartholowi*, *R. peninsularis*, and *R. town-*



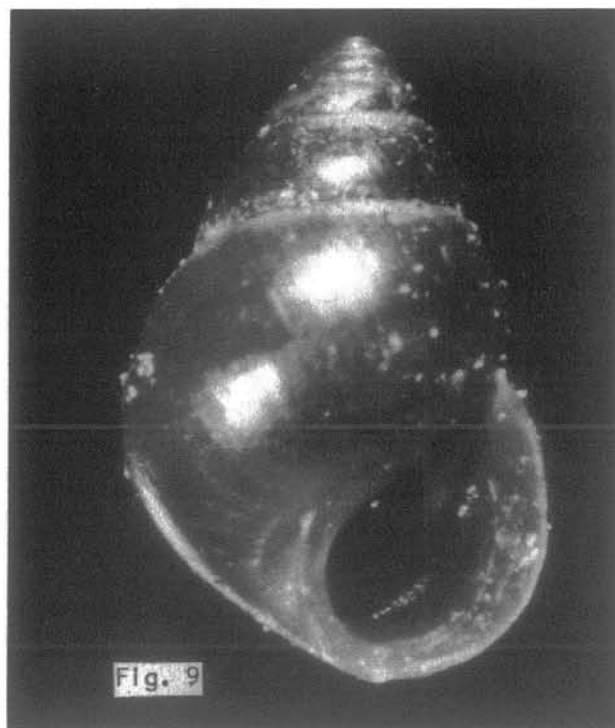
Four smaller species of Panamic *Rissoina*. L. to R.- *R. signae* Bartsch, 1915. Piedras Blanca, Nay. Mex. Legit. C. Snell, 1967. *R. burragei* Bartsch, 1915. Punta Penasco, Son. Mex. Legit. Emery Chace, 1959. *R. clandestina* C.B.Adams, 1852. Chamizal II Exp., E. of Willard Is., Baja Calif. Legit. J. Woolsey, 1969. *R. porteri* Baker Hanna & Strong, 1930. Galapagos Is., Ameripagos Exp. Legit. J. Grundman, 1971. Largest shell - length 4.8 mm.

*sendi* all authored by Bartsch in 1915, and *R. zelterni* deFolin, 1867. I have been unable to find good examples of most of these but have shown two (Fig. 8) which appear to match the descriptions of *R. peninsularis* and *R. townsendi*. This group and the many others listed in Keen, without descriptions, point up the challenge offered by this genus to someone who wishes to specialize in the genus *Rissoina*.

Another family in the large superfamily Rissoacea is Assimineidae. We have only one genus on the coast of western America, *Assimineia* Fleming, 1828. It is represented by just three species, two restricted to the Panamic Province and one which ranges from Canada down at least to the Gulf of California. The latter species is *Assimineia californica* (Tryon, 1865) which has been known under other names including *Jeffreysia translucens* Carpenter, 1864; *Syncera translucens* (Carpenter, 1864) and *Syncera magdalensis* Bartsch, 1920. A shell which has



Two of the larger Panamic *Rissoina* with finer axial sculpture. Left to right - *R. peninsularis* Bartsch, 1915  
*R. townsendi* Bartsch, 1915 - both from Saldita Cove, Son. Mex. Legit. J. McLean, 1968. Coll. of L.A. Co. Museum. Larger shell 5.6 mm.

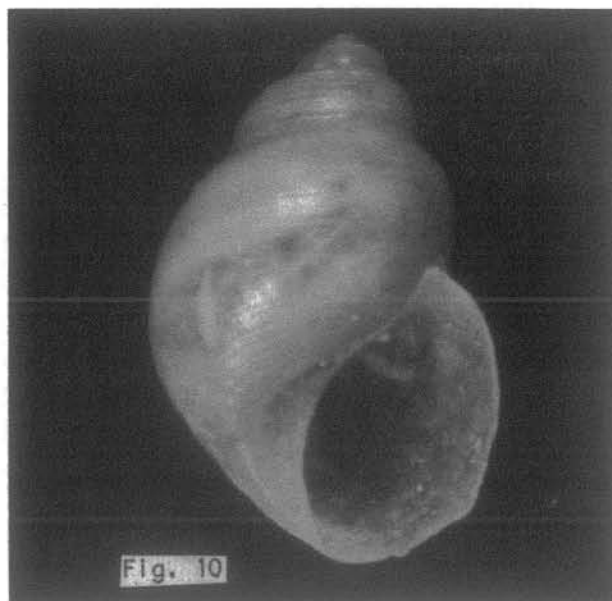


*Assiminea californica* (Tryon, 1865).  
White's Point, San Pedro, Calif. 1962.  
Legit. Bert Draper. Length 2.7 mm.

had so many names might be expected to be rather spectacular, but this one hardly qualifies for such a description. It is small, well rounded, usually of dark horn-color or brown, with no sculpture, and when taken live it is very translucent, showing the body through its shell. However, after it dies, the shell quickly loses its transparency and fades to a dull opaque tan.

The other two species, *Assiminea compacta* (Carpenter, 1864) and *A. dubiosa* (C.B. Adams, 1852) are described in Keen but not figured. I have not seen examples of either species so can not comment on them.

One other genus which may belong in the family Rissoidae is *Elachisina* Dall, 1918. Only one species has been described from our coast, *E. grippi* Dall, 1918, found in both the southern part of the California Province and the northern part of the Panamic. The shell is white with a bluish transparency and a thin, rather yellowish periostracum which soon peels off after the shell is dry. It is shaped somewhat like a *Tricolia* but has an umbilicus which narrows up along the twisting inner lip. This feature shows quite well in Figure 10. The sculp-



*Elachisina grippi* Dall, 1918. Doheney State Beach, Calif. 1961. Legit. Bert Draper. Length 2.2 mm.

ture consists of rather fine spiral grooves evenly spaced throughout the whorls. These grooves, as well as the sutures and umbilical slit, are often set off by a red rust-like material which collects on these shells. A large adult of this species may reach 3 mm in length.

In my next article on Minute Shells I will discuss the interesting but confusing families Vitrinellidae, Truncatellidae and perhaps some others.

(All photos by Bert Draper)

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## PUBLICATIONS



SHELLS OF NEW GUINEA AND THE CENTRAL INDO-PACIFIC, by A.G. Hinton. Robert Brown & Assoc. Pty. Ltd., Port Moresby, and Jacaranda Press, Australia, 1972. 94 pp.; 44 color plates; 2 b/w maps.

The author is a serious amateur conchologist living in New Guinea, thoroughly acquainted with the mollusca of that area, and a recognized authority on Conidae of the Central Indo Pacific.

New Guinea here includes New Britain, New Ireland, Bougainville and Manus; the Central Indo-Pacific is an area running roughly from Japan south to northern Australia, and from south-

east Asia and the islands of Indonesia east to Fiji.

Mr. Hinton's purpose in this book is to "aid shell collectors in identifying shells of this area and to include as many of the species variations occasioned by range and distribution, and by variations in color and form between juveniles and adults as space permits." Cost and space have limited the work to "only the most popular families"--some 36, of which Conidae, Cypraeidae, Strombidae, Muricidae, and Terebridae are given fullest coverage.

The outstanding contribution of the book is the excellent color plates figuring almost 1000 specimens in clearly defined detail, greatly facilitating identification. Most of these shells were collected in the New Guinea area, but variations occurring within the Central Indo-Pacific are illustrated and noted (for example, 10 variations of *Conus marmoreus* are figured). Dorsal and ventral views of many species are included.

On the facing page are listed for each figured species: name, author, locality, species range, degree of rarity, shell characteristics and average size in millimeters. No dates are included, nor parentheses used. A few synonyms are given. Subgeneric and subspecific names are omitted in most cases; variations of one species are listed as forms.

Obviously, the collector must supplement this volume with other literature to identify species in the many families not here included, which are found in large numbers in the Central Indo-Pacific. Nonetheless, this is a good, sturdy working tool, especially for the transient collector who likes to have a reference book available in the field. In addition to its helpful illustrations, the book has a very important feature--portability. The minimum alternative would be some five volumes weighing over 14 pounds--an impossible encumbrance where travel conditions are arduous and weight restrictions severe.

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